

HAIGAZIAN UNIVERSITY

The Relationship between Anger and Irrational Beliefs and their Effect on Aggression in
a Sample of Lebanese Youth between the Ages of 18 and 25

Lea Mia Asfour

A Thesis submitted to the Faculty of Social and Behavioral Sciences in partial fulfillment of the
requirements for the Master of Art in Psychology at Haigazian University.

Beirut – Lebanon

December, 2020

Thesis Release Form

I, Lea Mia Asfour,

- authorize Haigazian University to supply copies of my thesis to libraries or individuals upon request.
- do not authorize Haigazian University to supply copies of my thesis to libraries or individuals for a period of two years starting with the date of the thesis defense.

Signature

Date



A Thesis

Entitled

The Relationship between Anger and Irrational Beliefs and their Effect on Aggression in a Sample of Lebanese Youth between the Ages of 18 and 25

By Lea Mia Asfour

is accepted by the Graduate Thesis Committee as satisfying the thesis requirements for the degree Master of Arts/ Clinical Psychology

Date _____
Chairperson

Signature of Thesis Committee

Date _____
Member

Signature of Thesis Committee

Date _____
Member

Signature of Thesis Committee

Haigazian University

December 2020

Table of Contents

List of Tables**Error! Bookmark not defined.**
 Abstract**Error! Bookmark not defined.**
 Chapter 1 Introduction**Error! Bookmark not defined.**
 Chapter 2 Review of Literature.....**Error! Bookmark not defined.**
 Chapter 3 Methods**Error! Bookmark not defined.**
 Chapter 4 Results**Error! Bookmark not defined.**
 Chapter 5 Discussion**Error! Bookmark not defined.**
 References.....**Error! Bookmark not defined.**
 Appendix A Participant Information Letter**Error! Bookmark not defined.**
 Appendix B Participant Consent Form**Error! Bookmark not defined.**
 Appendix C Demographic Scale.....**Error! Bookmark not defined.**
 Appendix D Aggression Questionnaire**Error! Bookmark not defined.**
 Appendix E Shortened Attitude and Belief Scale.....**Error! Bookmark not defined.**

List of Tables

Table 1: Sample Descriptives 20

Table 2: Descriptive of Age 21

Table 3: Reliability Analysis 25

Table 4: Descriptives of the Scales 28

Table 5: Spearman Rho’s Correlation Matrix between Anger, Total Irrational Beliefs and Physical and Indirect Aggressions 30

Table 6: R, R Square, Adjusted R Square 33

Table 7: Regression Bootstrap for Parameters of the Hierarchical Regression containing the Predictors (Anger and Irrational Beliefs Total) and the Outcome Variable Physical Aggression 34

Table 8: R, R Square, Adjusted R Square 37

Table 9: Regression Bootstrap for Parameters of the Hierarchical Regression containing the Predictors (Anger and Irrational Beliefs Total) and the Outcome Variable Indirect Aggression 38

Table 10: Spearman Rho’s Correlation Matrix 40

Table 11: R, R Square, Adjusted R Square 44

Table 12: Regression Bootstrap for Parameters of the Hierarchical Regression containing the Predictors (Anger and Specific Irrational Beliefs) and the Outcome Variable Physical Aggression 44

Table 13: R, R Square, Adjusted R Square 48

Table 14: Regression Bootstrap for Parameters of the Hierarchical Regression containing the Predictors (Anger and Specific Irrational Beliefs) and the Outcome Variable Indirect Aggression 49

Table 15: Spearman Rho’s Correlation Matrix 51

Table 16: R, R Square, Adjusted R Square 54

Table 17: Regression Parameters of the Hierarchical Regression containing the Predictors (Anger and Irrational Beliefs Total) and the Outcome Variable Verbal Aggression 55

Table 18: Independent Sample t-test 57

Table 19: Independent Sample t-test 58

Table 20: R, R Square, Adjusted R Square 63

Table 21: Regression Parameters of the Hierarchical Regression containing the Predictors (Anger and Specific Irrational Beliefs) and the Outcome Variable Verbal Aggression 63

Abstract

The aim of this study was to identify whether anger and irrational beliefs predict aggression in a sample of Lebanese emerging adults. The study was quantitative one based on a survey design applying linear and hierarchical regression analyses and t-test to examine the proposed hypotheses. A purposeful convenient sample of 148 Lebanese individuals between the ages of 18 and 25 completed online questionnaires including a Demographic Scale, Aggression Questionnaire, and the Shortened General Attitude and Belief Scale. Results revealed that anger and total irrational beliefs predict indirect aggression, anger and demand for fairness predict indirect aggression, anger, level of education, and self-dawning predict verbal aggression, and anger predicts physical aggression; moreover both male and female Lebanese emerging adults show similar levels of anger, but males show higher levels of physical and verbal aggression.. These findings are important in the conceptualization of the role of cognitions and emotions in differential aggressive behaviors. These findings suggest that Rational Emotional Behavioral Therapy is effective in the treatment of physical and indirect aggression while anger management is effective in the treatment of verbal aggression.

Key words: anger, aggression, irrational beliefs, need for achievement, need for approval, need for comfort, demands for fairness, self-downing, other downing, physical aggression, verbal aggression, indirect aggression, gender, level of education

The Relationship between Anger and Irrational Beliefs and their Effect on Aggression in a Sample of Lebanese Youth between the Ages of 18 and 25

The political violence and economic instability in Lebanon continue to affect Lebanese citizens who still live in an environment of social conflict and hardship. Lebanese individuals experience numerous stressors on a daily basis including a deteriorating economic crisis, frequent electricity cuts, water shortages, strained infrastructure (Ayoub & Malaeb, 2006; Dagher & Ruble, 2010; World Bank, 2014), looming possibility of war, garbage piling on the streets, lack of job opportunities, and high apartment rentals and pricing (British Broadcasting Corporation, 2015; Human Rights Watch, 2015; UNHCR, 2014; World Bank, 2014). As daily hassles are proven to be associated with increased likelihood of emotional and behavioral problems, particularly anger and aggression (Anderson & Huesmann, 2003; Sprague, Verona, Kalkhoff & Kilmer, 2011; Verona, Sadeh & Curtin, 2009), the cumulative stressors and everyday hazards in Lebanon are noted to breed more anger and aggression in the Lebanese population (Abi-Hashem, 2006; Anderson & Huesmann, 2003; Republic of Lebanon Ministry of Finance, 2013). Both anger and aggression are associated with short and long-term negative effects that are discussed later (Vecchio & O'Leary, 2004). Anecdotal observations and media reports suggest that Lebanese individuals have high levels of anger and frustration in response to protracted civil strife, dysfunctional government systems, inadequate utilities, and chronic instability (Itani, 2017). Moreover, the Center For Strategic and International Studies (CSIS) examined data on key demographics, economics, and security patterns in the Middle East and North African region (MENA) and concluded that "the data doesn't nearly begin to reflect the degree to which MENA populations are angry at their governments, furious about their living

conditions, and identify the political and social framework as unjust” (Cordesman, Coughlin-Schulte & Yarosh, 2013, p. 4).

That said, we therefore wonder if the Lebanese are at particularly heightened risk for anger and aggression given their experiences with both historical and current political conflict, corruption, injustice, and instability (Republic of Lebanon Ministry of Finance, 2013). Manifestation of anger and aggression, particularly in youth, could be observed in the recent protests that were initiated on October 17, 2019 as youth were at the helm of the mass mobilization. According to An-Nahar newspaper (Osseiran, 2019), the revolution was dubbed the “student revolution” as protests entered their fourth week. Youth were protesting against many stressors including against high levels of unemployment and emigration (Osseiran, 2019). A recent report by the International Monetary Fund (2019), estimated youth unemployment rates to have reached 30% in Lebanon. Labour market participation rates, on the other hand, were as low as 41% for Lebanese youth between the ages of 15-29, with just one out of three youth employed. In fact, reports indicate a higher unemployment rates among secondary and university graduates with an estimated 44 percent of Lebanon’s tertiary education graduates emigrating (World Bank, 2019). Protests fueled by youth have taken violent turns where aggressive behaviors were prominent (Najjar, 2020; Perry & Fahmy, 2019; Karam, 2020). Moreover, studies proved that anger is the most typical specific reaction to “victimization” including victims of housebreaking cases, vehicle crimes, property crimes, and personal crimes (Ditton, Farrall, Bannister, Gilchrist, & Pease, 1999; Ignatans & Pease, 2019). Also, studies right after 9/11 attack in the United States showed that the primary emotion Americans, not only victims, felt after the attack was anger, and that has led to aggressive outbursts through protests (Back, Küfner & Egloff, 2010). According to experts from the UK, the Beirut explosion that happened

on August 4th 2020 was "unquestionably" one of the largest non-nuclear blasts in history (Klifton, 2020). And so, a series of violent protests occurred and clashes between demonstrators and security forces transformed much of central Beirut into a battle zone of flying rocks, swinging batons and clouds of tear gas on as the protesters attacked government buildings (Hubbard & El-Naggar, 2020) leaving more than 728 protestors injured (Regencia, Ibrahim & Najjar, 2020). Based on the above, this study aimed to understand the relationship between anger and aggression as well as the role of irrational beliefs in a sample of Lebanese youth aged 18 till 25.

Aggression is viewed as any behavior intended to harm (Kassinove and Sukhodolsky 1995). Various forms exist, including physical, verbal, and indirect aggression (DiGiuseppe and Tafra 2004). Physical and verbal aggression are readily observable behaviors, whereas indirect aggression is more covert in nature, and therefore, more difficult to observe. There are many variables that come to play that elicit aggression; these variables include anger (Aquino et al., 2004; Wiseman, Metz, & Barber, 2006) and irrational beliefs (Azoulay 2000; Eckhardt et al. 1998; DiGiuseppe & Froh 2002; Ham & You, 2017) and were the focus of this study.

Anger is an affect that can manifest in dangerous forms and can be a gateway for aggressive behaviors (Aquino et al., 2004; Wiseman, Metz, & Barber, 2006). Because anger, unlike other negative emotions such as anxiety or depression, produces a tendency to approach the eliciting stimulus (Scherer and Wallbott 1994; Carver & Harmon-Jones, 2009), physical, verbal, and indirect aggression are potential outcomes. Aggression is the most frequently studied outcome of anger (Berkowitz, 1990, 1993). In fact, anger is one of the most frequently experienced emotion with individuals experiencing anger about 10% of the time (Trampe et al., 2015). It is common for individuals to be concerned about the amount of anger they feel and

about one in ten individuals find it challenging to regulate this emotion (Hamdan-Mansour, Dardas, Nawafleh & Abu Asba, 2011). High levels of anger have been found to adversely affect occupational functioning, social relationships, and physical and mental health (Vecchio & O'Leary, 2004). More relevantly, anger tends to increase odds of run-ins with the law and has been associated with various forms of aggression such as spousal and child abuse, road rage, and even homicide (Vecchio & O'Leary, 2004; Henwood, Chou & Browne, 2015; Birkley & Eckhardt, 2018). Records from the U.S. Department of Justice indicate that 29% of murders were incited by an anger-fueled argument (Vecchio & O'Leary, 2004). Although anger has been linked to aggressive behaviors, the emotional experience of anger does not always lead to antagonistic responses (Averill 1983; Iyer et al. 2007; Lotz et al. 2011; Lotz et al., 2011 Wakslak et al., 2007; Van Doorn, Zeelenberg, Breugelmans, Berger & Okimoto, 2018), and aggressive behaviors do not always occur in the experience of anger.

In addition to anger, different forms of aggression may also be related to other psychological constructs, namely, irrational beliefs. Irrational beliefs are rigid, extreme, and illogical (i.e., inconsistent with reality) beliefs (Ellis and Dryden, 1997). These cognitive associates may play an important role in translating anger into aggression. For example, anger may interfere with higher-level cognitive processes involved in processing anger, and thereby, reducing the inhibition of aggression. Likewise, cognitions may play a big role in eliciting anger. Findings of different studies (Martin & Dahen, 2004; DiGiuseppe & Froh, 2002; Fives, Kong, Fuller, & DiGiuseppe, 2010; Stankovic and Vukosavljevic-Gvozden, 2011) confirmed that anger and irrational beliefs are interdependent concepts, and the combination of irrational beliefs and anger better predict differential aggressive behaviors and these studies will be discussed in chapter 2.

It is important to note that physical aggression presents itself differently for males and females. Males are more likely to use weapons, commit homicides, and engage in dangerous forms of physical aggressions (Cornell and Loper 1998; Deffenbacher et al. 1996; Singer and Flannery 2000; Archer, 2004). A relatively recent meta-analysis failed, however, to find gender differences in the levels of anger and proved that greater sex difference resides in a greater male willingness to escalate when angered (Archer 2004). The question we raise now is that if males and females do not differ in their level of anger, but males are more prone to engage in risky forms of physical aggression, could perhaps the varying types of cognitions among the two groups explain the progression of differential aggression?

Purpose of the Study

This study examined whether a combination of anger and irrational beliefs (both independent variables), i.e., self-dawning, need for achievement, need for approval, demand for fairness, and other dawning, predict physical, verbal, and indirect aggression (dependent variables). Moreover, the study aimed to investigate whether there is a gender difference in anger, aggression, and irrational beliefs.

Rationale of the Study

First, lasting from ages 18 to 25, emerging adulthood is a life stage theoretically and empirically different than adolescence and adulthood where the individual is neither an adolescent nor an adult and feels in-between (Arnett, 2000). This stage is a transitional time. An important characteristic of emerging adulthood is that it is the life period with the best opportunities for identity studies on love, job and world views (Arnett, 2000). The identity exploration process that occurs during this period motivates emerging adults to be in close interactions with others (Arnett, 2000). However, as discussed earlier, Lebanon's youth are

experiencing a very stressful reality with limited job opportunities, an economic and political crisis, and are at the heart of ongoing protests expressing both anger and aggression (Osseiran, 2019; Najjar, 2020; Perry & Fahmy, 2019; Karam, 2020). And knowing the negative effects of anger and aggression on both adults and society in general (Vecchio & O'Leary, 2004), and particularly the higher levels of physical aggression found in males between the ages of 20 and 30 (Archer, 2004); it is very important to study how anger and aggression interplay, vis a vis irrational beliefs, in a sample of emerging adults between the age of 18 to 25, who are thought to be at particularly heightened risk for anger and aggression.

Second, research on anger and aggression in Lebanon is still very limited. On the concept of aggression, a few research attempts, such as, a study by Karam et al (2008), showed that exposure to war events increased the odds of aggressive manifestations among a nationally representative sample (2,857 adults) of the Lebanese population, whereas another study investigated the role of individual factors, namely Trait Emotional Intelligence, personality dimensions, emotion regulation and self-worth and social factors, namely accepting/rejecting parenting styles and exposure to violence on aggression in a sample of 252,16 to 30 year old university students in Lebanon. Results showed that the Self-control and Emotionality factors of trait Emotional Intelligence were significant negative predictors of Aggressive Behavior and that exposure to violence and openness to experience also predicted Aggressive Behavior (Sanchez-Ruiz & Baaklini, 2018).

Third, on the concept of anger, a thesis was developed on situational and personal predictors of anger in a sample of 141 Lebanese individuals aged 18 to 72 years (Itani, 2017). Daily hassles and system justification were significant situational predictors of anger. Therefore, studies conducted in Lebanon either solely focus on anger and its predictors, or solely focus on

aggression and its predictors, but the two phenomena of anger and aggression are not put together. Finally, to the best of my knowledge, no study has investigated irrational beliefs in the Lebanese population. Therefore, this study is the first to examine the relationship between the two, anger and aggression, and the role of irrational beliefs while employing a gender lens.

Finally, research worldwide that focuses on the relationship between anger, irrational beliefs, and aggression using REBT framework is limited. To the best of my knowledge, one such study has been conducted in the USA, but it was done with children and adolescents, and not young adults. That said, this study allowed us to test this framework's relevance to the Lebanese youth's population, particularly between the ages of 18-25.

Research Questions

Based on the above background of literature and rationale of the study, the study attempted to answer the following research questions:

Research Question 1: Does a combination of anger and total irrational beliefs predict differential aggressive behavior (verbal, physical, and indirect) among young Lebanese between 18 and 25 years of age?

Research Question 2: Do specific irrational beliefs (self-downing, need for achievement, need for approval, need for comfort, and demand for fairness, other dawning) predict differential aggressive behavior (verbal, physical, and indirect) among young Lebanese between 18 and 25 years of age?

Research Question 3: Is there a gender difference in anger aggression?

The Professional Significance of the Study

From a theoretical perspective, the research findings guides new research to better understand the issues that emerging adults in Lebanon are facing, particularly those that relate to anger, irrational beliefs, and aggression and the factors that play into each. As the mentioned life stage is important for identity formation (Arnett, 2000), the findings of this study provide insight as to where research is more needed to help guide these young adults to healthily navigate through this important period while living in Lebanon.

From a practical perspective, this study helps therapists determine whether REBT and other treatments aimed at reducing irrational beliefs and reinforcing rational beliefs could be particularly effective for Lebanese youth in Lebanon. Moreover, the results of this study can be used by clinicians who are offering REBT therapy sessions for clients who exhibit anger or aggression. Therapists can investigate and target irrational beliefs that have been proven to be correlated with anger and aggression. Also, therapists can use this information to attend to anger in clients who have irrational beliefs that are associated with aggression. This would allow therapists to better protect themselves and the client from exerting aggressive behaviors and hurting anyone.

Overview of the Methodology

This study is a quantitative one based on a survey design applying linear and hierarchical regression analyses and t-test to examine the proposed hypotheses. A purposeful convenient sample of 161 Lebanese emerging adults born between 1995 and 2002 participated in this study filled 3 online questionnaires and demographic form.

Limitations

A limitation of this study is the use of a cross-sectional design and therefore does not allow for causal and temporal sequence of variables. Conclusive statements cannot be drawn

about whether anger and irrational beliefs occurred before, after, or at the same time as aggression.

Many cognitive behavioral theories, including REBT, appear to draw clear distinctions between cognitions and emotions. Likewise, some anger theorists believe emotional experiences, aggression, and attitudes are distinct entities (Spielberger, 1999). However, others argue that they may represent a single phenomenon on a continuum (Salzinger, 1995). In fact, even Ellis (1962) suggests that such hardline distinctions between cognitions and emotions, although useful for conceptualization, may not be truly accurate; therefore a clear line between identified irrational beliefs and emotions might not be very exact.

The presence of emotional content of the aggression items of the AQ confounds the measurement of aggression. Therefore, the relationship between the anger and aggression variables may have been inflated. In addition, the aggression scales represent anger expression given that some of the items reflect behaviors expressed when angry (e.g., I have been so mad that I have broken things.). Because of these issues, the associations that will be found among irrational beliefs, anger, and aggression may be due to shared variance between anger and aggression. To avoid inflated correlations between anger and aggression, investigators should make use of measures of aggression that do not include emotional content.

Finally, this study does not and cannot account for all variables that have been proven to affect either anger or aggression such as those mentioned in the studies conducted in Lebanon previously such as trait emotionality's effect on aggression (Sanchez-Ruiz & Baaklini, 2018) and situational factors on anger (Karam, 2008; Itani, 2017).

Chapter 2

Review of Literature

Anger, aggression, and irrational beliefs are variables that have been studied extensively independently or in relation with other factors, but seldom in relation to each other. The purpose of this study was to examine whether a combination of anger and irrational beliefs (both independent variables), i.e., self-dawning, need for achievement, need for approval, demand for fairness, and other dawning, predict physical, verbal, and indirect aggression (dependent variables). Therefore, in order to provide the needed context for the examined research questions in this paper, this chapter is a review of literature that focuses on a series of studies.

