# Core irrational beliefs and maladaptive schemas in cognitive behavioral therapy for anger and aggression

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*dissertation submitted by*

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*for the degree of*

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Table of Contents

## Figures

## Tables

**Zusammenfassung (auf Deutsch)**

Ziel der vorliegenden Forschung ist es den Effekt der kognitiven Verhaltenstherapie (KVT) als Interventionsprogramm für die Behandlung von Individuen und Paaren mit Wut und Aggression zu erforschen sowie den Zusammenhang zwischen irrationalen Glaubenssätze bzw. maladaptiven Schemata und der Entstehung von Wut und Aggression zu ermitteln.

In einer ersten viermonatigen randomisiert-kontrollierten Studie mit Individuen mit Ärgerproblematik erhielt die Behandlungsgruppe (n=17) kognitive Verhaltenstherapie und die Kontrollgruppe (n=16) wurde in Psychoedukation und Entspannungstechniken wie Atemtechniken und Muskelentspannung geschult. Die teilnehmenden Paare einer zweiten Studie wurden für die Behandlung von Wut und Aggression überwiesen und erhielten in der Behandlungsgruppe eine kognitive Verhaltenstherapie für Paare (n=16) beziehungsweise in der Kontrollgruppe die Unterweisung in Entspannungstechniken (n=12) für die Dauer von fünf Monaten. In beiden Studien wurden vor und nach den Interventionen folgende Erhebungen durchgeführt: 1) State-Trait Anger Expression Inventory–2, 2) Novaco Anger Scale, 3) Anger Disorder Scale: Short und 4) Aggression Questionnaire.

In einer dritten Studie wurde die Beziehung zwischen maladaptiven Schemata (EMSs), Wut und Aggression in wütenden Individuen (n=24), einer Kontrollgruppe (n=29) und einer Gruppe mit anderen psychologischen Diagnosen (n=33) mithilfe der 1) Novaco Anger Scale und des 2) Young Schema Questionnaires (Kurzform in der dritten Auflage) untersucht.

Die Ergebnisse einer Varianzanalyse mit Messwiederholung weisen auf eine signifikante posttherapeutische Reduktion der Wut und Aggressionswerte der Behandlungsgruppe im Vergleich zur Kontrollgruppe hin. KVT reduziert, durch die Modifizierung der irrationalen Glaubenssätze, effektiv (niedrige bis mittlere Effektgröße) Wut und Aggression in Individuen und Paaren.

Multiple lineare Regression der Messwerte der dritten Studie ergaben drei innerste Überzeugungen/Schemata, die am häufigsten mit Wut im Zusammenhang stehen: Anspruchshaltung/Grandiosität, Misstrauen/Missbrauch und Verlassenheit/Instabilität. Grundüberzeugungen/Schemata die Aggression vorhersagen sind: Anspruchshaltung/ Grandiosität, Verlassenheit/Instabilität und Emotionale Entbehrung. Folgende Schemata sind ebenfalls mit Ärger und Wut assoziiert und sagen diese voraus: Unzureichende Selbstkontrolle/Selbstdisziplin, überhöhte Standards/übertrieben kritische Haltung, Streben nach Zustimmung und Anerkennung (Beachtung suchen), Unterwerfung, Selbstaufopferung und Strafneigung.

KVT reduziert effektiv die physiologische (Trait-Ärger, Ärger-Temperament, Erregung, Häufigkeit), Verhaltens- (Aggression, Ärgerausdruck, verbale Aggression, Rache) und kognitive Dimension (Feindseligkeit, Reaktivität/Ausdruck) von Wut und steigert sowohl die Regulierung als auch die Kontrolle der Wut.

**Schlüsselwörter:** Wut, Aggression, kognitive Verhaltenstherapie, innersten Glaube, irrationale Glaube, maladaptive Schemata, Wutmanagement, Glaubenssystem

**Abstract (in English)**

Aim of present research is to study the effect of cognitive behavioral therapy (CBT) as an intervention program for treatment of clients (individuals and couples) with anger and aggression and finding the relationships of core/irrational beliefs and maladaptive schemas with anger, and aggression.

Three studies are conducted among adults with anger and aggression. In first study, a randomized controlled trial, treatment group (n=17) received CBT and control group (n=16) received psychoeducation and relaxation training such as breathing techniques, relaxation techniques, and muscle relaxation for a duration of four months. Participants of the second study were couples who referred for treatment of anger and aggression. Treatment group (n=16) and control group (n=12) received cognitive behavioral couple therapy and relaxation training respectively for duration of five months. The participants of both studies completed the following four inventories before and after treatment: 1) State-Trait Anger Expression Inventory–2, 2) Novaco Anger Scale, 3) Anger Disorder Scale: Short, and 4) Aggression Questionnaire.

Third study examined the relationships between early maladaptive schemas (EMSs), anger, and aggression among 86 adult individuals in Anger therapy group (n=24), Control group (n=29), and Outpatients group (n=33). Following measures were used in third study: 1) Novaco Anger Scale and 2) Young Schema Questionnaire – Short Form, 3rd Edition.

In the study 1 and 2, the results of the univariate test of within-subjects indicated that there is a significant reduction in the level of anger and aggression in the experimental group compared to the control group at the end of the treatment program. CBT is effective (low to moderate effect size) in helping clients (both individuals and couples) to reduce their anger and aggression by modifying their core/irrational beliefs.

In study 3, results of multiple linear regression specified three core beliefs/schemas that are mostly related to anger: entitlement/grandiosity, mistrust/abuse, and abandonment/instability. The core beliefs/schemas predicting aggression were: entitlement/grandiosity, abandonment/ instability, and emotional deprivation. The next schemas that are associated and predicted anger and aggression are: insufficient self-control, unrelenting standards, approval seeking, subjugation, self-sacrifice, and punitiveness.

Cognitive behavioral therapy is effective in decreasing physiological dimension (trait anger, anger temperament, arousal, frequency), behavioral dimension (aggression, anger expression-out, verbal aggression, vengeance), and cognitive dimension (hostility, reactivity/ expression) of anger. CBT is also effective in increasing anger regulation and anger control.

**Keywords:** Anger, Aggression, Cognitive behavioral therapy, core beliefs, irrational beliefs, early maladaptive schemas, anger management, beliefs system

**Compliance with Ethical Standards.** The author confirms that all the 3 studies comply with ethical guidelines.

**Conflict of interest.** The author has no conflict of interest.

## Introduction

Anger is a normal, usually healthy, human emotion, experienced by individuals of all ages, backgrounds, and occupations (Kassinove & Tafrate, 2002). “It is a primary emotion having adaptive functions linked to survival mechanisms that are biological, psychological, and social in nature” (Novaco, 2016). However, when it gets out of control, it might negatively influence one’s health (Siegman & Smith, 2013), work effectiveness (Folger & Baron, 1996), interpersonal relationships (Jacobson & Gottman, 1998) and, overall quality of life. It also increases a tendency to aggression (Tafrate, Kassinove, & Dundin, 2002).

In the year 2015, I was frequently feeling angry. The main motive in conducting this research was to find out what is the cause of my anger and whether cognitive-behavioral therapy can be effective in treating the anger. “Cognition is generally thought to be central to anger because there is often no direct observable relationship between external events and anger. [In other words,] anger is a function of the perception and the way in which we process information [and activating events]” (Novaco, 2012, p. 15). These cognitive processes are well presented in most of the anger and aggression theories (Schachter & Singer, 1962; Lazarus, 1991; Novaco, 1994; Power & Dalgleish, 2015; Anderson & Bushman, 2002; Kassinove & Tafrate, 2002). Some of these researches have considered that beliefs influence anger, hostility, and aggression (Anderson & Bushman, 2002; Dozois, Martin, & Faulkner, 2013; L R Huesmann, 1998). Similarly, cognitive behavioral therapies also emphasize the role of core beliefs (Beck, 1999), irrational beliefs (Ellis, 1998), and early maladaptive schemas (J. Young, Klosko, & Weishaar, 2003) as the cause of anger and aggression. However, humans have countless beliefs that mostly come from family, friends, environment, society, culture, language, religion, and so on (Ellis, 2003). It is therefore important to find out exactly which of the beliefs cause anger and aggression.

Cognitive-behavioral therapy since its introduction by Ellis in the year 1955 and later by Beck in the year 1976, is over 60 years old. In many countries, CBT, also called "Verhaltenstherapie = behavior therapy" in Germany, is one of the well-known therapies in research, treating illnesses in psychiatric and psychological institutions, as well as valid and trusted by insurance system. Cognitive behavioral theories have a common opinion on putting a major emphasis on beliefs that are dysfunctional, maladaptive or irrational and cause negative emotions. However, each of these theories somehow neglect the previous ones. For example, the anger episode model by Kassinove and Tafrate (2013) include irrational appraisal by Ellis, but rarely mention the relationship between beliefs and other factors. From the other hand, there are some studies (Baardseth et al., 2013; Johnsen & Friborg, 2015; Lynch, Laws, & McKenna, 2010) that criticized cognitive-behavioral therapy, and many researchers are seeking alternative techniques and other treatments for treating patients. The question that can be considered is whether people who have a problem in controlling their anger and aggression, by understanding their dysfunctional or irrational beliefs and changing them, would be able to control their behavior and reduce the intensity and frequency of anger episodes? Therefore, the central aim of this research is to investigate the effectiveness of cognitive-behavioral therapy for treatment of anger and aggression.

This research is relevant as it helps to understand the role of the beliefs system in cognitive-behavioral anger management therapy. It explores the "core beliefs/cognitive schemas" among individuals with anger and aggression and help the therapists to target them in anger management sessions. It is relevant to patients, therapists, society, and insurance system. It benefits patients since they realize the cause of their unhealthy negative emotions (e.g., anger), and their maladaptive behavior (e.g., aggression). It is beneficial for therapists as it reduces the complicated process of detecting core beliefs in aggressive patients and facilitate the treatment. It helps society as many people in Germany have to wait few months to get a place in therapy

settings. This long waiting list might deteriorate anger and aggression, rumination, hostility and may increase the likelihood of committing violence in some individuals. Thus, by fast detection of core beliefs and effectively targeting them, therapy healing is facilitated and overall, the duration of waiting list is reduced. This research helps to have more efficient therapy, aid in implementing the brief interventions (as therapist directly target the core beliefs), and reduce the economic cost for insurances and society.

**Proceed / overview**

The present research consists of two parts: theory and research. In the theory section we will review: 1) theories related to anger and aggression as it is necessary to understand anger and aggression from all the past and present models, 2) cognitive behavioral therapy for anger and aggression to find out what are the current interventions for anger and aggression, 3) therapy for anger and aggression from rational emotive behavior therapy, cognitive therapy, and schema therapy because each of them is considered cognitive behavioral therapy and integrating them would be helpful to have effective treatment for anger and aggression, 4) all the past and present literature on core irrational beliefs and early maladaptive schemas for anger and aggression in order to find out the current status of research, 5) all the previous randomized control trials targeting anger and aggression, 6) rationales for conducting three research is written to explain why there was a need for a randomized control trial and a study to find out the cause of anger and aggression.

In the research section, I have conducted three studies. In first and second study, I have evaluated the effectiveness of cognitive behavioral therapy for treatment of anger and aggression among individuals and couples. In the third study, I have examined the early maladaptive schemas and beliefs that predicts anger and aggression across three groups of Anger therapy (AG), Control (CG) and Outpatients (OG). In last part, overall discussion, findings of three studies along with its relevant to present research will be discussed.

## Part I: THEORY

### 1. Beliefs system

To understand the relationship of beliefs system with anger and aggression, first, we need to define beliefs system. I conceptualize the beliefs system as the sum of beliefs about self, others, and world, with the possibility of the changes, that are developed during childhood, adolescence and later stages of life, from the family, others, culture, and society. It includes personality, needs, values, norms, attitudes, views, expectations, rules and assumptions that interacts and directs with the outer layers such as emotions, cognitive functions, behaviors, learning, social factors, and physiology (see Figure 1 and 2).

In the above definition, sum of beliefs means all the beliefs that individual have formed by self or learned throughout life from any sources. The angry and aggressive individuals have formed the beliefs supporting their anger and aggression, during their profound emotional moments, or they have learned how to be angry or aggressive from their parents, siblings, other family members or authority figures (grandparents, uncle, aunt, etc.), peer group (friends, school friends), media (violent film, music, video games, etc.), society (place of living, school, workplace), etc. The beliefs could be formed at any stages of life, such as childhood years, adolescence, early adulthood, adult years or even later.

The second part in the definition is about the possibility of change. The individual is the collection of the beliefs that are flexible to change, with the only condition of considering the level of willingness. All the beliefs could be changed irrespective of age, gender or any other factor only if the individual is willing to do so. They are flexible, compromisable, and negotiable.

Beliefs system consists of two parts: inner layers and outer layers. Inner layers consist of needs, motivations, rules, norms, values, personality, expectation, appraisal, and assumption. Outer

layers are: emotions, behaviors, cognitive functions, physiology/neurology, learning, and social factors. Inner layers are the central part that interact directly and indirectly with outer layers. The outer layers are also interrelated and influence each other. The difference between these two layers is that: Inner layers are *part* of beliefs system, however, the outer layers *interact* with beliefs system.

Beliefs system model is nothing new, rather in this model, an effort is made to integrate and connects most of the theories in psychology to each other. The goal of the model is neither to disprove previous models nor to approve them absolutely. It is a flexible model that expands with other current theories. If any theory or model is missing from figure 1, it doesn't mean that they can not be included or they are wrong, rather they can be included as a new separate section or be categorized under any of the relevant headings.

Figure 1 displays the beliefs system model. Beliefs system is in the center and it consist of five circles, each represent the inner layers. There are other five circles that represent the outer layers of beliefs system. All of these circles are explained in theory section in details. Trigger or events directly activate the beliefs system. Activation of beliefs is followed by activation of some or all part of the inner layers and outer layers simultaneously.

Figure 2 displays the previous models and theories that are included to build the model of beliefs system in figure 1. The red colours shows the inner layer and green colour represent the outer layer. Each theory will be discussed in detail in each relevant section.

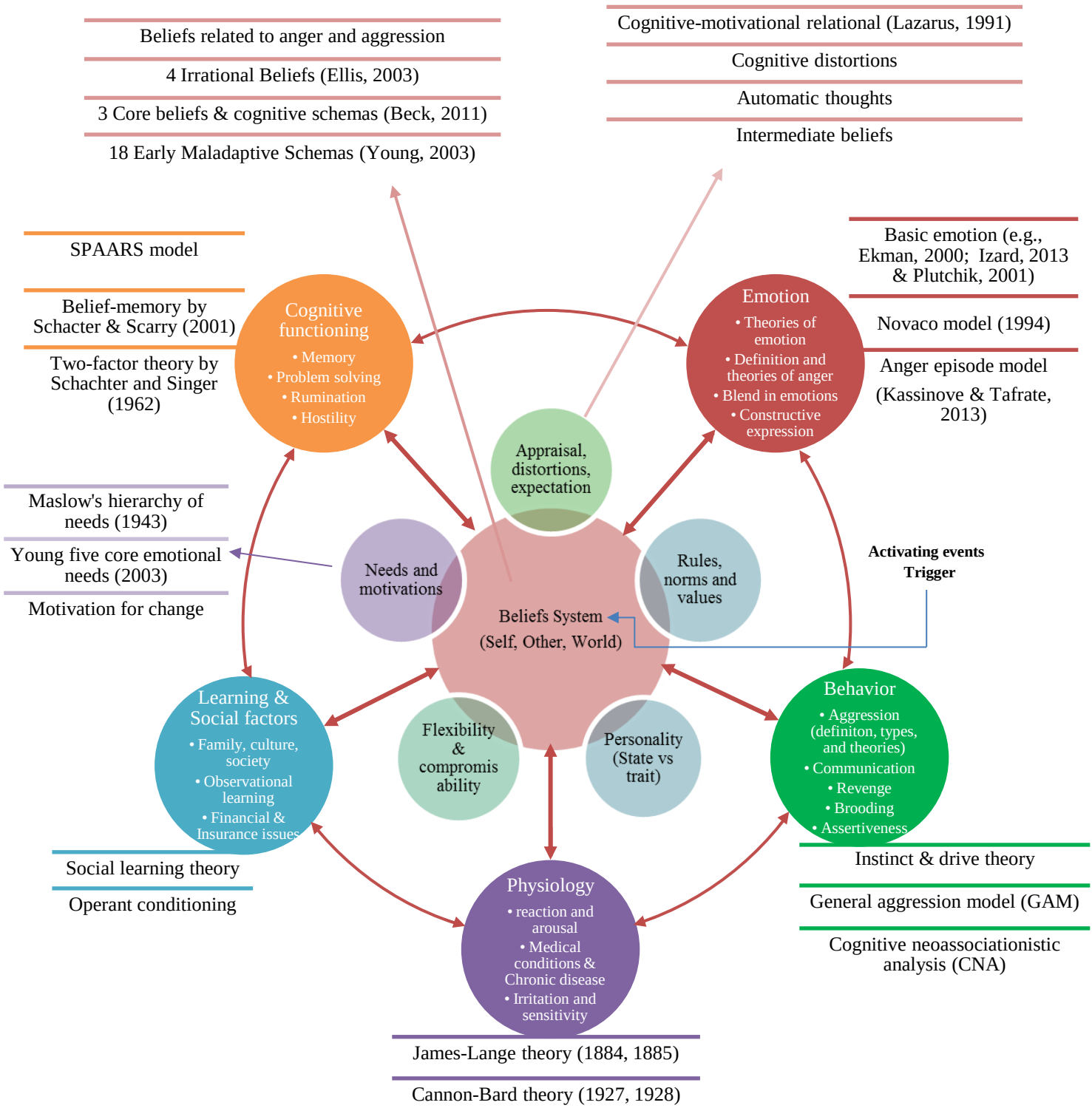



*Figure 1. Beliefs system model*

*Figure 2. Overview of integrated theories in Beliefs system model (Part 1)*

*Red= Inner layers; Green= Outer layers; Light blue: Events/trigger*

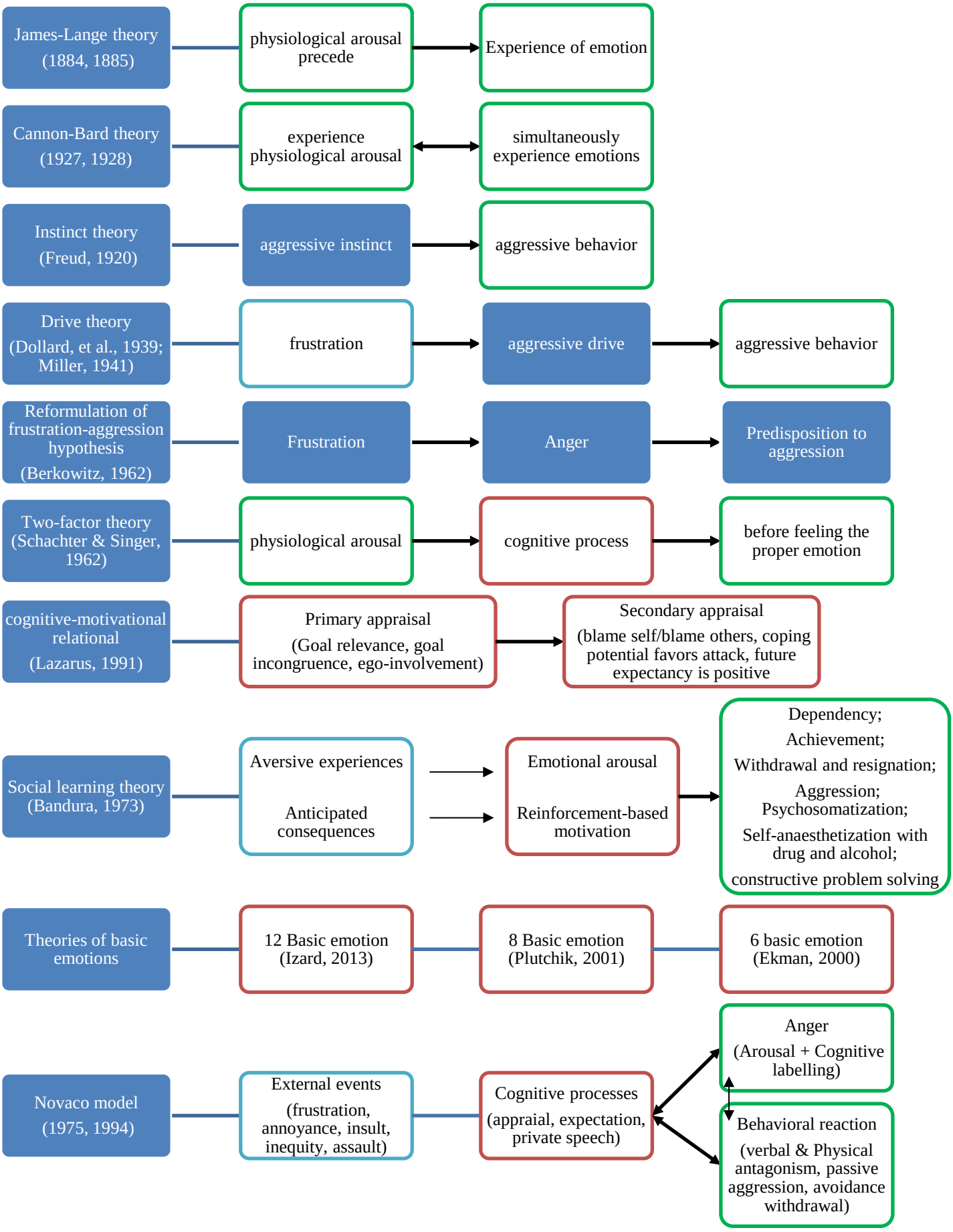
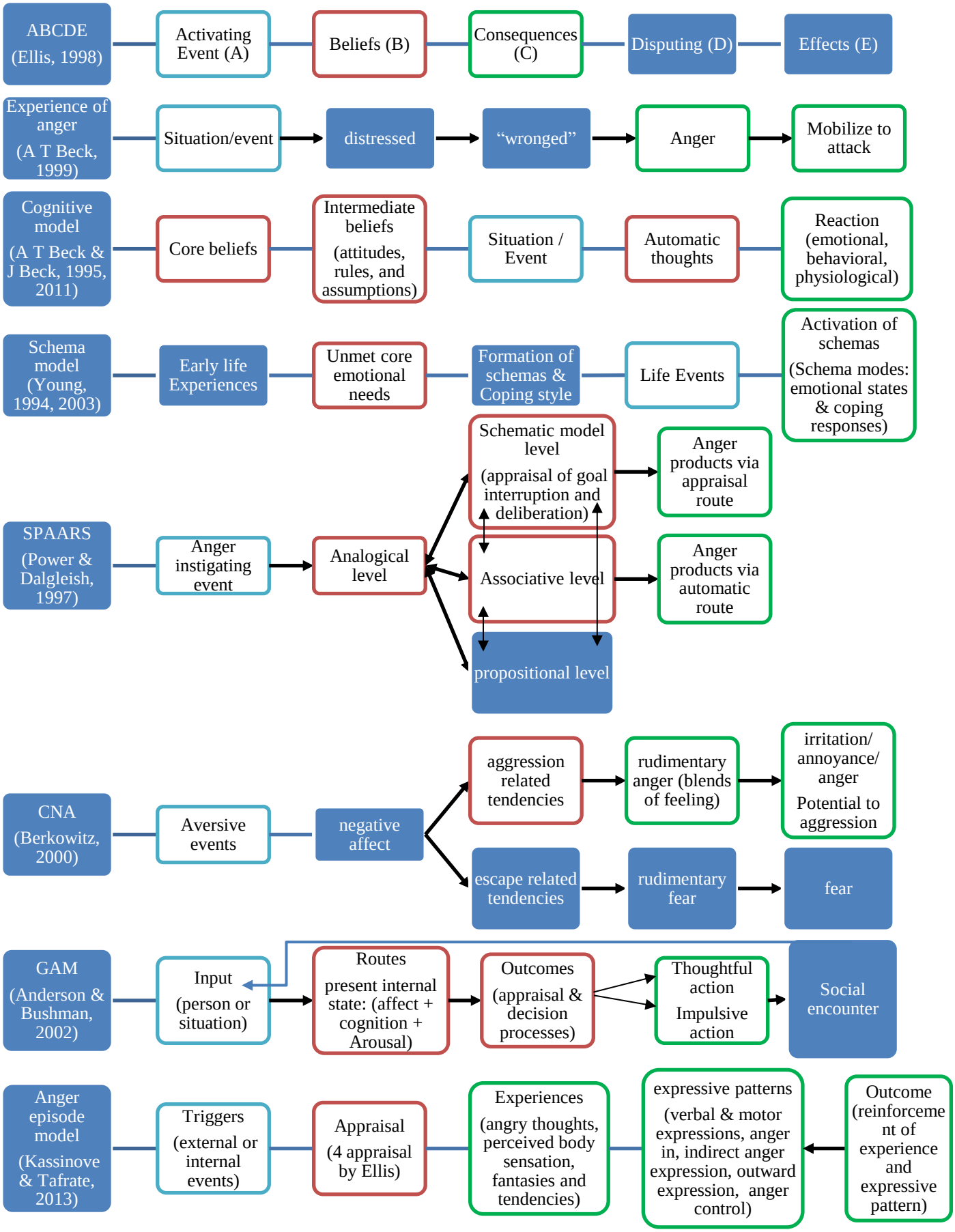


*Figure 2. Overview of integrated theories in Beliefs system model (part 2)*

*Red= Inner layers; Green= Outer layers; Light blue: Events/trigger*



### 1.1 Inner layers of beliefs system

Inner layers include beliefs regarding self, others and world (e.g. irrational beliefs by Ellis, 2003; cognitive schemas and triads by Beck, 1999; early maladaptive schemas by Young, Klosko, & Weishaar, 2003; etc.), needs (e.g. Maslow's hierarchy of needs, 1943; Young's five core emotional needs, 2003; etc.), motivation (e.g. motivation for change, etc.), personality (e.g. trait vs state theories, etc.), expectation, distortions, appraisal (e.g. appraisal theories, etc.), rules, values, and norms.

The reason for considering the above concepts in the inner layers is that either they are themselves some beliefs (such as values, norms, and rules) or they shape the beliefs (such as appraisal, expectation, and personality).