Theories on Anger and Aggression

Ekman (1974, 1994) listed anger as one of the 6 basic prototypical human emotions alongside with sadness, happiness, fear, surprise, and disgust. Kemper (1987, 1991) identifies four emotions as universal: anger, satisfaction, disgust, and sadness. However, all theorists who posit sets of universal human emotions consider anger as a universal one. Charles Darwin (1872/1965) may have been the first modern scientist to propose a direct, necessary, and adaptive connection between the arousal of anger and the expression of aggressive behavior. For Darwin, the arousal of anger led to involuntary muscle movement involved in its expression. All members of species share a common expressive pattern of emotions and the ability to recognize such patterns in others. This recognition has survival value and enables animals to freeze, flee, or fight when they recognize anger in others. Thus, repelling attackers is the primary motive behind anger. Darwin, James (1890) and Freud (Freud, 1917/1963) conceptualized anger as instinctual and something to be controlled or else it manifests as aggression. Then, the frustration-aggression hypothesis (Dollard et. Al, 1939) emerged which states that the blockage or

interference of a goal, automatically produced an urge to aggress against the source of frustration. Then, cognitive theorists conceptualized the relationship between anger and aggression according to the cognitive associative theory of anger (Berkowitz 1990, 1993) which states that it is the person's subjective evaluation of threat and the cognitive processes activated, determine the feeling experienced, and decide the course of action taken. Finally, General Aggression Model (Anderson and Bushman, 2002) attempts to condense all the above theories by stating that aggression occurs because of a number of personal, situational, social, biological, and psychological factors. Personal factors such as traits, gender, attitudes, beliefs, values, and long-term goals contribute to the occurrence of aggression. Therefore, a consensus is that anger is an emotional response to perceived threat.

Irrational Beliefs

Cognitive theorists of anger and aggression such as Beck (1999), Bandura (1986), Crick and Dodge (1994), DiGiuseppe and Tafrate (2007), and Ellis (1977) have proposed that thoughts play an important role in the initiation of anger and aggression. Rational Emotive Behavior Therapy (REBT) theory hypothesizes that the emotional consequence (Ce) of the anger experience increases as the probability of the behavioral consequence (Cb) such as aggression increases (DiGiuseppe and Tafrate 2007; Ellis, 2003). REBT theory postulates that certain irrational beliefs, namely thoughts relating to intolerance of rules frustration, intolerance of work frustration, and demands for fairness lead to anger (Bernard and Cronan 1999; Hazaleus and Deffenbacher 1985; Zwemer and Deffenbacher 1984). In fact, the theory employs an ABC framework where the event is represented by the letter A (activating event or adversity), the beliefs are allocated the letter B, and finally emotions and behaviors are represented by C (consequences). The ability for A (activating event; cold cognition) to cause C (emotional and

behavioral response) is dependent on B (rational and irrational beliefs (David et. Al, 2005). Evidence exists that irrational beliefs and cognitive distortions positively correlate with anger in adults (Azoulay 2000; Eckhardt et al. 1998; DiGiuseppe & Froh 2002; Ham & You, 2017). Studies examining the role of irrational beliefs in both its relation to Cb (aggression) and Ce (anger) are however limited and are discussed in chapter 3.

Many types of cognitive distortions and processes can contribute to or exaggerate a person's perception that a threat exists (threat to physical self, self-image, self-esteem, desired goals, etc). According to REBT we transform our preferences and desires to dogmatic ideas of "should's, must's, and ought's", which creates disruptive feelings and dysfunctional behavior. "People are disturbed not by events, but by the views which they take of them" (as cited in Ellis, 2001a, p.16) "People disturb themselves by the rigid and extreme beliefs they hold about events." Albert Ellis stated 3 Musts that lead us to self-defeat and distress:

1. I must do well and be loved and approved by others.
2. Other people must treat me fairly, kindly and well.
3. The world and my living conditions must be comfortable, gratifying and just, providing me with all that I want in life.

Studies on Anger, Aggression, and Irrational Beliefs

There has been considerable research on the relationship between irrational beliefs, anger, and aggression. However, different studies use different measures to measure these variables.

In Martin & Dahlen's (2004) study, rational-emotive theories of anger were assessed by examining the interrelationships of irrational beliefs and the experience and expression of anger. After completing measures of irrational beliefs, trait anger, and anger expression and control, 161 college students were exposed to an audiotaped anger-provoking scenario, which was followed by measures of state anger and hostile thoughts. Survey of Personal Beliefs (SPB) was used to measure irrational beliefs (Demaria et al., 1989). This 50-item scale measures four categories of irrational beliefs across five subscales: awfulizing (AWF), self-directed shoulds (SDS), other-directed shoulds (ODS), low frustration tolerance (LFT), and self-worth (SW). Findings showed both low frustration tolerance and awfulizing were related to anger and outward anger expression including aggression. Gender was controlled for.

Low Frustration Tolerance (LTF) has been proven, through different research studies, to be correlated with different psychological disturbances such as anxiety and depression and anger (Chang and Zurilla 1996; Muran et al. 1989). However, the measure used to measure irrational beliefs, Survey of Personal Beliefs (SPB; Kassinove and Erckhardt 1994) in these studies has been criticized for treating LTF as unidimensional, even though the REBT literature describes a wide range of beliefs as characteristic of this concept (Harrington, 2006; Stankovic and Vukosavljevic-Gvozden, 2011). Such beliefs include intolerance of injustice, discomfort, frustration, uncomfortable emotions, and uncertainty (Dryden, 1999; Dryden & Gordon, 1993). Therefore, other studies used different measures of irrational beliefs that try to approach Low Frustration Tolerance in a more dimensional manner.

In study of 254 individuals drawn from consecutive therapy referrals to an adult clinical psychology department who answered a more multidimensional scale called Frustration Discomfort Scale (FDS) (Harrington, 2005a) , a scale on self-esteem, a scale on anger, and a

scale that measures depression, Harrington (2006) was able to prove that in fact, entitlement is a strong predictor of anger suggesting that anger is predominantly a frustration intolerance problem and is more specifically related to entitlement beliefs. A gender difference was detected in irrational beliefs where females reported higher scores of emotional intolerance.

Stankovic and Vukosavljevic-Gvozden (2011) conducted a recent study to investigate the relationship of FDS dimensions or subscales with depression, anxiety and anger in a non-clinical student sample and found entitlement to be a unique predictor of anger. Whilst achievement frustration was not a unique predictor, it was significantly correlated with anxiety and anger. No gender difference was detected in anger levels nor irrational beliefs.

DiGuiseppe & Froh (2002) took a different approach to measure anger and irrational beliefs. Clinical outpatients (23%), workplace recruits (37%), and college students (40%) (N 236, mean age 31.68) completed a questionnaire, the Anger Episode Record (AER) (Diguisippe & Froh, 2000) which asked them to describe an experience that elicited feelings of irritation, annoyance, anger, fury, or rage. They rated the intensity of their anger, cognitions, physiological responses, behaviors, and consequences for the specific episode. One-tailed bivariate correlations suggest that the items related to the constructs of others unfairness and condemnation are significantly positively correlated to the intensity rating of state anger. In addition, the constructs relating to lack of respect, others behaving immorally, desires for revenge, and demands of others and on events were significantly positively correlated to the intensity of anger.

Unfortunately, gender was not controlled nor investigated as a moderator.

Ham & You (2017) used the Shortened General Attitude and Belief Scale (Lindner, Kirkby, Wertheim and Birch, 1999), and found that irrational beliefs and anger rumination were

strongly and positively correlated with anger and were predictive of more dysfunctional anger expressions including aggression in a total of 335 nurses. However, Ham & You (2017) did not correlate specific irrational beliefs with specific aggressive behaviors nor did they control for gender.

Shanahan, Jones & Thomas-Peter (2011) assessed cognitive correlates of anger by comparing mentally disordered violent offenders and violent prisoners in their irrational beliefs using SGABS, self-esteem, internalized shame, and the experience and expression of anger. One cluster could be categorized as anger disordered and had significantly higher shame, lower self-worth and more self- and other-downing irrational beliefs than the second cluster where levels of unhealthy anger were lower.

The only study that examined the relationship between specific irrational beliefs, anger, and specific aggressive behaviors is the study conducted by Fives, Kong, Fuller, and DiGiuseppe (2010) and explores that relationship in adolescents. Participants included 135 adolescent, 77 females and 58 males, between the ages of 14 to 17 (mean age of 15) recruited from a high school in Long Island, New York. 74.8% were Caucasian, 10.4% Asian, 9.6% Hispanic, .7% American Indian, and 4.4% Other who were individuals identifying themselves as persons of mixed descent. The Child and Adolescent Scale of Irrationality (CASI; Bernard and Cronan 1999) assessed irrational beliefs in children and adolescents ranging from 10 to 17 years of age. The CASI consists of 49 self-report Likert scale items that form four scales: Self-Downing, Intolerance of Rules Frustration, Intolerance of Work Frustration, and Demands for Fairness. Findings in this study proved that different cognitive processes are involved in different aggressive behavior responses. The study showed that differential irrational beliefs, when combined with anger, correlate with differential aggressive behaviors. Intolerance of frustrating

rule, alongside increased anger significantly contributed to the explanation of physical and indirect aggression and anger alone was significant in predicting verbal aggression. Males were more likely to report higher rate of physical aggression. However, gender did not moderate the relations between cognition and aggression, and anger and aggression.

Gender Differences in Anger, Aggression, and Irrational Beliefs

The mentioned study findings that did control for gender (Martin & Dahen, 2004; Fives, Kong, Fuller, & DiGiuseppe, 2010; Stankovic and Vukosavljevic-Gvozden, 2011) all found that anger levels do not differ based on gender. This is consistent with the meta-analysis findings (Archer, 2004). As Fives, Kong, Fuller, & DiGiuseppe (2010) found, the difference is that males tend to engage more in direct forms of aggression and girls tend to substitute indirect (non-confrontational) forms of aggression than more direct ones. This is also consistent with Archer's (2004) findings which also prove that higher rates of male direct aggressive behaviors was consistent across cultures, and occurred from early childhood on, showing a peak between 20 and 30 years. Higher female indirect aggression, however, was limited to later childhood and adolescence and varied with method of measurement. The research, however, is inconsistent when it comes to a gender difference in irrational beliefs. Fives, Kong, Fuller, & DiGiuseppe (2010) and Stankovic and Vukosavljevic-Gvozden (2011) found no difference in irrational beliefs in females and males; while Harrington (2006) found that females reported higher scores of emotional intolerance.

Hypotheses

Therefore, these studies prove that a positive relationship existed between anger and total irrational beliefs (DiGuissipe & Froh, 2002; Ham & You, 2017; Stankovic and Vukosavljevic-

Gvozden, 2011; Harrington, 2006), between anger and total irrational beliefs (Ham & You, 2017), between anger, aggression, and specific irrational beliefs (Martin & Dahlen 2004) and between anger, differential aggressive behaviors, and specific irrational beliefs (Fives, Kong, Fuller, & DiGiuseppe, 2010). Findings as discussed were different based on population and on measure used to measure irrational beliefs. For this reason, this study examined whether a combination of anger and both, total and specific irrational beliefs (using the SGABS) i.e., self-dawning, need for achievement, need for approval, demand for fairness, and other dawning predict physical, verbal, and indirect aggression, as well as investigated the gender differences in anger, aggression, and irrational beliefs. We predicted that we will have findings similar to those of Fives, Kong, Fuller, & DiGiuseppe (2010) where anger alone is enough to predict verbal aggression and demand for fairness would predict physical and indirect aggression. More specifically, this study aimed to investigate the following hypotheses in emerging Lebanese adults 18 to 25:

- 1) Anger as measure by the Aggression Questionnaire (AQ; Buss and Warren 2000) and total irrational beliefs as measured by the Shortened Attitude and Belief Scale (SGABS; Lindner, Kirkby, Wertheim and Birch, 1999) predict physical and indirect aggression as measured by the AQ
- 2) Anger as measured by the AQ and specific irrational beliefs as measured by the SGABS predict physical and indirect aggression as measured by the AQ
- 3) Anger as measured by the AQ predicts verbal aggression as measured by the AQ
- 4) Males show higher levels of direct aggression (verbal and physical) as measured by the AQ than Lebanese females but not higher levels of anger as measured by the AQ

Chapter 3

Method

This chapter is an overview of the research methodology that was used to carry out this study. It includes the description of the sample population, the procedure used to administer the tests, a detailed description of the instruments used, an explanation of the data analysis and finally, the ethical considerations that were taken into account.

Participants

This study was a quantitative one based on a survey design applying linear and hierarchical regression analyses and t-test to examine the hypotheses. A purposeful convenient sample of 107 Lebanese emerging adults born between 1995 and 2002 participated in this study. Statistical power analyses through G*Power 3.1 software for tested for correlation and regression analyses, showed that to detect a medium effect size and to achieve a confidence level of 0.05%, a power of 0.95 while having 2 predictors, a sample a size of a minimum of 107 was needed (Faul, Erdfelder, Buchner & Lang, 2009). A purposeful convenient sample was chosen because after the COVID-19 outbreak that started in March, the government of Lebanon has been imposing measures to contain the spread of the virus to limit physical interactions between people (Arab News, 2020). As cases have been recently spiking, the minister of health warned that the community outbreak of the disease was beginning to take a “dangerous turn” and he regretted “the lack of community discipline and disregard for all preventive measures imposed on people.” (Arab News, 2020). Therefore, as cases have been increasing according to the Epidemiological Surveillance Program launched by the Ministry of Public Health (Operations Dashboard for ArcGIS, 2020), stricter lockdown measures were implemented. For this reason, this study recruited participants online to ensure their safety and that of the researcher. For

accessibility purposes, a link was created and shared on different social media platforms such as Instagram and Facebook and Lebanese people between the ages of 18 and 25 who are residing in Lebanon participated. According to research done by Mideast Media on media use in the Middle East (2016), a majority of internet users in Lebanon use English online (62%); therefore, the survey package was administered in the English language. It included a demographics questionnaire and two psychological self-report measures: Aggression Questionnaire (AQ; Buss and Warren 2000) and the Shortened-General Attitude and Belief Scale (Lindner, Kirkby, Wertheim and Birch, 1999). Participants were informed that their participation is completely anonymous and voluntary and were asked to sign a consent form if they agreed to participate. Descriptive statistics were first analyzed to get an overview of the data collected followed by linear and hierarchical regressions followed by linear and hierarchical regressions. IBM SPSS Statistics Program Version 2.0 was used to analyze the data.

The initial sample of the study was $N = 194$ participants. After excluding the data for 20 cases of participants who didn't fill the aggression and shortened general attitudes and beliefs scales, 14 cases who didn't fill the shortened general attitudes and beliefs scale, and 12 cases who failed to meet the inclusion criteria of age, nationality and residence, the final sample of the study became $N = 148$ participants (23% males and 77% females) with mean age ($M = 22.84$, $SD = 1.72$). Regarding marital status, around two-third of participants (68.2%) were single, 29.7% were in relationship, 1.4% were married and one-participant was engaged (0.7%). For the regression analysis, the three categories (married, in a relationship and engaged) were grouped together to form a new category (partnered participants; 31.8%). Regarding participant's education, 4.1% had high school, 57.4% had bachelor's degree and 38.5% had master's degree. Regarding parental education, 6.1% had parents with some schooling, 26.4% had parents with

high school, 41.2% had parents with bachelor’s degree and 26.4% had parents with Master’s degree). For the regression analysis, the two categories (some schooling and high school) were grouped together to form a new category (high school or less; 32.4%). Finally, regarding working status, 49.3% were unemployed, 15.1% were employed Part-time and 35.6% were employed Full-time). For the regression analysis, the two categories (employed full-time and employed part-time) were grouped together to form a new category (employed; 50%; tables 1 and 2).

Table 1

Sample Descriptives

		N	%
Gender	Male	34	23%
	Female	114	77%
Marital Status	Single	101	68.2%
	Married	2	1.4%
	In a Relationship	44	29.7%
	Engaged	1	0.7%
Participant’s Education	High School	6	4.1%
	Bachelor’s Degree	85	57.4%
	Master’s Degree	57	38.5%
Parental Education	Some Schooling	9	6.1%
	High School	39	26.4%
	Bachelor’s Degree	61	41.2%
	Master’s Degree	39	26.4%
Work Status	Unemployed	74	50%
	Employed Part-time	22	14.9%

Employed Full-time 52 35.1%

Table 2

Descriptive of Age

	N	Minimum	Maximum	Mean	Standard Deviation
Age	146	18.00	25.00	22.84	1.72
Valid N (listwise)	146				

Materials

The first section of the questionnaire package comprised of, first, the participant information letter which explains the purpose of the study, what is required from the participants and their rights, and the risks and benefits of participation (see Appendix A). Second, the participant consent form (see Appendix B), and third, the demographics questionnaire which covered the questions regarding gender, age, nationality, country of residence, relationship status, level of education, parental level of education, and employment status (see Appendix C). Then, the Aggression Questionnaire (AQ; Buss and Warren 2000) was used to measure and anger and verbal, physical and indirect aggression (see Appendix D) and the Shortened-General Attitude and Belief Scale (SGABS) was used to measure irrational beliefs (see Appendix E).

Demographic Scale The demographics questionnaire covered questions regarding individual aspects such as age, gender, marital status, level of education, work status, and parent’s level of education. In the regression analysis, we controlled for gender, marital status, level of education, work status, and parent’s level of education.

The Aggression Questionnaire (AQ; Buss and Warren 2000), a self-report measure of anger and aggression, was used to assess participants’ levels of anger and aggression. This 34-item

Likert scale can be used with individuals between the ages of 9 and 88. The AQ provides an overall measure of anger and aggression (AQ Total), as well as five additional subscales:

Physical Aggression (e.g., I may hit someone if he or she provokes me.), Verbal Aggression (e.g., When people annoy me, I may tell them what I think of them.), Anger (e.g., At times I get very angry for no good reason at all.) Indirect Aggression (e.g., When someone really irritates me, I might give him or her the silent treatment.) and Hostility (e.g., At times I feel I have gotten a raw deal out of life.). Hostility is an attitude, is related to cognitive and affective facet of anger, but not to behavioral ones like aggression (Ramírez and Andreu 2006; Fives, Kong, Fuller, and DiGiuseppe, 2010) and therefore, was excluded from this study. The anger and the verbal aggression subscales of the aggression questionnaire had relatively a good reliability with $\alpha = .78$ and $\alpha = .67$, respectively. In addition, the physical aggression subscale had a very good reliability with $\alpha = .80$ while the indirect aggression subscale had a low reliability with $\alpha = .50$ for the present sample

Shortened-General Attitude and Belief Scale (SGABS) is a self-report questionnaire developed by Lindner, Kirkby, Wertheim and Birch (1999), by reducing the 55 items of General Attitude and Belief Scale (GABS; Bernard, 1990) to 26 comprehensive items that cover the same 7 dimensions as the long form. Therefore, the short version of GABS confers few important advantages compared to the original forms (Macavei & McMahon, 2010). The instrument measures very briefly the rationality dimension of one's cognitions (4 items), and more thoroughly six content areas of one's irrational beliefs, as reflected by the scores obtained on 6 scales: rationality, need for achievement, need for approval, need for comfort, demand for fairness, self-downing and other-downing (Lindner et al., 1999). The scores for each subscale were calculated by adding the 5 point Likert scale participants' answers, so that higher scores

reflect stronger irrational beliefs. The instrument proved to have good fidelity and validity (e.g., Lindner et al., 1999). The reliability of this measure (Cronbach's alpha) was for the present sample $\alpha = .88$ for total irrational beliefs with all subscales being reliable except that for rationality.

Procedure

A link was created and shared on different social media platforms such as Instagram and Facebook and Lebanese people between the ages of 18 and 25 who are residing in Lebanon participated. The survey package was administered in the English language and included demographics questionnaire and two psychological self-report measures: Aggression Questionnaire (AQ; Buss and Warren 2000) and the Shortened-General Attitude and Belief Scale (Lindner, Kirkby, Wertheim and Birch, 1999). Descriptive statistics were first analyzed to get an overview of the data collected followed by linear and hierarchical regressions. IBM SPSS Statistics Program Version 2.0 was used to analyze the data.

Ethical considerations

Before administering the study, the researcher applied for IRB clearance from the Ethics Committee at Haigazian University and was granted approval to proceed. Participants were informed that their participation was completely anonymous and voluntary and were asked to sign a consent form if they agreed to participate, and all participants did.

Chapter 4

Results

The purpose of this study was to examine the effect of two main independent variables, anger and irrational beliefs (i.e., need for achievement, need for approval, need for comfort, demand for fairness, self-downing, other-downing and total irrational beliefs) on verbal, physical, and indirect aggression. This study also aimed to study gender differences across verbal, physical and indirect aggression. In this chapter, we will present the reliability findings, scale properties then we move on to test the proposed hypotheses by using the Statistical program SPSS version 24, for data analyses.

A. Preliminary Analysis

I. Reliability Analysis

The reliability of the scales was tested using Cronbach's Alpha (α). The rationality subscale of the shortened general attitude and belief scale had a very low reliability with $\alpha = .42$. The irrational beliefs total scale had very good reliability with $\alpha = .88$. Moreover, the subscales self-downing and need for approval had very good reliability with $\alpha = .87$ and $\alpha = .83$, respectively. The subscales need for achievement, need for comfort, demand for fairness and other downing had good reliability with $\alpha = .75$, $\alpha = .76$, $\alpha = .74$, and $\alpha = .73$, respectively. The anger and the verbal aggression subscales of the aggression questionnaire had relatively a good reliability with $\alpha = .78$ and $\alpha = .67$, respectively. In addition, the physical aggression subscale had a very good reliability with $\alpha = .80$. Finally, the indirect aggression subscale had a low reliability with $\alpha = .50$ (Table 3).

Table 3

Reliability Analysis

Scales and Subscales	Current Cronbach's Alpha	N	Previous Cronbach's Alpha (average)
Aggression Questionnaire			
Anger	.78	7	0.78
Physical Aggression	.80	8	0.88
Verbal Aggression	.67	5	0.76
Indirect Aggression	.50	6	0.71
Shortened General Attitude and Beliefs Scale			
Rationality	.42	4	>0.7
Self-Downing	.87	4	>0.7
Need for Achievement	.75	4	>0.7
Need for Approval	.83	3	>0.7
Need for Comfort	.76	4	>0.7
Demand for Fairness	.74	4	>0.7
Other Downing	.73	3	>0.7
Irrational Beliefs Total	.88	20	0.875

II. Analysis of Univariate and Multivariate Outliers

The initial sample of the study was $N = 194$ participants. The data for 20 participants were excluded because those participants only filled the demographic questionnaire and didn't fill the aggression questionnaire and the shortened general attitude and beliefs scale. Moreover, the data for 14 participants were excluded as those participants filled the demographic and aggression questionnaires while they didn't fill the shortened general attitude and beliefs scale. In addition, the data for 12 participants were excluded because they didn't meet the inclusion criteria for age (18-25; five participants), nationality (Lebanese, two participants), and residence (Lebanon, five participants).

The analysis of univariate outliers were tested using z-cores on the variables (anger, rationality, total irrationality, self-downing, need for achievement, need for approval, need for comfort, demand for fairness, other downing, anger, physical aggression, verbal aggression and indirect aggression). The criterion is any case with $|z| > |3.29|$ was considered to be a univariate outlier. The variables (anger, rationality, total irrationality, need for achievement, need for approval, need for comfort, other downing, anger, and verbal aggression) didn't have any univariate outliers (all cases with $|z| < |3.29|$). However, self-downing had one case of univariate outlier (case# 10), demand for fairness had two cases of univariate outliers (case#2 and case#24), physical aggression had two cases of univariate outliers (case# 52 and case# 71) and indirect aggression had one case of univariate outlier (case#10).

The analysis of multivariate outliers were tested using Mahalanobis distances. In our analysis, we had two sets of regressions predicting physical aggression, verbal aggression and indirect aggression. The first set of regression had 7 predictors (gender, marital status, participant's education, parents' education, work status, anger, and irrational beliefs total). The criterion for this set of regression is: any case with Mahalanobis distance > 24.32 was considered to be a multivariate outlier at $p < .001$. As such, the analysis of Mahalanobis distances revealed that there were no cases of multivariate outliers (highest Mahal. Distance was $14.45 < 24.32$). The second set of regression had 12 predictors (gender, marital status, participant's education, parents' education, work status, anger, self-downing, need for achievement, need for approval, need for comfort, demand for fairness, and other downing). The criterion for this set of regression is: any case with Mahalanobis distance > 32.91 was considered to be a multivariate outlier at $p < .001$. As such, the analysis of Mahalanobis distances revealed that there were no cases of multivariate outliers (highest Mahal. Distance was $32.34 < 32.91$).

Based on Field's (2013) recommendation, any case that is found to be both univariate and multivariate outlier can be excluded from the analysis. As such, in this analysis all cases of univariate outliers (cases #2, #10, #24, #52 and #71) were retained in the final model as they were not found to be multivariate outliers. As such, the final sample of the study was $N = 148$ participants.

III. Normality of Variables

The hypotheses of this study were that in Lebanese emerging adults 18 to 25:

- 1) Anger and total irrational beliefs predict physical and indirect aggression
- 2) Anger and specific irrational beliefs predict physical and indirect aggression
- 3) Anger predicts verbal aggression
- 4) Males show higher levels of direct aggression (verbal and physical) than Lebanese females but not higher levels of anger

However, before investigating the regression hypotheses, the first step was to measure the correlations between the Predictor Variables and the Outcome Variables. To do this, we began with the normality of variables.

Normality of variables were examined using the Kolmogorov-Smirnov (KS-test). The criterion for this test is any significance (p-value) $< .05$ is considered to be significant deviation from normality (normality not met). The result of the KS-test revealed that irrational beliefs total was normality distributed; $D(148) = 0.06, p = .200$. However, the results of the KS-test revealed that anger, rationality, self-downing, need for achievement, need for approval, need for comfort, demand for fairness, other-downing, verbal aggression, physical aggression and indirect aggression were not normally distributed; $D(148) = 0.09, p = .010, D(148) = 0.12, p < .001, D$

(148) = 0.17, $p < .001$, $D(148) = 0.10$, $p = .001$, $D(148) = 0.08$, $p = .012$, $D(148) = 0.10$, $p = .002$, $D(148) = 0.13$, $p < .001$, $D(148) = 0.12$, $p < .001$, $D(148) = 0.08$, $p = .020$, $D(148) = 0.15$, $p < .001$ and $D(148) = 0.09$, $p = .005$.

B. Scale Descriptives

Regarding the predictor “anger”, on average, participants had low levels of anger ($M = 2.56$, $SD = 0.77$). Regarding the predictor variable “rationality”, on average participants had higher levels of rationality ($M = 3.94$, $SD = 0.59$). Regarding the irrational beliefs total, on average, participants had low levels of self-downing ($M = 1.82$, $SD = 0.85$) and need for approval ($M = 2.74$, $SD = 0.87$). Participants, on average however, had high levels of need for achievement ($M = 3.26$, $SD = 0.89$), need for comfort ($M = 3.29$, $SD = 0.75$), demand for fairness ($M = 4.06$, $SD = 0.66$), other downing ($M = 3.32$, $SD = 0.87$) and irrational beliefs total ($M = 3.09$, $SD = 0.54$). Finally, on average, participants had low levels of verbal aggression ($M = 2.89$, $SD = 0.73$), physical aggression ($M = 1.75$, $SD = 0.65$) and indirect aggression ($M = 2.20$, $SD = 0.58$; Table 4).

Table 4

Descriptives of the Scales

	N	Minimum	Maximum	Mean	Standard Deviation
Anger	148	1.00	4.43	2.56	.77
Rationality	148	2.00	5.00	3.94	.59
Self-Downing	148	1.00	5.00	1.82	.85
Need for Achievement	148	1.00	5.00	3.26	.89
Need for Approval	148	1.00	5.00	2.74	.87
Need for Comfort	148	1.25	5.00	3.29	.75
Demand for Fairness	148	1.75	5.00	4.06	.66
Other Downing	148	1.00	5.00	3.32	.87
Irrational Beliefs Total	148	1.45	4.64	3.09	.54

Verbal Aggression	148	1.20	4.80	2.89	.73
Physical Aggression	148	1.00	4.13	1.75	.65
Indirect Aggression	148	1.00	4.50	2.20	.58
Valid (N)	148				

C. Main Analysis

After examining the normality of variables, we move to each hypothesis investigating each hypotheses.

Hypothesis 1: Anger and Total Irrational Beliefs predict Physical and Indirect Aggression

This hypothesis was tested by correlation analysis (using Spearman’s Rho test) and Regression analysis as per below:

1. Spearman Rho’s Correlations

Since the normality of anger, physical aggression and indirect aggression was not met, Spearman Rho’s correlation test was used to study the correlations between the predictors (anger, irrational beliefs total) and the two outcome variables (physical aggression and indirect aggression).

Regarding the outcome variable (physical aggression), anger and irrational beliefs total were found to be positively and significantly correlated with physical aggression; $r_s = .44, p < .001$ (*one-tailed*) and $r_s = .15, p = .036$ (*one-tailed*), respectively. This indicated that participants with high levels of anger and irrational beliefs total were more likely to have high levels of physical aggression (Table 5)

Regarding the outcome variable (indirect aggression), anger and irrational beliefs total were found to be positively and significantly correlated with physical aggression; $r_s = .44, p <$

.001 (*one-tailed*) and $r_s = .36, p < .001$ (*one-tailed*), respectively. This indicated that participants with high levels of anger and irrational beliefs total were more likely to have high levels of indirect aggression (Table 5).

Table 5

Spearman Rho's Correlation Matrix between Anger, Total Irrational Beliefs and Physical and Indirect Aggressions

	Physical Aggression	Indirect Aggression
Anger	.44***	.44***
Irrational Beliefs Total	.15*	.36***

*. Correlation is significant at the 0.05 level (*one-tailed*).

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

***. Correlation is significant at the 0.001 level (*one-tailed*).

2. Hierarchical Regressions: Relation between Anger and Irrational Beliefs Total and Physical and Indirect Aggression

a. Physical Aggression

i. Assumptions

The independence of errors assumption was met with Durbin Watson score of 1.94 (which is between 1 and 3). The assumption of no multicollinearity was met with VIF scores < 10 and around 1. Furthermore, there were no outliers in the solution with standardized residuals ranging between -2.05 and 3.20 ($< |3.29|$). In addition, there were no influential cases with Cook's distances ranging between .00 and .12. The normality of residuals was not met as evident by the positive kurtosis curve in the histogram (Figure 1) and the lack of coincidence of observed cumulative probability and expected cumulative probability "S-shape" (Figure 2).

Finally, the assumption of homoscedasticity was not met with ZRESID versus ZPRED scatterplot showing uneven scatter of residuals around zero (residuals funneling out; Figure 3). Since, the normality of residuals and homoscedasticity were not met then the main analysis was carried with bootstrapping.

Figure 1: Histogram depicting the Normality of Residuals Assumption

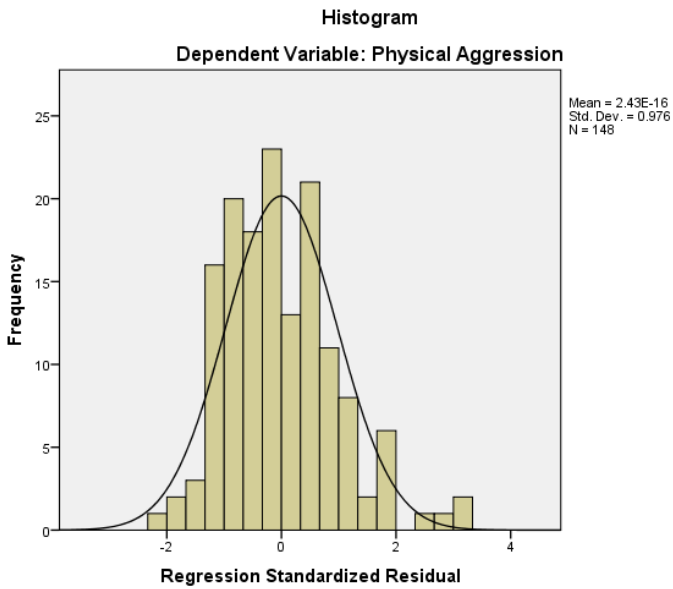


Figure 2: P-P Plot depicting the Normality of Residuals Assumption

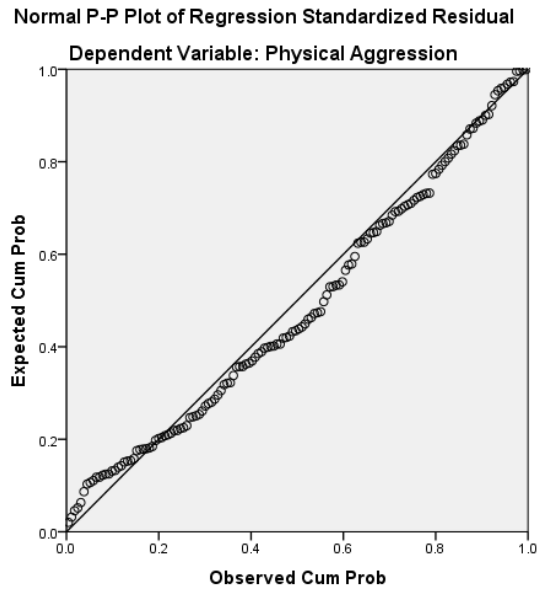
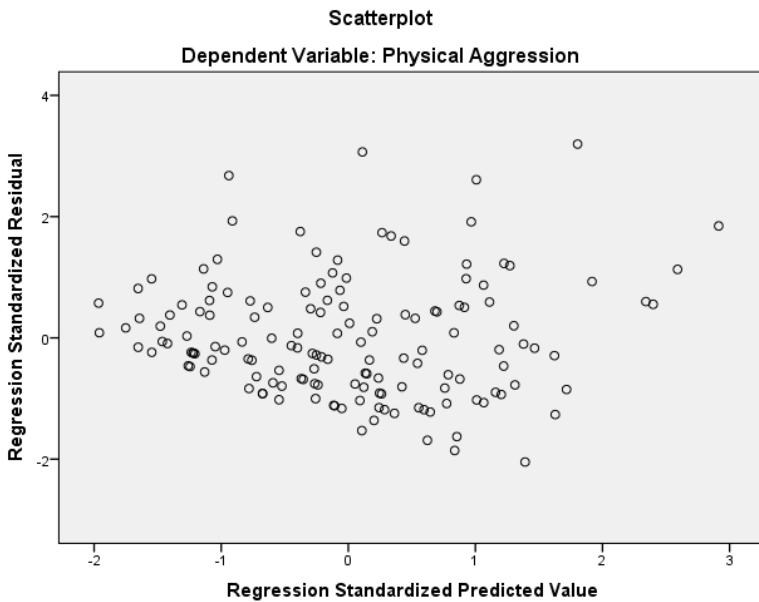


Figure 3: Scatterplot depicting the Assumption of Homoscedasticity



ii. Main Analysis.

The analysis was carried using hierarchical regression with two steps using the entry method. The first step contained the demographic variables (gender, marital status, participant's

education, parental education and working status. The second step contained the predictor variables (anger and irrational beliefs total). The results revealed that the first regression model containing demographics was significant; $F(5, 142) = 4.91, p < .001, \%R^2 = 14.7\%$. The second regression model containing demographics and predictor variables (anger and irrational beliefs total) was also significant; $F(7, 140) = 12.81, p < .001$ with $\%R^2 = 39\%$ and $\%R^2_{adjusted} = 36\%$. This indicates that the second regression model explains 39% of the variance of physical aggression at the sample level and 36% of the variance of physical aggression at the population level (Table 6). By inspecting the bootstrapped table of coefficients of the final model, out of all predictors, only gender and anger were significant predictors of physical aggression. The t-test revealed that anger was the highest predictor (with positive and large effect size) of physical aggression; $b = .43, Bias = -.003, SE = .07, \beta = .52, p = .001, 95\%CI [.29, .58]$, indicating that participants who had higher levels of anger were more likely to have higher levels of physical aggression. The t-test finally also revealed that gender was the lowest predictor (with negative and medium to large effect size) of physical aggression; $b = -.62, Bias = -.001, SE = .10, \beta = -.41, p = .001, 95\%CI [-.83, -.42]$, indicating that males ($M = 2.15, SD = 0.67$) had higher levels of physical aggression compared to females ($M = 1.63, SD = 0.59$; Table 7). It is important to note that irrational beliefs total was not found to be a significant predictor of physical aggression.

Table 6

R, R Square, Adjusted R Square

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.38	.147	.117	.61	.147	4.91	5	142	.000	
2	.63	.390	.360	.52	.243	27.91	2	140	.000	1.96

Table 7

Regression Bootstrap for Parameters of the Hierarchical Regression containing the Predictors (Anger and Irrational Beliefs Total) and the Outcome Variable Physical Aggression

Model		B	Bias	SE	Sig.	95% CI	
					One-tailed	Lower	Upper
1	(Constant)	2.98	.000	.42	.001	2.11	3.86
	Gender	-.56	-.001	.13	.001	-.80	-.32
	Marital Status	.16	.002	.11	.072	-.04	.41
	Education	-.10	.001	.10	.149	-.29	.10
	Parental Education	-.04	.000	.06	.254	-.16	.08
	Work Status	-.09	-.001	.09	.145	-.27	.08
	2	(Constant)	1.88	-.014	.45	.001	.95
Gender		-.62	.003	.10	.001	-.81	-.44
Marital Status		.16	-.001	.10	.042	.00	.36
Education		-.04	.001	.08	.312	-.19	.12
Parental Education		.03	-.002	.06	.334	-.09	.13
Work Status		-.11	.001	.08	.086	-.26	.06
Anger		.43	.000	.07	.001	.29	.56
Total Irrational Beliefs		-.06	.003	.09	.268	-.22	.12

b. Indirect Aggression

i. Assumptions.

The independence of errors assumption was met with Durbin Watson score of 1.70 (which is between 1 and 3). The assumption of no multicollinearity was met with VIF scores < 10 and around 1. Furthermore, there were one outlier in the solution (case #1) with standardized residuals ranging between -3.65 and -3.06 (> |3.29|). However, there were no influential cases

with Cook’s distances ranging between .00 and .21. Since case #1 was found to be an outlier in the solution but not an influential case, then it was retained in the final model (Field, 2013). The normality of residuals was not met as evident by the positive kurtosis curve in the histogram (Figure 4) and the lack of coincidence of observed cumulative probability and expected cumulative probability “S-shape” (Figure 5). Finally, the assumption of homoscedasticity was met with ZRESID versus ZPRED scatterplot showing even scatter of residuals around zero (Figure 6). Since, the normality of residuals was not met then the main analysis was carried with bootstrapping.