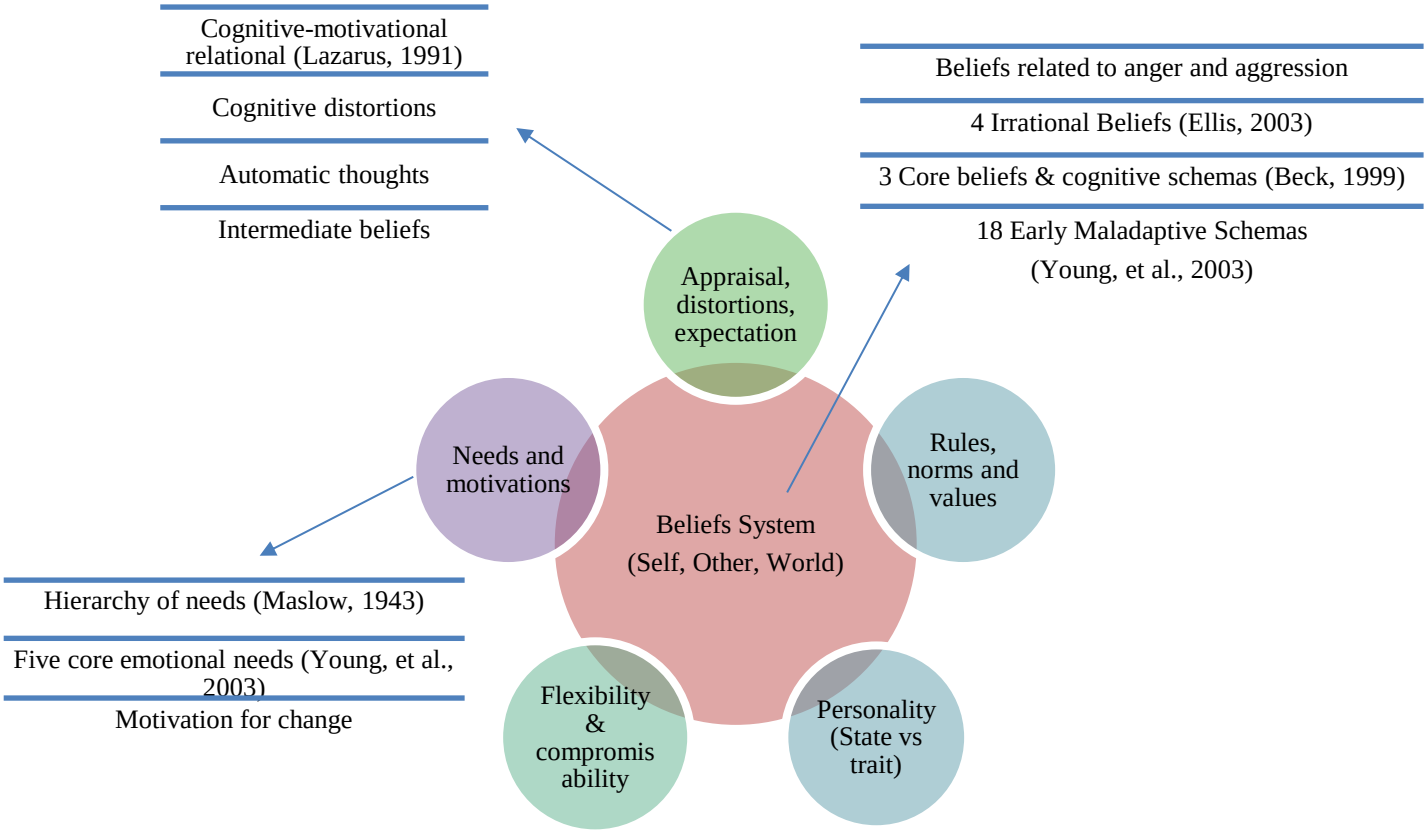



*Figure 3. Inner layers of beliefs system*

### 1.1.1 Needs and motivation

Needs and motivations are considered as one of the inner layers of beliefs system. Theories in needs and motivation (Alderfer, 1969; Herzberg, 2005; McClelland, 1987) are classified from diverse aspects. For example, one of the well-known theory of human motivation is the Maslow's hierarchy of needs (1943) that are physiological, safety, love, 'esteem, and self-actualization. Frustration in needs for love (care, love, and attention) and esteem/respect is often observed among clients. Another theory is by Young et al. (2003) who proposed that formation of maladaptive schema results from five unmet core emotional needs in childhood years: 1) secure attachments to others (includes safety, stability, nurturance, and acceptance), 2) autonomy, competence, and sense of identity, 3) freedom to express valid needs and emotions, 4) spontaneity and play, 5) realistic limits and self-control. The limitation of above theories is that, they lack sufficient research evidence.

What is relevant here, is to find a link between beliefs, needs, motivation, anger, and aggression. Previous models have shown that frustration of needs would lead to anger and aggression (Berkowitz, 1989; Dollard, Miller, Doob, Mowrer, & Sears, 1939; Miller, 1941). On the other hand, every individual defines its own needs and motives according to their beliefs. Hence, if the needs are defined according to irrational beliefs, consequently we have irrational needs. So, the individual become frustrated and hence aggressive if the irrational needs are not met. For example, individual believes that younger people should always respect older people and they should always obey them. Thus, individual have a need of respect and whenever some young person doesn't agree with him or do not follow his words, his needs for respect is frustrated and consequently become angry or aggressive. They don't consider that what if the older adults are irrational. Therefore, the "goal of therapy is to help the individuals find adaptive ways to meet the [rational] needs" (Young et al., 2003, p. 10) and not the irrational, dysfunctional ones.

Another valuable link is the connection between needs, anger and aggression. Similar to the beliefs about self and others, the needs could be also divided into: needs of self and needs of others. The "needs of self" might be associated with anger and aggression in: 1) Individuals with low frustration tolerance of need when facing any delay of meeting their needs, easily become furious or aggressive; 2) Individuals who had faced suppression of needs for long period of time, might have not enough awareness about them and consequently inhibits negative emotions or express passive-aggressive behaviors; 3) Individuals who value their own needs more than others (e.g., narcissistic client believe that their needs are more important than those of others and they don't even consider the needs of other people); 4) Individuals who have an overly exaggerated amount of needs, often feel frustrated when their needs are not met.

The "need of others" is characterized in clients who might not be aware of the needs of people around them or ignore them either purposefully or non-purposefully. For example, a person might ignore or suppress the emotional needs of spouse and children. Or another individual might think that only providing basic needs (money and food) would be enough, and the need for respect and love is not necessary.

Regarding motivation, Tangney, Hill-Barlow, Wagner, Marschall, Borenstein (1996) explains that there are three motives with respect to anger: helpful, selfish, or revenge. "Helpful motive is when an individual desire to use . . . emotion to resolve . . . a situation. A selfish motive . . . [is] a desire to reduce unpleasant arousal, or tension associated with anger. Revenge motive is to punish the person who was triggered anger" (DiGiuseppe and Tafrate, 2010, p. 48).

In summary, needs and motives are part of beliefs system. Every individual defines its own needs and motives according to their beliefs. The goal of therapy is to make individuals aware of a connection between belief, needs, and motives and help them to find the ways to fulfill the rational needs and simultaneously to consider the needs of others too.

### 1.1.2 Personality

Personality is defined as "unique, relatively enduring internal and external aspects of a person's character" (Schultz & Schultz, 2016, p. 6). State versus trait is one of the popular theories in personality (Matthews, Deary, & Whiteman, 2003; Schultz & Schultz, 2016). Based on state versus trait theory, Spielberger in his professional manual (1999, p. 1-2) conceptualized two major components: state and trait anger. He defines state anger as a "psychobiological emotional state or condition marked by subjective feelings that vary in intensity and accompanied by muscular tension and arousal of neuroendocrine and automatic nervous systems" (p. 1). On the other hand, "trait anger is defined in terms of individual differences in disposition to perceive a wide range of situations as annoying or frustrating and by the tendency to respond to such situations with elevations in state anger" (p. 1). Trait anger has two parts of temperament and reaction. Temperament is the "disposition to experience anger without specific provocation. Reaction is the frequency that angry feelings are experienced in situations that involve frustration and/or negative evaluations" (p. 2).

The link between personality traits, anger and aggression is extensively studied in patients with personality disorder such as paranoid personality disorder and narcissistic personality disorder (Arntz, Dreessen, Schouten, & Weertman, 2004). The individuals high in narcissistic traits, believe that they are more knowledgeable/ important/ richer/ special or better than others. As a result, when their needs are not met or when others disagree with them, they become extremely angry and might show aggressive behavior. McCann and Biaggio (1989) examined the relationship between anger and narcissistic personality characteristics. The individuals high in narcissism reported greater verbally expressed anger. It is difficult for them to put themselves in another person's perspective and view the world from their perspectives. Also, patients with paranoid personality traits have the beliefs that they can't trust others. As a result, they might show some aggressive behavior when they feel that others are going to betray them.

In conclusion, the individual differences in personality traits exist among us as every person have unique personality traits. For some people, accepting these traits is not possible and they blame others for it, and consequently get angry. However, I believe that individual differences are not a problem, rather the inflexibility to adapt to new experiences and characteristics of partner or environment would create problem. Accordingly, recommending the clients in intervention, to increase their ability to adapt, openness to the difference, and being flexible to new experience would help them to have a healthy relationship with others.

### 1.1.3 Appraisal, distortions, expectations

1.1.3- 1 Appraisal

Appraisal theories are thoroughly discussed by Moors and Scherer (2013) in a chapter entitled *role of appraisal in emotion*. They proposed that "most, but not all, emotions are elicited and differentiated by people's evaluation of the significance of events for their well beings" (p. 135). Lazarus (1991) in theory of two-steps appraisal explain that primary appraisal refers to "an initial evaluation of whether an encounter is irrelevant, benign, positive or stressful. Thus, the conclusion that an encounter is stressful occurs in situations in which there is an appraisal of threat, challenge, harm or loss. Secondary appraisal refers to the individual's subsequent evaluation of coping resources and options that may be available" (as cited in Dalgleish & Power, 2015, p. 93).

Later, Lazarus (1991, p. 226) presented a substantially modified version of his appraisal theory, called "cognitive-motivational relational theory" in order to make it a theory of emotion rather than a general theory of stress. He revised the types of primary appraisal and secondary appraisal (see table 1). In cognitive-motivational relational theory, there are three types of primary appraisal:

> First, goal relevance, which is the assessment of the environment for relevance to an individual's goals; second, goal congruency or incongruency, which is an assessment of enabling versus blocking of a goal; and, third, type of ego-involvement, that is, the extent to which an event has implications for self-esteem, moral values, life goals, and so on. Secondary appraisal consists of an assessment of blame versus coping resources, and expectations for the future. (Lazarus, 1991, p. 226)

Table 1. Appraisals for anger

| ***Primary Appraisal Components*** |
|---|
| 1. If there is goal relevance, then any emotion is possible, including anger. If not, no emotion. |
| 2. If there is goal incongruence, then only negative emotions are possible, including anger. |
| 3. If the type of ego-involvement engaged is to preserve or enhance the self- or social-esteem aspect of one's ego-identity, then the emotion possibilities include anger, anxiety, and pride. |
| ***Secondary Appraisal Components*** |
| 4. If there is blame, which derives from the knowledge that someone is accountable for the harmful actions, and they could have been controlled, then anger occurs. If the blame is to another, the anger is directed externally; if to oneself, the anger is directed internally. |
| 5. If coping potential favors attack as viable, then anger is facilitated.<br>6. If future expectancy is positive about the environmental response to attack, then anger is facilitated. |

*Appraisal components sufficient and necessary for anger are 1 through 4.
**Adapted from Lazarus (1991)

### 1.1.3- 2 Distortions

Cognitive distortions are consistent errors and negative bias in thinking and cognitive processes (Beck, 2011). They are considered in inner layers of beliefs system because they affect the beliefs and would interfere with the thinking process and appraisal. The most common cognitive distortions given by Burns and Beck (1999) are: All-or-nothing thinking (looking at things in absolute, black-and-white categories), overgeneralization (viewing a negative event as a never-ending pattern of defeat), mental filter (dwelling on the negatives and ignoring the

positives), discounting the positives (insisting that one's accomplishments or positive qualities "don't count"), jumping to conclusions (mind reading and fortune-telling), magnification or minimization (blowing things way up out of proportion or shrinking their importance inappropriately), emotional reasoning (reasoning from how one's feel: "I feel like an idiot, so I really must be one." Or "I don't feel like doing this, so I'll put it off.), should statements (criticizing self or other people with "should", "shouldn't", "must", "ought", and "have to"), labeling (identifying with shortcomings. Instead of saying "I made a mistake," telling, "I'm a jerk", "a fool," or "a loser"), personalization and blame (blaming themselves for something they weren't entirely responsible for, or blaming other people and overlook ways that their own attitudes and behavior might contribute to a problem) (p. 8).

These distortions were examined by Eckhardt and Kassinove (1998) among violent men. They found that violent men are more likely to express Beck's distortions during anger episodes, and are more likely to display overgeneralization and dichotomous thinking.

### 1.1.3- 3 Expectation

Having an unrealistic expectation plays a significant role in the development and maintenance of interpersonal dissatisfaction and disturbance. It is the breeding ground for the development of relationship problems (Ellis & Dryden, 2007; Ellis & Harper, 1961). Each of family members has an expectation regarding the role of other members (Epstein, 1983). Ellis (as cited in Epstein, 1983, p. 6) suggests that "these unrealistic, demanding expectations inevitably produce disappointment and frustration, with associated negative emotions such as anger, and counterproductive behaviors such as nagging" (Ellis & Harper, 1975; Epstein, 1983; Freeman, 2013).

Angry individuals have usually high expectation, either from themselves or from partners, family members, friends, society, and even strangers. The individual defines their heightened

expectations according to their belief and if anything would not go on in its own way, they might experience an angry episode. Often, when they are challenged to modify their level of expectations, they found it almost impossible or non-achievable. It is very likely that individuals with a higher level of expectation would have a severe level of anger. These clients also might have high expectation from therapy to work out for them in one or two sessions. Reducing expectation either from themselves or others would help to reduce the amount of anger that is caused by high level of expectation.

### 1.1.4 Rules, norms, and values

The reason for placing rules, norms, and values in inner layers of beliefs system is that they are themselves some beliefs that are invented and created by some human beings for other human beings in society (Ellis, 2003). "People apply rules in regulating their own lives and in trying to modify the behavior of other people. They label, interpret, and evaluate according to their sets of rules" (Beck, 1979, para. 2). Individual with many rules and values, often get angry when their rules are broken. They create some rules for themselves and expect others to follow them. The rules, norms, and values are different in every culture and society. There is nothing to be absolutely true about them. There are no 'must and should' in following the rules, rather 'it is better' to follow them, or else, the individual would pay the consequence or would be punished by other members of society (Ellis, 2003, p. 57). Therefore, in therapy session, a cross cultural comparison would help the clients to realize that their rules, norms and values are not universal, rather it is the product of their own culture and society.[1]

[1] There is an exception for aggressive patients (e.g., anti-social personality disorder) who are not at all following the rules and do not accept them. For these clients, in contrast, the logic behind having rules, norms and values are needed to be focused and explained.

### 1.1.5 Flexibility and compromisability

Flexibility and compromisability are an important element of beliefs system. It is true that some clients might have resistant, rigid and inflexible beliefs. The reason could be that they might have many evidences for their beliefs or might have them for a long time. The older beliefs are also harder to change. The individuals are encouraged, at all time, to become more flexible to their beliefs and compromise to many uncomfortable situations. Flexibility of beliefs would help the individual to progress quickly in therapy. It is a necessary condition in therapy so that individual would give up some old beliefs and build the alternative one. Compromise is also focused for therapy among angry partners and two individuals (family members) in that both parties compromise to settle down some unresolved issues that cause frequent anger episodes.

## 1.2 Outer layers of beliefs system

Outer layers of the beliefs system refer to six main sections (see figure 4). In the first part, theories of emotion will be discussed. It includes the views of James-Lang, Cannon-Bard, Ekman, Plutchik, Schachter-Singer, Lazarus, Novaco, Kassinove-Tafrate, etc. Focus of theories are on emotion especially anger, and the reflection from cognitive, behavioral, evolutionary, and physiological standpoints. In the second part theories of behavior are evaluated. Aggression is considered as a behavior learned from others and society. In addition, the problems in communication, brooding, reinforcement, punishment, and revenge are addressed. In the third part, cognitive functioning is discussed as the higher mental processes. When the cognitive processes are not well-functioned, as a result, memory, problem solving, decision making, analytical thinking, attention and concentration, are affected as well. In part four, the learning theories are reflected. Learning, in general, plays a key role in the formation of beliefs, expression of anger, and aggression. All human beliefs have been learned. Expression of emotions, as well as aggressive behavior, are comprehensible from the perspective of learning. Furthermore, the role of the family, parenting, the impact of peer

groups, environment, society, culture, and religion are discussed on the learning of beliefs, anger, and aggression. In the fifth part, social factors and their relationship to anger and aggression are discussed. In the last part, effects of physiology and neurology are considered as a two-way relationship in human body and brain. The effect of hormones, chronic diseases, sensitivity, physical reactions and arousal during an episode of anger, are the topics of last section.

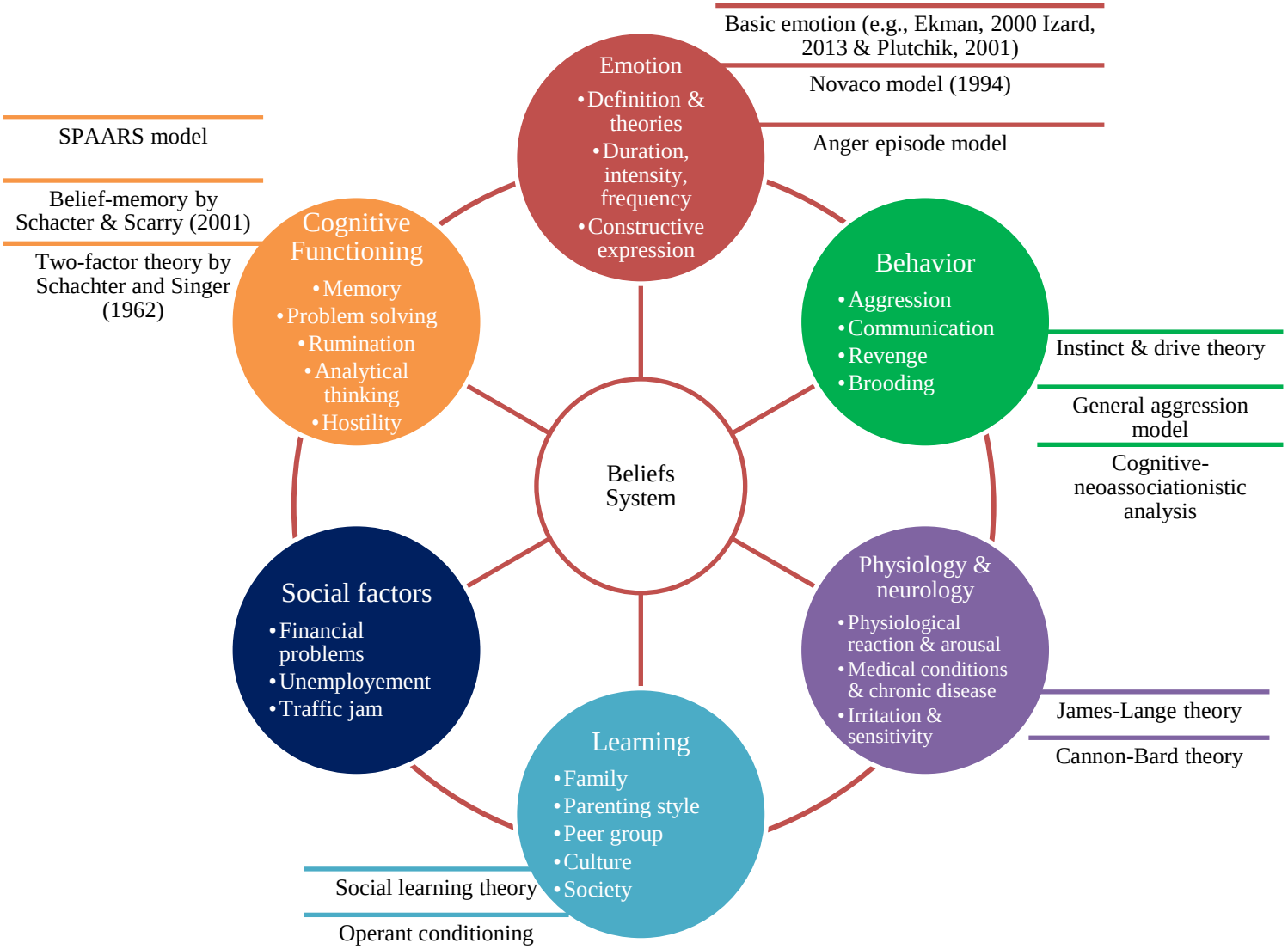



*Figure 4. Outer layers of beliefs system*

### *1.2.1 Emotion*

Concept of emotion is divided into six sections. First, there are theories that examine the content or the process of emotion. In second and third section, theories that specifically address the anger are discussed. Unhealthy anger characterized by high intensity (rage), duration (last more than one day), and frequency (more than five or six times a week). Fourth to sixth section address the exaggeration in expressing anger, blend in expressing emotions and thoughts, as well as constructive and non-constructive expression.

#### 1.2.1- 1 Theories of emotion

Emotion includes very broad theories. Different views and approaches have examined the emotion and put forward on shaping it during the years. There are theories by James-Lange (James, 1884; Lange, 1885) that proposes physiological arousal precedes the experience of emotion. This theory was later challenged by Cannon-Bard (Bard, 1928; Cannon, 1927) which suggested that we experience emotions at the same time as we experience physiological arousal. The cognitive theories of emotion were first proposed in two-factor theory by Schachter and Singer (1962). They believed that when we experience physiological arousal, we cognitively process the context in which we find ourselves before feeling the proper emotion. In other words, people label their emotions according to their environment and their physiological cues.

Research on basic emotions have been done thoroughly by Ekman (2000), Arnold (1960), Izard (2013), and Plutchik (2001) along with 13 other scholars. Their opinions differ in terms of the number of basic emotions. Plutchik (2001) identified 8 primary emotion from the psycho-evolutionary approach and proposed the multifactor-analytic theory of emotion (see figure 5; wheel of emotion). He explained that complex emotions can be derived from a set of basic emotions either in the form of blends of two or more emotions (as cited in Dalgleish & Power, 2015, p. 67). Ekman (1992) “pointed out that every investigator has obtained evidence for a

central list of six basic emotions – namely, happiness, surprise, fear, sadness, anger and disgust/contempt" (p. 550).

In contrast to basic emotion theories, there are brain research that questions the existence of six or eight basic emotions. For example, a research conducted by a team of neuroscientists (Jack, Garrod, & Schyns, 2014) proposed that the basic emotions are four: happy, sad, fear/surprise and disgust/anger.


*Figure 5. Plutchik's wheel of emotion*

*Source:* https://positivepsychologyprogram.com/emotion-wheel/

### 1.2.1- 2 Definition of anger

Anger has been investigated by various researchers over the years. They have given different definitions for it, for example, Spielberger (1988, 1999) defines anger as “an emotional state that varies in intensity from mild irritation to intense fury and rage” (p. 1). Spielberger only defines the intensity of anger, however, Novaco (1994) defines “anger as a subjective emotional state, entailing the presence of physiological arousal and cognitions of antagonism, and is a causal determinant of aggression” (p. 32). Another definition of anger is given by Kassinove and Sukhodolsky (1995). “Anger is a felt emotional state. It varies in intensity, duration, as well as frequency, and is associated with cognitive distortion, verbal and motor behavior, and patterns of physical arousal” (as cited in Kassinove & Tafrate, 2013, p. 12). Of course, in this definition, anger has been associated with cognitive distortion. However, the meaning of cognition is not only cognitive distortions, but also appraisal, expectations, memory, problem solving, decision making, and so on.

A more comprehensive definition that can be stated for anger is as follows:

Anger is a felt emotional state that varies in duration, frequency, and intensity from mild irritation to intense fury and rage. It is associated with beliefs system, cognitive functioning, behavior, physiology, learning and social factors. Every individual has a unique episode of anger. How a person react to feeling angry depends on beliefs system (core beliefs, schemas, needs and motivation, appraisal, personality traits, norms and values, cognitive distortions), cognitive functioning (memory, traumatized experiences of life, problem solving, attention, decision making), behavior (coping style, communication and negotiation skills, interpersonal relationships), physiology (gender, general stress levels, temperaments, hormones, health issues), learning (family history, cultural background, childhood experiences of anger and aggression, parent’s anger coping and expressing style, parenting style, place of living, peer

groups), and social factors (financial problems, unemployment, traffic jam, problems at workplace).

Lastly, it is advantageous to differentiate feelings and emotion. “Feelings refer to the language-based, self-perceived phenomenological state. In contrast, the term emotion refers to the complex of self-perceived feeling states, physiological reaction patterns, and associated behaviors” (Kassinove, 2014, p. 6).

### 1.2.1- 3 Theories of anger

Current part is about the theories that specifically addressing anger. Anger is viewed from cultural (western and eastern view), philosophical (Aristotle; Plato; Descartes), psycho-evolutionary (Plutchik, 2001), psychoanalytic (Freud, 1920), social constructivist (Averill, 1983), and physiological aspects (Shields, 1984).

One of the classic studies of anger was conducted by Dembo (1931). Dembo devised an experimental task intended to create frustration, and consequently, turn in anger. Participants got involved in a “lengthy interaction where she encouraged, and then insisted, that subjects complete their assigned tasks. Dembo observed that the intensity of the need to succeed at the task has a significant effect on the resulting tension, emotional reaction and thus, the action of the participant” (Hodgson, 2004).

The most influential model of anger in the clinical context is Novaco’s (1994) model of anger. In Novaco’s model (as cited in Dalgleish & Power, 2015):

> External events are first ‘cognitively processed’ and later might lead to a state of emotional arousal. This arousal is a general physiological response, which may be labeled differently by the individual depending upon the contextual cues and his/her interpretation of the eliciting events. Once anger has been aroused, there are four main behavioral reactions that may follow: physical antagonism, verbal antagonism,

passive aggression, and avoidance withdrawal. Anger is a significant activator of aggressive behavior and has a mutually influenced relationship with aggression, but it is neither necessary nor sufficient for aggression to occur. Which of these responses is most liable to develop is a function of how the event is viewed, as well as the individual's past experience and the predicted outcome. (p. 283)

Novaco's model shows that the events are first directed to cognitive process and then interacts with emotion (anger) and behavior (aggression). At the same time emotions and behavior interact with each other. According to Dalgleish and Power (2015), Novaco's anger control training system (Taylor & Novaco, 2005) is the most comprehensive and systematic therapy package for anger problems to date

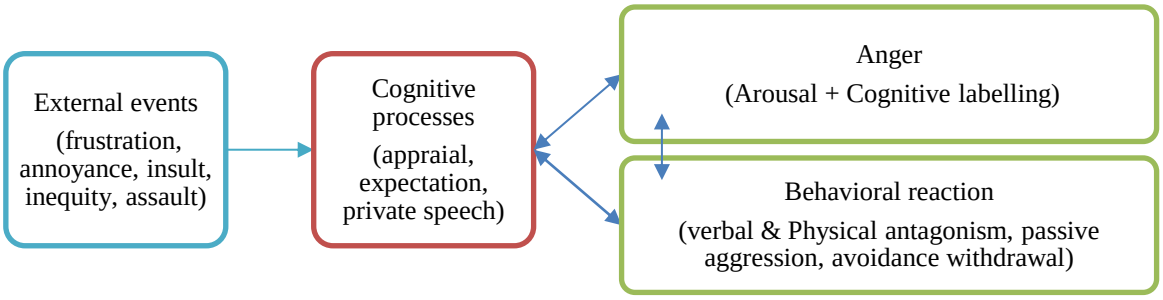



*Figure 6. Novaco's anger model (1975, 1994)*

Later, Power and Dalgleish (1997) introduced the schematic propositional analogical and associative representation systems (SPAARS) model. In this model (as cited in DiGiuseppe & Tafrate, 2015, p. 136):

> An stimuli enters in analogue system via sensory system (e.g., visual, auditory, olfactory) that goes parallel to schematic (highest level), associative (lowest level) and propositional level (intermediate level). All these three levels interact with each other. An emotion is then aroused via two separate pathways: Schematic level (appraisal route: effortful, slow, and flexible) and associative level (direct access or automatic

route: fast, effortless, and inflexible). Propositional system is a language-based processing system that requires awareness and linguistic processing.