Figure 4: Histogram depicting the Assumption of Normality of Residuals

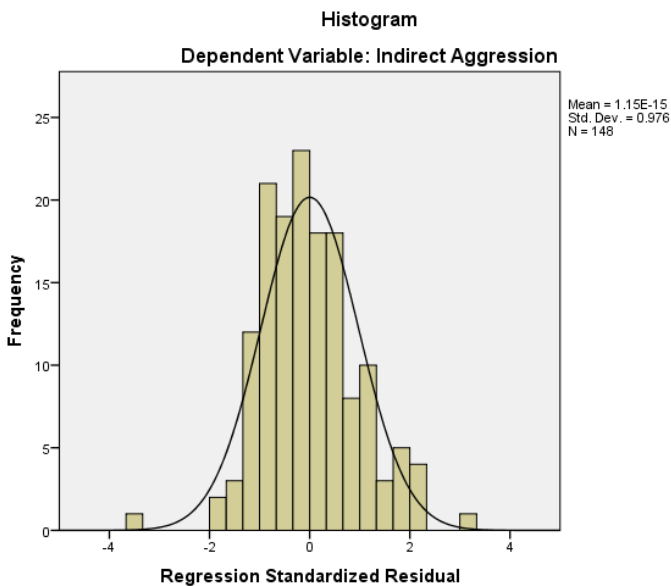


Figure 5: P-P Plot depicting the Assumption of Normality of Residuals

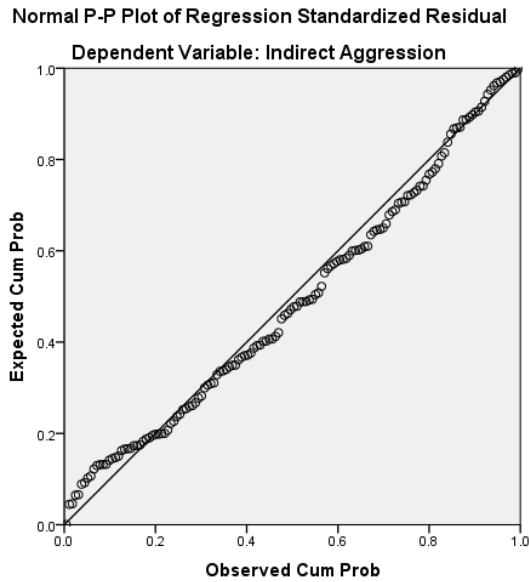
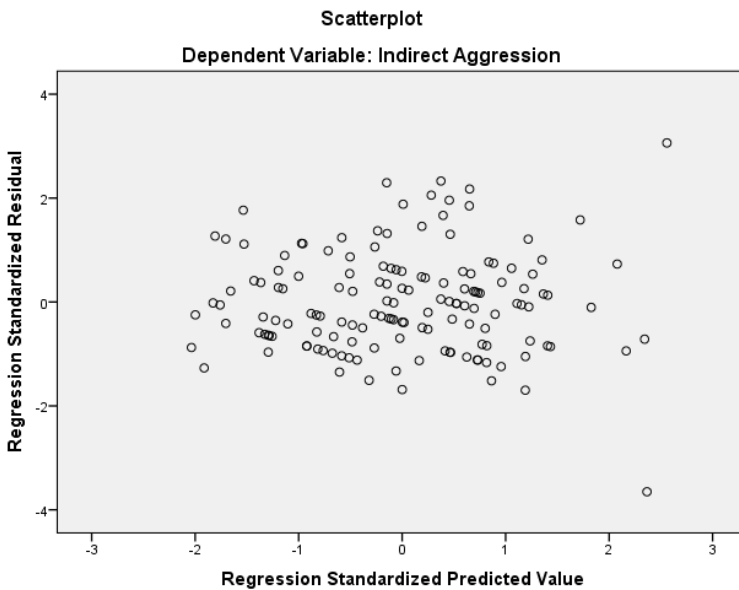


Figure 6: Scatterplot depicting the Assumption of Homoscedasticity



ii. Main Analysis

The analysis was carried using hierarchical regression with two steps using the entry method. The first step contained the demographic variables (gender, marital status, participant’s education, parental education and working status. The second step contained the predictor

variables (anger and irrational beliefs total). The results revealed that the first regression model containing demographics was not significant; $F(5, 142) = 0.70, p = .626$. The second regression model containing demographics and predictor variables (anger and irrational beliefs total) was significant; $F(7, 140) = 6.51, p < .001$ with $\%R^2 = 24.5\%$ and $\%R^2_{adjusted} = 20.8\%$. This indicates that the second regression model explains 24.5% of the variance of indirect aggression at the sample level and 20.8% of the variance of indirect aggression at the population level (Table 8). By inspecting the bootstrapped table of coefficients of the final model, out of all predictors, only anger and irrational beliefs total were found to be significant predictors of indirect aggression. The t-test revealed that anger was the highest predictor (with positive and medium to large effect size) of indirect aggression; $b = .25, Bias = .003, SE = .07, \beta = .34, p = .001, 95\%CI [.13, .38]$, indicating that participants who had higher levels of anger were more likely to have higher levels of indirect aggression. The t-test finally revealed that irrational beliefs total was the lowest predictor (with positive and small to medium effect size) of indirect aggression; $b = .26, Bias = -.002, SE = .09, \beta = .25, p = .002, 95\%CI [.10, .43]$, indicating that participants who had higher levels of irrational beliefs total were more likely to have higher levels of indirect aggression (Table 9).

Table 8

R, R Square, Adjusted R Square

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.16	.024	-.010	.58	.024	.70	5	142	.626	
2	.50	.245	.208	.51	.222	20.55	2	140	.000	1.69

Table 9

Regression Bootstrap for Parameters of the Hierarchical Regression containing the Predictors (Anger and Irrational Beliefs Total) and the Outcome Variable Indirect Aggression

Model		B	Bias	SE	Sig.	95% CI	
						One-tailed	Lower
1	(Constant)	2.74	.005	.45	.001	1.90	3.64
	Gender	-.05	-.002	.12	.332	-.30	.19
	Marital Status	-.03	.000	.10	.355	-.22	.16
	Education	-.05	-.001	.10	.299	-.26	.14
	Parental Education	-.09	.000	.06	.081	-.21	.04
	Work Status	-.06	.000	.10	.259	-.26	.11
	2	(Constant)	1.06	.018	.41	.006	.24
Gender		-.10	-.003	.11	.198	-.31	.14
Marital Status		-.04	-.003	.09	.332	-.21	.14
Education		.01	.002	.09	.237	-.18	.19
Parental Education		-.04	-.002	.06	.228	-.15	.08
Work Status		-.02	.000	.08	.383	-.19	.12
Anger		.25	.001	.07	.001	.12	.38
Total Irrational Beliefs		.26	-.003	.09	.002	.09	.43

Based on the results of the Spearman Rho’s correlations and the hierarchical regression hypothesis 1, which stated that anger and irrational beliefs total predict physical and indirect aggression was partially supported. For physical aggression, at both the correlation and regression levels, only anger, and not irrational beliefs, was found to be a significant positive predictor of physical aggression. For indirect aggression, at both the correlation and regression levels, anger and irrational beliefs total were found to be significant positive predictors of

indirect aggression as hypothesized. This indicated that participants who have higher levels of anger and irrational beliefs total were more likely to have higher levels of physical and indirect aggression.

It is important to note that gender was also a significant predictor of physical aggression with males having significantly higher levels of physical aggression compared to females. Gender, however, was not found to be a significant predictor of indirect aggression.

Hypothesis 2: Anger and Specific Irrational Beliefs predict Physical and Indirect Aggression

This hypothesis was tested by correlation analysis (using Spearman's Rho test) and Regression analysis as per below:

1. Spearman Rho's Correlations

Since the normality of all variables was not met, Spearman Rho's correlation test was used to study the correlations between the predictors (anger, self-downing, need for achievement, need for approval, need for comfort, demand for fairness, other-downing) and the two outcome variables (physical aggression and indirect aggression).

Regarding the outcome variable (physical aggression), out of all predictors, only anger need for achievement, and need for comfort were found to be significantly and positively correlated with physical aggression; $r_s = .44, p < .001$ (*one-tailed*), $r_s = .19, p = .011$ (*one-tailed*), and $r_s = .15, p = .040$ (*one-tailed*), respectively. This indicates that participants with high levels of anger, need for achievement and need for comfort were more likely to have high levels of physical aggression. There were no other significant correlations between other predictors and the outcome variable (physical aggression).

Regarding the outcome variable (indirect aggression), out of all predictors, anger, self-downing, need for achievement, need for approval, need for comfort, and demand for fairness were found to be significantly and positively correlated with indirect aggression with; $r_s = .44, p < .001$ (one-tailed), $r_s = .23, p = .003$ (one-tailed), $r_s = .29, p < .001$ (one-tailed), $r_s = .28, p < .001$ (one-tailed), $r_s = .23, p = .002$ (one-tailed), and $r_s = .30, p < .001$ (one-tailed), respectively. This indicates that participants with high levels of anger, self-downing, need for achievement, need for approval, need for comfort, and demand for fairness, were more likely to have high levels of indirect aggression. There was no significant correlation between other downing and the outcome variable (indirect aggression; Table 11).

Table 10

Spearman Rho's Correlation Matrix

	Physical Aggression	Indirect Aggression
Anger	.44***	.44***
Self-Downing	.05	.23**
Need for Achievement	.19*	.29***
Need for Approval	-.01	.28***
Need for Comfort	.15*	.23**
Demand for Fairness	.10	.30***
Other Downing	.06	.13

*. Correlation is significant at the 0.05 level (one-tailed).

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

***. Correlation is significant at the 0.001 level (one-tailed).

2. Hierarchical Regression: Relation between Anger and Specific Irrational Beliefs and Physical and Indirect Aggression

a. Physical Aggression

i. Assumptions.

The independence of errors assumption was met with Durbin Watson score of 1.94 (which is between 1 and 3). The assumption of no multicollinearity was met with VIF scores < 10 and around 1. Furthermore, there were no outliers in the solution with standardized residuals ranging between -2.07 and 3.25 (< |3.29|). In addition, there were no influential cases with Cook’s distances ranging between .00 and .15. The normality of residuals was not met as evident by the positive kurtosis curve in the histogram (Figure 7) and the lack of coincidence of observed cumulative probability and expected cumulative probability “S-shape” (Figure 8). Finally, the assumption of homoscedasticity was not met with ZRESID versus ZPRED scatterplot showing uneven scatter of residuals around zero (residuals funneling out; Figure 9). Since, the normality of residuals and homoscedasticity were not met then the main analysis was carried with bootstrapping.

Figure 7: Histogram depicting Normality of Residuals Assumption

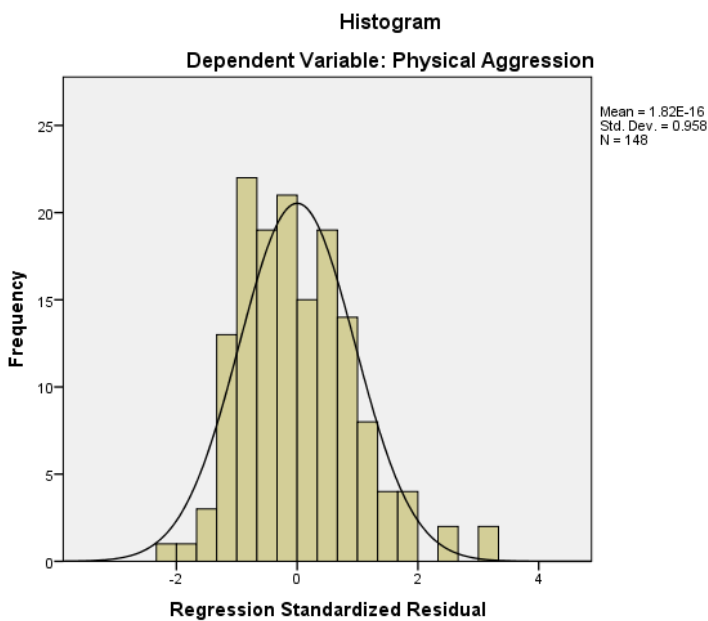


Figure 8: P-P Plot depicting Normality of Residuals Assumption

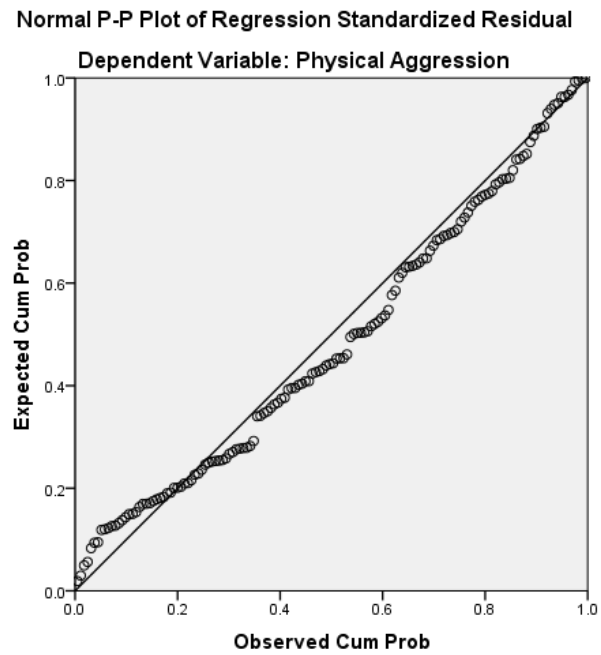
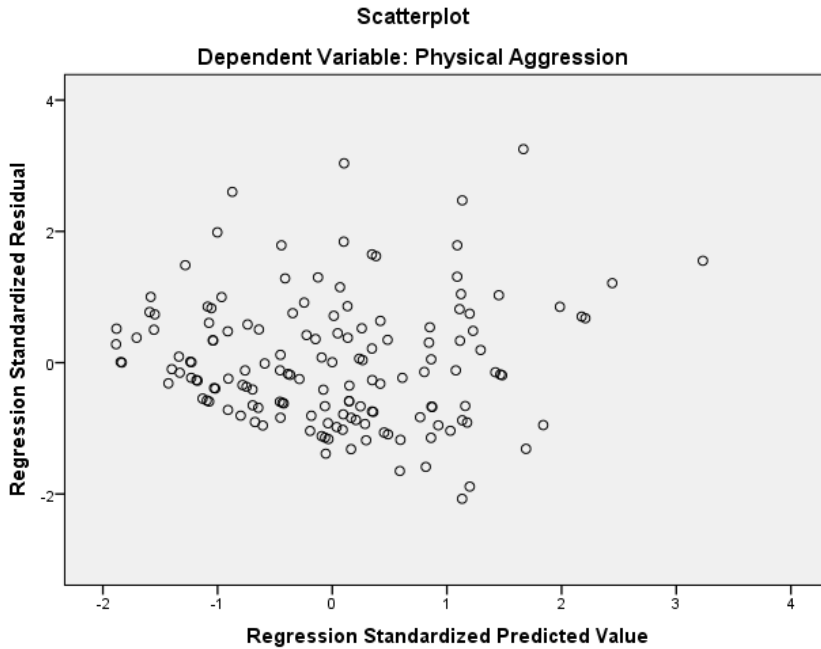


Figure 9: Scatterplot depicting the Assumption of Homoscedasticity



ii. Main Analysis

The analysis was carried using hierarchical regression with two steps using the entry method. The first step contained the demographic variables (gender, marital status, participant’s education, parental education and working status). The second step contained the predictor variables (anger, self-downing, need for achievement, need for approval, need for comfort, demand for fairness and other downing). The results revealed that the first regression model containing demographics was significant; $F(5, 142) = 4.91, p < .001; \%R^2 = 14.7\%$. The second regression model containing demographics and predictor variables was also significant; $F(12, 135) = 7.46, p < .001$ with $\%R^2 = 39.9\%$ and $\%R^2_{adjusted} = 34.5\%$. This indicates that the second regression model explains 39.9% of the variance of physical aggression at the sample level and

34.5% of the variance of physical aggression at the population level (Table 12). By inspecting the bootstrapped table of coefficients of the final model, out of all predictors, only gender and anger were found to be significant predictors of physical aggression. The t-test revealed that anger was highest predictor (with positive and large effect size) of physical aggression; $b = .42$, $Bias = -.008$, $SE = .07$, $\beta = .50$, $p < .001$, $95\%CI [.27, .55]$, indicating that participants who had higher levels of anger were more likely to have higher levels of physical aggression. The t-test also revealed that gender was the lowest predictor (with negative and medium to large effect size) of physical aggression; $b = -.63$, $Bias = .006$, $SE = .11$, $\beta = -.41$, $p < .001$, $95\%CI [-.84, -.41]$ indicating that males ($M = 2.15$, $SD = 0.67$) had higher levels of physical aggression compared to females ($M = 1.63$, $SD = 0.59$; Table 13).

Table 11

R, R Square, Adjusted R Square

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.38	.147	.117	.61	.147	4.91	5	142	.000	
2	.63	.399	.345	.52	.251	8.06	7	135	.000	1.94

Table 12

Regression Bootstrap for Parameters of the Hierarchical Regression containing the Predictors (Anger and Specific Irrational Beliefs) and the Outcome Variable Physical Aggression

Model		B	Bias	SE	Sig.	95% CI		
						One-tailed	Lower	Upper
1	(Constant)	2.98	-.036	.42	0.000	2.06	3.72	
	Gender	-.56	.004	.12	0.000	-.79	-.31	
	Marital Status	.16	-.001	.12	0.080	-.06	.42	

	Education	-.10	.010	.10	0.132	-.28	.11
	Parental Education	-.04	.003	.06	0.254	-.15	.09
	Work Status	-.09	-.002	.10	0.169	-.29	.10
2	(Constant)	1.76	-.039	.47	0.001	.76	2.62
	Gender	-.63	.006	.11	0.000	-.84	-.41
	Marital Status	.14	-.005	.10	0.089	-.06	.35
	Education	-.04	.008	.08	0.296	-.19	.13
	Parental Education	.04	.004	.06	0.242	-.07	.16
	Work Status	-.10	.000	.09	0.137	-.27	.08
	Anger	.42	-.008	.07	0.000	.27	.55
	Self-Downing	.02	.004	.07	0.389	-.12	.16
	Need for Achievement	.01	.005	.07	0.457	-.11	.16
	Need for Approval	-.09	-.004	.07	0.094	-.24	.04
	Need for Comfort	.04	.001	.07	0.261	-.09	.18
	Demand for Fairness	.04	.003	.08	0.299	-.11	.22
	Other Downing	-.03	-.001	.06	0.323	-.16	.09

b. Indirect Aggression

i. Assumptions

The independence of errors assumption was met with Durbin Watson score of 1.78 (which is between 1 and 3). The assumption of no multicollinearity was met with VIF scores < 10 and around 1. Furthermore, there were no outliers in the solution with standardized residuals ranging between -3.28 and 2.72 (< |3.29|). In addition, there were no influential cases with Cook's distances ranging between .00 and .31. The normality of residuals was not met as evident by the positive kurtosis curve in the histogram (Figure 10) and the lack of coincidence of

observed cumulative probability and expected cumulative probability “S-shape” (Figure 11).

Finally, the assumption of homoscedasticity was not met with ZRESID versus ZPRED

scatterplot showing uneven scatter of residuals around zero (residuals funneling out; Figure 12).

Since, the normality of residuals and homoscedasticity were not met then the main analysis was carried with bootstrapping.

Figure 16: Histogram depicting Normality of Residuals Assumption

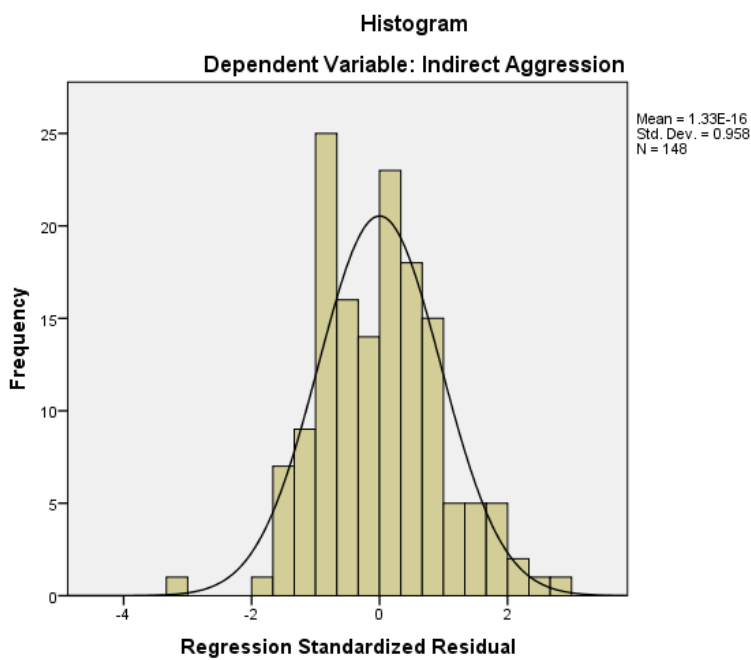


Figure 17: P-P Plot depicting Normality of Residuals Assumption

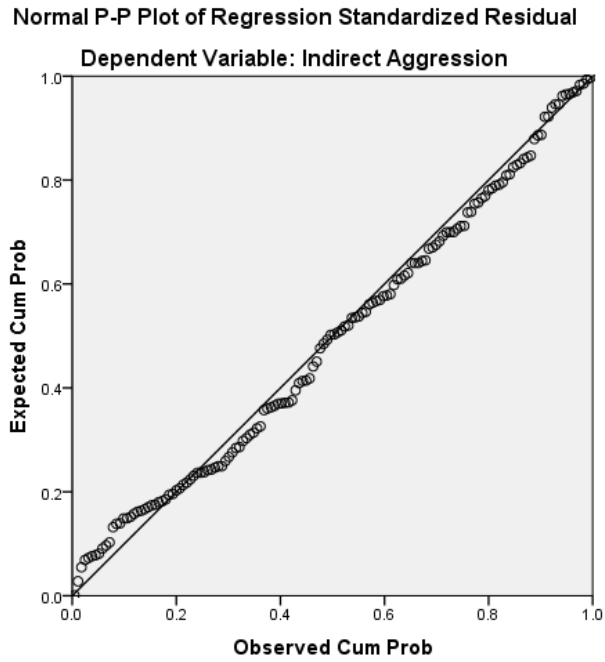
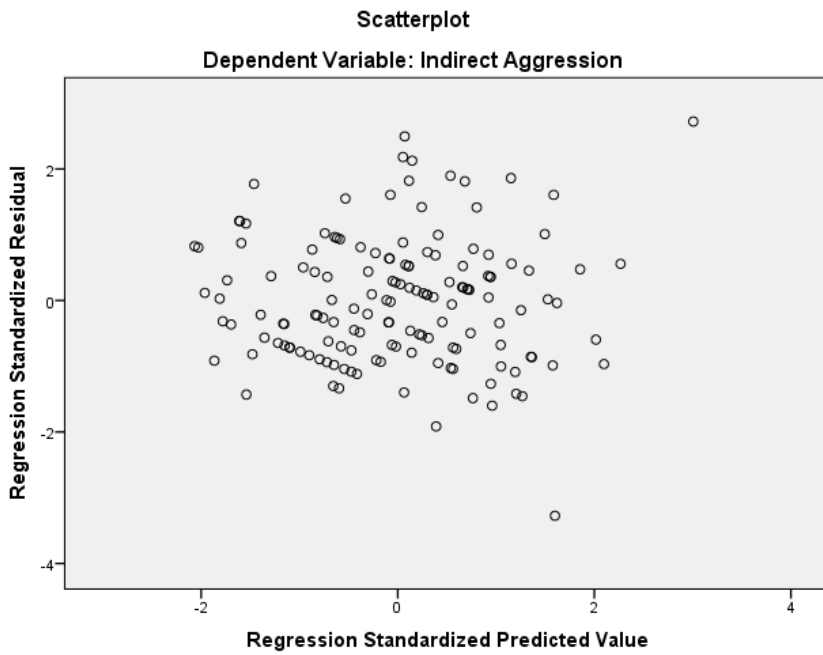


Figure 12: Scatterplot depicting the Assumption of Homoscedasticity



ii. Main Analysis

The analysis was carried using hierarchical regression with two steps using the entry method. The first step contained the demographic variables (gender, marital status, participant’s education, parental education and working status. The second step contained the predictor variables (anger, self-downing, need for achievement, need for approval, need for comfort, demand for fairness, and other downing). The results revealed that the first regression model containing demographics was not significant; $F(5, 142) = 0.70, p = .626$. The second regression model containing demographics and predictor variables was significant; $F(12, 135) = 4.22, p < .001$ with $\%R^2 = 27.3\%$ and $\%R^2_{adjusted} = 20.8\%$. This indicates that the second regression model explains 27.3% of the variance of indirect aggression at the sample level and 20.8% of the variance of indirect aggression at the population level (Table 14). By inspecting the bootstrapped table of coefficients of the final model, out of all predictors, only anger and demand for fairness were found to be significant predictors of indirect aggression. The t-test revealed that anger was highest predictor (with positive and medium to large effect size) of indirect aggression; $b = .26, Bias = .003, SE = .07, \beta = .35, p < .001, 95\%CI [.13, .40]$, indicating that participants who had higher levels of anger were more likely to have higher levels of indirect aggression. The t-test also revealed that demand for fairness was the lowest predictor (with negative and small to medium effect size) of indirect aggression; $b = .16, Bias = .006, SE = .09, \beta = .18, p = .037, 95\%CI [-.01, .35]$ indicating that participants who had higher levels of demand for fairness were more likely to have higher levels of indirect aggression (Table 15).

Table 13

R, R Square, Adjusted R Square

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.16	.024	-.010	.58	.024	.697	5	142	.626	1.78

2 .52 .273 .208 .51 .249 6.603 7 135 .000

Table 14

Regression Bootstrap for Parameters of the Hierarchical Regression containing the Predictors (Anger and Specific Irrational Beliefs) and the Outcome Variable Indirect Aggression

Model		B	Bias	SE	Sig.	95% CI	
					One-tailed	Lower	Upper
1	(Constant)	2.74	-.020	.44	0.000	1.91	3.63
	Gender	-.05	-.003	.12	0.337	-.30	.18
	Marital Status	-.03	.002	.10	0.364	-.23	.16
	Education	-.05	.010	.11	0.312	-.26	.15
	Parental Education	-.09	.000	.07	0.087	-.22	.05
	Work Status	-.06	-.001	.10	0.252	-.24	.12
2	(Constant)	1.03	-.022	.46	0.015	.10	1.88
	Gender	-.12	-.011	.13	0.177	-.39	.11
	Marital Status	-.03	-.001	.09	0.367	-.21	.14
	Education	.01	.003	.09	0.457	-.16	.19
	Parental Education	-.06	.004	.06	0.165	-.18	.06
	Work Status	-.02	-.002	.09	0.411	-.19	.16
	Anger	.26	.003	.07	0.000	.13	.40
	Self-Downing	.07	.003	.08	0.210	-.08	.23
	Need for Achievement	.04	-.005	.07	0.283	-.10	.18
	Need for Approval	.08	-.004	.08	0.148	-.07	.23
	Need for Comfort	-.07	.006	.08	0.186	-.23	.09
	Demand for Fairness	.16	.006	.09	0.037	-.01	.35
	Other Downing	-.01	.001	.05	0.398	-.12	.08

Based on the results of the Spearman Rho's correlations and the hierarchical regression hypothesis 2, which stated that anger and specific irrational beliefs predict physical and indirect aggression was partially supported. For physical aggression, at both the correlation and regression levels, anger was found to be a significant positive predictor of physical aggression. Need for achievement and need for comfort, however, was found to be significantly and positively correlated with physical aggression. For indirect aggression, at both the correlation and regression levels, anger were found to be a significant positive predictor of indirect aggression. Self-downing, need for achievement, need for approval, need for comfort, and demand for fairness were found to be significantly and positively correlated with indirect aggression. At the regression level, only demand for fairness was found to be a significant and positive predictor of indirect aggression. This indicates that participants who have higher levels of anger, need for achievement, and need for comfort were more likely to have higher levels of physical aggression. This also indicates that participants who had higher levels of anger, self-downing, need for achievement, need for approval, need for comfort and demand for fairness were more likely to have higher levels of indirect aggression.

Hypothesis 3: Anger predicts Verbal Aggression

This hypothesis was tested by correlation analysis (using Spearman's Rho test) and Regression analysis as per below:

1. Spearman's Rho correlation test

Since the normality of all variables except for irrational beliefs total was not met, Spearman Rho's correlation test was used to study the correlations between the predictors (anger, self-downing, need for achievement, need for approval, need for comfort, demand for fairness,

other-downing and irrational beliefs total) and the outcome variable (verbal aggression).

Regarding the outcome variable (verbal aggression), out of all predictors, only anger was found to be significantly correlated with verbal aggression with positive and medium to large effect size; $r_s = .48, p < .001$ (*one-tailed*). This indicates that participants with high levels of anger were more likely to have high levels of verbal aggression. There were no other significant correlations between other predictors and the outcome variable verbal aggression (Table 16)

Table 15

Spearman Rho's Correlation Matrix

	Verbal Aggression
Anger	.48***
Rationality	.05
Self-Downing	-.04
Need for Achievement	.13
Need for Approval	.05
Need for Comfort	.13
Demand for Fairness	.05
Other Downing	.04
Irrational Beliefs Total	.09

*. Correlation is significant at the 0.05 level (one-tailed).

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

***. Correlation is significant at the 0.001 level (one-tailed).

2. Hierarchical Regression: Relation between Anger and Irrational Beliefs Total and Verbal, Physical and Indirect Aggression

a. Assumptions

The independence of errors assumption was met with Durbin Watson score of 1.73 (which is between 1 and 3). The assumption of no multicollinearity was met with VIF scores < 10 and around 1. Furthermore, there were no outliers in the solution with standardized residuals ranging between -2.70 and 2.52 (< |3.29|). In addition, there were no influential cases with Cook’s distances ranging between .00 and .07. The normality of residuals was met as evident by the bell-shaped curve in the histogram (Figure 13) and the coincidence of observed cumulative probability and expected cumulative probability (Figure 14). Finally, the assumption of homoscedasticity was met with ZRESID versus ZPRED scatterplot showing even scatter of residuals around zero (Figure 15).

Figure 13: Histogram depicting the Normality of Residuals Assumption

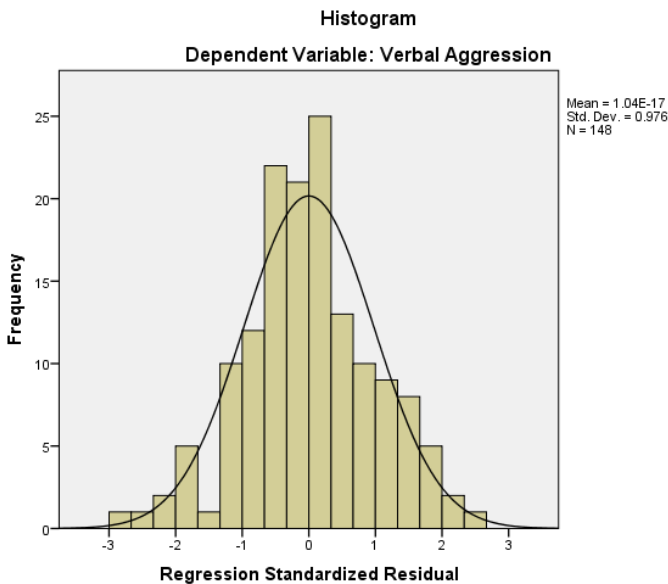


Figure 14: P-P Plot depicting the Normality of Residuals Assumption

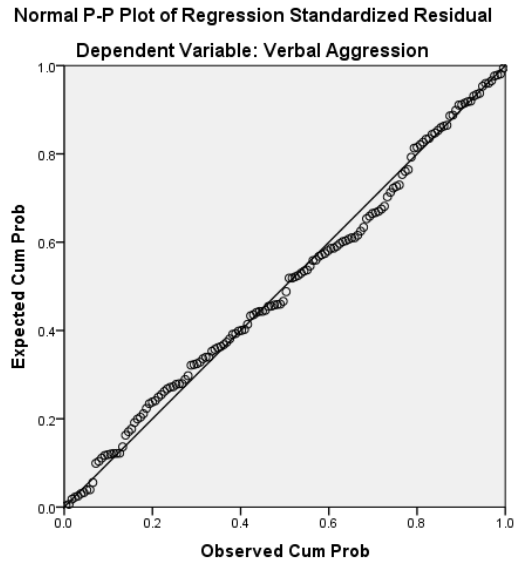
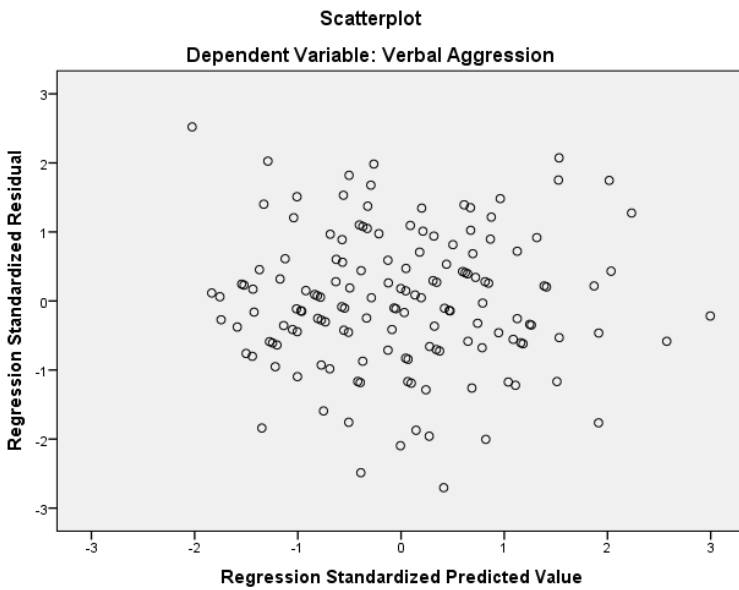


Figure 15: Scatterplot depicting the Assumption of Homoscedasticity



b. Main Analysis.

The analysis was carried using hierarchical regression with two steps using the entry method. The first step contained the demographic variables (gender, marital status, participant’s education, parental education and working status). The second step contained the predictor

variables (anger and irrational beliefs total). The results revealed that the first regression model containing demographics was not significant; $F(5, 142) = 1.92, p = .096$. The second regression model containing demographics and predictor variables (anger and irrational beliefs total) was significant; $F(7, 140) = 9.58, p < .001$ with $\%R^2 = 32.4\%$ and $\%R^2_{adjusted} = 29\%$. This indicates that the second regression model explains 32.4% of the variance of verbal aggression at the sample level and 29% of the variance of verbal aggression at the population level (Table 17). By inspecting the table of coefficients of the final model, out of all predictors, only gender, participant's education and anger were significant predictors of verbal aggression. The t-test revealed that anger was the highest predictor (with positive and large effect size) of verbal aggression; $b = .52, SE = .07, \beta = .55, t(140) = 7.30, p < .001$, indicating that participants who had higher levels of anger were more likely to have higher levels of verbal aggression. The t-test also revealed that participant's education was the second highest predictor (with negative and small to medium effect size) of verbal aggression; $b = -.20, SE = .09, \beta = -.15, t(140) = -2.15, p = .034$, indicating that participants who had higher levels of education were more likely to have lower levels of verbal aggression (High school ($M = 3.37, SD = 1.10$), Bachelor's degree ($M = 2.97, SD = 0.70$), and Master's degree ($M = 2.72, SD = 0.69$)). Finally, the t-test revealed that gender was the lowest predictor (with negative and small to medium effect size) of verbal aggression; $b = -.24, SE = .12, \beta = .14, t(140) = -1.98, p = .050$, indicating that males ($M = 3.03, SD = 0.75$) had higher levels of verbal aggression compared to females ($M = 2.85, SD = 0.72$; Table 18).

Table 16

R, R Square, Adjusted R Square

Model R

Change Statistics

	R	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.25	.063	.72	.063	1.92	5	142	.096	
2	.57	.324	.61	.261	26.98	2	140	.000	2.10

Table 17

Regression Parameters of the Hierarchical Regression containing the Predictors (Anger and Irrational Beliefs Total) and the Outcome Variable Verbal Aggression

Model		Unstandardized Beta Coefficient	SE	Standardized Beta Coefficients
1	(Constant)	3.99	.43	
	Gender	-.17	.14	-.10
	Marital Status	-.03	.13	-.02
	Education	-.27	.11	-.21*
	Parental Education	.02	.08	.03
	Work Status	-.12	.12	-.08
2	(Constant)	3.04	.51	
	Gender	-.24	.12	-.14*
	Marital Status Recoded	-.02	.11	-.02
	Education	-.20	.09	-.15*
	Parental Education	.10	.07	.11
	work status recoded	-.15	.10	-.10
	Anger	.52	.07	.55***
	Total Irrational Beliefs	-.17	.10	-.13

*. Prediction is significant at the 0.05 level (one-tailed).

**. Prediction is significant at the 0.01 level (one-tailed).

***. Prediction is significant at the 0.001 level (one-tailed).

Based on the results of the Spearman Rho's correlations and the hierarchical regression hypothesis 3, which stated that anger predicts verbal aggression was supported. At both the correlation and regression levels, anger was found to be a significant positive predictor of verbal aggression, indicating that participants who had higher levels of anger were more likely to have higher levels of verbal aggression.

It is important to note that at both the correlation and regression levels, irrational beliefs total were not found to be a significant predictor of verbal aggression. Finally, at the regression level, gender and education were found to be significant predictors of verbal aggression with male participants having higher levels of verbal aggression compared to females and participants with low education level having higher levels of verbal aggression.

Hypothesis 4: Lebanese males (18-25) show higher levels of direct aggression (verbal and physical) than Lebanese females (18-25) but not higher levels of anger.

The hypothesis was tested using the three multiple regressions predicting (anger and irrational beliefs total) and the outcome variables (physical, indirect and verbal aggression) and one independent t-test to study gender differences across anger.

By inspecting table 7, the t-test revealed that gender was a significant predictor (with negative and medium to large effect size) of physical aggression; $b = -.62$, $Bias = -.001$, $SE = .10$, $\beta = -.41$, $p = .001$, $95\%CI [-.83, -.42]$, indicating that males ($M = 2.15$, $SD = 0.67$) had higher levels of physical aggression compared to females ($M = 1.63$, $SD = 0.59$).

By inspecting table 9, the t-test revealed that gender was not a significant predictor of indirect aggression; $b = -.10$, $Bias = .001$, $SE = .11$, $\beta = -.07$, $p = .198$, $95\%CI [-.31, .14]$, indicating that there were no gender differences on indirect aggression.

By inspecting table 18, the t-test revealed that gender was a significant predictor (with negative and small to medium effect size) of verbal aggression; $b = -.24$, $SE = .12$, $\beta = .14$, $t(140) = -1.98$, $p = .050$, indicating that males ($M = 3.03$, $SD = 0.75$) had higher levels of verbal aggression compared to females ($M = 2.85$, $SD = 0.72$).

An independent t-test was conducted to study the gender differences across anger. Levene’s test revealed that the homogeneity of variance assumption was met; $F(1, 146) = 1.25$, $p = .265$. The t-tests revealed that there were no gender differences on anger; $t(146) = -0.92$, $p = .180$ (*one-tailed*; Table 19).

Table 18

Independent Sample t-test

	Male		Female		t-test	Sig.
	M	SD	M	SD		
Anger	2.46	.86	2.60	.74	-0.92	.180

Based on the results of the hierarchical regression and independent t-test, hypothesis 4, which stated that Lebanese males (18-25) show higher levels of direct aggression (verbal and physical) than Lebanese females (18-25) but not higher levels of anger, was supported. At the regression level, gender was a significant predictor of physical and verbal aggression, with males having higher levels of physical and verbal aggression compared to females. Gender, however, was not a significant predictor of indirect aggression. Finally, there were no gender differences on anger.