Another theory proposed by Kassinove and Tafrate (2013) explains a model for "anger episode". In this model, each episode of anger has five main parts:

**[Triggers + appraisal = experiences, expressive patterns, and outcomes]**

"Triggers are external or internal events, words, thoughts or experiences that elicit an anger response" (Kassinove and Tafrate, 2013, p. 57) Appraisal is introduced as a misinterpretation of trigger (unfairness and disappointment), awfulizing/catastrophizing, low frustration tolerance, demandingness, negative rating of others, negative rating of self. This is what Ellis has considered in his ABCDE model of irrational beliefs. Some clients have an exaggerated level of expression of anger. For example, if the aversive trigger is 6 in a scale of 1 to 10, they always show their anger in the level of 9 or 10. The reason for exaggeration could be that they awfulize and catastrophize the events and also, they punish the other person. For example, they say "I don't want the person to repeat the same behavior again, even though I know that I am going too far, but this would help that my partner doesn't repeat it again". Kassinove and Tafrate (2013, p. 57) furthermore explain the model as follows:

> Experiences refer to the client's internal awareness of anger, such as angry thoughts (I hate her), perceived body sensation, fantasies and tendencies (I kill her). These experiences often lead to a pattern of observable verbal and motor expressions, such as anger in (brooding), indirect anger expression (passive aggressive actions and covert sabotage), outward expression (verbal, physical, and bodily expressions), and anger control. Outcomes are viewed from behaviorist approach. The outcomes that follow the display of anger have a determining effect on whether or not the anger experience and expressive reaction will be repeated in similar situations.

### 1.2.1- 4 Blend in emotions

Blend in emotions is based on the theories of basic emotions such as Izard (2013), Ekman (2000), and Plutchik (2001). Watson and Clark (1984) hypothesized that all negative emotions, including anger, are highly correlated and that when a person experiences one, they often experience the others simultaneously (as cited in DiGiuseppe & Tafrate, 2010, p. 45). We have a spectrum of emotions; blend of some basic emotions creates complex one. Thus, for some clients, it is very difficult to explain their emotion. They feel that their negative emotion is disturbing and dysfunctional, yet they can't explain exactly what kind of emotion they are experiencing. They would say, "I don't know what is wrong with me. I can't explain it. I just know that I am not feeling good." This is called *blend in emotions.*

There is also another blending that is related to blend of emotions with beliefs. For some clients, it is difficult to differentiate between their beliefs and emotions. They continuously interchange the words "I feel" with "I think". For example, they say "I feel that he is lying to me", instead of saying "I think he is lying to me".

It should be considered that the clients have not only one or two disturbing emotions, but rather the combination of many emotions. Although, for angry clients, the dominant emotion is anger but considering the other present emotions is necessary for treatment. It is these mixtures of emotions that make the clients helpless and unable them to describe their feelings. Thus, separating emotions from thoughts requires practicing the statements such as "I feel that… and I think that…" in the right way to help them understand the difference between automatic thoughts, beliefs, and emotions. Treatment of complex emotions requires an investigation of the particular disturbing belief that contribute to that certain emotion.

### 1.2.1- 5 Constructive expression of anger

“Anger is an affective response to survival threats or otherwise stressful experiences” (R. W. Novaco, 2016). “The adaptive functions of anger are more understood in evolutionary perspective than in day-to-day life. Anger mobilizes energy to defense oneself and infuses the individual with a feeling of strength” (Izard, 2013, p. 254). Anger in contemporary human affairs may be occasionally justified. Controlled anger may be used adaptively or therapeutically to inhibit fear (Izard, 2013). The main reason why anger is often viewed as a destructive force because of its links to aggressive behavior, however, anger can be constructive in the absence of hatred (Halperin, Russell, Dweck, & Gross, 2011).

Anger like other emotions has an intensity and can be expressed constructively. Constructive anger can aid intimate relationships, work interactions and political expressions (DeAngelis, 2003; Tiedens, 2001). It motivates the person to compete with other individuals in healthy events such as sport. Induced anger (constructive and controlled) promote analytic processing and motivate individuals to find solutions to problems (Moons & Mackie, 2007). Constructive expression can also be used in therapy for motivating patients to get out of their life’s trap such as in depression or dependent personality disorder.

Raising questions are: what does it mean to have a constructive expression of anger and how is it determined if anger is tolerable for the others? How much anger is good and how much anger would not hurt other people? Clients usually have difficulty finding the border between productive or destructive anger. A very small amount of anger would hurt a sensitive person, but for other people, the same intensity of anger would be tolerable. Especially in the relationship between partners, clients find anger very hurtful, although another person would not have an intention to hurt the partner at all, but the expression of anger has been perceived as hurtful. The word “anger management” might be, then, confusing for some clients. If we

consider anger as a normal healthy emotion, and compare it with other basic emotions, then, we are not supposed to call it anger management. As we have no sadness management, fear management, disgust management, why should we have anger management! The answer could be explained with defining the intensity for anger with range of 0 to 100.Thus, anger management would be for those who experience anger with very high intensity (over 70 percent) and their anger is frequently out of control. Consequently, constructive side of anger would fall between 20 to 30 percent.

Constructive expression of anger requires five conditions. The first condition is about the target of anger, as Lazarus (1991) described "focusing anger should be on the objectionable action, not the actor". In the situation or events, anger is usually directed at the actor, however, it could instead be directed at the act. Second, the individual should have complete awareness about the aggressive behavior and types of aggression, so that they could avoid any aggressive behaviors. Third, it is very important to have an approximate assessment of assertiveness skills in clients, on how good is the individual in assertiveness and how could they remain assertive during the conflict without getting aggressive. It should be also reminded to them that assertiveness doesn't always lead to fulfilling the needs. Fourth, constructive expression of anger is accompanied by morality, fairness and empathic considerations with others. Fifth, constructive expression of anger is dependent on the evaluation of other person's level of sensitivity too.

### 1.2.1- 6 Assessment of anger and aggression

Assessment of multidimensional structure of anger represents in five domains of provocation, arousal, cognitions, motives, and behaviors. DiGiuseppe and Tafrate (2010, p. 45-49) explain that:

> Cognitive domain includes elements of emotions such as the thought people use to evaluate stimuli and mediate the experience of emotions. Arousal domain includes the phenomenological experiences such as intensity, duration, and physical aspects of

emotions. Provocation domain represents the stimuli that elicit emotions. Motive domain includes the use of emotions in coping with threats and stressful events.

There are four measures to assess above dimension of anger and aggression (see Table 2) that have shown to be reliable and valid in research: 1) State-Trait Anger Expression Inventory–2 (STAXI-2; Spielberger, 1999), 2) Novaco Anger Scale (NAS; Novaco, 2012), 3) Anger Disorder Scale: Short (ADS:S; DiGiuseppe and Tafrate, 2010), and 4) Aggression Questionnaire (AQ; Buss and Warren, 2000).

There are some limitations to these four measures of anger and aggression. DiGiuseppe and Tafrate (2010, p. 45) explain that Novaco anger scale clearly follows a cognitive theory of emotions by Izard, 2013 and Lazarus, 1991. However, it fails to identify the motives that drive people or the goals they wish to accomplish when they are angry. As a result, Anger Disorder scale (ADS) consists of domain of motives (tension reduction and revenge). Thus, ADS items cover five domains of provocation, arousal, cognitions, motives, and behaviors. However, the limitation of ADS is in the construction of higher order factors in its research version (ADS:S) that mix the items of each subdomain. This is one of the differences between ADS:S and NAS. It is more convenience to interpret the result of NAS than ADS:S, as NAS overviews the result directly from cognitive, arousal, behavioral aspect, while the ADS:S results are seen through higher order factors of reactivity/expression, anger/in and vengeance in that each factor consists of some of the cognitive, arousal and behavioral subscales. Lastly, the limitation of STAXI-2 and AQ is in lacking the proper cognitive measures (p. 45).

*Table 2. Subscales of anger and aggression inventories grouped by domains*

| Domain | ADS | NAS | STAXI-2 | AQ |
|---|---|---|---|---|
| Cognitions | Suspicion<br>Resentment<br>Rumination<br>Impulsivity | Suspicion<br>Hostile Attitude<br>Rumination<br>Impulsive<br>Attention Focus | | Hostility |
| Arousal | Physiological Arousal<br>Duration<br>Episode Length | Somatic Tension<br>Duration<br>Intensity<br>Irritability | Trait | Anger |
| Behaviors | Brooding<br>Physical Aggression<br>Verbal Expression<br>Indirect Aggression<br>Passive Aggression<br>Relational Aggression | Indirect Anger<br>Physical Confrontation<br>Verbal Aggression | Anger-In<br>Anger-out<br>Anger Control | Physical Aggression<br>Verbal Aggression<br>Indirect Aggression |
| Motives | Tension Reduction<br>Coercion<br>Revenge | | | |
| Provocations | Scope of Anger Provocations<br>Hurt/Social Rejection | Disrespect<br>Unfairness<br>Frustration<br>Annoying Traits<br>Irritations | | |

Adapted from anger disorder scale manual (DiGiuseppe and Tafrate, 2010).

### *1.2.2 Behavior*

In this section, behaviors such as aggression, revenge, brooding, constructive behavior, healthy/unhealthy communications which are often experience after or during an anger episode are discussed. They might happen in presence or absence of anger. For example, indirect aggression might occur either in the presence or absence of anger.

#### 1.2.2- 1 Aggression (definition and theories)

Bandura (1973) defines aggression as the "behavior that results in personal injury and in destruction of property. The injury may be psychological (in the form of devaluation or degradation) as well as physical" (p. 5). There are another two definitions by Berkowitz and Kassinove that are slightly different from Bandura's definition. Berkowitz (1993, p. 3) defined aggression as "any form of behavior that is intended to injure someone physically or

psychologically". Kassinove and Tafrate (2013) explained aggression as "Motor behavior intended to hurt or harm another person or sometimes destroy property" (p. 21).

Aggression differs from violence. Anderson and Bushman, (2002) explained that "violence is aggression that has extreme harm (e.g., death). All violence is aggression, but many instances of aggression are not violence" (p. 298).

**Aggression theories**

Frustration-aggression hypothesis was first proposed by Dollard and colleagues (1939). It was a more systematic formulation of instinct aggression theory of Freud (1920). Dollard et al. stated that "the occurrence of aggression always presupposes the existence of frustration, and, contrariwise, frustration always leads to some form of aggression". Miller (1941) stated that second part of the above sentence is misleading, so a suggested reformulation is: "frustration produces initiations to a number of different types of response, one of which is an initiation to some form of aggression". Later, Bandura (1973) criticized the previous models by his famous experiment of Bobo doll, that explain aggression in the social learning process (see figure 7). Bandura (1973) explained the process as follow: when an individual experience an aversive event, it leads to an emotional arousal. After that there are possibilities of several behaviors to occur that one of them is aggression.

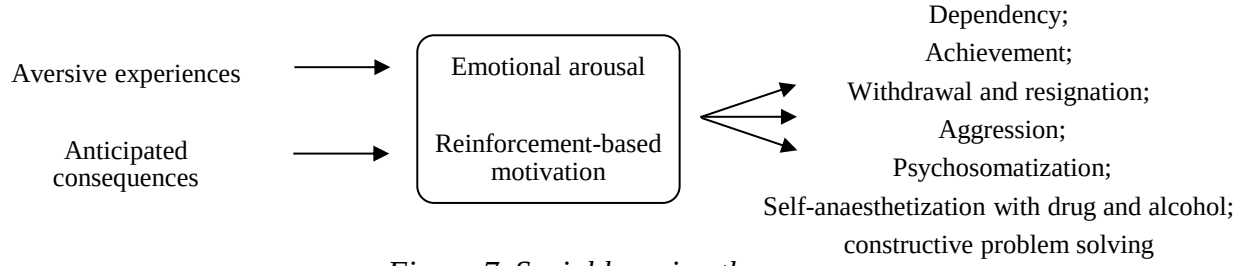



*Figure 7. Social learning theory*

Adapted from Bandura (1973, p. 54)

Berkowitz (1989) reformulated the frustration-aggression theory (Dollard, Miller, Doob, Mowrer, & Sears, 1939; Miller, 1941) and placed the anger in his frustration-aggression

hypothesis. Later in cognitive-neoassociationistic analysis (CNA), Berkowitz (2000) explain that "frustration leads to anger, which acts as a drive and heightens the probability of aggressive behavior" (as cited in Power and Dalgleish, 2015, p. 279), but they are independent of each other" (see figure 8). "The formulation maintains that when something very bad occurs, we typically go through a sequence of psychological processes either the fear/flight syndrome or the anger/aggression syndrome (urge to attack the source)" (Berkowitz, 2000, p. 178). The weakness of CNA is that it places much less emphasis on the role of appraisals by saying that "appraisals aren't necessary for anger and aggression to occur" (p. 177).

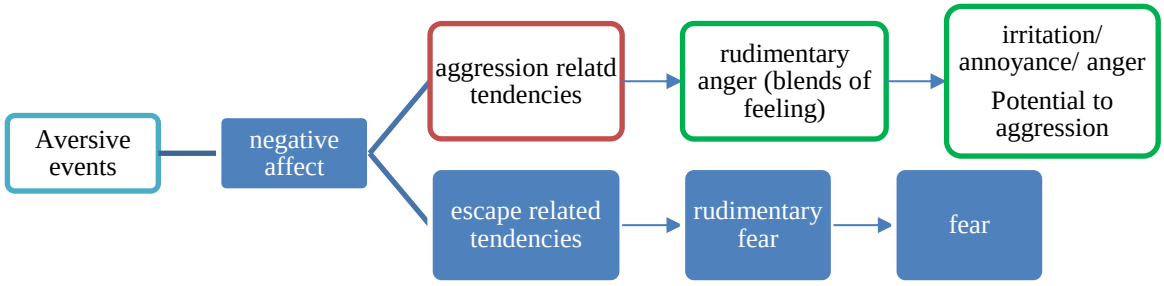



*Figure 8. Cognitive-neoassociationistic analysis*

Adapted from Berkowitz (2000)

Anderson and Bushman presented the "General aggression model (GAM)" in 2002. This model considers the role of social, cognitive, personality, developmental, and biological factors on aggression. "Variables such as traits, gender, attitudes, beliefs, values, and long-term goals contribute to the occurrence of aggression" (DiGiuseppe & Tafrate, 2015). Aggression-related beliefs also significantly predict future levels of aggressive behavior (Anderson and Bushman, 2002, p. 36). In GAM, low self-esteem is not a good predictor of aggression. Instead, "individuals with inflated or unstable high self-esteem are the most prone to anger and are the most aggressive, especially when their high self-image is threatened" (Jackson II & Hogg, 2010, p. 711). The process in GAM is as follows: Input can be categorized as personological (personality traits, gender, beliefs, attitudes, values, long-term goals, scripts) and situational (aggressive cues, provocation, frustration, pain and discomfort, drugs, incentives). Second

stage is present internal state that has three parts: Cognition (hostile thoughts, scripts), affect (mood and emotion, expressive motor responses), and arousal. The input variables influence the outcome through the present internal state. Last stage, outcome, include immediate appraisal and decision process that might lead to thoughtful action or impulsive one. The final action would go through social encounter and becomes part of the input for future.

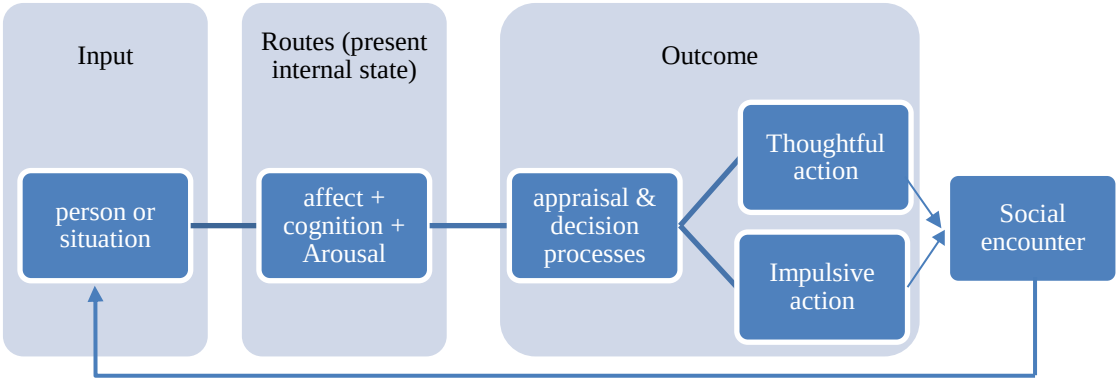



*Figure 9. General aggression model (GAM)*

Adapted from Anderson and Bushman (2002)

In summary, GAM and all the other models of aggression assume that "individual differences in aggressive behavior are, to a large extent, determined by underlying internal, self-regulating cognitive processes, and constructs" (Dunne, Gilbert, Lee, & Daffern, 2018, p. 1). Moreover, Dunne, Gilbert, Lee, and Daffern (2018) outlined that "social-cognitive theories of aggression posit a role for aggression-related cognitive beliefs/schemas that generate uncomfortable cognitive and affective states, and increase the accessibility of aggressive concepts in memory" (p. 1).

### 1.2.2- 1.1 Types of aggression

Aggression could be categorized into two major headings of direct and indirect aggression. Under each category there could be several types of aggression (see figure 10). Direct aggression is when the aggression intended to harm directly against the source, such as physical

aggression (e.g., using force, kicking, biting, hitting another person) or verbal aggression (e.g., use of insulting and disrespecting words, yelling, screaming, and cursing).

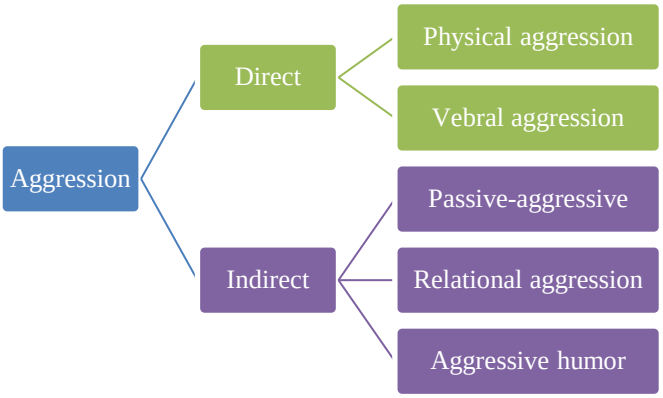



*Figure 10. Types of aggression*

On the other hand, Kassinove and Tafrate (2013) described that indirect aggression is when the aggression causes another harm but does not face the victim, such as relational aggression (damaging someone's relationships or social status, spreading rumors about someone), passive-aggressive (messing up someone's work, deliberate failure to accomplish required tasks), and aggressive humor (use of humor for the purpose of demeaning or manipulating others, sarcasm, teasing, or ridicule).

Aggression could be also categorized based on attaining goals (DiGiuseppe and Tafrate, 2010). "Aggression that is designed to attain a goal is called instrumental aggression or predatory aggression, and aggression that is elicited by affective arousal is called hostile, affective or reactive aggression. Instrumental aggression occurs without presence of anger and it is carefully planned aggression. In contrast, hostile aggression is unplanned, thoughtless, emotional and impulsive aggression.

### 1.2.2- 1.2 Relationship between anger and aggression

Most of the above theories have acknowledged the relationship between anger and aggression. Anger plays five causal roles in aggression (Anderson and Bushman, 2002). DiGiuseppe and Tafrate (2010) explain that:

> First, anger sometimes provides a justification for aggressive retaliation and may sometimes interfere with higher-level cognitive processes . . . . Second, anger allows a person to maintain an aggressive intention over time . . . . Third, anger is used as an information cue to informs people about causes, blame, and possible ways of responding (e.g., retaliation) . . . . Fourth, anger primes aggressive thoughts, scripts, and associated expressive motor behaviors . . . . Fifth, anger energizes behavior by increasing arousal levels. (p. 66)

DiGiuseppe and Tafrate (2010) concluded that the relationship between anger and aggression is not yet very clear and more research is required.

### 1.2.2- 2 Communication and negotiation skills

In couple therapy or family therapy, it is essential to determine if both partners have anger and aggression or only one of them. Sometimes, a couple seeks treatment for an aggressive partner and later it has been seen that the other partner was equally or even more aggressive (passive or indirect aggression). Murphy and Eckhardt (2005) stated that if one partner is frequently aggressive, other partners also tend to be frequently aggressive. Therefore, practicing communication and negotiation skills could be valuable in both individuals.

Communication skills are very important targeting behavior in anger management programs. Individuals with anger and aggression often have little or no skills in techniques of communications. They have difficulty expressing their ideas and thoughts. Some of them are not very clear while expressing their words and are not able to communicate properly. They think that others don’t understand them, or they don’t understand them enough. That is how miscommunication might lead to anger episodes and aggressive behaviors. It is also important to teach the skills during argument and discussion, especially for couples. For example, couples are recommended to not give negative comments about each other, avoid interrupting each

other, avoid sarcastic words, avoid disrespecting and insulting words, and avoid mentioning the weak point of each other during arguments.

Another behavioral skill in a therapy with angry couples is negotiation skills. Evaluation of negotiation skills among couples is done, in terms of how the partner responses and behaves when the other partner is angry. The partners are encouraged to understand each other's emotion. When one partner has elevated anger, other partner tries their best to bring the anger down. When both partners are angry, they need to communicate without escalating the situation. They need to become able to accept, whether they agree with each other on a given opinion or not.

In addition, there are possibilities that some clients would seem to be more rational than another partner, for example, because of their skills in communication, however, in reality, it would be other way round. Similarly, there are some clients with high communication skills who might take advantage of therapy session to prove that they are right, and the other partner is wrong.

### 1.2.2- 3 Revenge

Revenge is a very common behavior in individuals with anger. It is the darkest side of anger. and is defined as "the desire to strike out and harm another which is strongly reinforcing" (DiGiuseppe & Tafrate, 2015). Gollwitzer and Denzler (2009) tested two hypotheses on what makes revenge sweet, whether seeing offender suffering is satisfactory (comparative suffer), or understanding why revenge is imposed upon them (understanding). They found out "participants showed higher levels of implicit goal fulfillment if they decided to take revenge and if the offender signaled understanding". The role of society is very much involved in revenge. Society usually punishes people to prevent injustice and unfairness. Many clients have learned to punish others from their culture, religion, and society. So, revenge is a learned behavior which is reinforced by various sources that need to be unlearned.

It could be proposed that revenge is connected to the inner beliefs of punishing others for their mistake. The core belief is mostly based on the irrational law of retaliation that exist even now in many countries and cultures. The irrational beliefs of "one realizes their wrongfulness of their mistakes only if they are penalized to a similar degree". So, the individual has more tendency to take revenge than to forgive, because he/she believes that revenge is more valuable than forgiveness.

In therapy, beliefs supporting revenge and its consequences are disputed with client. The client might have some beliefs regarding "whoever make mistakes should be punished". Thus, in some cases (such as depressive patient) they have also a tendency to punish themselves. It would be useful to assess the level of forgiveness on individual and later, focusing on learning to forgive themselves and others.

### 1.2.2- 4 Betrayal

Betrayal is one of the most common complaints among couples with anger and aggression. Targeting the following beliefs in clients with betrayal history is recommended: 1) believing that they are better or more attractive than partner and they are able to start any relationship anytime they want; 2) believing that having some affair doesn't make a problem because they are clever so they can hide it; 3) believing that they have been treated unfairly in relationship and they want to prove that other men/women don't treat them unfairly; 4) believing that with betrayal they can take revenge and it is a way of punishing partner (i.e., indirect aggression); 5) In case betrayal is revealed, partner believe that if it happened one time, it might happen again; 6) believing that a partner who betrays cannot be trusted anymore. Targeting these beliefs or a similar one would help to rebuild the relationship.

### 1.2.2- 5 Brooding

Brooding is considered in a behavioral domain of anger by DiGiuseppe and Tafrate (2004). It refers to the "extent of which an individual feels resentment but hides it from others, boils inside but do not show it and do not talk with others about their feeling. It is a tendency to hold in or suppress angry feelings [from others]" (DiGiuseppe and Tafrate, 2004, p. 32). Clients with brooding behavior are recommended to talk about their feelings through assertiveness techniques.

## *1.2.3 Cognitive functioning*

Individuals with anger and aggression usually express difficulty in several aspects such as attention, concentration, problem solving, and decision making. It is usually hard for them to concentrate on their daily life since they continuously think about events that caused their anger (this state is called as rumination). They also have vivid memories from the anger episodes that make it difficult to decided or to solve problems. So, in following sections, I briefly explain the connection of memory, rumination, and hostility with anger and aggression.

### 1.2.3- 1 Memory

There is a body of research on the relationship between emotion and memory (Philippot & Schaefer, 2001) as well as extensive research on beliefs and memory (Schacter & Scarry, 2001). All of our beliefs are stored in memory. Beliefs could be stored either through real-life experiences (with supporting evidence) or beliefs that are stored and learned from other people's beliefs system or through experiences of other people. The relationship between memory and beliefs was "brought into focus by a large literature on so-called false memories, [when] people sometimes develop vivid and detailed recollections of events that never happened" (Schacter & Scarry, 2001, p. 2).

Individual's memory of past experiences can be influenced by their current beliefs. In other words, "how the stories we tell about our pasts . . . are shaped by the beliefs we hold in the present" (Schacter & Scarry, 2001, p. 3). We receive many information during the years, and we process them according to our beliefs. However, we can't remember everything with all the details, as forgetting is a part of memory, and we are bound to it. Individuals forget mostly the positive events and tend to store and recall the events that are negative. Positive events usually neglected, devalued or not considered. If the relationships are disturbed, it is mainly because the memory selectively recall, and store information based on the negative beliefs that individual is holding today.

The beliefs are usually related to negative emotional experiences, with partner or family members, mistakes of partner/family members, and even past relationships of partners. For individuals with anger and aggression, mostly the negative events are recalled in which they have made a particular belief supporting their anger and aggression. For example, the event of believing that having freedom requires aggressive behaviors or believing that to protect themselves from others or a bully, they need to beat them back.

The recall of events and remembering significantly affect the life of clients. It is to such extent that with the smallest stimulus, everything is remembered vivid and intense, similar to a cluster of tied strings. Smallest move on one of the strings creates a huge tangle. It is accompanied by feelings of being captivated, miserable, hatred, and suicidal thinking. The complaints are usually about the recall of events nearly every day, not being able to accept them or not being able to get along with them.

In summary, "because memory is a fundamentally constructive process that is sometimes prone to error and distortion . . . [thus some] beliefs are occasionally misguided . . . . Just as memories are shaped by beliefs, so too are beliefs shaped by memories" (Schacter & Scarry, 2001, p. 3).

The therapeutic focus is to find the disturbing memories, accepting them and changing the beliefs related to them. Although, acceptance is a prolonged process and requires patience and forgiveness that in some clients is not achievable in a short term. As the traumatic memories and experiences have formed some dysfunctional beliefs, for that reason, constructing alternative healthy beliefs requires the recall of earlier positive memories or if possible, trying to create positive memories during therapy period.

#### 1.2.3- 2 Rumination

Rumination, a key cognitive element, refers to the "tendency to focus excessively on the anger provocation. The preoccupation or attention to thought concerning transgressions that trigger anger, leads to an inability to focus on other work or tasks . . . . [It is also considered as a] primary mechanism that sustains an anger episode" (DiGiuseppe & Tafrate, 2010, p. 35).