D. Additional Findings

1. Gender Differences Across Predictor Variables

Seven t-tests were conducted to study whether there were gender differences across the predictor variables (self-downing, need for achievement, need for approval, need for comfort, demand for fairness, other downing and irrational beliefs total).

Levene’s test revealed that the homogeneity of variance assumption was met for the analysis of gender differences across need for achievement, need for approval, need for comfort, demand for fairness, and irrational beliefs total; $F(1, 146) = 0.28, p = .597, F(1, 146) = 0.06, p = .809, F(1, 146) = 0.21, p = .646, F(1, 146) = 1.28, p = .259, F(1, 146) = 0.11, p = .745,$ respectively. However, Levene’s test revealed that the homogeneity of variance assumption was not met for the analysis of gender differences across self-downing and other downing; $F(1, 146) = 5.87, p = .017,$ and $F(1, 146) = 6.60, p = .011.$

The t-test revealed that females ($M = 1.88, SD = 0.90$) had significantly higher levels of self-downing compared to males ($M = 1.63, SD = 0.61$); $t(180.33) = -1.83, p = .036$ (*one-tailed*). The t-test revealed, however, that males ($M = 3.50, SD = 0.84$) had significantly higher levels of need for achievement compared to females ($M = 3.19, SD = 0.89$); $t(146) = 1.82, p = .035$ (*one-tailed*). The t-tests finally revealed that there were no gender differences need for approval, need for comfort, demand for fairness, other downing, and irrational beliefs total; $t(146) = 0.05, p = .481$ (*one-tailed*), $t(146) = -0.50, p = .308$ (*one-tailed*), $t(146) = -1.40, p = .081$ (*one-tailed*), $t(70.51) = 1.00, p = .160$ (*one-tailed*), and $t(146) = -1.49, p = .070$ (*one-tailed*; Table 20).

Table 19

Independent Sample t-test

	Male		Female		t-test	Sig.
	M	SD	M	SD		
Self-Downing	1.63	.61	1.88	.90	-1.83	.036

Need for Achievement	3.50	.84	3.19	.89	1.82	.035
Need for Approval	2.75	.93	2.74	.85	.05	.481
Need for Comfort	3.24	.78	3.31	.75	-.50	.308
Demand for Fairness	3.92	.72	4.10	.63	-1.40	.081
Other Downing	3.43	.70	3.28	.92	1.00	.195
Total Irrational Beliefs	3.08	.50	3.09	.55	-.12	.454

2. Relation between Anger and Specific Irrational Beliefs and Verbal Aggression

a. Assumptions

The independence of errors assumption was met with Durbin Watson score of 2.11 (which is between 1 and 3). The assumption of no multicollinearity was met with VIF scores < 10 and around 1. Furthermore, there were no outliers in the solution with standardized residuals ranging between -2.63 and 2.66 (< |3.29|). In addition, there were no influential cases with Cook’s distances ranging between .00 and .09. The normality of residuals was met as evident by the bell-shaped curve in the histogram (Figure 16) and the coincidence of observed cumulative probability and expected cumulative probability (Figure 17). Finally, the assumption of homoscedasticity was met with ZRESID versus ZPRED scatterplot showing even scatter of residuals around zero (Figure 18).

Figure 16: Histogram depicting the Normality of Residuals Assumption

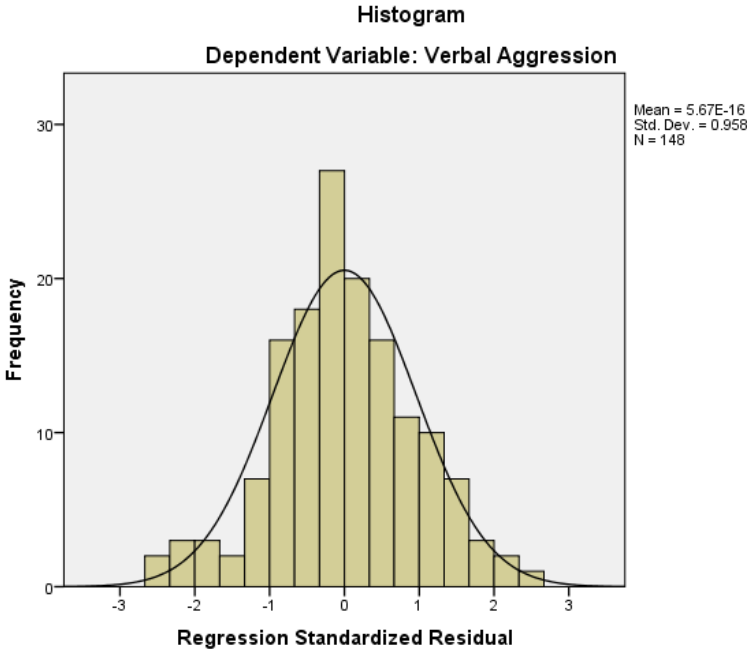


Figure 17: P-P Plot depicting the Normality of Residuals Assumption

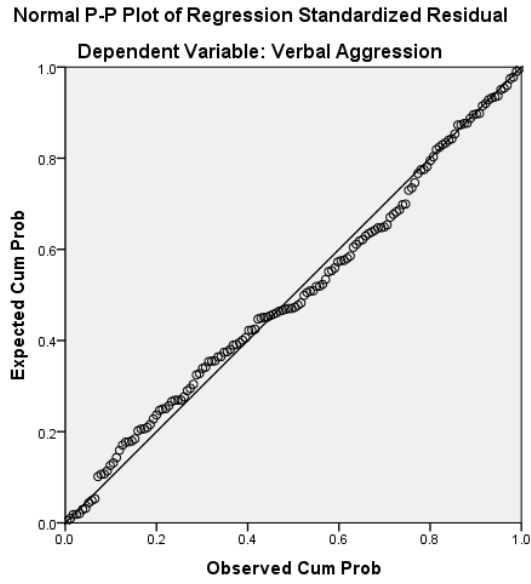
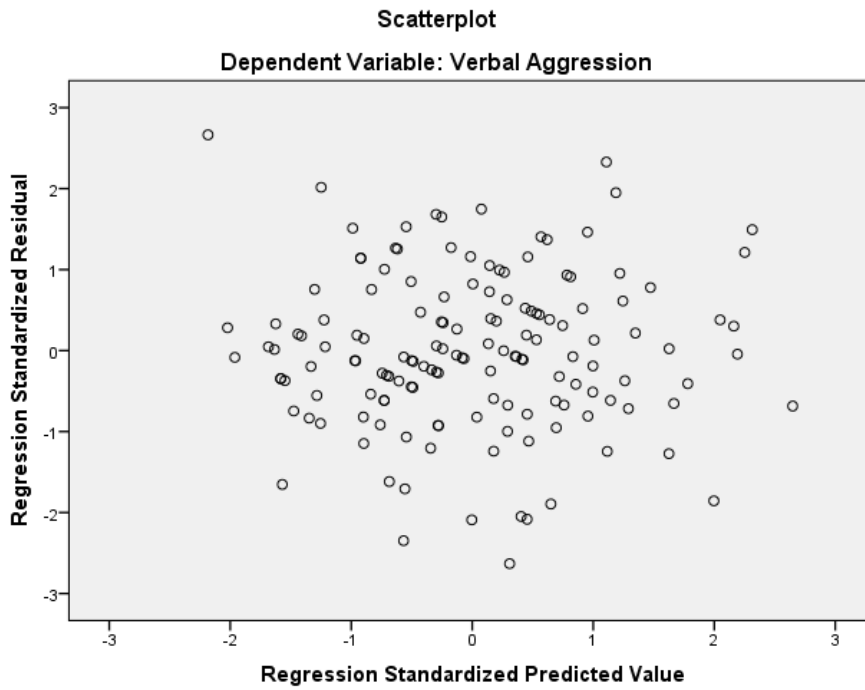


Figure 18: Scatterplot depicting the Assumption of Homoscedasticity



b. Main Analysis.

The analysis was carried using hierarchical regression with two steps using the entry method. The first step contained the demographic variables (gender, marital status, participant's education, parental education and working status). The second step contained the predictor variables (anger, self-downing, need for achievement, need for approval, need for comfort, demand for fairness and other downing). The results revealed that the first regression model containing demographics was not significant; $F(5, 142) = 1.92, p = .096$. The second regression model containing demographics and predictor variables was significant; $F(12, 135) = 5.89, p < .001$ with $\%R^2 = 32.3\%$ and $\%R^2_{adjusted} = 28.5\%$. This indicates that the second regression model explains 32.3% of the variance of verbal aggression at the sample level and 28.5% of the variance of verbal aggression at the population level (Table 21). By inspecting the table of coefficients of the final model, out of all predictors, only participant's education, anger and self-downing were significant predictors of verbal aggression. The t-test revealed that anger was the highest predictor (with positive and large effect size) of verbal aggression; $b = .55, SE = .08, \beta = .59, t(135) = 7.33, p < .001$, indicating that participants who had higher levels of anger were more likely to have higher levels of verbal aggression. The t-test revealed also revealed that self-downing was the second highest predictor (with negative and small to medium effect size) of verbal aggression; $b = -.16, SE = .08, \beta = -.19, t(135) = -2.11, p = .037$, indicating that participants who had higher levels of self-downing were more likely to have lower levels of verbal aggression. The t-test finally revealed that participant's education was the lowest predictor (with negative and small to medium effect size) of verbal aggression; $b = -.22, SE = .10, \beta = -.17, t(135) = -2.33, p = .022$, indicating that participants who had higher levels of education were more likely to have lower levels of verbal aggression (High school ($M = 3.37, SD$

= 1.10), Bachelor’s degree ($M = 2.97, SD = 0.70$), and Master’s degree ($M = 2.72, SD = 0.69$; table 22).

Table 20

R, R Square, Adjusted R Square

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.25	.063	.030	.72	.063	1.92	5	142	.096	
2	.59	.343	.285	.62	.280	8.23	7	135	.000	2.11

Table 21

Regression Parameters of the Hierarchical Regression containing the Predictors (Anger and Specific Irrational Beliefs) and the Outcome Variable Verbal Aggression

Model		Unstandardized Beta Coefficient	SE	Standardized Beta Coefficients
1	(Constant)	3.99	.43	
	Gender	-.17	.14	-.10
	Marital Status	-.03	.13	-.02
	Education	-.27	.11	-.21*
	Parental Education	.02	.08	.03
	Work Status	-.12	.12	-.08
2	(Constant)	3.06	.53	
	Gender	-.17	.13	-.10
	Marital Status Recoded	-.01	.11	-.01
	Education	-.22	.09	-.17*

Parental Education	.08	.07	.09
work status recoded	-.15	.11	-.10
Anger	.55	.08	.59***
Self- Downing	-.16	.08	-.19*
Need for achievement	.05	.08	.06
Need for Approval	.04	.08	.05
Need for Comfort	-.10	.09	-.10
Demand for Fairness	-.10	.10	-.09
Other Downing	.02	.07	.02

*. Prediction is significant at the 0.05 level (one-tailed).

**. Prediction is significant at the 0.01 level (one-tailed).

***. Prediction is significant at the 0.001 level (one-tailed).

The extra analysis revealed that females had significantly higher levels of self-downing compared to males while males had significantly higher levels of need for achievement compared to females. The extra analysis revealed, however, that there were no gender differences on need for approval, need for comfort, demand for fairness, other downing, and irrational beliefs total. The extra analysis finally revealed that self-downing was a significant negative predictor of verbal aggression; indicating that participants who had higher levels of self-downing were more likely to have lower levels of verbal aggression.

Chapter 5

Discussion

This study extended our knowledge on cognition, anger, and aggression in Lebanese emerging adults by investigating the role of irrational beliefs and anger on verbal, physical and indirect aggression while employing a gender lens. In this chapter, we discuss the results presented in Chapter 4 and how they connect to previous studies.

Total Irrational beliefs, Anger and Physical and Indirect Aggression

The first hypothesis stated that anger and total irrational beliefs predict physical and indirect aggression but not verbal aggression. This hypothesis was partially confirmed as total irrational beliefs and anger only predicted indirect aggression, and not physical nor verbal aggression. However, it is important to mention that the current study did not account for cultural difference in the perception and justification of different aggressive acts. A study examined the attitude of 632 university students of both sexes, 242 Japanese (137 males and 105 females), 190 Spanish (71 males and 119 females), and 200 students from the United States (100 males and 100 females) towards various kinds of aggression directed at other people in different situations which ranged from self-defense to a method of overcoming communication problems (Ramirez, Fujihara & H M van Goozen, 2001). Factor analysis revealed three factors: physical aggression (killing, torture, and hitting), direct verbal aggression (shouting and rage), and indirect verbal aggression (being ironic and hindering). Cultural differences were found in the degree of justification of the three factors: in all kind of situations Japanese students showed a lower justification of indirect verbal aggression, but a higher justification of direct verbal aggression than U.S.A. and Spain samples. Physical aggression in defensive situations is justified more by Americans than by Japanese and Spanish students. Therefore, understanding really the

role of cultural perception/justification of physical aggression could be key in explaining why a combination of anger and a specific irrational belief is not sufficient for predicting physical aggression.

Specific Irrational beliefs, Anger and Physical and Indirect Aggression

As we segregated total irrational beliefs into the specific irrational beliefs, self-downing, need for approval, need for achievement, demand for fairness, and other downing, to account for the unique contribution of specific irrational beliefs, the second hypothesis that stated that anger and specific irrational beliefs predict physical and indirect aggression was partially confirmed. The regression showed that demand for fairness is a significant positive predictor of indirect aggression; indicating that participants who had higher levels of demand for fairness had higher levels of indirect aggression; however, there were no significant relations between specific irrational beliefs and physical aggression. These findings are different from that of Fives, Kong, Fuller, and DiGiuseppe (2010) who also investigated the specific irrational beliefs on adolescents. Although the scales used in the two studies are different, the SGABS of this study and the CASI used in the Fives, Kong, Fuller, and DiGiuseppe (2010) study which was tailored for children and adolescents are different, the subscale of irrational belief of demand for fairness is found in both. Fives, Kong, Fuller, and DiGiuseppe (2010) found that the specific irrational belief of intolerance of rule frustration when combined with anger, predict both verbal and physical aggression; whereas, this study found that demand for fairness predicted only indirect aggression. This difference could be explained using different reasons, the most prominent would be that the population is different. It is not surprising that intolerance of rules frustration was endorsed by adolescents given how rules are perceived to be limiting the general sense of independence in this developmental period. As adolescents negotiate the terms of independence,

they may grow resentful or frustrated by rules imposed on them by the structured school settings, especially when they interpret school rules as inhibiting them from achieving their social goals. However, emerging adulthood is a life stage theoretically and empirically different than adolescence and adulthood where the individual is neither an adolescent nor an adult and feels in-between (Arnett, 2000). An important characteristic of emerging adulthood is that it is the life period with the best opportunities for identity studies on love, job and world views (Arnett, 2000) as these views are still being shaped. Therefore, it comes as no surprise that these views are somehow still based on ideals instead of reality. According to Daniel Levinson's theory that he introduced through his book "The Seasons of a Man's Life" (1978), emerging adults have an image of the future that motivates them. This image is called "the dream", a dream of how their career and life paths would progress and where they would be at midlife. Dreams are very motivating. Dreams of a home bring excitement to young couples as they look, save, and fantasize about how life will be. Dreams of careers motivate students to continue in school as they fantasize about how much their hard work will pay off. But as the realization of it moves closer, it may or may not measure up to its image, therefore, this can be very frustrating to emerging adults as they move from ideals to reality. Additionally, previous research has shown emerging adults to be strikingly idealistic Clark University Poll of Emerging Adults (2012). However, as discussed earlier, Lebanon's youth are experiencing a very stressful reality with limited job opportunities, an economic and political crisis (Osseiran, 2019; Najjar, 2020; Perry & Fahmy, 2019; Karam, 2020). Therefore, when experiencing a life stage where ideals and dreams are so central and a reality that hinders these dreams and ideals coming true, it is not surprising that the specific irrational belief of demand for fairness when combined with anger, predicts indirect aggression.

Anger, Level of Education, Specific Irrational Beliefs and Verbal Aggression

The third hypothesis stated that anger alone predicts verbal aggression. This hypothesis was confirmed as participants who had higher levels of anger had higher levels of verbal aggression is similar the finding of Fives, Kong, Fuller, and DiGiuseppe (2010). Interestingly, at the regression level, participants who had higher levels of education were more likely to have lower levels of verbal aggression and self-downing was a significant negative predictor of verbal aggression.

On the former finding of level of education being a negative predictor of verbal aggression, research linking level of education and anger or aggression have not been made; however, previous literature that link level of education along with other factors to measure Socio-Economic Status (SES) to relate to either anger or aggression has been done but is inconclusive. Research on SES and aggression show that respondents with high SES expressed more aggression than the middle and low SES respectively (Rahman and Huq, 2005). On the other hand, Taylor (2006), Gallo & Matthews (2003) Rahman, and Bairagi & Dey (2014) found that low and middle class respondents report feeling more anger than their upper class counterparts. Unfortunately, studies that examine SES anger, aggression, and SES is limited; therefore, the research is not indicative of what factors are at play to translate anger to aggression. For example, it could be that even though individuals with low SES feel more angry than those with high SES, they fear law enforcement more and so, people with higher SES act on their anger more. It could also, very much be the culture difference and social expectations between the two social classes. Ramirez, Fujihara & H M van Goozen (2001), in their study examining the different attitudes of students from different cultures towards various kinds of aggression, found that there appears to be a cultural influence on moral codes concerning verbal

aggressive acts. Verbal aggressive acts were classified into direct verbal aggression (shouting and rage) and indirect verbal aggression (being ironic and hindering). Oriental cultures, with an interdependent construal of self, seem to be more permissive about direct verbal aggression compared to Western cultures, but they have less tolerance than students from America and Spain towards indirect verbal aggression. These results suggest that differences in culture may be linked to societal regulations. Asian cultures, such as Japan, socially and collectivism oriented and with an interdependent construal of the self, are concerned with fitting in, belonging, promoting other's goals and, according to our data, with a higher justification of direct verbal behavior. A possible speculation of this difference may be that interdependent cultures, like the Japanese one, are more permissive to the expression of emotions related to anger than independent cultures. What should be noted in this study, is that the items used in the AQ used to measure verbal aggression are different from both the direct and indirect aggression found by Ramirez, Fujihara & H M van Goozen (2001). The items that measure verbal aggression of the AQ used in this study are as follows, (1) My friends say that I argue a lot, (2) I can't help getting into arguments when people disagree with me, (3) I tell my friends openly when I disagree with them, (4) I often find myself disagreeing with people, (5) when people annoy me, I may tell them what I think of them. Even though these items don't fall under either of Ramirez, Fujihara & H M van Goozen (2001) descriptions of verbal aggression, what we can take from this study, is that if socially and collectivism-oriented cultures, such as Lebanon, with an interdependent construal of the self, are concerned with fitting in, belonging, promoting other's goals, then perhaps the practice of agreeability and avoidance of direct confrontation and argumentation is socially expected, especially in people with higher education or higher SES.