#### 1.2.3- 3 Hostility

Hostility or hostile attitude is categorized under cognitive domain. Hostility refers to some combination of the "fundamental emotions of anger, disgust, or contempt with certain drive states and affective cognitive structures. Hostility usually, perhaps not always, includes imagery or wishful thinking about harm, embarrassment, or defeat of the target" (Izard, 2013, p. 354).

### *1.2.4 Learning*

As it was discussed in above section, the behavior either aggression, communication, or revenge is learned and reinforced. The dysfunctional and irrational beliefs that cause these behaviors are learned in childhood years, adolescence, early adulthood years or even later, usually with the influence of family, friends, environment, culture, and society. All the contemporary and approved theories of learning such as Pavlov's classical conditioning, Skinner's operant conditioning, Bandura's observational learning, Seligman's learned

helplessness, Gestalt's insight, etc. can explain the process of learning beliefs causing anger and aggression. For example, Bandura explained that aggression is learned through observational learning process. Similarly, Huesmann (1998) proposed in script theory that "when children observe violence in the mass media, they learn aggressive scripts. . . . Once a script has been learned, it may be retrieved at some later time and used as a guide for behavior" (as cited in Anderson & Bushman, 2002, p. 31). Under learning section, I briefly review the influence of family, culture, religion and media on learning anger and aggression.

### 1.2.4- 1 Beliefs system in family and expression/control of anger

An individual learns most of the beliefs from their family such as parents, siblings, etc. It goes even to learning the beliefs regarding expression and control of anger. In a family with an aggressive parent or sibling, there would be high chances that they are the source of modeling for the child in becoming the next aggressive member. Some clients express that they have the same pattern of expressing/controlling anger as their parents do and some have a different one. They learn to fulfill their needs via aggression. It is also a way of rationalizing their aggressive behavior. This process could be well explained by coping styles (consciously) and defense mechanisms (unconsciously) that the person has learned (Cramer, 1998) along with beliefs that individual is holding towards each member of the family. They choose different parents to "copy" or model themselves after. The child models either the "abusive parent, the victimized parent, or has elements of both coping styles" (Young et al., 2003).

The *belief about others/nature of the relationship* of the person with parents, friends, and others would decide on the learning process. By nature of relationship, I mean "the beliefs that an individual is holding towards a particular person". For example, the relationship with their parents would determine the decision of the individual how to express their anger. The more an individual is close to the parent, the probability of expressing the same pattern is higher and the expression of anger would be the exact opposite if the individual was not sharing a good

relationship with their parent. The relationship would make the individual believing that "shouting and yelling (verbal aggression) is acceptable because my father did the same". For instance, the way a father would treat the mother would also be the same way the client treats their partner, providing that the client had a good relationship with the father. Stronger positive relationship with parents would increase the probability of occurrence of similar behavior in clients as they imitate the parent's behavior irrespective of rationality or irrationality.

### 1.2.4- 2 Culture, religion and media

There are many beliefs that roots in culture such as beliefs related to anger and aggression. Culture affect the development and persistence of certain behaviors and beliefs about self (Afshan, Askari, & Manickam, 2015). Berkowitz (1999) wrote, "anger is shaped to some degree by cultural learning". A lot of research (Mesquita, Frijda, & Scherer, 1997) has been done on emotion in different cultures. There are cultural differences in expression as well as in appraisal. For example, children or adults in Germany express a sound "Aua!" after perception of pain, whereas in Iran, people express the sound of "aay!". "The display of anger is socially constructed by cultures and subcultures, and is maintained by reinforcement" (Kassinove & Sukhodolsky, 1995). Sommers and Kosmitzki (1988) compared American and Germans with regard to their emotion and social context. Their study identified specific emotions (e.g. gratitude, despair, rage) that seem to have different meanings and associations for individuals in the two cultural groups. In another study of anger from linguist aspect, Durst (2001) claimed that Germans don't feel anger because of the structure of language. There is no German word that completely matches the English word anger, and none of the German words Ärger, Sauer, Wut, and Zorn has a clear counterpart in English. Appraisal, similar to expression, is also shaped by culture. A cross-cultural comparison by Scherer (1997) explain the role of culture in emotion-appraisal. He found that respondents in Africa tended to appraise events as more

immoral, more unfair or unjust, and more externally caused. Respondents in Latin America tended to appraise emotional events as less immoral than those in other regions.

**Religion**

Some religions consider anger as a sin. It can be hypothesized that many religions forbid anger and view it negatively, maybe because of its link to aggression. They do not consider the control or constructive expression, rather the suppression is recommended. Anger is not supposed to be seen as a completely unacceptable emotion. In fact, anger needs to be accepted as an emotion and it is necessary to emphasize its constructive and healthy expression. It is, indeed, aggression that needs to be avoided and prevented.

**Media**

Individual learns the beliefs, emotions, and behaviors from internet and media such as social networks, TV series, films, and newspapers. Many violent films and games are linked directly to the experience of a higher level of aggression among children and adolescences (Anderson and Bushman, 2002). Media affect the beliefs in intimate relationship too. These effects have been studied by some researchers (Galloway, Engstrom, & Emmers-Sommer, 2015; Hefner & Wilson, 2013; Sullivan & Schwebel, 1995, 1996). For example, individuals who score high on a measure of exposure to popular media, strongly endorse unrealistic beliefs about relationships than individuals who do not (Shapiro & Kroeger, 1991). Married women who were more exposed to the popular romantic media, were less satisfied with their current intimate relationships (Shapiro & Kroeger, 1991).

Increasing the ability of analytical thinking during therapy helps the individual in a way that no matter what types of information the person receives (social networks, peers, media, etc.) they would try to evaluate and analyze its validity and reliability. The person would be able to reject the information that are without any proofs or evidence.

### 1.2.4- 2.1 anger and aggression in Iran

There are some societies that might have higher level of anger and aggression. The Gallup (2017) report of global emotions presents the results from measurements of people's positive and negative daily experiences based on nearly 149,000 interviews with adults in 142 countries in 2016. According to this report, Iranians were the angriest population in the world. Hajnasiri, Gheshlagh, Sayehmiri, Moafi, and Farajzadeh (2016) conducted a meta-analysis for domestic violence among Iranian using data from 31 articles published between 2000 and 2014. The results of the study showed a high prevalence of domestic violence in Iran, which requires the adoption of appropriate measures and the initiation of effective interventions.

There are only few studies on anger management in Iran with the samples mainly focused on adolescents (Maleki, Fallahi Khoshknab, Rahgooi, & Rahgozar, 2011; Mohammadi, Kahnamouei, Allahvirdiyan, & Habibzadeh, 2010; Mohammadiarya et al., 2012; Naveedy, 2009; Valizadeh, Davaji, & Nikamal, 2010), and brain injured patients (Aghamahammadian Sherbaf, Modarres Gharavi, & Karashki, 2014). There has been no systematized study of anger management with CBT for Iranian adult patients referred for their anger issues. The effectiveness of cognitive-behavioral therapy for anger and aggression in this vulnerable population with considering socio-cultural factors need to be evaluated.

### *1.2.5 Physiology and neurology*

The relationship between physiology and neurology to anger and aggression is firstly about the physiological reactions that individual feels during anger episodes and aggressive behavior. Secondly, it is about the relationship between anger, aggression and physiology/neurology such as effect of neurons, changes in hormones, sleep disturbance, medical conditions, and chronic disease on anger and aggression.

### 1.2.5- 1 Physiological reactions and arousal

During an anger episode, person feels more energetic. Anger can give a large amount of energy that makes the person react in ways that they normally wouldn't. This state is marked by anger arousal that refers to physiological activation in the cardiovascular (increase heart rate), endocrine (sweating), limbic systems, and by skeletal muscular tension. If the individual drinks too much or abuses drugs, state anger would be made worse, and is more likely to lead to aggression.

### 1.2.5- 2 Medical conditions and chronic disease

Anger has two-way relations with medical condition and chronic diseases. Anger can increase the risk of coronary heart disease, hypertension, and stroke (DiGiuseppe & Tafrate, 2010; Everson et al., 1999). At the same time, some medical conditions and chronic diseases such as thyroid gland problems or diabetes would affect the hormones and mood that consequently lead to anger (Kolbasovsky, 2004). The rapid hormonal changes and mood imbalances reduce the tolerance level and increases the vulnerability and possibility of frequent anger episodes.

### 1.2.5- 3 Irritation and sensitivity

Irritability is a physiological state characterized by a lowered threshold for responding to stimuli with anger or aggression. It is a partially aroused physiological state that usually occur with anger (DiGiuseppe & Tafrate, 2015). It reflects a tendency to be bothered or annoyed by minor events that have little significance (Novaco, 2012). Highly irritated individuals would over-react to an activating event in far greater extent than others would do.

In summary, "although it will almost always be helpful . . . to learn relaxation and [meditation techniques, however,] . . . . It is necessary to change the beliefs, thoughts, and memories that produced and maintained angry arousal" (Novaco, 2012, p. 16).

### *1.2.6 Social factors*

Social factors, as the last outer layers of belief system, have usually indirect role in anger and aggression. For instances, Park et al. (2013) examined the association between social status and anger expression. They found that individuals with lower social status have been reported to express more anger in western cultures, whereas the Japanese with higher social status expressed more anger.

One of the most important criteria in measuring the social status is the financial income. Therefore, in the following sections, role of financial aspects in interpersonal relationship, aggression and financial dependency of partner, and insurance coverage of therapy sessions are briefly discussed.

#### 1.2.6- 1 Financial aspects

Scholars have demonstrated that economic conditions influence the quality and instability of relationships. Likewise, researchers have identified low income and poverty as important risk factors for violence (Copp, Giordano, Manning, & Longmore, 2016). One of the strongest external stressors of most families are financial issues and related problems. Families have to deal with financial difficulties, and it is an indirect cause of frustration, affecting life adversely. For example, some families have disagreements about spending money; or in partners, when a partner has a saving character that is in contrast with another one who has a spending character. Although the financial issues like other stressors are present for low-income families, in the end it is the person's beliefs about these stressors and their maladaptive coping mechanisms that would lead to anger and aggression.

#### 1.2.6- 2 Aggression and financial dependency of partner

In some cases, clients in an abusive relationship are not able to start their own life because of being financially dependent on their partner. It is observed that there is a relationship with male

partner’s aggression and financial dependency of partner. The male partners who have high level of aggression and are also highly resistant to therapy have a partner that is financially and emotionally dependent on them. They believe that female partner is not able to leave the relationship and starts her own life without them. Therefore, women empowerment in society should be promoted.

### 1.2.6- 3 Insurance coverage of therapy sessions

The insurance services have progressed for health problems, however, in many countries, the insurances do not cover the cost of psychotherapies. On the other hand, many low-income families who are dealing with anger and aggression are not able to pay privately for therapy sessions. As the negative impact of uncontrolled anger, in long-term, could lead to very serious and deep issues in family, workplace, and society, therefore, the amendment of the insurance laws to include the coverage cost of therapy would be worthwhile.

### 1.3 Cognitive behavioral interventions

Under cognitive behavioral intervention, the interventions that are used in the first two studies are discussed. Therapy is a mixture of psychoeducation (e.g., about anger and aggression), cognitive techniques (e.g., changing beliefs system, problem solving), emotive/experiential techniques (e.g., positive images for emotion regulation), physiological arousal intervention (e.g., relaxation, meditation, breathing), and behavioral techniques (e.g., assertiveness, finding alternative behaviors). A mixture of both REBT and CT techniques are used to change or modify the beliefs system.

#### 1.3.1 Case conceptualization and treatment plan

Writing a comprehensive case conceptualization and treatment plan helps to have a better diagnosis and a clear goal. Clients are interviewed thoroughly and information regarding their background and history is obtained. In case of understanding the possible existence of any psychological diagnosis, clients are informed and educated about the issue. They are informed about the possible origins of the problem and the underlying mechanisms that perpetuated it.

Therapy is viewed as a journey that has no return. The starting point is the first session, and the destination is the place that therapist and client would like to achieve. The goal of anger management is to change the beliefs that are troublesome and disturbing. Ultimate goal is to help clients to become their own therapist. The responsibilities are shared between clients and therapist. The clients get to know the task and responsibilities which they need to take and the tasks that are related to therapist.

*Table 3. Cognitive-behavioral therapy sessions*

| |
|---|
| Identification and analysis of problems<br>1. Rapport establishment<br>2. Identification of problems<br>3. Obtaining information on background and history<br>4. Brief overview of treatment<br>5. Case conceptualization |
| Explanation of anger management with CBT<br>1. Detailed explanation of CBT<br>2. Understanding anger (onset, duration of each episode, intensity, and frequency)<br>3. Detection of beliefs system<br>4. Understanding coping styles and patterns of behavior (ways of expressing and control of anger)<br>5. Assigning homework |
| Cognitive Restructuring / Rewriting the beliefs system<br>1. Addressing the chief complaints in detail<br>2. Debate and disputing beliefs and thoughts<br>3. Disputing the cognitive distortions<br>4. Replacing the dysfunctional beliefs with new developed belief<br>5. Assigning homework |
| Practice and learning of new beliefs system<br>1. Evaluation and assessment of progress<br>2. Addressing the major and minor issues in detail<br>3. Organizing and classification of new beliefs system, thoughts, emotions and behavior<br>4. Practicing the techniques in a simulated situation<br>5. Assigning homework |
| Communication skills interventions<br>1. Evaluation and assessment of progress<br>2. Constructing skillful communication skills<br>3. Educating conflict resolution skills/negotiation skills<br>4. Role play technique<br>5. Assigning homework |
| Problem solving and analytical thinking<br>1. Evaluation and assessment of progress<br>2. Addressing the problem-solving approach and analytical thinking<br>3. Simulating the anger episodes and process of calming down<br>4. Relaxation techniques / Imagery techniques<br>5. Assigning homework |
| Setting up new goals and understanding<br>1. Evaluation and assessment of progress<br>2. Constructing plans and future goals<br>3. Empathy and understanding the world from other's point of view<br>4. Forgiveness intervention<br>5. Assigning homework |
| Termination and Relapse prevention<br>1. Overall evaluation of intervention<br>2. Estimating the preparedness of client<br>3. Techniques on prevention of relapse<br>4. Maintenance and follow up procedure<br>5. Termination of therapy |

I found no agreed treatment plan of cognitive behavioral therapy that specially target anger and aggression. Therefore, a protocol of structured anger management with cognitive behavioral techniques was developed (see Table 3). This therapy plan consists 8 main sections (approximately between 8 to 10 hours). It could be considered as brief intervention program. At first session, therapist try to identify and analyze the problem. Establishing rapport is very crucial in clients with anger and aggression since most of them have difficulty trusting other people. Therapist obtain information about the chief complaints and on background and history of client such as history of psychological and medical conditions. At the end of the session, therapist gives a brief overview about the therapy, task and responsibilities in treatment procedure and try to formulate the case conceptualization. Clients are also instructed to fill up the inventories and relevant assessment of anger, aggression and core irrational beliefs. At the second session, psychoeducation is given about the cognitive behavioral therapy. Later, therapist collect information on onset, duration, intensity and frequency of anger and instruct clients to monitor their emotion on a daily basis accordingly. Therapist detect core beliefs with procedure such as downward arrow technique, watching for core beliefs expressed during the interview, and direct elicit of the core belief. If the clients are already assessed for their core irrational beliefs with an inventory, the results are discussed about each core beliefs. Therapist also explore the coping styles and patterns of behavior during past episodes of anger. At the end of every session, clients are assigned some homework, such as reading relevant chapters in the self-help books, writing the daily flash cards, writing the disturbing memories, etc. In third session, cognitive restructuring and re-writing the beliefs is discussed. Chief complaints are addressed in detail. At the same time, the core irrational beliefs and cognitive distortions are disputed one by one. Replacing the maladaptive beliefs with some more adaptive one is employed. Clients are instructed homework such as providing list of some advantages and disadvantages of core beliefs. Practice and learning of new beliefs system is the topic of fourth

session. At the beginning of every session, progress of client is evaluated and assessed. The homework is reviewed and commented on. Therapist addresses the major and minor issues in detail, organize and classify new beliefs system, thoughts, emotions and behaviors. Cognitive behavioral techniques such as simulating an activating event is practiced to have a better regulation of anger and control of aggression. Fifth session, constructing communication skills, educating conflict resolution skills, and negotiation skills are discussed. Therapist can use role play (reverse) technique to practice skills of communication and negotiation during conflict as well as for day to day life. Sixth session, clients practice problem solving and analytical thinking. In second part of session, therapist simulate an angry episode and instruct the clients how to remain calm with using cognitive, physiological, imagery and behavioral techniques. Techniques of relaxation, breathing and imagery is trained with client. Seventh session is setting up new goals and constructing plans for future. They are recommended to have more flexible thinking as well as to practice empathy and understanding the world from other's point of view. Forgiveness intervention, if applicable, is discussed with client. Last session is termination and relapse prevention. The intervention is overall evaluated and the preparedness of client to terminate the therapy is estimated. Some techniques on prevention of relapse, maintenance and follow up procedure is practiced with client.

### 1.3.2 Resistance or beliefs about the therapy

Clients who are referred to treat anger and aggression could be divided into two groups. First group are referred willingly to manage their anger and participate actively in the therapy sessions. The self-reported effect of treatment in this group is relatively high. Second group usually are referred by others for treatment and is known to be resistant to therapy. They are completely uninterested and uncooperative. They usually do not attend the further sessions. They believe that the therapy is useless, pointless, and ineffective. They justify their aggressive behavior either as a part of their personality or by blaming others.

The resistance would be defined as the negative beliefs towards therapist or therapy. Quality of therapeutic relationship would be meaningful in dealing with resistance, and therapeutic skills are required to change the beliefs towards therapy and therapist. The successful establishment of rapport requires trust, respect, and empathy from therapist to clients. The words and actions should be in such a way that the clients receive attention, care, and understanding.

### 1.3.3 Therapeutic alliance

Clients with anger and aggression usually have a negative view towards others and the world. They can't trust other people because of being abused several times in their life. They might also feel defective and shameful throughout their life and some of them might have developed a grandiosity mask to protect themselves. The patient's overall beliefs system should be evaluated. When the clients come with a very disturbed emotional state, it is not the humor of the therapist that would lead to rapport but rather the empathy that would give the patients some relieves. The therapist should not make any judgment based on what the clients have done or says. During the couple therapy sessions, they should feel that they have an equal place before the therapist. They should feel that the therapist is not going to take anyone's side and he/she respects them equally. The same amount of time should be given to both and they should not interrupt each other's talk during the session.

### 1.3.4 Assessing motivation to change

Motivation for therapy (Kassinove & Tafrate, 2013, p. 85) is assessed to discover if the individual is motivated enough for change. There are some clients who have resistant and rigid core beliefs and it is very hard to change their belief. Clients usually deny, justify and rationalize their behavior and are blind to the self-contributing part to their anger and aggression Thus, therapist helps the clients to increase their awareness of anger episodes by giving them psychoeducation about disadvantages of anger and conducting interviews about

short-term and long-term outcomes of past anger episodes. To increase motivation for highly resistant patients, Kassinove and Tafrate (2013) suggests the approaches such as motivation interviewing (Rollnick & Miller, 1995), five stages of change (Prochaska & DiClemente, 1986), and paradoxical intention (deliberate practice of a belief or thought).

### 1.3.5 Changes in beliefs system

Life events, minor or major, may automatically change the beliefs. However, the changes of beliefs system in a therapy setting are quite dissimilar. The therapy is the change in beliefs that are disturbing to self and others. Some of these beliefs are likely to change, however, those that are not possible to change in a short-term, would be tolerated for some time until the individual is ready to change them. Changes in beliefs system require the assessment of the following factors: 1) flexibility in individual's thinking pattern; 2) strong logic and rational that is against the client's present learned beliefs; 3) Insight: awareness of belief accompanied by either poor or fair insight. Some people might know their belief but are not able to change and others might have no insight at all; 4) Duration: longer to have the beliefs, the harder it is to change; 5) Severity and chronicity of anger could be directly related to the onset and numbers of irrational beliefs that individual is holding; 6) At the last stage, "repeat" is the key to learning the new beliefs system, or else, the relapse is probable.

The unchangeable beliefs are also compromisable, i.e., clients might accept other person's belief and be flexible to adjust to it. The justification for compromising should be worthful of results, in other words, it should be satisfactory for individual. It requires an equal dedication from both sides to this process.

### 1.3.6 Rewriting the beliefs system

Rewriting the beliefs system can be compared to computer programing. New beliefs are reprogrammed in such a way that would be meaningful, satisfactory and goal oriented. This

process replaces the dysfunctional and disturbing beliefs of an individual with new beliefs. As every human's beliefs system is subjective and not absolute true (including therapist), thus, it is recommended that every person should rewrite their own beliefs (program) to reach to their ultimate goals and results. All the other beliefs that are not disturbing would remain unchanged, as some beliefs that would be irrational for the therapist would be completely rational to the clients and vice versa such as political beliefs.

One considerable fact is that working with angry clients is not comparable with severe psychological cases that have delusional irrational beliefs. Rather we are working with clients who are not suffering from severe psychological disorder but the issues that are disturbing their emotions. Hence, I would recommend that the beliefs, as much as possible, should not be called rational and irrational. Firstly, because something that could be irrational would be at the same time rational for another person. Secondly it would lead to dichotomous thinking of rationality and irrationality. Thirdly, it would make the clients uncomfortable to hear that they are irrational and would make them even more adhere and resistant to that particular belief.

### 1.3.7 Techniques of cognitive behavioral therapy

#### 1.3.7- 1 Psychoeducation (about anger and aggression)

In psychoeducation, clients learn to label and differentiate the anger intensity, nature of anger (episode, duration, frequency), anger fact sheet (in case of resistance), types of aggression, difference between anger and aggression, difference between anger and other emotions, difference between assertiveness and aggression, and communication skills. They also get brief information about treatment plan and CBT model.

Terminology and changing the words (Kassinove & Tafrate, 2013, p. 13) is also another psychoeducation techniques. Individual learn how to change the words "awful and horrible" to "bad and unfortunate" and "must and should" change to "it is better, and I wish".

There are also some self-help books that help the clients to educate about their anger for example, "*anger: how to live with and without it*" written by Ellis (2003).

### 1.3.7- 2 Cognitive techniques

Main purpose of cognitive techniques is to identify, challenge and actively replace the beliefs system (Ellis & MacLaren, 1998). Because it took many years to build the old beliefs system and now it might also take long time to rebuild the new beliefs. In following sections, cognitive techniques that can be used in intervention are described: Referenting or cost-benefit analysis, logico-empirical disputation or Socratic questioning, functional disputes, cognitive continuum, perspective change, using rational humorous song, intellectual–emotional role plays, self-disclosure, stories and metaphors, core belief worksheet, historical tests, flash cards, pie chart, paradoxical intention, daily practice, problem solving, constructing plans and future goals, 10 golden questions, role play and empty chair, self-monitoring.

*In referenting, also called as cost benefit analysis*, clients make lists of advantages and disadvantages of having the old and new beliefs. Client can also write about advantage and disadvantage of being aggressive (Ellis, 2003, p. 106).

*Logico-empirical disputation or Socratic questioning*, derived from the philosopher Socrates, involves a dialectical discussion (J. S. Beck, 2011; Ellis & MacLaren, 1998). Therapist ask questions such as "what is the evidence that supports this idea?", "where is the proof that this is accurate", "where it is written", "where is the logic that Y must follow X", "Is there an alternative explanation or viewpoint?", or "What is the worst that could happen?".

*Functional disputes* are the functionality of holding on to a specific belief. The purpose is to question the practical applications of some client's beliefs and their accompanying emotions and behavior, typical questions such as "is it helping you", or "how is continuing to think this way affecting your life?", "is the anger helping you", "is it helping more than it is hurting?"

and making clients able to identify positive consequences of new beliefs “are there other ways to get positive consequences without getting yourself so angry?”.

*Cognitive continuum* is useful to modify beliefs that reflect dichotomous thinking (all-or-nothing). “Building a cognitive continuum for the polarized belief facilitates the patient’s recognition [that between zero and one, there are many other numbers]” (J. S. Beck, 2011, p. 218).

*Perspective change* or using other people as a reference point refers to obtaining psychological distance from their own dysfunctional beliefs by considering other people’s beliefs. For example, they consider their best friend or any other person whom they truly comfortable with. They would ask “What would you tell your best friend if he/she comes to you with same problem?”. They can also imagine their older years of themselves and ask, “What would your 70 years old of you tell you about your present you?”.

*Using rational humorous songs* are recommended by Ellis (2003): “if human disturbances largely consist of over-seriousness . . . the best way for uprooting [is] humor and fun” (p. 111).

*Intellectual–emotional role plays* also called as point–counterpoint is “useful when clients intellectually understand that a belief is irrational, but emotionally feel that it is still true” (Tinsley, Lease, & Wiersma, 2015, para. 2). “Client takes one side (emotional side) and therapist take the other side (intellectual side) and then discuss each side and later switch position” (Tinsley, Lease, & Wiersma, 2015; J E Young, 1994).

*Self-disclosure* refers to the appropriate real examples of therapist’s life for the clients. For instance, for the client who has the belief of “everything should be perfect”, therapist would give an example of her/his life. During the time that he had this belief, “what kind of problem

did he face in his life" and "how did he overcome this belief by changing it to "nothing is perfect, and nobody is perfect, if it is good enough would be also nice".

*Stories, movies, and metaphors*: "clients develop a different idea about self by encouraging them to reflect on their view of characters or people who share the same negative core belief" (J. S. Beck, 2011, p. 247). For example, a client who had difficulty trusting others was asked to watch the film "beautiful mind", and in the next session, he was asked to comment on the paranoid beliefs of main character "Dr. John Nash".

*Core belief worksheet*: after developing a new belief, clients write down the evidence supporting old core beliefs and evidence supporting new core beliefs.

*Historical tests* are to examine "how the belief originated and was maintained through the years" (J. S. Beck, 2011, p. 247). "They record memories that may have contributed to the establishment or maintenance of the core belief" (p. 248). They may reflect on childhood years, adolescence, early adulthood, adult years and succeeding years. "The second step involves searching for and recording evidence that supports the new, positive belief for each period" (p. 248). They later compare the positive and negative evidence to find out the way they chose to highlight the negative memories. This technique could be hurtful for some clients as they go back to their earlier years and remember very bitter memories.

*Flash Cards*: REBT self-help form is a useful ready-made flash card in that clients can fill the blanks daily (Ellis, 2003, p. 50-51; See appendix).

*Pie chart* can be used in helping clients "set goals or determine relative responsibility for a given outcome by seeing beliefs in graphic form" (J. S. Beck, 2011, p. 268).

*Paradoxical intention* refers to "reducing irrational beliefs to absurdity – by exaggerating the original idea to a wildest implication" (Ellis, 2003, p. 108).

*Daily practice*: After finding the new belief, clients are recommended to write them as a sentence and hang it on their wall to see them every day.

*Problem solving*: Clients are asked to write down at least five alternative solution to their problems (Kassinove & Tafrate, 2013, p. 164). They evaluate the short-term outcome and long-term outcome of each solution. Aggressive clients usually consider the short-term outcome of their behavior and act impulsively. This technique would help them to think about long-term outcomes of each alternative and evaluate them wisely (Kassinove & Tafrate, 2013).

*Developing analytical thinking skills:* The effect of cognitive behavioral therapy would not be enduring if no emphasis on analytical and critical thinking is given. The aim is to increase the ability of analytical thinking in clients, i.e., trying to help them to think of alternative beliefs.

*Constructing plans and future goals*: clients write down about new plans (weekly, monthly, yearly) to change their life style and behavior. They also set a new realistic goal and resolution for their future.

*Role playing:* This technique can be used for several purposes: 1) identification of beliefs, 2) understanding the anger trigger, 3) simulating an old anger episode, 4) exposure to new scene, 5) learning assertiveness, 6) modification of beliefs, 7) monitoring anger, 8) practice de-awfulizing, de-catastrophizing, shouldn't and mustn't, 9) increasing tolerance.

*Role play reverse*: clients play the role of a person (parent, partner, colleague or another figure with whom they experience often an anger episode) and therapist plays the role of the client. In role play reverse clients can also take the role of therapist to talk with themselves during an anger episode (Ellis, 2003, p. 74).

*Empty chair* is a technique in that clients talk to an empty chair, that can be self or another figure.

*Ten golden questions* [2]*:* A new technique was developed for angry clients called "10 golden questions" (see Table 4). Clients can either memorize the questions or write them down on paper and carry them daily. They answer these questions during an anger episode. The golden question could help them to recall the practices that were learnt during therapy session, finding their weak points and addressing them in therapy session. The questions have emotional elements such as anger control and anger regulation (item 1 & 2), changing beliefs and thoughts (item 3), cognitive elements such as avoiding distortions (item 4), control on physiological arousal (item 5), behavioral elements such as control on verbal and physical behavior (item 6 & 7), problem solving (item 8 & 9), and alternative expression and assertiveness (item no. 10).

*Table 4. Ten golden questions*

| | |
|---|---|
| 1. How angry am I? | 0 to 10 |
| 2. How much can I control my anger? | 0 to 10 |
| 3. How much can I change my beliefs and thoughts? | 0 to 10 |
| 4. How much can anger change my thoughts? | 0 to 10 |
| 5. How much can I control my body? | 0 to 10 |
| 6. How much can I control my words? | 0 to 10 |
| 7. How much can I control my behavior? | 0 to 10 |
| 8. How much can I solve the problem? | 0 to 10 |
| 9. How much my anger can solve the problem? | 0 to 10 |
| 10. How assertive am I? | 0 to 10 |

*Self-monitoring (writing down the beliefs and thoughts):* A feasible technique to calm down from a situation that made someone angry is self-monitoring and writing down the thoughts, emotion, and behavior. Clients are instructed to carry a paper and pen with themselves at all the time. They learn to find the triggering cues and before the episodes occur, try to take control of the situation. In other words, they learn before they get angry and aggressive, try to calm

[2] New technique invented by researcher

themselves down. In this way, the person can analyze the self and relieve for a particular amount of time. Self-monitoring has the following benefits: 1) Looking as a third person to the beliefs and thoughts, 2) Organizing the beliefs in a systematic way, 3) Separating the emotions and thoughts to analyze them better, 4) a relief function because the thoughts get organized, 5) Rumination might stop since a signal is sent to mind, making sure that thoughts have been saved and written down in their notebook and no need to remember them every day, 6) While writing, the decisions are suspended and postponed. It helps the individual to have an appropriate appraisal of the situation or in a common language "thinking twice", 7) By self-monitoring, the speed of automatic thoughts is reduced, process of appraisal is assisted, and the learnt techniques during the cognitive behavioral therapy are remembered.

*Slow motion technique* [3]: Anger is characterized by rapid thoughts, activation of the sympathetic nervous system, and impulsive behavior. Clients are asked to think, talk, behave as slowly as possible during their anger episode. They should imagine themselves as if they are in slow motion mode. Slow motion helps to reduce the speed of thoughts, decrease in heart beat and breathing, and prevents any impulsive act.

### 1.3.7- 3 Emotive/ Experiential techniques

Emotive or experiential techniques are used to reinforce the cognitive techniques, modify beliefs and reconstruct memories. Goal is to pair imaginal exposure with relaxation and cognitive interventions. Emotive techniques usually follow a general instruction. Before the technique starts, clients are informed about the procedure in that it might take 15 to 20 minutes. Clients usually experience deep and strong emotions such as rage, frustration, sorrow, and disgust. If it is very overwhelming, they can stop the technique by signaling "stop". Client is then asked to take a relaxing position on the chair or sofa and take few deep breaths. They are

[3] New technique invented by researcher

instructed to close their eyes, whenever they are ready, or if they are not comfortable doing so, they can look towards down. Some of the imagery techniques are imagery recall of past events, imagery exposure, simulation, emotional training, mood regulation, and restructuring early memories that are explained below:

*Imagery recall of past events*: Clients recall the events that are accompanied with high intensity of anger. The reason is to understand the episodes as well as to instruct clients to modify the beliefs and monitor the level of anger simultaneously.

*Imagery exposure*: Clients imagine a very terrible negative event and then try to control anger and aggression with the help of cognitive techniques.

*Simulation*: Therapist simulates a scene by reading the imaginary anger episodes, and the client practice to reduce their anger and avoid aggressive behavior.

*Emotional training*: It is the recall of pleasant memories in past for rebuilding the relationships between client and others. This technique can be used in combination with other emotive techniques in that client focuses also on the positive side of life and positive beliefs.

*Restructuring early memories*: It is to recall an earlier event that caused the development of a belief. The aim is to make the clients understand their coping behaviors that they had learnt in life because of this belief. For example, a client who used to be bullied in school years, recalls a stressful past event where he developed a belief of "I hate people". In restructuring earlier memories, clients understand how he overgeneralized the bully to the other students and became aggressive towards all.

### 1.3.7- 4 Managing physical arousal with relaxation training and meditation

"In modern society, fight or flight mode doesn't help" (Kassinove & Tafrate, 2013, p. 9) in many situations. Clients appraise the situation as if they are really in fight or flight mode, and

consequently sympathetic and parasympathetic nervous system is activated. “The cognitive techniques need to be implemented followed by other techniques such as relaxation training and meditation” (Kassinove & Tafrate, 2013, p.  222). The main goal is to manage physical arousal that is accompanied by every anger episode. Relaxation training such as muscle relaxation, autogenic training, breathing technique, using words such as “calm down” and “relax”, yoga, meditation, and mindfulness would be beneficial. Clients can record the voice of therapist while giving the instruction of muscle relaxation, breathing technique or any other relaxation method and repeat it daily once or twice. These techniques can also be useful for clients who experience muscle tension, severe headache, difficulty sleeping or falling asleep.

### 1.3.7- 5 Behavioral techniques

Behavioral techniques are “either to change the beliefs of individual or to support the new beliefs made through cognitive techniques about their lives and world” (Ellis & MacLaren, 1998). In the following paragraphs, some of these techniques are explained: assertiveness training, reinforcement, skill training, in vivo desensitization, identifying coping style, acting “as if”, shame attacking and risk-taking exercise, use of audio recorder or mirror, behavioral experiments, breaking down behavioral patterns, breaking down habits, communication skills training, and temporary short-term intervention.

*Reinforcement*: Clients would reward themselves with any pleasurable behavior such as visiting swimming pool, cinema, drinking coffee/tea, etc. for completion of homework assignments (Ellis, 2003, p. 83; Kassinove & Tafrate, 2013).

*Skills training* refers to learning any skill ranging from actual trade skills (computer software, language, repair an automobile, painting, etc.) to interpersonal or social skills (Kassinove & Tafrate, 2013, p. 145).

*In vivo desensitization* is to show clients that it is their beliefs which are causing the extreme emotional upset, not the thing or situation they are angry with. Through repeatedly experimental exposure to the thing they are irrationally angry with, they can get to know their irrational beliefs. They can also be recommended to stay in a difficult and uncomfortable situation and simultaneously monitor their anger and aggression and beliefs related to them (Ellis, 2003, p. 82).

*Identifying coping style*: Therapist discusses the coping styles of clients to find out which coping mechanism or behavior they use during anger episodes. Angry clients, in order to reduce the tension, drink alcohol, abuse drugs, drive fast and recklessly, and break things. Along with therapist, clients try to find alternative behavior and implement them. It is also possible to use the four subscales in the state trait anger expression inventory (anger expression in, anger expression out, anger control-in, and anger control out) to determine the coping style of individual.

*Acting "as if"* refers to asking clients to deliberately and mindfully push themselves to act as if they have the rational beliefs (J. S. Beck, 2011, p. 268).

*Shame attacking and risk-taking exercise*: It is a technique "trademark" of REBT (Ellis, 2003, p. 72), to practice assertiveness. Clients might do some behavior that they find very awful or uncomfortable. For example, a client who gets angry when receiving cold food in a restaurant instead they can practice requesting the person to change the cold food with a warm one. Or if they get angry when someone is speaking loudly on their phones in the train or bus, they can instead request a person to speak quietly.

*Use of audio recorder or mirror*: Clients might use an audio recorder or mirror in order to practice assertive expression and behavior.

*Behavioral experiments* are helping the clients to devise a behavioral test in order to evaluate the validity of a new belief (J. S. Beck, 2011, p. 217).

*Breaking down behavioral pattern*: Some clients might have behavioral pattern such as playing violent video games, angry or sad music, and violent films. The alternatives cognitive games, relaxing music and documentary films are recommended for these clients.

*Breaking down habit*: Clients might have developed some habits such as heavy smoking or alcohol/drug consumption, etc. Clients learn to break down their habits through alternative behavioral techniques to reduce their smoking and alcohol/drug consumption.

*Communication skills* refer to behavioral training for clients on how they can communicate their ideas and opinions with others. It includes training for communication during the conflict and in stressful situations. These techniques are collected also as social interaction skills by Kassinove and Tafrate (2013, p. 147): "social skills are the expected verbal and motor behaviors that are learned as we develop in order to interact appropriately with others". These are verbal and non-verbal behaviors: eye contact during communication (without staring), keeping distance (not too far, not too close), posture (turning whole body towards person), physical contact (handshaking), gesturing, active listening, tone (not talking fast), volume, greeting others, giving and accepting compliments, making a request, refusing request, accepting criticism, giving criticism, accepting no for an answer, apologizing, disagreeing and contradicting.

*Assertiveness* is one of the key strategies for managing anger in cognitive behavioral therapy. It is a constructive behavior and reaction during anger episode. it is an alternative to aggression, thus, it should be differentiated from aggression. Assertiveness techniques are well-explained by Alberti and Emmons (2017):

> Assertive self-expression is direct, firm, positive – and, when necessary, persistent – action intended to promote equality in person-to-person relationships. Assertiveness enables us to act in our own best interests, to stand up for ourselves without undue anxiety, to exercise personal rights without denying the rights of others, and to express our needs and feelings (affection, love, friendship, disappointment, annoyance, anger, regret, sorrow) honestly and comfortably. (p. 32)

They have given a list of eleven key qualities of assertive behavior: self-expressive, respectful of the rights of others, honest (no hiding), direct and firm (it means to the right person), equalizing (balanced frequency, intensity, and duration), benefiting both parties in a relationship (respecting equality), both verbal (including the content of the message) and nonverbal (including the style of the message), positive (expressing affection, praise, appreciation) at times and negative (expressing limits, anger, criticism) at times, appropriate for the person and situation, socially responsible (keeping rights and responsibilities in balance), both inborn (elements of temperament) and learned (styles of behavior), persistent (necessary to achieve one's goals without violating the previous ten points). Clients need to know that assertiveness may not lead to attaining desired goals. For example, the most assertive request for raising in salary, may not lead to the desired goal (Kassinove & Tafrate, 2013, p. 154).

Stevens and Roediger (2016) introduce the technique of "assertive leg and attachment leg". It is mainly used in working with couples to tell them how they can manage their relationship. It should be always used with balance and individual needs to stand on both legs. It is being said, "treat others, the way you want to be treated", but it was never said that if you were nice towards other people (i.e., attachment leg) and they were not, what is the best option. If the individual is still nice to them, they might continue being mean and rude. This is when we need to put

assertive leg in front and treat them in an assertive way. So assertive leg should not be mistaken by aggression in that the first one has an understanding with control over the self and the second one is out of control and non-understanding. The assertive leg can be put forward during the events that one's rights are violated, or someone is trying to take advantage of attachment leg. It can be also used during the defending of self in front of irrationalities and injustice.

*Temporary-short term intervention:* There are some interventions that need to be considered only for short-term purposes. Sometimes clients are experiencing so much stress because of several triggers. Avoidance and escape could help to reduce the amount of stress that is faced by them (Kassinove & Tafrate, 2013, p. 125). The reasons for implementing these techniques are 1) individual is not yet ready to confront the trigger, 2) individual has not yet learnt the assertiveness techniques, 3) individual is facing lots of triggers so that avoidance and escape reduce the overall stress level. For example, if the client is getting angry in several situations, one of them is weekly family meetings, she/he might plan to avoid these meetings for some period of time. Escape could be also planned if client knows that she/he is going to get into a quarrel with a particular person, for example, a family member. She/he might escape from the gathering in that particular person would be present. It should be remembered that these interventions are just for short-term and are not at all useful for long-term. Techniques to be used under short-term interventions are planned avoidance, avoidance by time delay, time out, planned escape, distraction, and timing (i.e., when to discuss about issues) (for detailed explanation, refer to Kassinove & Tafrate, 2013, p. 125-132)

*Changing environment*: When possible, changing environment would help the client to start a new job, a new house or a new city. For example, if a client is often getting aggressive, living in his parent's house, he would plan to get a new job in another city and start a new beginning.

Although changing environment is discussed with client as an avoidance technique and is not at all suggested for the rest of their life, but it could be used as the last resort.

### 1.3.8 Forgiveness

“Forgiveness interventions . . . are [the] extensions of cognitive change strategies . . . . that focus on perspective taking and letting go (Kassinove & Tafrate, 2013, p. 225). It is applicable to minor and major anger triggers that have occurred in past. Forgiveness intervention requires considering the following nine conditions: 1) timing, 2) intensity of stressful events (minor or major), 3) presence of stressful trigger, 4) repeatability, 5) presence of revengeful beliefs, 6) goal of forgiveness, 7) beliefs related to offend and offender, 8) presence of negative strong emotions, 9) building the supporting beliefs towards forgiveness.

The timing of delivering the forgiveness intervention should be chosen rightly. The best timing is near to end of therapy, before the termination. If the forgiveness is discussed at the beginning of therapy sessions, clients might feel that they have not being understood or they might see the therapist as a religious leader.

Stressful events based on their level of intensity could be categorized into major events (e.g., war, physical attack, and rape) and minor events (e.g., not being invited to a party, relationship problems, neglect and rejection). It takes usually more time to discuss the forgiveness in cases of major stressful events, and it is easier to reach forgiveness for minor life events.

The third one is considering the existence of a stressful trigger in the life of clients at the present. In cases, that client had someone who abused them, and she/he is already passed away or is not present in the life of clients, the forgiveness is much easier. In cases that clients are still living with them, for example, living with a brother who had aggressive behavior in past and is still aggressive towards clients and others, forgiveness is harder.

Fourth, repeatability is another considerable condition. The people having a tough time forgiving others, have had many times forgiving people in which the same mistakes were repeated. They falsely learnt that forgiving is not effective rather the punishment changes the behavior of others. In case of living with people (such as partner) who caused stressful events in past but are regretful and committed to avoid their act, forgiving is also easier. However, there is no guarantee that human being doesn't repeats the mistakes in future.

Fifth, forgiveness intervention is not designed for all clients with psychological issues. There are some clients who don't need to have forgiveness intervention (e.g., clients with no supporting beliefs about punishment). However, most of clients with anger and aggression, have a tendency to keep revengeful beliefs. The assessment of the presence of revengeful beliefs would help to determine whether forgiveness intervention is required or not.

Sixth, the individual who forgives might pursue two goals. One goal is to reach inner peace. Another goal is anticipating that by forgiving the offender will learn from their mistakes. In the inner peace-oriented goal, also can be called pure forgiveness, individual forgives to have no more disturbing negative emotions. This type of forgiveness is the main purpose of therapy intervention. However, the latter one is very similar to revenge, in that the client forgives in hope of teaching the offender to learn from their mistake and indirectly expecting that the offender lives with guilty feelings and pains of their wrongful act.

Seventh, concentration of the intervention is on the beliefs that are related to the "offender" and not to the "offence". Act of offence is by no mean accepted and agreed. Rather it is considering the offender as a human, like all of us, who make mistakes. Thus, by forgiveness we emphasize that an individual is not accepting a wrong behavior, rather we are accepting a human as an imperfect being who makes mistakes.

Eighth, the presence of negative strong emotions such as hatred would be assessed before the intervention. If the individual hates the offender, intervention needs to first target emotional correction and then discuss the possibility of forgiveness.

Last, providing the above eight conditions, the new beliefs towards forgiveness are constructed during the intervention. The rational beliefs such as “not letting the negative past influence our present and future” or “forgive yourself and others” need to be implemented. In summary, we learn from our past, but don’t have to live in it. We live in a moment and plan for our future. By forgiving, something is done for the better future. We forgive ourselves and forgive those who made us feel bad. The forgiveness is not done because we are afraid. We forgive because of our own inner peace. We all make mistakes and some mistakes are really painful. These mistakes make forgiving unimaginable. It is hard and will not happen so fast, but it is not impossible.

### 1.3.9 Issues related to disclosure of information and privacy

There are some issues related to disclosure of information and privacy among couples. Many couples are not ready to share their thoughts or past behaviors with their partner. In many cases, they need to speak with a therapist alone. Perhaps many of the issues that bother them are the one related to partner which could not disclose them. These issues are related to the beliefs of trusting partner, betrayal, past marital affairs, or fear of separation and non-continuance of relationship. There are some researchers that stress the importance of expressing this information, and other emphasize not to disclose the information as it would not help to improve the current situation. A better view and steps are: 1) evaluate the beliefs regarding disclosure of private information, 2) evaluate possibility of leading to another wave of anger episodes, rumination, and frustration, 3) assess the possibility of increasing tensions in case of sharing the information, and 4) evaluate the efficacy of information for improvement and

enhancement of therapy process. Examining above factors along with weighing overall functioning of partners, the level of stressors, and sensitivity of information could help the therapist to have a comprehensive decision of whether to disclose this information or not. It would be also better to express such sensitive issues at a proper time when both partners have the ability in accepting and forgiving.

### 1.3.10 Relapse prevention

Relapse can occur at any stage of the treatment. In many cases, clients would reach the stage of action (in other words managing anger), but they cannot succeed in the maintenance phase (Kassinove & Tafrate, 2013, p. 245). One of the obstacle issues is related to the decision-making process, as well as the occurring mistakes in stages of change. For example, when the clients fail to control anger in one or two episodes, they would believe that the therapy was not useful. In some other cases, when changes are expected in both partners and one of the partners has taken a firm decision to manage anger and aggression, but the other partner needs a longer time to change or is unprogressive. This result in discouragement and disappointment in person, and as a result, the old beliefs are repeated. Relapse can be defined as the return of old beliefs that occurs whenever the new beliefs are still not strong enough, leading to recurrence of same unhealthy emotion and maladaptive behavior. One reason could be that old beliefs are either very resistant or that conditions for change are not provided. At this stage, it is necessary to remind the client that the change is the process that requires patience and tolerance, and one or two episodes of anger should not lead to the feeling of hopelessness in themselves or therapy (Kassinove & Tafrate, 2013)

## 1.4 Anger and aggression therapies

Cognitive behavioral therapy is widely accepted for treatment of anger and aggression. First, I explain the two important CBT models, rational emotive behavior therapy (REBT) by Ellis and cognitive therapy (CT) by Beck. Later, an integrative approach of schema therapy (ST) by

Young that is the extension of cognitive behavioral therapy for individuals with personality disorders will be discussed.

### 1.4.1 Rational emotive behavioral therapy (REBT) by Ellis

"Rational emotive behavior therapy (REBT) was founded in 1955 by Ellis" (Dryden, David, & Ellis, 2010). "Ellis . . . was influenced by the writings of Epictetus and Aurelius (Stoic philosophers), Immanuel Kant, Karen Horney, and Alfred Adler" (Dryden, David, & Ellis, 2010; p. 226). He stated that "people disturb themselves by the rigid and extreme beliefs that they hold about things" (As cited in Dryden, David, & Ellis, 2010; p. 226). "REBT . . . places less stress on the role of early childhood experience . . . in accounting for psychological disturbance" (p. 228). "The intervention is not aimed at finding the reality, but at developing reasonable interpretation [and] appraisal of the trigger" (Kassinove & Tafrate, 2013, p. 212). This doesn't mean that the appraisal of truth is unnoticed, rather, the reasonable appraisal will lead to reduction of anger and development of problem solving.

#### 1.4.1- 1 Rational and irrational beliefs

Dryden, David, and Ellis (2010) outlined:

> The concept of rationality is central to an understanding of the person, where "rational" means . . . true, logical, and aids people to achieve their basic long-term goals and purposes". Consequently, "irrational" means false, illogical, and hinders or obstructs people from achieving their basic goals and purposes. Humans have a strong tendency to think irrationally, however, they are by no means slaves to their tendency toward irrational thinking. (p. 229)

Ellis divided beliefs into two categories: Rational beliefs and irrational beliefs. By rational beliefs, "we . . . control and direct our personal and social behavior" (Ellis, 2003, p. 14). In contrast, by irrational beliefs, individual makes an evaluation of the action into an evaluation of the person. "Anxiety often stems from sets of irrational beliefs that we hold about ourselves,

while anger stems from irrational beliefs that we hold about others" (Ellis, 2003, p. 26). People who often experience anger falsely think that their beliefs are rational, and others are irrational. In order to "change the feelings and actions in the quickest, most efficient and effective way, clients need to pay attention to changing their irrational beliefs" (Ellis & Tafrate, 1998, p. 35).

Ellis (2003) explained every person develops a beliefs system that

> they rely upon to assist them in making judgments and evaluating situations, ideas, people, and events . . . . Although we own many personal beliefs or value systems, many beliefs stem from our society and culture that might be significantly different from other cultures . . . . An individual might change his/her belief during lifelong because of cultural changes or in order to remain happy and productive in the world . . . . What is known is that every society establishes sets of beliefs, values, and norms that bind its citizen together . . . . Religious, political, and parental teachers pass these guidelines to the next generation that serve as a foundation of the development of beliefs system . . . . [Therefore,] our individual beliefs system include ideas not entirely our own . . . . [Thus,] no universal norms exist. (p. 9-10)

Ellis has postulated that four beliefs moderate unhealthy negative emotions (Tafrate et al., 2002): Demands (Must/absolute, should/ought), awfulizing/catastrophizing (It's awful, terrible, horrible), low frustration intolerance (I can't stand it), and self/other rating.

### 1.4.1- 2 ABCDE model

In Ellis's ABCDE model (as cited in Dryden, David, & Ellis, 2010, p. 229): "A stands for an activating event (i.e., the aspect of the situation that activates the person's beliefs); B for beliefs the person holds about this aspect [appraisal]; and C for the emotional [anger], behavioral [aggression], and cognitive consequences [angry thought] that stem from B". If C is anger, beliefs system B has strongly influenced perceiving A. D represents disputing and "E" is the

effect of disputation. REBT helps to discover exactly what beliefs contribute to this anger and how it can be altered by examining their unreality and irrationality (Ellis, 1998, 2003, 2017).


*Figure 11. Ellis ABCDE model*

Ellis categorizes negative feelings according to their intensity into two (Ellis, 2003): Healthy negative feelings (HNFs) and unhealthy negative feelings (UNFs). Feeling annoyed, disappointed, inconvenienced, or discouraged due to an unfair action are the healthy negative feelings, but the angry and hostile feelings are unhealthy negative feelings. HNFs are associated with rational beliefs and UNFs with irrational beliefs (Dryden, David, & Ellis, 2010).

1.4.1- 3 Disputation

Having insight, knowledge, and awareness of irrational beliefs alone is not enough and doesn't help clients. Irrational beliefs need to be effectively disputed (Ellis, 2017). Disputing dysfunctional and irrational beliefs is one of the most effective REBT techniques (Ellis, 2017). Disputation break down into three main components: Detection (detecting main irrational beliefs), discriminating (discriminating them from rational beliefs), and debating (debating them actively and vigorously). The goal is to teach alternative precise and rational ways of evaluating problematic triggers.

In summary, clients can turn the irrational beliefs into nonextreme belief conclusions such as anti-awfulizing, high frustration tolerance and acceptance. Dryden, David, and Ellis (2010) concluded that:

> Anti-awfulizing [means when a] person does not get what he or she wants and acknowledges the lack of fulfillment of these desires, but also acknowledges that this deprivation is bad but not awful . . . . High frustration tolerance means that the person:

> 1) acknowledges that an undesirable event has happened (or may happen); 2) believes that the event should empirically occur if it does; 3) considers that the event can be and is worth tolerating; 4) attempts to change the undesired event or accepts the reality if it cannot be modified; and 5) actively pursues other goals even though the situation cannot be altered . . . . Acceptance means the person accepts self and others as imperfect human beings. (p. 236)

### 1.4.2 Cognitive therapy (CT) by Beck

In cognitive therapy, "beliefs and information-processing systems play a decisive role in determining feelings and behavior. According to one's values, rules, and beliefs, the signals from others are interpreted and misinterpreted . . . . [The individual] attribute malice to anyone whose action or beliefs conflict with [him/her]" (Beck, 1999, p. 30). "Since the central psychological problem and the psychological remedy are both concerned with the patient's thinking (or cognitions), . . . [this] form of help is called cognitive therapy" (Beck, 1979, chapter 9, p. 141). The techniques are "most appropriate for people who have the capacity for introspection and for reflecting on their own thoughts and fantasies" (Beck, 1979, p. 143). DeRubeis, Webb, Tang, Beck (as cited in Dobson, 2010) described that "the therapeutic value of the cognitive model lies in its emphasis on the relatively easily accessed 'preconscious or conscious' mental events that patients can be trained to report and not on 'unconscious' " (p. 278). "The emphasis on thinking, however, should not obscure the importance of emotional reactions which are generally the immediate source of distress. It . . . means, through cognition, we get to the person's emotions. By correcting beliefs, excessive, inappropriate emotional reactions [are modified]" (Beck, 1979, p. 141).

Beck (1999) proposed that "people who react impulsively with anger and aggression . . . view themselves as vulnerable and see others as hostile" (as cited in Kassinove & Tafrate, 2013, p.

206). In his model of experience of anger (1999, p. 31) a distressed feeling is the initial response to the interpretation of an event that precedes the experience of anger:

Situation/event → distressed → "wronged" → Anger → Mobilize to attack

Beck (1979, p. 49) elaborates that 3 kinds of situations commonly lead to anger: 1) direct and intentional attack; 2) direct, unintentional attack; 3) violation of laws, standards, social norms. In the original versions of the cognitive theory, there was a simplistic model of the link between cognition and emotion; namely, that cognition causes emotion, however, Beck later stepped back from this version and stated that cognition is not the cause of emotional disorders, but that it is part of a set of interacting mechanisms that include biological, psychological and social factors (Dalgleish & Power, 2015, p. 112). Figure 12 shows the proposed model of how cognition lead to anger and aggression. "Core beliefs influence the development of an intermediate beliefs which consists of attitudes, rules, and assumptions" (J. S. Beck, 2011, p. 35). Intermediate beliefs are usually in the form of "if. . . then" rules (Riso, du Toit, Stein, & Young, 2007, p. 4). Example of intermediate belief is "If I become angry, then they will go away". Intermediate beliefs influence the automatic thoughts. Automatic thoughts are between activating events and reactions. Automatic thoughts are a stream of thinking that coexists with a more manifest stream of thought. They are moment-to-moment cognitions that occur without effort, or spontaneously, in response to specific situations (Riso, du Toit, Stein, & Young, 2007, p. 3). "Generally, it is suggested to guide patients to work on automatic thoughts before directly modifying their beliefs" (J. S. Beck, 2011, p. 199). "Person may not be fully aware of automatic thoughts that influence . . . how he acts, what he feels. With some training, [nevertheless], the awareness of these thoughts is increased, and he learn to . . . [identify them] with a high degree of regularity" (Beck, 1979, p. 155). At last, reactions are emotional, behavioral, and physiological.