The latter finding stated that individuals with higher levels of self-downing were more likely to have lower levels of verbal aggression. First, it is important to state that the items for the subscale of self-downing is comprised from the following items (1) if important people dislike me, it is because I am an unlikable bad person, (2) if I do not perform well at tasks that are so important to me, it is because I am a worthless bad person, (3) If important people dislike me, it goes to show what a worthless person I am, and (4) When people I like reject me or dislike me, it is because I am a bad or worthless person. REBT conceptually views self-dawing as form of conditional self-acceptance which is by definition related to lower self-esteem (Ellis 2005). Several studies, such as that of Shanahan, Jones & Thomas-Peter (2011) prove that self-esteem negatively correlates with self-downing. Low self-esteem has been the most commonly proposed moderator of anger (Anderson, 1994; Beck, 1999; Levine & McDevitt, 1993; Oats & For-rest, 1985; Renzetti, 1992). On the other hand, Baumeister, Smart, and Boden (1996) suggested that unstable, high self-esteem, rather than low self-esteem, moderates anger. Therefore, it is unclear whether theories that hypothesize a role for low self-esteem postulate that low self-efficacy or global self-denigration moderate anger. Lazarus (1991) proposed that following the appraisal of a threat, people appraise whether they have resources to overcome the offense by attack. If one believes that he or she is strong enough to repel the offender, then anger and attack are more likely to occur. If the offender is perceived as stronger, then anger is less likely, and fear and escape is more likely.

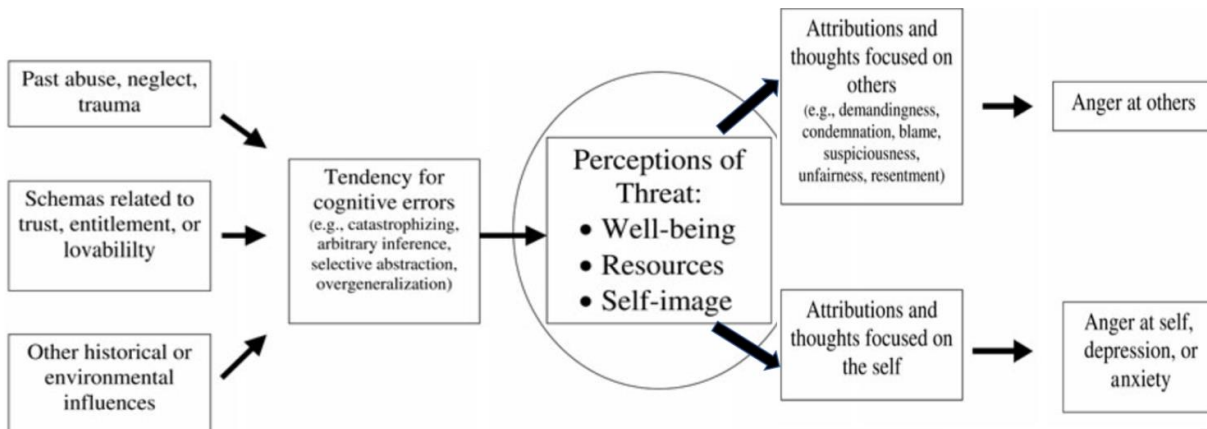


Figure -the perceptions of threat and self – versus other- directed attributions and emotions arousal

Gender, Anger and Aggression

The fourth hypothesis that stated that males show higher levels of aggression than females but not higher levels of anger was confirmed. Males had significantly higher levels of verbal and physical aggression compared to females. This is in line with previous literature including the meta-analysis by Archer (2004). Eagly and her colleagues have proposed that gender differences in aggression stem primarily from social norms and expectations about the appropriate roles of men and women (Eagly, 1987; Eagly & Wood, 1991). Eagly notes that in many nations, women are expected to have more highly developed other-oriented attributes, such as friendliness and emotional expressivity, and that when women do aggress, they use aggression as a means of expressing anger and reducing stress. Men, on the other hand, are socialized to value more self-oriented attributes, such as independence and assertiveness, and they are more likely to use aggression to attain social or material rewards (Campbell, Muncer, & Gorman,

1993). Because of this gender difference, hypothesize that the pathway leading to aggression may be different for boys and girls.

Additional Findings

The first additional finding to be discussed is that on average, participants had low levels of anger and verbal aggression, physical aggression and indirect aggression. As discussed earlier, Lebanese emerging adults are experiencing multiple crises and daily hurdles that were expected to fuel their anger and aggression (Ayoub & Malaeb, 2006; Dagher & Ruble, 2010; World Bank, 2014); however, that wasn't the case as the results of this study showed they have low levels of anger and aggression. Therefore, we wonder if learned helplessness plays a role here. Research on learned helplessness show that increasing exposure to uncontrollable traumatic events lead to deficits in the areas of behavioral coping, associative learning, and emotional expression (Overmier, 2002). Therefore, we wonder if because of the enormous amount of stress and hurdles, mentioned above, Lebanese emerging adults are experiencing learned helplessness and that this is leading to the 47.19% increase in 2020 from 2019 in immigration of Lebanese in general according to MacroTrends (2020). We know . a big portion of Lebanese emerging adults are trying to immigrate as the number of IELTS applications which is an international standardized English test usually taken when applying to English based universities has almost doubled this year and applications for studying abroad have also increased exponentially (Ezzedine, 2020). Moreover, depression and learned helplessness have been the two variables most historically researched (Kees, Nerenberg, Bachrach, & Sommer, 2015; Lester, 2012; Maier & Seligman, 2016; Miller-Day & Jackson, 2012; Watson et al., 2013). Therefore, more research in Lebanon is needed on this matter.

The second additional finding is that there were gender differences on self-downing and need for achievement. Specifically, females had significantly higher levels of self-downing while males had significantly higher levels of need for achievement. A stereotypic pattern of gender differences has been found in the literature where men have tended to rate themselves higher on self-concept measures of giftedness, power, and invulnerability, and women have rated themselves higher on self-concept measures of likability and morality (Stayke, 1992). This gives us insight as to what is important to each of the genders. Females build their self-concept on likeability which an external evaluation, and so this could be a possible reason as to why they have high levels of self-downing which is negatively correlated with self-esteem. In Lebanon, males are expected to be the main breadwinners and provide for their families, and in the case of emerging adults, a lot of the financial responsibilities of getting married are expected to be completed by the male, therefore, gender expectations and norms could be behind the high levels of need for achievement in males.

Clinical Implications

The results of this study provide insights on the relevance of therapies on differential aggressive behaviors. For example, since the combination of anger and total irrational beliefs predict physical aggression, then as emerging adults seek therapy for physical aggression, the therapist could use REBT techniques. If a Lebanese emerging adult came to therapy to manage indirect aggression, then the therapist could specifically identify and target the specific irrational belief of demand for fairness. However, if an emerging adult sought therapy to manage verbal aggression, then anger management would be most effective. Finally, the therapist could be mindful, whenever an emerging adult comes in, to be on the look-out for increased propensity of irrational beliefs based on their gender and how that could be affecting different issues these

adults are coming in for as Lebanese males show higher levels of need for achievement and Lebanese females show higher levels of self-downing.

Future Research Recommendations

First, we recommend further testing of the indirect aggression of the AQ and rationality SGABS subscales in an attempt to refine these tools and increase their reliability as they can be used in further researchers.

Second, we recommend this research to be replicated using a representative sample taking into account SES measures as level of education has been correlated to verbal aggression.

Third, because personal and cultural perception of appropriateness of differential aggressive behaviors might have an effect of the behaviors exhibited, then further investigation on this is recommended.

Fourth, as Lebanese emerging adults showed low levels of anger and aggression, it would be noteworthy to research the prevalence of other negative emotions such as depression and learned helplessness.

Fifth and finally, because male and female participants showed similar levels of anger but different levels of aggression, then it would be plausible study more the difference in pathways leading to aggression.

Limitations of the Study

A limitation to be mentioned was the weak reliability of the indirect aggression and rationality subscales used in this study. Furthermore, it should be noted that this study used a

purposeful convenient sample and not a random representative one so findings could not be generalized to all emerging Lebanese emerging adults.

References

- Abi-Hashem, N. (2006). The agony, silent grief, and deep frustration of many communities in the Middle East: Challenges for coping and survival. In P.T.P, Wong & L.C.J., Lilian (Eds.) *Handbook of Multicultural Perspectives on Stress and Coping* (pp. 457-486). New York: Springer Science Business Media.
- Anderson, C. A., & Huesmann, L. R. (2003). Human aggression: a social-cognitive view. In M. A. Hogg & J. Cooper (Eds.), *The Sage Handbook of Social Psychology* (pp. 296-323). Thousand Oaks, CA: Sage Publications.
- Anderson, C.A., & Bushman, B.J. (2002). Human aggression. *Annual Review of Psychology*, 53, 27-51.
- Anderson, E. (1994, May). The code of the streets. *Atlantic Monthly*, 273 (5), 81–94.
- Anderson, E. (1994, May). The code of the streets. *Atlantic Monthly*, 273 (5), 81–94.
- Anwar, H., Ashraf, M., Saqib, M., Ashraf, M., & Ishfaq, K. (2017). The role of irrational beliefs and aggression on academic performance of grade male students in Tabriz high schools. *International Journal Of Scientific & Engineering Research*, 8(4), 1045-1051. doi: 10.14299/ijser.2017.04.008
- Aquino, K., Douglas, S., & Martinko, M.J. (2004). Overt anger in response to victimization: attributional style and organizational norms as moderators. *Journal of Occupational Health Psychology*, 9 (2), 152-164.

Arab News (2020). Lebanon to impose two-week coronavirus lockdown. (2020). Retrieved 6 September 2020, from [10.1037/1076-8998.9.2.152](https://doi.org/10.1037/1076-8998.9.2.152)

Archer, J. (2004). Sex differences in aggression in real-world settings: A meta-analytic review. *Review of General Psychology*, 8, 291–322.

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, 55(5), 469–480. <https://doi.org/10.1037/0003-066X.55.5.469>

Averill, J. R. (1982). *Anger and aggression: An essay on emotion*. New York: Springer-Verlag.

Ayoub, G. M. & Malaeb, L. (2006). Impact of intermittent water supply on water quality in Lebanon. *Journal of Environment and Pollution*, 26 (4), 379-397. doi: 10.1504/IJEP.2006.009328

Azoulay, D. (2000). *Cognitive distortions in the experience and expression of anger* (Doctoral dissertation, Ohio Adler School of Professional Psychology, 2000). *Dissertation Abstracts International*, 60, 4200B.

Back, M., Kufner, A., & Egloff, B. (2010). The Emotional Timeline of September 11, 2001. *Psychological Science*, 21(10), 1417-1419. doi: 10.1177/0956797610382124

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.

Baumeister, R., Smart, L., & Boden, J. (1996). Relation of threatened egotism to violence and aggression: The dark side of high self-esteem. *Psychological Review*, 103, 5–33.

Baumeister, R., Smart, L., & Boden, J. (1996). Relation of threatened egotism to violence and aggression: The dark side of high self-esteem. *Psychological Review*, 103, 5–33.

Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. New York: International Universities Press.

Beck, A. T. (1999). *Prisoners of hate: The cognitive basis of anger, hostility, and violence*. New York: Guilford Press.

Beck, A. T. (1999). *Prisoners of hate: The cognitive basis of anger, hostility, and violence*. New York: Harper Collins.

Beck, A. T. (1999). *Prisoners of hate: The cognitive basis of anger, hostility, and violence*. New York: Harper Collins.

Berkowitz, L. (1990). *On the formation and regulation of anger and aggression: a cognitive-neoassociationistic analysis*. *American Psychologist*, 45(4), 494–503.

Berkowitz, L. (1993). *Aggression: Its causes, consequences and control*. New York: McGraw-Hill.

Bernard, M. E., & Cronan, F. (1999). The child and adolescent scale of irrationality: Validation data and mental health correlates. *Journal of Cognitive Psychotherapy*, 13, 121–132.

Birkley, E.L. & Eckhardt, C.I. (2018). Anger, hostility, internalizing negative emotions, and intimate partner violence perpetration: A meta-analytic review. *Clinical Psychology Review*, 37, 40-56. Doi: 10.1016/j.cpr.2015.01.002

- British Broadcasting Corporation (BBC) (2015, September 9). Lebanon rubbish crisis: Cabinet agrees to resume waste disposal. Retrieved from <http://www.bbc.com/news/world-middle-east-34203165>.
- Buss, A. H., & Warren, W. L. (2000). *Manual: Aggression questionnaire*. Los Angeles, CA: Western Psychological Services.
- Carver, C. S., & Harmon-Jones, E. (2009). Anger is an approach-related affect: Evidence and implications. *Psychological Bulletin*, *135*, 183-204. <https://doi.org/10.1037/a0013965>.
- Chang, C. E., & D’Zurilla, J. T. (1996). Irrational beliefs as predictors of anxiety and depression in a college population. *Personality and Individual Differences*, *20*, 215–219.
- Clark University Worcester, Mass. (2012). *Clark University Poll of Emerging Adults*.
- Cornell, D. G., & Loper, A. B. (1998). Assessment of violence and other high-risk behaviors with a school survey. *School Psychology Review*, *27*, 317–330.
- Crick, N. R., & Dodge, K. A. (1994). A review and reformation of social information-processing mechanisms in children’s social adjustment. *Psychological Bulletin*, *115*, 74–101.
- Dagher, L., & Ruble, I. (2010). Challenges for CO2 mitigation in the Lebanese electric- power sector. *Energy Policy*, *38* (2), 912 – 918. doi 10.1016/j.enpol.2009.10.042.
- Darwin, C. (1965). *The expression of emotion in man and animals* (K. Lorenz, Ed.). Chicago: University of Chicago Press. (Original work published in 1872)
- Darwin, C. (1965). *The expression of emotion in man and animals*. (K. Lorenz, Ed.). Chicago: University of Chicago Press. (Original work published in 1872)

- David D., Szentagotai A., Eva K., Macavei B. (2005b). A synopsis of rational-emotive behavior therapy (REBT): fundamental and applied research. *J. Ration. Emot. Cogn. Behav. Ther.* 23 175–221. 10.1007/s10942-005-0011-0
- Deffenbacher, J. L., Oetting, E. R., Lynch, R. S., & Morris, C. D.(1996). The expression of anger and its consequences. *Behaviour Research and Therapy*, 34, 575–590.
- Demaria, T. P., Kassinove, H., & Dill, C. A. (1989). Psychometric properties of the survey of personal beliefs: A rational-emotive measure of irrational thinking. *Journal of Personality Assessment*, 53, 329–341.
- DiGiuseppe, R. & Tafrate, R. (2000). Anger disorders scale manual. Un-published manuscript, Jamaica, New York, St. John's University.
- DiGiuseppe, R., & Froh, J. J. (2002). What cognitions predict state anger? *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 20, 133–150.
- DiGiuseppe, R., & Tafrate, R. (2006). *Understanding anger disorders*. Oxford: Oxford University Press.
- DiGiuseppe, R., & Tafrate, R. C. (2004). Anger disorders scale: Manual. Toronto, ON: Multi Health Systems.
- Ditton, J., Farrall, S., Bannister, J., Gilchrist, E., & Pease, K. (1999). Reactions to victimisation: Why has anger been ignored? *Crime Prevention and Community Safety: An International Journal*, 1(3), 52

Dollard, J., Doob, L., Miller, N., Mowrer, O., & Sears, R. (1939). *Frustration and aggression*. New Haven, CT: Yale University Press.

Dryden, W. (1999). *Rational emotive behavior therapy: A training manual*. New York: Springer.

Dryden, W., & Gordon, W. (1993). *Beating the comfort trap*. London: Sheldon Press

Dye, M., & Eckhardt, C. (2000). Anger, Irrational Beliefs, and Dysfunctional Attitudes in Violent Dating Relationships. *Violence And Victims*, 15(3), 337-350. doi: 10.1891/0886-6708.15.3.337

Eckhardt, C. I., Barbour, K. A., & Davison, G. C. (1998). Articulated thoughts of maritally violent and nonviolent men during anger arousal. *Journal of Consulting and Clinical Psychology*, 66, 259–269.

Ekman, P. (1974). Universal facial expression of emotions. In R. LeVine (Ed.), *Culture and Personality: Contemporary reading* (pp. 8-15). Chicago: Aldine.

Ekman, P. (1994). All emotions are basic. In P. Ekman & R. Davidson (Eds.), *The nature of Emotions: Fundamental questions* (pp. 15-19). New York: Oxford University Press.

Ellis A., Dryden W. (1997). *The Practice of Rational-Emotive Behavior Therapy*. New York, NY: Springer Publishing Company.

Ellis, A. (1977). *Anger: How to live with and without it*. New York: Carol Publishing Group.

Ellis, A. (2001a). *Feeling better, getting better, and staying better*. Atascadero, CA: Impact.

Ezzedine, R. (2020). Lebanese Youth's Emigration Rate Is Now Among All-Time High. *The* 961.

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149-1160. doi: 10.3758/brm.41.4.1149

Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. London: SAGE.

Fives, C., Kong, G., Fuller, J., & DiGiuseppe, R. (2010). Anger, Aggression, and Irrational Beliefs in Adolescents. *Cognitive Therapy And Research*, 35(3), 199-208. doi: 10.1007/s10608-009-9293-3

Freud, S. (1963). Mourning and Melancholia. In J. Strachey (Ed. And Trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 14, pp. 243-258). London: Hogarth Pres. (Original work published 1917)

Gallo, L. C. and Matthews, K. A. (2003). Understanding the association between socioeconomic status and physical health: Do negative emotions play a role? *Psychological Bulletin*, 29, 10–51.

Ham, E., & You, M. (2017). Role of Irrational Beliefs and Anger Rumination on Nurses' Anger Expression Styles. *Workplace Health & Safety*, 66(5), 223-232. doi: 10.1177/2165079917737090

- Hamdan-Mansour, A.M., Dardas, L.A., Nawafleh, H., & Abu Asba, M. H. (2011). Psychosocial predictors of anger among university students. *Children and Youth Services Review, 34*, 474-479. doi:10.1016/j.chilyouth.2011.12.004.
- Harrington, N. (2005a). The frustration discomfort scale: Development and psychometric properties. *Clinical Psychology and Psychotherapy, 12*, 374–387.
- Harrington, N. (2006). Frustration intolerance beliefs: Their relationship with depression, anxiety, and anger, in a clinical population. *Cognitive Therapy and Research, 30*, 699–709.
- Hazaleus, S. L., & Deffenbacher, J. L. (1985). Irrational beliefs and anger arousal. *Journal of College Student Personnel, 26*, 47–52.
- Henwood, K.S., Chou, S., & Browne, K., (2015). A systematic review and meta-analysis on the effectiveness of CBT informed anger management. *Aggression and Violent Behavior, 25*, 280-292. doi: 10.1016/j.avb.2015.09.011
- Hubbard, B., & El-Naggat, M. (2020). Clashes Erupt in Beirut at Blast Protest as Lebanon's Anger Boils Over. *The New York Times*. Retrieved from <https://www.nytimes.com/2020/08/08/world/middleeast/Beirut-explosion-protests-lebanon.html>
- Ibrahim, A., Najjar, F., & Regencia, T. (2020). Second day of protests as anger over Beirut explosion grows: Live. *Al Jazeera*. Retrieved from <https://www.aljazeera.com/news/2020/08/09/second-day-of-protests-as-anger-over-beirut-explosion-grows-live/?gb=true>

- Ignatans, D., & Pease, K. (2019). Are victims of crime mostly angry or mostly afraid?. *Crime Prevention And Community Safety*, 21(4), 314-324. doi: 10.1057/s41300-019-00079-1
- Iyer, A., Schmader, T., & Lickel, B. (2007). Why individuals protest the perceived transgressions of their country: The role of anger, shame, and guilt. *Personality and Social Psychology Bulletin*, 33, 572–587. <https://doi.org/10.1177/0146167206297402>.
- James, W. (1890). *The principles of psychology*. New York: H. Holt.
- Karam, E. G., Mneimneh, Z. N., Dimassi, H., Fayyad, J. A., Karam, A. N., Nasser, S. C., & Kessler, R. C. (2008). Lifetime prevalence of mental disorders in Lebanon: First onset, treatment, and exposure to war. *PloS Medicine*, 5 (4), e61.
doi:10.1371/journal.pmed.0050061
- Karam, J. (2020). Lebanon: UN rights office calls for de-escalation of protest violence. Retrieved 1 September 2020, from <https://news.un.org/en/story/2020/01/1055701>
- Kassinove, H., & Eckhardt, C. I. (1994). Irrational beliefs and self-reported affect in Russia and America. *Personality and Individual Differences*, 16, 133–142.
- Kassinove, H., & Sukhodolsky, D. G. (1995). Anger disorders: Basic science and practice issues. In H. Kassinove (Ed.), *Anger disorders: Definition, diagnosis, and treatment* (pp. 1–26). Washington, DC: Taylor & Francis.
- Kemper, T. D. (1978). *A social interaction theory of emotions*. New York: Wiley.
- Kemper, T. D. (1991). An introduction to the sociology of emotions. In K. T. Strongman (Ed.), *International review of studies of emotion* (pp. 301 -349). New York: Wiley.