"Cognitive techniques are most appropriate for people who have the capacity for introspection and for reflecting on their own thoughts and fantasies" (Beck, 1979, p. 143). In CT, like Roger's model (Rogers & Carmichael, 1951), patient-therapist relationship is a joint effort that has the following characteristics: genuine warmth, acceptance, and accurate empathy (Beck, 1979, p. 146).


*Figure 12. Beck cognitive model*

While working with depressive patients, Beck (1979) described cognitive triads and cognitive errors. Cognitive distortions are already explained under the section of inner beliefs. Cognitive triads are the negative views about self, others, and world. In 1967, Beck mentioned the concept of cognitive schema and defined it as "a cognitive structure for screening, coding, and evaluating the stimuli" (p. 255). Schemas are the underlying cognitive structures that organize the patient's experience (Dobson, 2010, p. 280) and play a principal role in the development and maintenance of psychological disorders as well as in the recurrence and relapse of episodes (Riso, du Toit, Stein, & Young, 2007). These schemas are thought to represent the core of the cognitive disturbance, and as such are sometimes referred to as "core beliefs" (Dobson, 2010). *Core beliefs* are categorized as helplessness, unlovability, and worthlessness (see Table 5).

Wenzel (2012) explained that the techniques to identify core beliefs are:

> Downward arrow technique, looking for central themes in patients' automatic thoughts, watching for core beliefs expressed as automatic thoughts, and direct elicit of the core belief . . . . Downward arrow is the most commonly recognized strategy for identifying core beliefs . . . . Therapists who use this strategy ask repeatedly about the meaning of

situational automatic thoughts until they arrive upon a core belief, whose meaning is so fundamental that there is no additional meaning associated with it.

Wenzel (2012) also suggests therapists to administer self-report inventories to identify cognitions such as: (a) the dysfunctional attitudes scale (Weissman, 1979); (b) sociotropy-autonomy scale (Bieling, Beck, & Brown, 2000); (c) the personality belief questionnaire (A. Beck & Beck, 1991).

*Table 5. Core beliefs*

| Helpless core beliefs | |
|---|---|
| I am incompetent.<br>I am ineffective.<br>I can't do anything right.<br>I am helpless.<br>I am powerless.<br>I am weak.<br>I am vulnerable.<br>I am a victim. | I am needy.<br>I am trapped.<br>I am out of control.<br>I am a failure.<br>I am defective [i.e., I do not measure up to others].<br>I am not good enough [in terms of achievement].<br>I am a loser. |
| Unlovable core beliefs | |
| I am unlovable.<br>I am unlikeable.<br>I am undesirable.<br>I am unattractive.<br>I am unwanted.<br>I am uncared for.<br>I am different. | I am bad [so others will not love me].<br>I am defective [so others will not love me].<br>I am not good enough [to be loved by others].<br>I am bound to be rejected.<br>I am bound to be abandoned.<br>I am bound to be alone. |
| Worthless core beliefs | |
| I am worthless.<br>I am unacceptable.<br>I am bad.<br>I am a waste.<br>I am immoral. | I am dangerous.<br>I am toxic.<br>I am evil.<br>I don't deserve to live. |

*Adapted from J. S. Beck (2011)

### 1.4.3 Difference between REBT and CT

The main difference between REBT and CT is that "Beck's approach . . . helps clients to more accurately perceive the triggers . . . . [and] see the world more realistically . . . . [whereas Ellis's] goal is to develop a lowered level of angry reactivity through philosophical shift about the world . . . . and building a more flexible philosophy" (Kassinove & Tafrate, 2013, p. 210). In

contrast to Beck's approach which helps clients to perceive events more accurately, Ellis's approach helps clients adjust to events whether or not they have been accurately perceived. In REBT initial perceptions about the trigger and the automatic thoughts are neither debated nor challenged. Perception and thoughts of angry clients are assumed to be true. Rather, REBT focuses on trigger appraisal (Kassinove & Tafrate, 2013).

### 1.4.4 Criticism of CBT

Previous theories such as theories of needs, learning, emotion and behavior that are related to anger and aggression are not included in REBT and CT model. It has been argued that if cognitive-behavioral therapy is more effective than other therapies (Tolin, 2010). Several studies have evaluated the effectiveness of cognitive behavior therapy. Baardseth et al. (2013) found no differences between CBT treatments and bona fide non-CBT treatments across disorder-specific and non-disorder specific symptom measures. In a meta-analytical review of well-controlled trials by Lynch et al. (2010) CBT was no better than non-specific control interventions in the treatment of schizophrenia and it was effective in major depression but with small size effect and was not an effective treatment strategy for prevention of relapse in bipolar disorder. Furthermore, Johnsen and Friborg (2015), after analyzing 70 studies conducted between 1977 and 2014, concluded that "CBT is roughly half as effective in treating depression as it used to be and that cognitive behavioral therapy seems to be getting less effective over time."

There are four raising issues with cognitive-behavioral approach. First, "clients with underlying personality disorders often fail to respond to traditional CBT . . . . These clients . . . have ambivalent or complicated motivations for therapy and may be unwilling or unable to comply with therapeutic procedures (Martin & Young, 2010, p. 318). They do not cooperate with therapeutic plans, do not perform the techniques properly, and avoid doing home assignments (Riso, du Toit, Stein, & Young, 2007). "Most of the task that are supposed to be done, remain

undone. These clients with characterological problems habitually engage in cognitive, affective, and behavioral avoidance, and may, therefore, be unwilling or unable to observe and report their thoughts and feelings" (Martin & Young, 2010, p. 318). Second, finding the patients' beliefs are challenging. It takes a long time to get in touch with their beliefs. Many clients are disturbed by so many negative emotions, beliefs and thoughts and consequently they can't think about their automatic thoughts and their patterns of behavior. It is, therefore, time consuming to find the exact belief without suggesting it to them. There are also possibilities that angry clients are highly resistant and are not aware of their automatic thoughts and beliefs. Third, finding out if the related coping mechanisms are functional or dysfunctional is also another issue. Fourth, there are possibilities that some clients find a way of turning around the cognitive distortions and appraisal. For example, clients who have "must" as their appraisal would make it conditional. It is then, not the "must" that creates problem, it is rather the second part that makes it problematic. Earlier, the belief was "I must do this". Now they say, "It is better if I do this. If I can't then I am useless". The importance of flexibility is by saying that "It is better if I do this, but if I can't do it, it is no big deal".

### 1.4.5 Schema therapy (ST) by Young

Schema therapy is an integrative approach developed by Young and colleagues (1994) that significantly expands on traditional cognitive-behavioral treatments and concepts (Young, Klosko, & Weishaar, 2003, p. 1). It blends concepts from cognitive-behavioral, attachment, gestalt, object relations, and psychoanalytic schools. Beck (in book cover of Young, Klosko, & Weishaar, 2003) stated that "Schema therapy is the expansion of standard cognitive therapy approaches to treat personality disorders. It is highly recommended for all therapists engaged in treating patients with very difficult personality problems". The four main concepts in the schema therapy model are: core emotional needs (emotional difficulties arise predominantly from unmet core needs), early maladaptive schemas (core beliefs), maladaptive coping styles

(characteristic behavioral responses to schemas), and schema modes (schemas and coping responses operating at a given moment).

Young, Klosko, and Weishaar (2003) identified and categorized the early maladaptive schemas (EMSs) while working with personality disordered patients. A comprehensive definition of an EMSs is "a broad, pervasive theme or pattern comprised of memories, emotions, cognitions, and bodily sensations regarding oneself and one's relationships with others, developed during childhood or adolescence elaborated throughout one's lifetime and dysfunctional to a significant degree" (p. 7). In schema model, there are 18 schemas that are grouped into five broad categories of unmet emotional needs that are called "schema domains", including 1) disconnection and rejection (schemas of emotional deprivation, abandonment/instability, mistrust/abuse, defectiveness/ shame, social isolation, 2) impaired autonomy and performance (schemas of failure, dependence, vulnerability to harm or illness, enmeshment/undeveloped self), 3) impaired limits (schemas of entitlement and insufficient self-control/self-discipline), 4) other-directedness (schemas of self-sacrifice, subjugation, approval-seeking/recognition seeking), and 5) over-vigilance and inhibition (schemas of emotional inhibition, unrelenting standards/ hypercriticalness, negativity/pessimism, punitiveness).

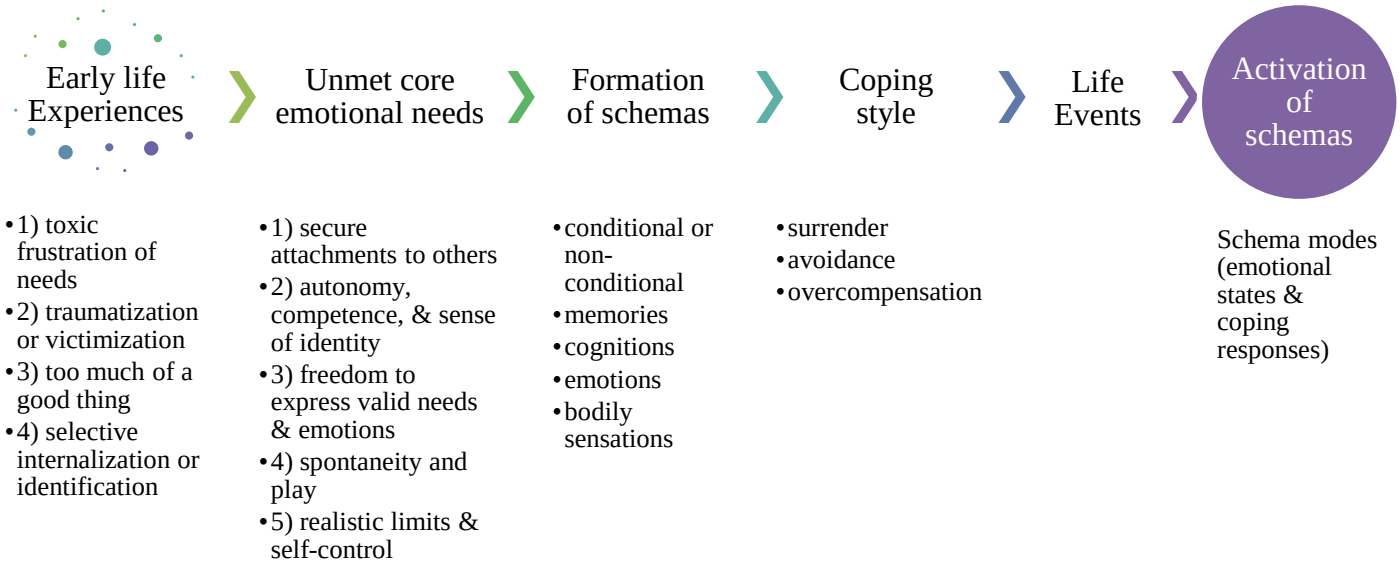



*Figure 13. Young schema model diagram*

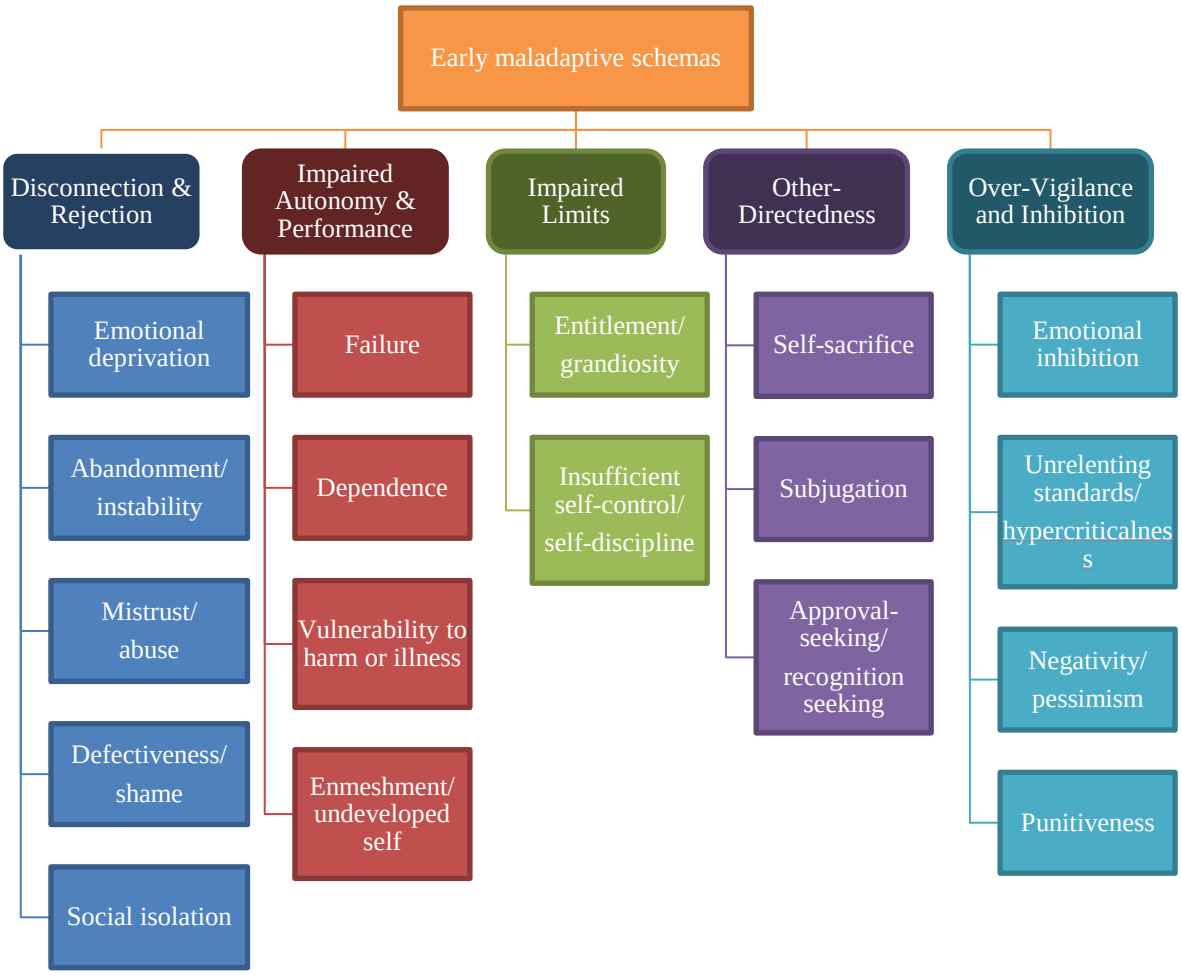



*Figure 14. Early Maladaptive Schemas*

1.4.5- 1 Explanation of schemas and domains

The following paragraphs are the summary of the explanation given by Young, Klosko, and Weishaar (2003, p. 14-17):

> **Domain I. Disconnection and rejection:** Individuals believe that their needs for security, safety, stability, love, belonging, nurturance, empathy, sharing of feelings, acceptance, and respect will not be met by other people. Typical families of origin are cold (emotional deprivation), unstable (abandonment/instability), abusive (mistrust/abuse), rejecting (defectiveness/shame), or isolated from the outside world (social isolation/alienation). Thus, therapists focus on finding an adaptive way of fulfilling the unmet needs of security, safety, stability, nurturance, empathy, sharing of feelings, acceptance, and respect.

The individuals with schema of *emotional deprivation* have the expectation that one's desire for a normal degree of emotional support will not be adequately met by others. It consists of 3 forms of deprivation: 1) nurturance (the absence of affection or caring); 2) empathy (the absence of listening or understanding); and 3) protection (the absence of strength or guidance from others).

The schema of *abandonment/instability* involves the beliefs that significant others will not be able to continue providing emotional support, strength, connection, or protection because they are emotionally unstable, unpredictable, unreliable; because they will die; or because they will abandon the individual in favor of someone better.

Individuals with *defectiveness/shame* might believe that they are bad, worthless, inferior or flawed and that they would be unlovable to others if exposed. It usually involves shame regarding one's perceived defects. Flaws may be private (e.g., angry impulses, selfishness, unacceptable sexual desires) or public (e.g., unattractive appearance, social awkwardness).

*Social isolation/alienation* schema gives the belief that individual is isolated from the rest of the world, and different from other people. Usually, they do not feel that they belong to any group or community.

*Mistrust/abuse* schema involves the beliefs that others will hurt, abuse, cheat, humiliate, manipulate, lie, or take advantage.

**Domain II. Impaired autonomy and performance:** Individuals have expectations about oneself and the environment that interfere with one's perceived ability to separate, survive, function independently, or perform successfully. Typical family origin is enmeshed, undermining and discouraging child's confidence, overprotective,

or failing to strengthen child for competent performance outside the family. Consequently, these patients are not able to create their own identities and lives.

*Dependence/incompetence* schema involve the belief that one is unable to handle their everyday responsibilities without substantial help from others; unable to manage money, use good judgment, solve practical problems, start new tasks, or make decisions. The schema often characterizes by pervasive passivity or helplessness.

*Vulnerability to harm or illness* is the exaggerated belief that catastrophe will occur at any moment and that one will be unable to cope. Fears from following types of catastrophes: 1) medical (e.g., diseases such as AIDS, heart attacks); 2) emotional (e.g., losing control, and going crazy); and 3) external (e.g., accidents, natural catastrophes, and crime).

*Enmeshment/undeveloped self* involves the belief that at least one of the enmeshed individuals could not function without the other. They are often overly involved with one or more significant others (often parents) for their full individuation and social development.

Individual with *failure* schema often believe that he/she has failed, will inevitably fail, or is fundamentally inadequate relative to one's peers in areas of achievement (school, career, sports, etc.). It frequently involves beliefs that one is stupid, untalented, incompetent, lower in status, and less successful than others.

**Domain III. Impaired limits:** Typical family origin is permissiveness, overindulgence, lack of direction/self-control, or a sense of superiority rather than appropriate confrontation, discipline, and limits in relation to taking responsibility and setting goals. Individuals with this domain have difficulty respecting the rights of

others, keeping promises/commitments, collaborating/cooperating, or meeting long-term goals. They often being appraised as selfish, irresponsible, spoiled, or narcissistic.

Individual with *entitlement/grandiosity* believe that other people must/should meet their daily needs for food, shelter, clothing, and transportation; believe that they are superior to other people, and therefore entitled to special rights and privileges; do not feel bound by the rules of mutuality that guide normal social interaction; often insist that they should be able to do whatever they want, irrespective of the cost to others; maintain an exaggerated focus on superiority (e.g., being among the most famous, successful, wealthy) in order to achieve power; are often overly demanding or dominating, and lack empathy.

*Insufficient self-control/self-discipline* schema: They are often unable to regulate the expression of their emotions and impulses; either cannot or will not exercise sufficient self-control and frustration tolerance to achieve their personal goals; have an exaggerated emphasis on discomfort avoidance (e.g., avoid most conflict or responsibility).

**Domain IV. Other-directedness:** Individuals often have an excessive focus on the desires, feelings, and responses of others, at the expense of one's own needs in order to gain love and approval, maintain an emotional connection, or avoid retaliation. Typical family origin is based on conditional acceptance. Child must suppress his/her needs in order to gain attention, love, and approval. Individual focus almost exclusively on the responses of the other person rather than on their own, and often lack awareness of their own emotion and preferences.

S*ubjugation schema* is an excessive surrendering of control to others. The function of subjugation is usually to avoid anger, retaliation, or abandonment. Two major forms of subjugation are: 1) needs: suppressing preferences or desires; and 2) emotions: suppressing one's emotional responses, especially anger. Subjugation generally leads to a buildup of anger, manifested in maladaptive symptoms/behavior (e.g., passive-aggressive behavior, psychosomatic symptoms, uncontrolled temper outbursts, and withdrawal of affection).

*Self-sacrifice* schema often results from an acute sensitivity to the suffering of others. Individual voluntarily meets the needs of others at the expense of their own gratification. They do this in order to spare others pain, gain self-esteem, avoid guilt, or maintain an emotional connection with others.

*Approval-seeking/recognition-seeking* schema have an excessive preoccupation with social status, appearance, money, or success as a mean of gaining approval or recognition. They value gaining approval or recognition from other people over developing a secure and genuine sense of self. Their self-esteem is dependent on the reactions of others rather than on their own reactions.

**Domain V. Over-vigilance and inhibition:** Individuals have an excessive emphasis on suppressing one's spontaneous feelings, impulses, and choices or on meeting rigid, internalized rules and expectations about performance and ethical behavior, often at the expense of happiness, self-expression, relaxation, close relationships, or health. Typical family origin is demanding, and punitive. In the family, performance, perfectionism, duty, hiding emotions, following rules, and avoiding mistakes predominate over pleasure and relaxation.

*Unrelenting standards/hyper-criticalness* schema is the beliefs that one must strive to meet very high internalized standards, typically in order to avoid disapproval or shame. It usually results in feelings of constant pressure and hyper criticalness toward self and others: 1) preoccupation with time and efficiency; 2) perfectionism (e.g., doing things "right," or underestimating one's level of performance); 3) rigid rules and "should" in many areas of life, such as unrealistically high moral, cultural, or religious standards.

*Emotional inhibition* schema has four areas: 1) inhibition of positive impulses (e.g., happiness, affection, sexual excitement, playfulness); 2) inhibition of emotions such as anger; 3) emphasis on rationality while ignoring emotions; 4) difficulty expressing their weakness.

*Punitiveness* schema is the belief that people should be punished for making mistakes. They have tendency to be angry and intolerant with those people (including themselves) who do not meet their standards, rules and values.

Individual with *negativity/pessimism* schema has a pervasive, lifelong focus on the negative aspects of life (e.g., pain, loss, death, conflict, disappointment, betrayal).

1.4.5- 2 Influence of schema domains on therapy

Schema therapy emphasize that the above-mentioned schemas from each domain have an influence on therapy (Young, Klosko, & Weishaar, 2003, p. 23):

1) Therapeutic alliance: Regarding the assumption that patients can form a positive therapeutic alliance fairly quickly, patients who have schemas in the disconnection and rejection domain . may not be able to establish positive therapeutic alliance in a short period of time.

2) Therapy plans: In terms of the presumption that patients have a strong sense of identity and clear life goals to guide the selection of treatment objectives, patients with schemas in the impaired autonomy and performance domain may not know who they are and what they want and thus may be unable to set specific treatment goals.

3) Accessing cognitions and emotions and verbalizing them in therapy: Assumption that patients can access cognitions and emotions and verbalize them in therapy, patients with schemas in the other-directedness domain may be too focused on ascertaining what the therapist wants to look within themselves or to speak about their own thoughts and feelings.

4) Treatment procedures: Patients with schemas in the impaired limits domain may be too unmotivated or undisciplined to comply with the treatment procedure.

*Table 6. Schemas and personality disorders*

| No. | Schema | Personality disorder |
|---|---|---|
| 1 | Emotional deprivation | **BDL** |
| 2 | Abandonment | **BDL**, DPT |
| 3 | Mistrust/abuse | **PAR**, BDL |
| 4 | Social isolation | **STY**, SCD, BDL, AVD |
| 5 | Defectiveness shame | **AVD**, BDL |
| 6 | Failure to achieve | **AVD** |
| 7 | Dependence | **DPT** |
| 8 | Vulnerability to harm | **BDL** |
| 9 | Enmeshment | **DPT**, BDL |
| 10 | Subjugation | **DPT**, AVD, BDL |
| 11 | Self-sacrifice | **OBS** |
| 12 | Emotional inhibition | **AVD**, SCD, OBS |
| 13 | Unrelenting standards | **OBS** |
| 14 | Entitlement | **NAR** |
| 15 | Insufficient self-control | **ANT**, BDL |
| 16 | Approval-seeking | **HIS**, NAR |
| 17 | Pessimism | **BDL**, AVD |
| 18 | Self-punitiveness | **BDL**, OBS |

*Borderline (BDL), Avoidant (AVD), Dependent (DPT), Obsessive-Compulsive (OBS), Paranoid (PAR), Narcissistic (NAR), Histrionic (HIS), Schizoid (SCD), Schizotypal (STY), and Antisocial (ANT)
** Adapted from Bach et al. (2017)

1.4.5- 3 Raising issues with schema model

There are seven concepts that should be considered in schema model. First, “thrust of treatment is to help patients make a sharp distinction between the people in the past who deserve the anger, and the people in the present who do not” (Young et al., 2003, p. 213). The raising issue about clients with anger problem is that they still have the significant others in their life who have had problems with, several times, such as parents, spouse, siblings or family members in that the withdrawal from these people is quite impossible. Second, Young, Klosko, and Weishaar (2003) stated that the schemas are hard to change, and the course of healing is often arduous and long (p. 32). The therapy usually takes one, two or more years. The raising questions would be: 1) if the schemas are hard to change, so could we expect that the change of emotions and behaviors that accompany them would be also hard due to the lengthy process of schema healing, 2) cost of long-term therapy sessions are not affordable for many patients. Third, linking the anger emotions and aggressive behaviors to particular schema is a complicated procedure, especially when the individual has multiple schemas that are interacting with each other. For instance, in a patient with the schema of emotional deprivation and entitlement, the anger and aggression could be an overreaction of the activation of emotional deprivation or it could be surrender to entitlement or activation of both schemas at the same time. Fourth, the role of the life experiences that create schemas is emphasized that is called selective internalization or identification with significant others. However, the nature of relationship or beliefs towards the particular member of family is not considered. Fifth “schemas fight for their survival” and “people feel drawn to trigger their schemas”. The process of survival of schemas is not evidently explained. Sixth, it is also not clear how some people with the same schema choose to have avoidance as coping styles, and some other clients with the same schema have overcompensation or surrender. Based on what mechanism they select and use their coping style!

## 1.5 Research on core irrational beliefs, early maladaptive schemas, anger and aggression

### 1.5.1 Research on core irrational beliefs, anger, and aggression

So far, the theory and therapies that hypothesize the causes of anger and aggression were discussed. These theories have been tested in research. In order to find out these researches on core irrational beliefs that cause anger and aggression, the internet databases of PsycINFO, PubMed, and google scholar was searched using the following keywords in English language: anger, irrational beliefs, core beliefs, cognitive distortions, aggression. The words were introduced in different pairs containing the keywords of anger and aggression. Twenty-two relevant articles were found (see Table 7).

There were eleven samples from undergraduate students (article no. 1, 2, 3, 4, 5, 6, 7, 14, 18, 20, 21), two samples with mixed university students and clients (no. 8, 15), one sample with adult male (no. 9), one with male inmates (no. 10), two samples compared violent and non-violent men (no. 11, 17), one with adults (no. 12), one with community adults (no. 16), one with men referred to anger management (no. 19), one sample of high school-aged adolescent (no. 22), and one with children (no. 13).

Most of the studies evaluated irrational beliefs and anger (n=19), and only few studies evaluated the beliefs of aggressive individuals or violent sample (n=6). Two of the articles related to aggression had a sample of children and adolescents (Fives, Kong, Fuller, & DiGiuseppe, 2011; Zelli, Dodge, Lochman, & Laird, 1999).

*Table 7. Literature search on beliefs, anger, and aggression*

| | | N | Participants | Measures | Results |
|---|---|---|---|---|---|
| 1. | Rohsenow and Smith (1982) | 36 | male undergraduate college students | Irrational Beliefs Test (Jones, 1969) & 10-point daily mood scales | Anger was significantly correlated with externally oriented belief, that one is doomed by past misfortunes; defining self-worth in terms of competence; external causes are the determinants of one's fate |
| 2. | Zwemer and Deffenbacher (1984)* | 382 | undergraduates | Irrational Beliefs Test (Jones, 1969) and anger | Personal perfection, anxious overconcern, blame proneness, and catastrophizing were predictors of general anger. |
| 3. | Hazaleus and Deffenbacher (1985)* | 342 | male and female introductory psychology students | Anger Inventory (AI) and Irrational Beliefs Test (Jones, 1969) | Stepwise multiple regression indicated that only anxious overconcern and blame-proneness accounted for the significant portion of the predicted variance. |
| 4. | Hogg and Deffenbacher (1986)* | 236 | undergraduates | Irrational Beliefs Test (Jones, 1969), an anger inventory | Catastrophizing, personal perfection, and demand for approval entered regressions on anger. |
| 5. | Lopez and Thurman (1986) | 204 | undergraduate psychology classes | Trait anger and anger expression from STAXI & IBQ (Alden & Safran, 1978) | Angry subjects were significantly more likely to report being "upset when things don't go the way they should" and expecting that there is "one right solution to any given problem." |
| 6. | Zwerdling and Thorpe (1987) | 96 | undergraduates enrolled in Introductory Psychology | Common Beliefs Survey (Bessai, 1977), Novaco Anger Scale (Novaco, 1975) | The high-anger group showed greater irrationality, overall hostility, suspiciousness, fear of negative evaluation, and critical of themselves and others. |
| 7. | Lohr, Hamberger, and Bonge (1988) | 804 | introductory psychology students | The Novaco Anger Scale (Novaco, 1975) & Irrational Beliefs Test (Jones, 1969) | All of the NAS subscales and total score showed a significant association with Anxious Overconcern; For males, Demand for Approval and for females, Blame-Proneness & high self-expectations |
| 8. | Muran, Kassinove, Ross, and Muran (1989) | 105 | 60 normal university students and 45 new client applicants | The State-Trait Anger Inventory (STAG) & Survey of Personal Beliefs (Demaria, Kassinove, & Dill, 1989) | Low Frustration Tolerance was related to Trait Anger |
| 9. | Ford (1991) | 110 | adult males | Belief Scale (Malouff & Schutte, 1986) & T-Anger subscale of the State-Trait Personality Inventory | Trait anger was significantly related with irrational beliefs. Decreasing irrational beliefs would lead to reductions in anger in angry violent populations. |
| 10. | Stuckless, Ford, and Vitelli (1995) | 52 | male inmates | The Anger Expression (AX) Scale (1986) & Belief Scale (Malouff & Schutte, 1986) | Anger and irrational beliefs were positively related. |
| 11. | C. I. Eckhardt and Kassinove (1998) | 40 | 20 maritally violent (MV) and 20 maritally satisfied, nonviolent men (SNV) | STAXI | MV men emitted a greater number of specific cognitive distortions (Demandingness, Low Frustration Tolerance, Global Self/Other Ratings, Arbitrary Inference, Overgeneralization, Magnification, and Dichotomous Thinking statements) |
| 12. | M E. Bernard (1998) | 729 | 236 males and 490 | General Attitude and Belief Scale; Curiosity and Anger Scales; Spielberger's Anger Expression Scale | Need for Achievement and Demands for Fairness correlated most strongly with measures of anger. |

| | | | | | |
|---|---|---|---|---|---|
| 13. | Zelli et al. (1999) | 387 | boys and girls | Children's normative beliefs about aggression (L. Rowell Huesmann, Guerra, Zelli, & Miller, 1992) | A stronger belief that aggressive retaliation is acceptable predicted more deviant processing 1 year later and more aggression 2 years later. |
| 14. | Dye and Eckhardt (2000) | 247 | 95 male and 152 female undergraduates | Survey of Personal Beliefs (Demaria, Kassinove, & Dill, 1989); STAXI | Self-Directed Demands emerged as significant predictors of violence status. Trait anger had correlation with self-demand, awfulizing, and low frustration tolerance in both group. Found no evidence that violent participants demonstrated a more dysfunctional or irrational thinking to nonviolent |
| 15. | DiGiuseppe and Froh (2002) | 236 | Clinical outpatients, workplace recruits, and college students | Anger Episode Record (AER) | Cognitions for revenge accounted for the greatest variance in predicting state anger, followed by demands on event, self-efficacy, and demands of others respectively. |
| 16. | Tafrate et al. (2002) | 93 | community adults with low and high trait anger | Trait-Anger Scale (Spielberger, 1988) & A nine-page questionnaire (Kassinove, Sukhodolsky, Tsytsarev, & Solovyova, 1997) | High trait anger adults reported significantly higher rates of awfulizing, low frustration tolerance, and negative self-ratings.<br>Both High trait anger and low trait anger adults endorsed demandingness. |
| 17. | C. Eckhardt and Jamison (2002) | 33 | 17 males in the violent group and 16 males in the nonviolent group | SPB (Demaria et al., 1989), Dysfunctional Attitudes Scale (Weissman, 1979) & Mood Rating Scale | Demandingness, Arbitrary Inference, Low Frustration Tolerance, and Self/Other Rating significantly discriminated between the groups. |
| 18. | David, Schnur, and Belloiu (2002) | 120 | undergraduates | Attitude and Beliefs Scale (DiGiuseppe, Leaf, Exner, & Robin, 1988); 16-item measure of emotional state | Demandingness as primary appraisal processes, and (high) other-accountability and low frustration tolerance as a secondary appraisal processes accounted the best for anger. |
| 19. | J. Jones and Trower (2004) | 59 | Men referred to anger management program | Evaluative Beliefs Scale (Chadwick, Trower, & Dagnan, 1999); The NAS (Novaco, 1994); STAXI (Charles D Spielberger, 1988) | Men with anger disorders tend to hold negative evaluative beliefs about themselves and perceive others as viewing them in a similarly negative fashion.<br>Over a third of participants identifying demanding irrational beliefs within a specific episode of anger and aggression. |
| 20. | R. C. Martin and Dahlen (2004) | 161 | College student | STAXI-2 & Survey of Personal Beliefs (Demaria et al., 1989) | Low frustration tolerance and awfulizing were related to trait anger, anger suppression, and outward anger expression. |
| 21. | R. C. Martin and Dahlen (2007) | 362 | undergraduate psychology courses | STAXI-2; Angry Cognitions Scale; Hostile Automatic Thoughts Scale; Anger Consequences Questionnaire | Overgeneralizing, inflammatory labeling, demandingness, catastrophic evaluation, and misattributing causation were positively correlated with trait anger, aggressive anger expression, unhealthy anger suppression |
| 22. | Fives et al. (2011) | 135 | high school-aged adolescents | The Aggression Questionnaire (Buss & Warren, 2000) & Child and Adolescent Scale of Irrationality (Michael E Bernard & Cronan, 1999) | Gender, anger, and an irrational belief of intolerance of rules frustration predicted physical aggression.<br>Anger and irrational belief of intolerance of rules frustration uniquely predicted indirect aggression. |

* Only abstract was accessible

Table 8 presents the irrational beliefs or appraisals that are mostly related to anger and aggression. Demandingness was highly reported (n=10) to be associated with anger, aggression, and violence. It was measured as demandingness (R. C. Martin & Dahlen, 2007), demand for approval (Hogg & Deffenbacher, 1986) that was mostly seen in males (Lohr et al., 1988), demands for fairness (M E. Bernard, 1998), self-directed demands (Dye & Eckhardt, 2000), demands on event, and demands of others (DiGiuseppe & Froh, 2002).

The second highest appraisal highly associated with anger was low frustration tolerance. Although some research (Kassinove & Eckhardt, 1994) indicates that low frustration tolerance is above the demandingness, I share the same view with David et al. (2002) in that demandingness is considered primary appraisal process, and low frustration tolerance is the secondary appraisal accounted best in an anger episode. Intolerance begins when an individual has demand for comfort and ease. Consequently, it could be explained that if there is no demand, there could be no intolerance too. The third and fourth place is catastrophizing/awfulizing and global rating of self/others.

Above findings mainly support the concept of Ellis's irrational beliefs. One explanation is that most of the articles used REBT oriented irrational belief scales such as Irrational Beliefs Test (R. Jones, 1969), Survey of Personal Beliefs (Demaria, Kassinove, & Dill, 1989), and Irrational Belief Questionnaire (Alden & Safran, 1978). None of the studies evaluated the relationship between three core beliefs of Beck with anger and aggression. The most frequent measure for anger was the old version of state-trait anger expression (STAXI; n=9) by Spielberger (1988) and old version of Novaco Anger Scale (NAS; n=3) by Novaco (1975, 1994).

*Table 8. Beliefs related to anger and aggression in research*

| no. | Beliefs/appraisal | no. of research | Description |
|---|---|---|---|
| 1 | Demandingness | 10 | absolutist requirements expressed in form of "musts" and "shoulds"; believing that certain things must or must not happen; certain conditions, such as success and approval, are necessary |
| 2 | Low frustration tolerance | 9 | clients' beliefs that they will not be able to endure situations; stems from demands for ease and comfort, and reflects an intolerance for discomfort |
| 3 | Catastrophizing / awfulizing | 6 | exaggerating the consequences or level of hardship associated with aversive events; labeling a bad event as "110% bad," and the absolute worst thing that could possibly happen. |
| 4 | Self/other rating | 5 | determining the total value or worth of a human being on the basis of a specific behavior or attribute |
| 5 | Blame proneness | 5 | blame-proneness when others do wrong |
| 6 | High self-expectation / personal perfection | 5 | expectations to be thoroughly competent in all aspects of life |
| 7 | Anxious overconcern | 3 | about the remote possibility that things can go wrong |
| 8 | Arbitrary inference | 2 | drawing a specific conclusion in the absence of supporting evidence |
| 9 | Overgeneralizing | 2 | constructing a general rule from one or a few isolated incidents and applying this rule generally |
| 10 | Inflammatory labeling | 1 | tendency to categorize situations in highly negative ways |
| 11 | Magnification | 1 | overestimating the significance of events, and is similar to Awfulizing |
| 12 | Dichotomous thinking | 1 | categorizing an event in one of two extremes and thinking in all-or-none terms |
| 13 | Perfectionism | 1 | unhappiness at being unable to find the one perfect solution to one's problems |
| 14 | Problem avoidance | 1 | procrastination in coping with problems |
| 15 | Dependency | 1 | reliance upon others who are competent to solve problems |
| 16 | Helplessness | 1 | helplessness to change one's behavior pattern |
| 17 | Emotional responsibilities | 1 | externalization of responsibility for emotional reactions |

### 1.5.2 Research on early maladaptive schemas, anger, and aggression

Above researches were on core irrational beliefs, however, there are some research on early maladaptive schemas with anger and aggression too. PUBMED, PsycNET and Google Scholar database were searched to find the related research on EMSs, anger and aggression using the following keywords: “Anger and early maladaptive schema”, “Aggression and early maladaptive schema”, “Anger and schema”, “Aggression and schema”, “Anger schema”, “Aggression schema”, “Anger, aggression and schema”. The search was repeated by changing the keywords order. Only those studies were selected which used Young schema questionnaires (YSQ) for measuring schemas and had at least one inventory/scale to measure anger and/or aggression. Seventeen studies were found (see Table 9). Among them, nine studies measured EMSs with several different variables such as anger, aggression, hostility, and violence. Seven studies measured schema domain and one study measured impaired autonomy domain only.

In the EMSs studies, *mistrust/abuse schema* was related to trait anger (Calvete, Estévez, López de Arroyabe, & Ruiz, 2005), aggression (Crawford & Wright, 2007; Dunne et al., 2018; Tremblay & Dozois, 2009), hostility (Calvete & Orue, 2012; Calvete, Orue, & González-Diez, 2013), and sexual aggression (Sigre-Leirós, Carvalho, & Nobre, 2013).

*Entitlement/grandiosity* was related to trait anger (Calvete et al., 2005; McKee, Roring, Winterowd, & Porras, 2012), aggression (Crawford & Wright, 2007; Dunne et al., 2018; Gilbert, Daffern, Talevski, & Ogloff, 2013; Tremblay & Dozois, 2009), hostility (Calvete et al., 2013), anger and aggressive response (Calvete & Orue, 2012). *Insufficient self-control* was associated with trait anger (Calvete et al., 2005; Gilbert et al., 2013; McKee et al., 2012), aggression (Crawford & Wright, 2007; Dunne et al., 2018; Gilbert et al., 2013; Tremblay & Dozois, 2009), and hostility (Calvete et al., 2013).

Schema domains were assessed with anger, aggression, hostility, and violence. It was found that *disconnection/rejection schema domain* was associated with aggression (Atkins, 2017; Frias et al., 2018; Shorey, Elmquist, Anderson, & Stuart, 2015), hostility (Atkins, 2017; Frias et al., 2018; Loper, 2003), and violence (Gay, Harding, Jackson, Burns, & Baker, 2013; Loper, 2003). *Impaired limits domain* was related to aggression (Atkins, 2017; Dozois et al., 2013; Shorey et al., 2015), hostility (Atkins, 2017; Loper, 2003), and violence (Loper, 2003). *Impaired autonomy domain* was related to aggression (Kachadourian et al., 2013), and physical dating violence (Gay et al., 2013). *Other-directedness domain* predicted anger and verbal aggression (Frias et al., 2018).

*Table 9. Previous findings of the relationship between schemas, anger, and aggression*

| | | N | Participants | Measures | Schemas/domains |
|---|---|---|---|---|---|
| 1. | Loper (2003)* | 116 | Female prison inmates | YSQ-Research (1999)<br>BSI (Derogatis and Spencer, 1993) | Disconnection/rejection domain & Impaired Limits score was associated with screening scores for hostility symptoms and self-reported violence perpetration. |
| 2. | Calvete et al. (2005) | 407 | Undergraduate students | YSQ-SF (1994) 75 items<br><br>Trait anger of STAXI-2 (1999) | Mistrust/abuse, Entitlement, and Insufficient Self-Control were positively related to anger.<br>Self-Sacrifice was negatively related to anger. |
| 3. | Crawford and Wright (2007)* | 301 | College men and women | YSQ-L (205 items)<br>AQ (Buss & Perry, 1992) | Mistrust/abuse, Entitlement, Insufficient self-control,<br>and Emotional inhibition |
| 4. | Tremblay and Dozois (2009) | 848 | first-year university students | YSQ-SF (1998) 75 items<br><br>AQ (Buss & Perry, 1992) | Mistrust/abuse, Entitlement, and Insufficient Self-Control |
| 5. | Calvete and Orue (2012) | 650 | Adolescents | Entitlement and mistrust of YSQ (1990); SIPQ (Calvete & Orue, 2009); RPQ (Raine et al., 2006); PNI (Crick, 1997) | Mistrust/abuse predicted more hostile attributions and less anger.<br><br>Entitlement predicted anger and aggressive response access. |
| 6. | McKee et al. (2012) | 40 | Male batterers | YSQ-S2 (1998) 75 items<br><br>STAXI-2 (1999) | Impaired Limits domain (Insufficient self-control, Entitlement) associated with the Trait anger |
| 7. | Sigre-Leirós et al. (2013) | 166 | 37 individuals with a history of aggressive sexual behavior (HASB) & 129 without HASB | YSQ-S3 (2005) 90 items<br>Sexual Experiences Survey—Short Form Perpetration (SES-SFP) (Koss et al., 2007) | Mistrust/abuse, Dependence/incompetence, Negativity/pessimism |
| 8. | Kachadourian et al. (2013) | 174 | Court-referred men in a domestic-abuser intervention program | 20-item Impaired Autonomy and Performance Scale YSQ-F (1998)<br>CTS-2 (Straus, Hamby, Boney-McCoy, & Sugarman, 1996) | Maladaptive dependency related schemas were positively associated with severe psychological aggression, mild and severe physical aggression perpetration.<br>Impaired Autonomy domain was only assessed. |
| 9. | Gilbert et al. (2013) | 87 | Participants from a community forensic mental health service | YSQ-S3 (2005) 90 items<br><br>Trait-Anger scale of STAXI-2 (1999) (10 item)<br>LHA-A (Coccaro, Berman, & Kavoussi, 1997) | Entitlement, insufficient self-control, dependence,<br>social isolation, and failure to achieve had positive correlations with aggression<br>Insufficient self-control demonstrated a strong relationship with trait anger.<br>No relationship between mistrust/abuse and past aggression was identified. |

| | | | | | |
|---|---|---|---|---|---|
| 10. | Gay et al. (2013)* | 805 | intimate partner violence victimization (n = 396) & perpetration (n = 409) in college women | YSQ-SF (1994)<br>CTS2 (Straus et al., 1996) | Disconnection and Rejection & Impaired Autonomy were positively associated with physical dating violence perpetration among college women.<br>The other-directedness domain was unrelated to aggression |
| 11. | Dozois et al. (2013) | 208 | First-year undergraduate psychology students | YSQ-SF (2003) 75 items<br><br>AQ (Buss & Perry, 1992) | Impaired Limits was most consistently related to aggression. |
| 12. | Calvete et al. (2013) | 971 | Spanish students | YSQ-S3 (2005, Spanish version) 90 items<br>Hostility subscale of the SCL-90-R (Derogatis & y Cols, 2002) | Mistrust/abuse, Entitlement, and Insufficient self-control. |
| 13. | Chakhssi, Bernstein, and Ruiter (2014) | 124 | Male Personality disordered offenders | YSQ (1994, Dutch version)<br>205 items, 15 EMSs<br>OAS (Yudofsky, Silver, Jackson, Endicott, & Williams, 1986) | Maladaptive schemas were not related to institutional violence. |
| 14. | Shorey et al. (2015) | 106 | Male patients in a residential substance use treatment facility | YSQ-L3 (2003) 232 items<br><br>Personality Assessment Inventory (Morey & Staff, 1991) | Disconnection/rejection domain was positively associated with physical aggression<br>Impaired Limits was positively associated with verbal aggression, aggressive attitude, and overall aggression |
| 15. | Atkins (2017) | 349 | Undergraduate students | YSQ-L2 (2003)<br>AQ (Buss & Perry, 1992) | Disconnection/rejection & Impaired limits were strongly correlated with anger and hostility |
| 16. | Frias et al. (2018) | 102 | Borderline personality disorder outpatients | YSQ-SF (Spanish validation) 75 items<br><br>AQ (Spanish validation) 29 items | Disconnection/rejection predicted greater hostility and physical aggression<br>Impaired limits had no significant effect with Aggression<br>Other-directedness predicted greater anger and verbal aggression |
| 17. | Dunne et al. (2018) | 208 | Adult male prisoners | YSQ-S3 (2005) 90 items<br><br>LHA-S-A (Coccaro et al., 1997) | Mistrust, Entitlement and Insufficient Self-Control schemas demonstrated positive associations with aggression. |
| 18. | Current Study | 86 | Anger group (n=24); Control group (n=29); Outpatient group (n=33) | YSQ-S3 (2005) 90 items<br><br>Novaco Anger Scale (2012) 60 items | Abandonment and Entitlement were strong predictors of anger and aggression<br><br>Mistrust/abuse also predicted anger and aggression |

* Only Abstract was accessible

** BSI (Brief Symptom Inventory) – SIPQ (Social Information Processing Questionnaire) – RPQ (Reactive-Proactive Aggression Questionnaire – PNI (Peer nomination instrument) – CTS-2 (Revised Conflict Tactics Scale) – OAS (Overt Aggression Scale) – LHA-S-A (Life History of Aggression-Self-Report-Aggression Subscale)

*Table 10. Summary of schemas/domains research related to anger and aggression*

| | Schemas / domain | No. of articles | Articles |
|---|---|---|---|
| **Schemas Studies** | *Entitlement/grandiosity* | 8 | Calvete et al. (2005); Calvete & Orue (2012) Calvete et al. (2013); Crawford & Wright (2007) Tremblay & Dozois, (2009); Dunne et al. (2018) McKee et al. (2012); Gilbert et al. (2013) |
| | *Mistrust/abuse schema* | 7 | Calvete et al. (2005); Calvete & Orue (2012) Calvete et al. (2013); Crawford & Wright (2007) Tremblay & Dozois (2009); Dunne et al. (2018); Sigre-Leirós et al. (2013) |
| | *Insufficient self-control* | 7 | Calvete et al. (2005); Calvete et al. (2013) Crawford & Wright (2007); Tremblay & Dozois (2009); Dunne et al. (2018); McKee et al. (2012) Gilbert et al. (2013) |
| | *Dependence/incompetence* | 2 | Sigre-Leirós et al. (2013); Gilbert et al. (2013) |
| | *Negativity/pessimism* | 1 | Sigre-Leirós et al. (2013) |
| | *Social isolation* | 1 | Gilbert et al. (2013) |
| | *Failure to achieve* | 1 | Gilbert et al. (2013) |
| **Schema domains studies** | *Disconnection/rejection* (abandonment, mistrust/abuse, defectiveness, social isolation, emotional deprivation) | 5 | Loper (2003); Shorey et al. (2015); Atkins (2017); Gay et al. (2013); Frias et al. (2018) |
| | *Impaired limits* (entitlement, insufficient self-control) | 4 | Loper (2003); Shorey et al. (2015) Atkins (2017); Dozois et al. (2013) |
| | *Impaired autonomy* | 2 | Kachadourian et al. (2013); Gay et al. (2013) |
| | *Other-directedness* | 1 | Frias et al. (2018) |

### 1.5.3 Beliefs system of angry clients

Clients with anger problem usually have several beliefs. Beliefs may activate individually or in combination with each other (Ellis & Tafrate, 1998) and vary in intensity and effect. These beliefs could be generalized towards everyone or could be specific towards a particular person. It is important to know that if a person holds no belief about a particular thing, it could be equal to having a negative belief. For example, the person with "no belief about beating a partner" could be equal to a person who thinks "beating is alright". They both have more tendency to act on their impulses during anger episodes. In contrast, the person who believes "beating partner is unacceptable", have a lower tendency in showing physical aggression. Based on the CBT theories (REBT and CT) and previous research (table 7) the following beliefs are targeted:

*Beliefs supporting anger and aggression*: believing that they need their anger and their anger helps them in their life. They don't find their anger as disturbing rather very useful. They might also use their anger to control others.

*Demandingness/commandingness:* "The influence of Karen Horney's (1950) ideas on the 'tyranny of the should' is certainly apparent in the conceptual framework of REBT" (as cited in Dryden, David, & Ellis, 2010, p. 227). The emotional disturbances are created when an individual escalates desires into assumed needs, preferences into demands and insistence, normal wishes into absolute dictates (Ellis, 2003). Demandingness is reflected in words such as "must", "should", "ought", and "have to" that need to be replaced with "I would like to", "It is better", and "I wish".

*Low frustration tolerance:* believing that "one cannot bear it if an event that must not happen actually occurs or threatens to occur and that if it does, one cannot experience virtually any happiness at all" (Dryden, David, & Ellis, 2010, p. 233). "Angry clients underestimate their ability to deal with discomfort or adversity" (Kassinove & Tafrate, p. 38). They believe that

they have had enough and become frustrated and impatient in every small event. Their level of patience and tolerance is extremely low. A better evaluation would be "I don't like it, but I can stand it". "Negative events need to be viewed as a normal part of life or a challenge to be solved" (Kassinove & Tafrate, p. 38).

*Awfulizing/catastrophizing:* Angry clients "exaggerate the consequences of the level of hardship associated with events" (Kassinove & Tafrate, p. 199). They "conceptualize it as awful, horrible, terrible, rather than simple unfortunate or bad" (Kassinove & Tafrate, p. 214). It occurs "when an event is rated as being more than 100% bad and/or as the worst thing that could happen—a truly exaggerated and magical conclusion" (Dryden, David, & Ellis, 2010, p. 233).

*Rating others/ rating self:* believing in categorizing and rating people according to their social, educational and financial status and often compare it with themselves. They get angry or aggressive based on this rating. Clients have a tendency to put themselves down, put others down, or put down the conditions of the world in which they live (Ellis, 2017, p. 28). They condemn other people for a limited and behavioral act. They condemn an individual's complete existence based on their acts. Giving global rating on other people, they also have a tendency to condemn themselves. They are prone to self-criticism and others-criticism. "REBT adopts an anti-absolutistic position" (Ellis, & Dryden, 2007, p. 14). "It holds that there are no bad people and similarly, there are no good people. Although some do more good and others do more bad deed, all people do some of both" (Ellis, 2017). Unconditional self-acceptance or unconditional other acceptance helps clients to accept humans with wrong behavior.

*Blaming proneness:* believing that it is others who always make mistakes and problems.

*High unrealistic expectation from self/others*: believing that other people have to accept their order, rules, and demands. They place same unrealistic expectations on themselves as on others.

*Narcissistic beliefs:* believing that one is superior to others, so the others must agree on all their requests and demands. “Often humans like to feel or think that they are the center of the universe and that all other people should fulfill their needs” (Ellis, 2017). They believe that they know things better than the rest of the world. They believe that they are more clever, intelligent, and special. Clients think that they are always right, and they always make the right decision. When they are criticized, they will not accept it. Rather, they say it’s the other person’s fault and they had no right to say such unfair things.

*Wasting time:* believing that time is very important, and they rationalize it with “time is gold”. They believe that others waste their time; always try hard to save time; keep on saying to themselves and others that “I don’t have time”; rush in everything and can’t wait at all; being sensitive when someone wastes time or is not punctual; get easily angry or frustrated when they have to wait for something or someone.

*Punishing others*: believing that mistakes/bad people should be punished. Since they categorize behavior/people into good and bad based on their behavior, whoever treated them badly, is, therefore, a bad person and believing that thus, bad people should be punished.

*Suspicious:* believing that most people are dishonest. They have difficulty trusting others; spend so much time in detecting truth and lies; manipulate or test others to find out if they are honest towards them or not.

*Pessimistic beliefs:* believing that they are negative person, or there is nothing positive in other people or world. They find other people and the world as fake, immature, stupid, dirty and stinky. They also have no hope towards future and imagine a very dark future.

*Categorizing:* believing in the categorization of human beings based on their social status, education, nationality, religion, and financial status. They categorize people easily and treat them based on this categorization.

*Mind reading*: believing that they have "sixth sense", and with this extra sense, they can predict others' plans or thinking.

*Overgeneralization*: believing that if one person treats them in the wrong way, all the other people are like this person.

*All or nothing*: believing in dichotomous thinking such as good or evil, beautiful or ugly, weak or strong, etc.

### 1.5.3- 1 Beliefs system of partners with anger and aggression

Couple therapists suggest that the most important problems among couples are lack of loving feelings, power struggles, communication, extramarital affairs, and unrealistic expectations that were associated with the negative outcome of partners' inability or unwillingness to change and lack of commitment (Whisman, Dixon, & Johnson, 1997). Partners' unrealistic beliefs, particularly those regarding relationships, are also negatively associated with their estimated chance for improvement in therapy, desire to improve rather than terminate the relationship, and overall marital satisfaction (Epstein & Eidelson, 1981). In addition to above beliefs, there are some beliefs that are mostly common among couples with anger and aggression:

*Self/other blaming*: believing that partner is to be blamed for being the cause of all troubles, blaming themselves for starting the relationship or getting married, blaming partner's behavior as the cause of their anger.