Klifton, C. (2020). Beirut explosion 'one of the largest non-nuclear blasts in history'. Retrieved 7 September 2020, from <https://www.standard.co.uk/news/world/beirut-explosion-one-of-largest-blasts-history-a4517646.html>

Lazarus, R. S. (1991). *Emotion and adaptation*. London: Oxford University Press.

Lebanon Net Migration Rate 1950-2020. (2020). Retrieved 11 December 2020, from [https://www.macrotrends.net/countries/LBN/lebanon/net-migration#:~:text=The%20current%20net%20migration%20rate,a%20195.37%25%2EEllis,A.\(1962\).Reasonandemotioninpsychotherapy.NewYork:LyleStuart.](https://www.macrotrends.net/countries/LBN/lebanon/net-migration#:~:text=The%20current%20net%20migration%20rate,a%20195.37%25%2EEllis,A.(1962).Reasonandemotioninpsychotherapy.NewYork:LyleStuart.)

Lebanon News (2019). LF, Hezbollah students brawl on university campus. *The Daily Star*. Retrieved 4 September 2020, from <https://www.dailystar.com.lb/News/Lebanon-News/2019/Oct-02/492726-lf-hezbollah-students-brawl-on-university-campus.ashx>

Levin, J., & McDevitt, J. (1993). *Hate crimes: The rising tide of bigotry and bloodshed*. New York: Plenum.

Levin, J., & McDevitt, J. (1993). *Hate crimes: The rising tide of bigotry and bloodshed*. New York: Plenum.

Levinson, D. (1978). *The Seasons of a Man's Life*.

Lindner, H., Kirkby, R., Wertheim, E., & Birch, P. (1999). A brief assessment of irrational thinking: The Shortened General Attitude and Belief Scale. *Cognitive Therapy and Research*, 23, References

- Lotz, S., Baumert, A., Schlösser, T., Gresser, F., & Fetchenhauer, D. (2011). Individual differences in third-party interventions: How justice sensitivity shapes altruistic punishment. *Negotiation and Conflict Management Research*, 4, 297–313.
- Lotz, S., Okimoto, T. G., Schlösser, T., & Fetchenhauer, D. (2011). Punitive versus compensatory reactions to injustice: Emotional antecedents to third-party interventions. *Journal of Experimental Social Psychology*, 47, 477–480. <https://doi.org/10.1016/j.jesp.2010.004>.
- Macavei, B., & McMahon, J. (2010). The assessment of rational and irrational beliefs. In D. David, A. Ellis & S. J. Lynn (Eds.), *Rational and irrational beliefs. Research, theory and clinical practice* (p. 115-147). New York: Oxford University Press.
- Martin, R. C., & Dahlen, E. R. (2004). Irrational Beliefs and the Experience and Expression of Anger. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 22(1), 3–20. <https://doi.org/10.1023/B:JORE.0000011574.44362.8f>
- Meichenbaum, D. (2005). Anger Control Problems. *Encyclopedia of Cognitive Behavior Therapy*, 23-26. doi:10.1007/b99240.
- Mideast Media (2016). Online and Social Media · Media Use in the Middle East. Retrieved 7 September 2020, from <http://www.mideastmedia.org/survey/2016/chapter/online-and-social-media/#:~:text=A%20majority%20of%20internet%20users,Qatar%2C%2037%25%20UAE>).

Muran, J. C., Kassinove, H., Ross, S., & Muran, E. (1989). Irrational thinking and negative emotionality in college students and applicants for mental health services. *Journal of Clinical Psychology*, 45, 188–193

Najjar, F. (2020). 'They're still robbing us': Angry Lebanese reject new government. Retrieved 1 September 2020, from <https://www.aljazeera.com/news/2020/01/violent-protests-beirut-follow-lebanon-cabinet-meeting-200122161944258.html>

Oats, R., & Forrest, D. (1985). Self-esteem and early background of abusive mothers. *Child Abuse and Neglect*, 9, 89–93.

Oats, R., & Forrest, D. (1985). Self-esteem and early background of abusive mothers. *Child Abuse and Neglect*, 9, 89–93.

Operations Dashboard for ArcGIS. (2020). *Ministry of Public Health*. Retrieved 6 September 2020.

Osseiran, G. (2019). The youth revolution for a Lebanon where they can stay. Retrieved 31 August 2020, from <https://lebanesestudies.com/the-youth-revolution-for-a-lebanon-where-they-can-stay/>

Perry, T., & Fahmy, A. (2019). Fears of violence grow as Lebanese crisis deepens. *Reuters*. Retrieved 1 September 2020, from <https://www.reuters.com/article/us-lebanon-protests/fears-of-violence-grow-as-lebanese-crisis-deepens-idUSKBN1Y11ZJ>

Persanpiere, J., Poole, G., & Murphy, C. M. (2014). Neuropsychological correlates of anger, hostility, and relationship-relevant distortions in thinking among partner violent men. *Journal of Family Violence*, 29, 625–641. <https://doi.org/10.1007/s10896-014-9614-5>

Rahman, A. K. M. R. and Huq M. M. (2005). Aggression in adolescent boys and girls as related to socio-economic status and residential background. *Journal of life Earth Science*, 1(1), 5-9.

Rahman, A., Bairagi, A., & Dey, B. (2014). The Effect of Socio-Economic Status and Gender on Adolescent Anger in Chittagong. *IOSR Journal Of Humanities And Social Science*, 19(3), 63-68. doi: 10.9790/0837-19356368

Ramirez, J., Fujihara, T., & H M van Goozen, S. (2001). Cultural and Gender Differences in Anger and Aggression: A Comparison Between Japanese, Dutch, and Spanish Students. *The Journal Of Social Psychology* :, 141(1), 119-21. doi: 10.1080/00224540109600528

Renzetti, C. (1992). *Violent betrayal: Partner abuse in lesbian relationships*. Newbury Park, CA: Sage.

Renzetti, C. (1992). *Violent betrayal: Partner abuse in lesbian relationships*. Newbury Park, CA: Sage.

Salzinger, K. (1995). A behavior-analytic view of anger and aggression. In H. Kassinove (Ed.), *Anger disorders: Definition, diagnosis, and treatment* (pp. 69–79). Philadelphia: Taylor & Francis.

Scherer, K. R., & Wallbott, H. G. (1994). Evidence for universality and cultural variation of differential emotion response patterning. *Journal of Personality and Social Psychology*, 66, 310–328.

Singer, M. I., & Flannery, D. J. (2000). The relationship between children's threats of violence and violent behaviors. *Archives of Pediatric and Adolescent Medicine*, 154, 785–790.

Spielberger, C. D. (1999). Manual for the state-trait anger expression inventory-2. Odessa, FL: Psychological Assessment Resources.

Spielberger, C.D., & Reheiser, E.C. (2009). Assessment of emotions: anxiety, anger, depression, and curiosity. *Applied Psychology: Health and Well-Being*, 1 (3), 271-301. doi: 10.1111/j.1758-0854.2009.01017.x.

Sprague, J., Verona, E., Kalkhoff, W., & Kilmer, A. (2011). Moderators and mediators of the stress-aggression relationship: executive function and state anger. *Emotion*, 11 (1), 61-73. doi: 10.1037/a0021788.

Stake, J. (1992). Gender Differences and Similarities in Self-Concept Within Everyday Life Contexts. *Psychology Of Women Quarterly*, 16(3), 349-363. doi: 10.1111/j.1471-

6402.1992.tb00259.x
Bernard, M. E. (1990). Validation of General Attitude and Belief Scale. Presented at the World Congress on Mental Health Counselling. Keystone, Colorado. 651-663.

Stanković, S., & Vukosavljević-Gvozden, T. (2011). The Relationship of a Measure of Frustration Intolerance with Emotional Dysfunction in a Student Sample. *Journal Of Rational-Emotive And Cognitive-Behavior Therapy*, 29(1), 17-34. doi: 10.1007/s10942-011-0128-2

Taylor, T. (2006). Lower, Working and middle class. Chicago: Barbara Press.

The Office of the United Nations High Commissioner for Refugees (UNHCR) (2014). Housing, land & property issues in Lebanon: Implications of the Syrian refugee crisis.

Trampe, D., Quoidbach, J., and Taquet, M. (2015). Emotions in everyday life. *PLoS ONE* 10:e0145450. doi: 10.1371/journal.pone.0145450

Van Doorn, J., Zeelenberg, M., Breugelmans, S., Berger, S., & Okimoto, T. (2018). Prosocial consequences of third-party anger. *Theory And Decision*, (84), 585–599. Doi: 10.1007/s11238.017.9652.6

Vecchio, T.D., & O’Leary, K.D. (2004). Effectiveness of anger treatments for specific anger problems: a meta-analytic review. *Clinical Psychology Review*, 24 (1), 15- 34. doi: 10.1016/j.cpr.2003.09.006.

Verona, E., Sadeh, N., Curtin, J.J. (2009). Stress-induced frontal brain activity and aggression risk. *Journal of Abnormal Psychology*, 118 (1), 131-145. doi: 10.1037/a0014376.

Wakslak, C. J., Jost, J. T., Tyler, T. R., & Chen, E. S. (2007). Moral outrage mediates the dampening effect of system justification on support for redistributive social policies. *Psychological Science*, 18, 267–274. <https://doi.org/10.1111/j.1467-9280.2007.01887.x>.

Wiseman, H., Metzl, E., & Barber, J.P. (2006). Anger, guilt, and intergenerational communication of trauma in the interpersonal narratives of second generation holocaust survivors. *American Journal of Orthopsychiatry*, 76 (2), 176-184. doi: 10.1037/0002-9432.76.2.176.

Zwemer, W. A., & Deffenbacher, J. L. (1984). Irrational beliefs, anger and anxiety. *Journal of Counseling Psychology*, 31, 391– 393.

Appendix A

Participant information letter

Dear Ms./Mr.

I am Lea Mia Asfour, a student at Haigazian University from the Faculty of Social and Behavioral Sciences. I am currently carrying out a research study titled “The Relationship between Anger and Irrational Beliefs and their Effect on Aggression in a Sample of Lebanese Youth between the Ages of 18 and 25” advised by Dr. Hanine Hout.

You are being asked to take part in this study since you are a Lebanese between the age of 18 and 25 living in Lebanon.

Kindly read the below information to decide whether you would like to participate in this research study.

Purpose of the Research Project

This research study aims at examining whether a combination of anger and irrational beliefs predict physical, verbal, and indirect aggression. Moreover, the study aims to understand the role of gender when it comes to the relationships between irrational beliefs and aggression, on one hand, and anger and aggression on the other. The research findings will guide new research to gain for a better understanding on issues that emerging adults in Lebanon are facing, particularly those that relate to anger, irrational beliefs, and aggression and the factors that play into each. Findings will also help therapists determine whether REBT and other treatments aimed at reducing irrational beliefs and reinforcing rational beliefs could be particularly effective in treating anger and aggression in Lebanese youth in Lebanon.

This study will contribute towards the partial fulfillment of my academic study requirements at Haigazian University.

What will I be asked to do?

- If you choose to participate in this research study, you will be asked to fill 3 questionnaires. Your participation will involve completing a demographic form and 2 questionnaires that entail statements that you will have to rate based on agreement. The time estimated to complete the survey is 20 minutes.
- Participation in this project is voluntary. You are free to withdraw anytime without having to give any reason for your withdrawal.

What are my rights?

- Participation in this study is completely voluntary, anonymous and confidential. Your name or any other identifying information will not be asked.
- Data you provide along with data from all participants in the present research will be stored in aggregate in a password protected folder. The data will be analysed and reported in aggregate. Only the principle investigators of this study will have access to the compiled data which will be stored for a period of 10 years post data. During this time, you have the right to inspect the data.
- You have the right to withdraw your consent or discontinue participation at any time for any reason. Your decision to refuse participation or withdraw will not involve any penalty or loss of benefits to which you are entitled. Discontinuing participation in no way affects your relationship with Haigazian University.

This research study has been reviewed and has received clearance from the Haigazian University Ethics Committee. If you have any further concerns about your rights as a research participant, please, do not hesitate to contact SBS.Ethics@haigazian.edu.lb.

What are the risks and benefits of participation?

- Participation in this study does not involve any physical risk or emotional risk to you beyond the risks of daily life.
- You will receive no direct benefits from participating in this research; however your participation does help researchers better understand the relationship between anger, irrational beliefs, and aggression while employing a gender lens.

Contact information

If you have any questions or concerns about the research you may contact:

Name: Lea Mia Asfour

Affiliation: Clinical Psychology Masters student at Haigazian University

Email: lasfour@students.haigazian.edu.lb

Name: Dr. Hanine Hout

Affiliation(s): Assistant Professor in the SBS at Haigazian University

Telephone: 961 1 349 230, ext. 331

Email: hanine.hout@haigazian.edu.lb.

Appendix B

Participant consent

The Relationship between Anger and Irrational Beliefs and their Effect on Aggression in a Sample of Lebanese Youth between the Ages of 18 and 25

Please read the following statements and place a check mark in the boxes adjacent to them.

- I have volunteered to participate in this research project conducted for purposes of study. My participation is voluntary and does not involve payment of any kind.
- I agree to participate in this research project conducted for purposes of study. My decision is voluntary and does not involve payment of any kind.
- I know that I can choose to withdraw from participation any time without any penalties or consequences whatsoever. I also hold the right to decline to respond to any question(s) that I may feel uncomfortable with.
- My participation involves answering 3 questionnaires that will take me around 20 minutes.
- I have been assured that the researcher will maintain my identity confidential.
- I have been assured that the information from this survey will be used for the purpose of academic study only / publication / educational use.
- I have received the assurance that this research study has been duly reviewed and approved by the Haigazian University ethics committee.
- I agree that the data gathered be kept in a secure location under the care of the study investigators for a period of 10 years.
- I have been assured that I can access my data (if identified) at any time.

I have read, listened and fully understand the explanation given to me. All my questions have been satisfactorily answered.

I, therefore, choose to voluntarily participate in this research study.

Do you agree to the statements above and give your consent to participate in the study?

Yes

No

Appendix C
Demographic Scale

1. Please indicate your age: _____
2. What is your nationality?
 - Lebanese
 - Other
3. Are you currently residing in Lebanon?
 - Yes
 - No
4. Please specify your gender
 - Male
 - Female
5. Please indicate your marital status
 - Single
 - Married
 - In a relationship
 - Other, please specify
6. Please indicate the highest level of education that you have completed or are currently completing
 - High School
 - Bachelor's Degree
 - Master's Degree
 - Ph.D. or higher

- Trade School

7. Other, please specify

Please specify your work status

- Employed full-time
- Employed part-time
- Unemployed

8. Please indicate the highest level of education either parent has attained.

(Eg: if your mother completed a PhD and your father completed a Master's, please choose PhD)

- Some schooling
- High School
- Bachelor's Degree
- Master's Degree
- Ph.D. or higher
- Trade School
- Other, please specify

Appendix D

Aggression Questionnaire

Using this 5 point scale, indicate how uncharacteristic or characteristic each of the following statements is in describing you.

- 1 Not at all like me
- 2 A little like me
- 3 Somewhat like me
- 4 Very much like me
- 5 Completely like me

1. My friends say that I argue a lot.
2. Other people always seem to get the breaks.
3. I flare up quickly, but get over it quickly.
4. I often find myself disagreeing with people.
5. At times I feel I have gotten a raw deal out of life.
6. I can't help getting into arguments when people disagree with me.
7. At times I get very angry for no good reason.
8. I may hit someone if he or she provokes me.
9. I wonder why sometimes I feel so bitter about things.
10. I have threatened people I know.
11. Someone has pushed me so far that I hit him or her.
12. I have trouble controlling my temper.
13. If I'm angry enough, I may mess up someone's work.

14. I have been mad enough to slam a door when leaving someone behind in the room.
15. When people are bossy, I take my time doing what they want, just to show them.
16. I wonder what people want when they are nice to me.
17. I have become so mad that I have broken things.
18. I sometimes spread gossip about people I don't like.
19. I am a calm person.
20. When people annoy me, I may tell them what I think of them.
21. I sometimes feel that people are laughing at me behind my back.
22. I let my anger show when I do not get what I want.
23. At times I can't control the urge to hit someone.
24. I get into fights more than most people.
25. If somebody hits me, I hit back.
26. I tell my friends openly when I disagree with them.
27. If I have to resort to violence to protect my rights, I will.
28. I do not trust strangers who are too friendly.
29. At times I feel like a bomb ready to explode.
30. When someone really irritates me, I might give him or her the silent treatment.
31. I know that "friends" talk about me behind my back.
32. Some of my friends think I am a hothead.
33. At times I am so jealous I can't think of anything else.
34. I like to play practical jokes.

Appendix E

Shortened Attitude and Belief Scale (SGABS)

Here are a set of statements which describe what some people think and believe. Read each statement carefully and decide how much you agree or disagree with it.

There are no right or wrong answers. Only you can tell what you really believe so please mark the way you really think.

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree

1. It's unbearable to fail at important things, and can't stand not succeeding at them.
2. I can't stand a lack of consideration from other people, and I can't bear the possibility of their unfairness.
3. It's unbearable being uncomfortable, tense or nervous and I can't stand it when I am.
4. I have worth as a person even if I do not perform well at tasks that are important to me.
5. I can't stand being tense or nervous and I think tension is unbearable.
6. It's awful to be disliked by people who are important to me, and it is a catastrophe if they don't like me.
7. If important people dislike me, it is because I am an unlikable bad person.

8. When I am treated inconsiderately, I think it shows what kind of bad and hopeless people there are in the world.
9. If I am rejected by someone I like, I can accept myself and still recognize my worth as a human being.
10. If I do not perform well at tasks that are so important to me, it is because I am a worthless bad person.
11. It's awful to do poorly at some important things, and I think it is a catastrophe if I do poorly.
12. I think it is terribly bad when people treat me with disrespect
13. When people I like reject me or dislike me, it is because I am a bad or worthless person.
14. I cannot stand being treated unfairly, and I think unfairness is unbearable.
15. I believe that if a person treats me very unfairly they are bad and worthless.
16. I can't stand hassles in my life.
17. It's awful to have hassles in one's life and it is a catastrophe to be hassled.
18. I cannot tolerate not doing well at important tasks and it is unbearable to fail.
19. It is important that people treat me fairly most of the time, however I realize I do not have to be treated fairly just because I want to be.
20. If I do not perform well at things which are important, it will be a catastrophe.

21. It is unbearable to not have respect from people, and I can't stand their disrespect.
22. If important people dislike me, it goes to show what a worthless person I am.
23. I must be liked and accepted by people I want to like me, and I will not accept their not liking me.
24. I want to be liked and accepted by people whom I like, but I realize they don't have to like me just because I want them to.
25. When people who I want to like me, disapprove of me or reject me, I can't bear their disliking me.
26. If people treat me without respect, it goes to show how bad they really are.