*Self/other rating*: believing that they are better than their partner such as by degrading partner and her/his family for being from lower social status, rating partner as a person lower than him/her from any aspect.

C*ontrolling:* believing that their partner's behavior should be controlled, for example by being aggressive, or believing that by being angry, they can control the partner's behavior.

C*ommanding:* believing that partner should follow their words, rules, demands, and ask for their permission.

*Suppressing capabilities:* believing that partner is unable to do any task or is incompetent to make an important decision; rejecting partner's opinions and ideas.

*Suspiciousness:* believing that partner purposefully behave and say things to make them angry; suspicious of their partner in having an affair or having feelings for another man/woman.

*Power struggle/kingdom in relationship:* believing that they should be the dominant person in relationship who makes the final decision for important things; trying to win the war.

*Self/other punishing*: believing that partner deserves a disrespecting word and slap (verbal and physical aggression); rationalize the verbal aggression and cursing; punishing partner by aggressive behavior; using aggression as a mean to punish partner.

*Perfectionism in relationship*: believing that they are an idealist, having too much expectation from themselves and others, expectation that relationship should be perfect, not being satisfied with themselves.

*Rejecting:* believing that they have been rejected or failed in their relationship; not being able to have secure attachment with partner; believing that they have been neglected in relationship; believing that partner doesn't care or love them.

*Contradictory belief:* believing that they are unable to realize partner's belief, thought or behavior, not being sure if partner really wants to continue the relationship.

**Narcissism/grandiosity versus low self-esteem**

Two core beliefs related to narcissism and low self-esteem have been identified as the main cause of anger by Ellis (2003) and Beck (1999) respectively. Ellis (2003, p. 151) stated that "much anger stems from childish grandiosity as noted earlier from Freud and Adler too". He viewed "high self-esteem as a self-defeating concept, based on conditional self-evaluations" (Dryden, David, & Ellis, 2010). Ellis (2003) wrote:

> Narcissism and grandiosity root in human nature as we don't merely want others to love and care; we utterly insist that they do, and feel completely shattered when they don't . . . . We often foolishly claim that they destroy us by rejecting our 'needs'. This frequently leads to our feeling angry and acting violently against those who presumably have failed us . . . . [The reality] is the world doesn't care too much for you and most likely never will . . . . The universe most probably has no special interest in you. Nor ever will. (p. 151-152)

On the other hand, Beck (1999) believes that anger prone people have a "shaky self-esteem". "Their hypersensitivity is often based on a core image of themselves as weak, vulnerable, and malleable. They project their own low self-esteem onto others" (J. Jones & Trower, 2004).

Now the question is: which one of the two beliefs could be the right cause of anger; what is the relationship between these two beliefs. The answer is both of the above beliefs are correct and there is a relationship between them. Both grandiosity and low self-esteem lead to anger, only if we look at these two beliefs from schemas focused approach. In schema approach, there is a schema called entitlement/grandiosity that it could be either pure or fragile. Those with "pure entitlement" were as a child simply spoiled and indulged and continue to act that way as adults.

Their entitlement is not an overcompensation for underlying schemas (Young, Klosko, & Weishaar, 2003). On the other hand, "fragile entitlement" behave in an entitled way in order to overcompensate for underlying feelings of emotional deprivation and defectiveness, in other words, to overcompensate their low self-esteem. I believe, what Ellis meant by grandiosity is about those who have "pure entitlement/grandiosity" and Beck's opinion on low self-esteem is about people with "fragile entitlement/grandiosity" who overcompensate their low self-esteem and put on the mask of ego-centrism.

*Table 11. Summary of irrational beliefs, core belief, schemas most related to anger and aggression*

| | Irrational beliefs/ schemas / domain | No. of articles | Articles |
|---|---|---|---|
| **Irrational/core beliefs** | *Demandingness* | 10 | (Demand for approval; Hogg & Deffenbacher, 1986); (Demand for approval in males; Lohr et al., 1988); Eckhardt and Kassinove (1998); (Demands for fairness; Bernard, 1998); (Self-directed demands; Dye & Eckhardt, 2000); (Demands on event & of others; DiGiuseppe & Froh, 2002) Eckhardt and Jamison (2002); David, et al. (2002); Jones & Trower (2004); Martin & Dahlen (2007) |
| | *Low frustration tolerance* | 9 | (Frustration reactive; Lopez & Thurman, 1986) Muran, et al. (1989); Eckhardt & Kassinove (1998); Dye & Eckhardt (2000); Tafrate et al. (2002); Eckhardt & Jamison (2002); David, et al. (2002); Martin & Dahlen (2004); Fives et al. (2011) |
| | *Catastrophizing/awfulizing* | 6 | Zwemer and Deffenbacher (1984); Hogg and Deffenbacher (1986); Dye & Eckhardt (2000); Tafrate et al. (2002); Martin & Dahlen (2004); Martin & Dahlen (2007) |

| | | | |
|---|---|---|---|
| | *Self/other rating* | 5 | (Critical of self and others; Zwerdling & Thorpe, 1987); Eckhardt & Kassinove (1998); Tafrate et al. (2002); Eckhardt & Jamison (2002); Jones & Trower (2004) |
| | *Blame proneness* | 5 | Zwemer & Deffenbacher (1984); Hazaleus & Deffenbacher (1985); Lohr, Hamberger, & Bonge (1988); (other-accountability; David, Schnur, & Belloiu, 2002); (misattributing causation; Martin & Dahlen, 2007) |
| | *High self-expectation / personal perfection* | 5 | Rohsenow & Smith (1982); Zwemer & Deffenbacher (1984); Hogg & Deffenbacher (1986); Lohr et al. (1988); Perfectionism (Lopez & Thurman, 1986) |
| **Schemas** | *Entitlement/grandiosity* | 8 | Calvete et al. (2005); Calvete & Orue (2012) Calvete et al. (2013); Crawford & Wright (2007) Tremblay & Dozois (2009); Dunne et al. (2018) McKee et al. (2012); Gilbert et al. (2013) |
| | *Mistrust/abuse schema* | 7 | Calvete et al. (2005); Calvete & Orue (2012) Calvete et al. (2013); Crawford & Wright (2007) Tremblay & Dozois (2009); Dunne et al. (2018) Sigre-Leirós et al. (2013) |
| | *Insufficient self-control* | 7 | Calvete et al. (2005); Calvete et al. (2013) Crawford & Wright (2007); Tremblay & Dozois (2009); Dunne et al. (2018); McKee et al. (2012); Gilbert et al. (2013) |
| **Schema domains** | *Disconnection/rejection* (abandonment, mistrust/abuse, defectiveness, social isolation, emotional deprivation) | 5 | Loper (2003); Shorey et al. (2015) Atkins (2017); Gay et al. (2013) Frias et al. (2018) |
| | *Impaired limits* (entitlement, insufficient self-control) | 4 | Loper (2003); Shorey et al. (2015) Atkins (2017); Dozois et al. (2013) |

### 1.6 Research on randomized controlled trials of anger and aggression

In 2015, I searched for meta-analyses of anger and aggression with adult samples in PsycINFO, PubMed, and google scholar (see Figure 15). I found five meta-analysis conducted by Edmondson and Conger (1996), Beck and Fernandez (1998), DiGiuseppe and Tafrate (2003), Del Vecchio and O'Leary (2004), and Saini (2009) that targeted adult samples. The range of effect sizes are between 0.64 and 0.83 for cognitive therapy, 0.60 and 0.70 for cognitive behavioral therapy, and 0.67 and 0.82 for relaxation. There are 237 studies included in these meta-analyses, however, 96 studies have been repeated in them (40%). There are other twelve meta-analyses that target samples of children and adolescents and two meta-analyses that target individuals with intellectual disabilities (see Table 12) which were all excluded because of their sample. Also, two meta-analysis by Kusmierska (2011), and Henwood, Chou, and Browne (2015) were excluded since the first one is a doctoral dissertation that was not accessible and latter one had a sample of male offenders. In the next step, studies that were cited repeatedly in all these five-meta analysis were only cited once and duplicated studies were removed (n=96). Studies that had samples of intellectual disabilities, incarcerated men and women, psychopharmacotherapy, children and adolescents were once again removed (n=23). There were 115 studies to be reviewed. Of these studies, 31 articles: either did not measure anger and aggression; were without pre-posttest design; falsely cited in meta-analysis; or were not accessible.

Although, at the beginning, there were 237 studies, but after removing all duplicates and irrelevant studies (such as those with psychopharmacotherapy or studies that were wrongly cited as randomized control trials), there will be only 84 studies. These 84 studies are summarized in Table 13 (see the reference in appendix for complete citation). All of these studies are written in English language and are conducted mostly in United States. These studies are conducted during 1970 to 2009. Twenty-two of them (26%) are doctoral

dissertation. Twenty-three studies (27%) have the sample of undergraduate, college students, or introductory psychology students. Some of these studies such as Hart (1984), have reported that students received extra credit points for their participation. Hence, the motives for participation in such studies with giving credit points or money is questionable.

The biggest issue found by reviewing these studies is that following 25 studies either found non-significant results or found results that only support few subscales of anger (Bolanos, 1999; Briscoe, 2001; Chan, et al., 2003; Chemtob, et al., 1997; Davison, et al., 1991; Deffenbacher, et al., 2000; Eastridge, 1984; Fane, 1999; Faulkner, et al. 1992; Gildea, 1989; Haaga, et al., 1994; Hanusa, 1994; Hazaleus & Deffenbacher, 1986; Johnson & Wilborn, 1991; McDermott, 1999; Moon & Eisler, 1983; O'Donnell, & Worell, 1973; Schmitz, 2004; Shocket, 1986; Stapleton, Taylor, & Asmundson, 2006; Terracciano, 2001; Thurman, 1985; Trampus, 1999; Walley, 2002; Workman, 1995). That means 30 percent of studies done for anger and aggression have found non-significant or partially significant result for CBT.

Followings are some of the findings of these studies. Bolanos (1999) reported that attendance at the anger management class was not effective at changing patient behaviors. Findings of the study by Briscoe (2001) did not suggest statistical significance for all variables. Deffenbacher, et al. (2000) reported interventions did not influence trait anger, anxiety, or general anger expression. The results of the study by Hanusa, (1994) did not support the efficacy of a multimodal cognitive-behavioral intervention package. McDermott (1999) found partial support for cognitive based interventions for anger. One study by Faulkner et al. (1992) even reported increasing levels of narcissism as a function of treatment. Apart from these 25 studies, there could be some other studies that have shown non-significant results, but they were either not accepted for publication or were not reported at all. There is a trend in research that most of researcher only report significant results.

Reviewing these 84 studies along with 22 studies on core irrational beliefs, I developed my research question that will be discussed in rationale section.

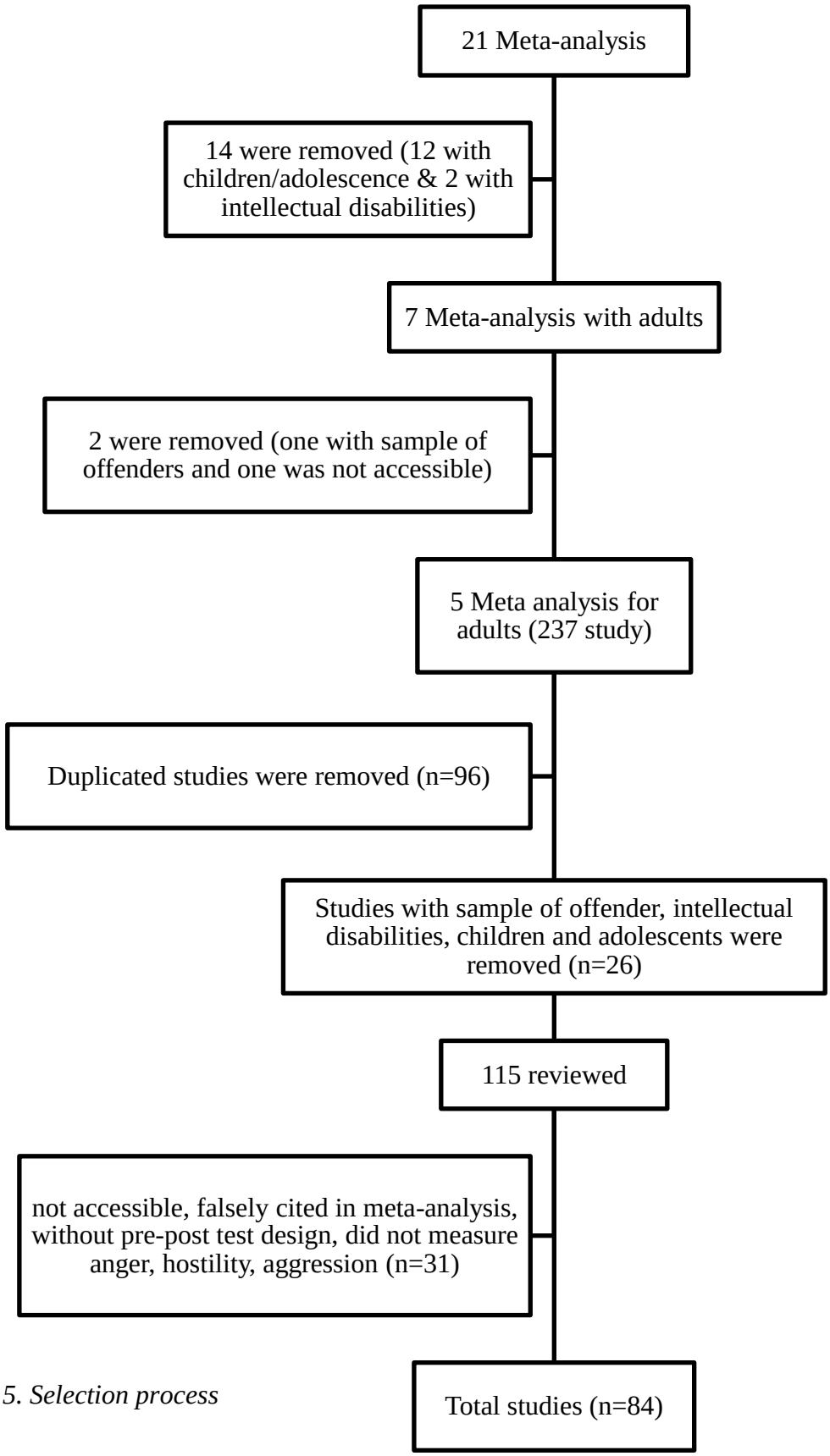



*Figure 15. Selection process*

*Table 12. Meta-analysis targeting anger and aggression*

| Sample | Study | Sample characteristic | No. of studies | Years of publication | overall Effect size | Effect size(s) | Treatment targeting anger and/or aggression |
|---|---|---|---|---|---|---|---|
| Children & adolescents | Sukhodolsky, Kassinove, and Gorman (2004) | Children & adolescents (Ages 6–18) | 40 | 1968–1997 | .67 | .79 for skills development and .74 for eclectic treatments, .36 for affective education, .67 for problem solving treatments | Anger |
| | Gansle (2005) | Children & adolescents (Ages 5–18) | 20 | 1984–2003 | .31 | .53 for follow up data, .54 for anger and externalizing, .43 for internalizing, .34 for social skills | Anger |
| | Ho, Carter, and Stephenson (2010) | Children with special needs (Ages 8–18) | 18 | 1982–2007 | .61 | .34 for behavior, .63 for cognition, .82 for affect, .19 for anger control skills | Anger |
| | Candelaria, Fedewa, and Ahn (2012) | Children (Ages 5–18) | 60 | 1979–2010 | .27 | .33 for anger,.34 for aggression | Anger & Aggression |
| | Robinson, Smith, Miller, and Brownell (1999) | Children (Majority from grades K-5) | 23 | 1967–1995 | .74 | .64 for aggression, .79 for hyperactive-impulsive behaviors | Aggression |
| | Wilson and Lipsey (2007) | Children (Grades K-12) | 249 | 1950- | .21 | .21 for universal, .29 for selected/ indicated, .11 for special classes/ schools | Aggression |
| | Fossum, Handegård, Martinussen, and Mørch (2008) | Children & adolescents (Ages 2–17) | 65 | 1987–2005 | .41 for between, 63 for within | .62 for between, .95 for within, for aggressive behaviors | Aggression |
| | Özabacı (2011) | Children & adolescents (Ages 6–18) | 6 | 1997–2009 | .10 | - | Aggression |
| | Barnes, Smith, and Miller (2014) | Children (Majority from grades K-5) | 25 | 1992–2012 | .14 | - | Aggression |
| | Hoogsteder et al. (2015) | Adolescents (Ages 12–18) | 6 | 1980–2011 | 1.14 | - | Aggression |
| | Smeets et al. (2015) | Adolescents (Age <23 years) | 25 | 2000–2013 | .50 | - | Aggression |
| | Fossum, Handegård, Adolfsen, Vis, and Wynn (2016) | Children with conduct problems (Age <18 years) | 56 | 1980–2010 | .64 for between, 1.05 for within | .52 for CBT | Aggression |

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|---|---|---|---|---|---|---|---|
| Adults with intellectual disabilities | Hamelin, Travis, and Sturmey (2013) | Adults with intellectual disabilities | 8 | 2002–2005 | 1.52 | .89 within- group for pretest- posttest | Anger |
| | Nicoll, Beail, and Saxon (2013) | Adults with intellectual disabilities | 9 | 1999–2011 | .88 | .84 for group treatments, 1.01 for individual | Anger |
| Adults | Edmondson and Conger (1996) | Adults; most are referred clinical sample | 18 | 1970–1994 | - | .82 for relaxation, 80 for social skills, .76 for cognitive-relaxation, .64 for cognitive | Anger |
| | R. Beck and Fernandez (1998) | Adults and children; predominantly clinical | 50 | 1970–1995 | .70 | - | Anger & Aggression |
| | DiGiuseppe and Tafrate (2003) | Adults | 50 | 1970–1998 | .71 | 1.16 for individual, .68 for group | Anger |
| | Del Vecchio and O'Leary (2004) | Adult outpatients defined as angry by pretreatment anger scores | 23 | 1980–2002 | - | .68 for CBT; .82 for CT; .90 for RT; .61 for Other | Anger |
| | Saini (2009) | Adults (college students, health care patients, incarcerated offenders, mental health clients) | 96 | Prior to 2009 | .76 | 1.40 for psychodynamic, .67 for relaxation, .60 for CBT, .83 for CT | Anger |
| | Kusmierska (2011)* | Varied | 17 | Prior to 2010 | .58 | - | Anger |
| | Henwood, Chou, and Browne (2015) | Adult male offenders | 14 | Prior to 2014 | .77 | .72 for violent recidivism | Anger |

* not accessible

** Adapted from Lee and DiGiuseppe (2018)

*Table 13. Literature review of randomized control trials of adults with anger and aggression*

| No. | Study | Participants | Design | Measure | Results |
|---|---|---|---|---|---|
| 1. | Achmon, J., Granek, M., Golomb, M., & Hart, J. (1989) | 77 hypertensive patients | cognitive treatment (n =30), biofeedback (n = 27), and control (no treatment, n = 20) | Multidimensional Anger Inventory (Siegel, 1983) | a better control in anger achieved with cognitive therapy and a lesser control in heart rate as compared with biofeedback. |
| 2. | Acton, R. G., & During, S. M. (1992) | 29 aggressive parents | No control group | State trait anger scale | Parents. After treatment reported improvement in their relationship with their children along with less anger. |
| 3. | Beck, R., & Fernandez, E. (1998) | 27 students | Cognitive group; behavioral group; CBT group | Sheets of paper were used for self-monitoring. | A significant reduction in the frequency and duration of anger (but not anger intensity) under self-intervention, regardless of treatment type. These effects were preserved for a week following treatment. |
| 4. | Bennett, P., Wallace, L., Carroll, D., & Smith, N. (1991) | 63 mildly hypertensive men | stress management intervention training (N = 15). Type A management (N = 15) and delayed Type A management intervention | Spielberger Anger Expression Scale (AX) | Type A management was more successful in changing a number of Type A behaviors, including anger. Hostility and global Type A behavior. |
| 5. | Bolanos, C. R. (1999) * | 38 | Treatment group with social skills training including anger management. Control group with social skills training classes, excluding anger management. | Time Sample Behavioral Checklist (Paul, 1987) | Results suggest that attendance at the anger management class in question was not effective at changing patient behaviors on the ward. |
| 6. | Boyle, S. W. (1992) | 33 college students | three groups (SITAC, AMT, and Control) | STAXI | Gain scores found both SITAC and AMT to be effective in reducing anger |
| 7. | Bradbury, K. E., & Clarke, I. (2007) | 11 clients | lack of a control group | Novaco Anger Scale (Novaco, 1979) | anger management group show improvements in anger control and improved self-esteem. |
| 8. | Briscoe, Y. B. (2001) * | 26 women with history of substance abuse | 13 women CBGT, 13 control group | State-Trait Anger Expression Inventory – 2 | findings of the study did not suggest statistical significance for all variables |
| 9. | Cary, M., & Dua, J. (1999) | 36 caregivers of people with intellectual and/or physical disability | 1st group stress-reduction training, 2nd group stress-reduction training in systematic desensitization, 3rd group in a wait-list condition. | STAXI; Spielberger, 1988 | Subjects in the self-instructional training group also showed a decrease in trait anger. |
| 10. | Chan, H.-Y., Lu, R.-B., Tseng, C.-L., & Chou, K.-R. (2003) * | 78 patients with schizophrenia | 35 in experimental group therapy and 43 in comparison group | STAXI | anger control was increased, “anger in” and “anger out” were not significantly changed |
| 11. | Chemtob, Novaco, Hamada, & Gross, (1997) * | 15 PTSD patients | 8 participants in anger treatment and 7 in a routine clinical care control condition | Spielberger Anger Expression Scale; NAS | significant effects were found on anger reaction and anger control measures but not on AX, Anger-In and Anger-Out subscales, trait anger, or physiological measures |

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| 12. | Conoley, Conoley, McConnell, & Kimzey, (1983) | 61 undergraduate females psychology courses | empty-chair, ABC techniques, and control group | Feeling Questionnaire (Gough & Heilbrum, 1965) | empty-chair and ABC techniques both were effective in reducing self-report of anger as compared to the control group. |
| 13. | Coon, Thompson, Steffen, Sorocco, & Gallagher-Thompson, D. (2003) | 169 Female caregivers of people with dementia | Cognitive behavioral psychoeducational: anger management, depression management, or a wait-list control group | STAXI-2 | both anger management and depression management groups had significant reductions in levels of anger or hostility and depression from Time 1 to Time 2 |
| 14. | Dahlen, E. R., & Deffenbacher, J. L. (2000) | 86 high-anger undergraduates | Beck's full cognitive therapy (FCT) focusing on both cognitive and behavioral change, cognitive restructuring only (CRO) focusing only on cognitive change, or a no-treatment control. | - | treatment groups, while not differing from each other, showed reductions in trait anger, cognitive, emotional, and behavioral components of anger, the individual's greatest ongoing source of anger, and anger-related physiological arousal. |
| 15. | Davison, Williams, Nezami, Bice, & DeQuattro, (1991) * | 58 unmedicated borderline hypertensive men | relaxation therapy | Trait-Anger Scale | Trait anger did not diminish as a consequence of either treatment. |
| 16. | De Leon, M., Carlos, F., Powell, L. H., & Kaplan, B. H. (1991) | 791 cardiac male patients | cardiac control group | - | Type A counseled Subjects showed significant decreases in depression and anger, gains in self-efficacy, and marginally significant gains in social support and well-being. |
| 17. | Deffenbacher, J. L., Story, D. A., Stark, R. S., Hogg, & Brandon, (1987) | 50 introductory psychology students | Social skills and cognitive-relaxation interventions for general-anger reduction were compared with a no-treatment control | Anger Inventory (Novaco, 1975), STAXI | treatment groups reported significantly less general anger, lowered tendencies to suppress or exhibit general anger, and lowered state anger and greater constructive coping in an analogue provocation than did the control group. |
| 18. | Deffenbacher, J. L., Demm, & Brandon, (1986) | High anger (n=29) Introductory Psychology students | relaxation coping skills intervention | Anger Inventory (Novaco, 1975), STAXI | Compared to controls, treated Ss reported less general and situational anger, and less state anger, verbal and physical antagonism and greater constructive coping when provoked |
| 19. | Deffenbacher, J. L., McNamara, K., Stark, R. S., & Sabadell, P. M. (1990a) | 29 university students who had scored in the upper quartile on the State-Trait Anger Scale | program targeted emotional arousal, cognitive distortions, and interpersonal skills deficits. | State-Trait Anger Scale (STAS) | counseled Ss reported significant reductions of the tendency to express anger outwardly and negatively, anger from diverse provocations, frequency and intensity of daily anger, and anger-related physiological arousal. |
| 20. | Deffenbache, McNAMARA, Stark, & Sabadell (1990b) | 48 introductory psychology students | - | State-Trait Anger Scale (STAS) | Both counselled group – one using cognitive relaxation coping skills and other using time limited, anger focused process-oriented group counselling had significant results compared to uncounseled control group. |
| 21. | Deffenbacher, J. L., & Stark, R. S. (1992) | - | combining cognitive and relaxation coping skills (CRCS) in the treatment of anger was evaluated by comparing CRCS with | - | Although outcomes for CRCS and RCS were not significantly different, CRCS may be the intervention of choice, especially for group interventions. |

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| | | | relaxation coping skills (RCS) alone and no-treatment control. | | |
| 22. | Deffenbacher, J. L., Story, D. A., Brandon, A. D., Hogg, J. A., & Hazaleus, S. L. (1988) | 45 introductory psychology students | - | State-Trait Anger Scale (STAS) | Cognitive and cognitive-relaxation conditions in reducing general anger were compared and no differences were found between the two treatments. Relative to controls, both treatments reported significantly less general anger, anger across different situations, person-specific anger, anger-related physiological reactivity |
| 23. | Deffenbacher, J. L., Thwaites, G. A., Wallace, T. L., & Oetting, E. R. (1994) | 180 introductory psychology students | Inductive social skills training (ISST), skill assembly social skills training (SASST), and cognitive relaxation coping skills (CRCS) training were compared with a no-treatment control condition for general anger reduction. | State-Trait Anger Scale (STAS) | all treatment groups showed equivalent reductions of the amount of anger experienced in a wide range of situations. Treatment groups enhanced anger control equally relative to the control group |
| 24. | Deffenbacher, Dahlen, Lynch, Morris, & Gowensmith, (2000) | 69 introductory psychology students | Beck's cognitive therapy (CT) was compared to a no-treatment control in the reduction of anger in college students. | Trait anger in STXI and NAS | CT lowered trait anger, anger reactivity to many potential provocations, anger in the individual's most angering ongoing situation, daily anger, anger-related physiological arousal, anger suppression, and outward negative expression. |
| 25. | Deffenbacher, J. L., Filetti, L. B., Lynch, R. S., Dahlen, E. R., & Oetting, E. R. (2002) | 55 introductory psychology students | Relaxation and cognitive-relaxation interventions were compared to a no treatment control in the treatment of high anger drivers. | Driving Anger Scale (DAS); Trait Anger Scale (TAS) | reductions of trait anger were found in the current study but not in the earlier study. However, there were no differential treatment effects |
| 26. | Deffenbacher, Huff, Lynch, Oetting, & Salvatore (2000) * | Angry drivers | - | - | Interventions did not influence trait anger, anxiety, or general anger expression. |
| 27. | Deffenbacher, J. L., Oetting, E. R., Huff, M. E., Cornell, G. R., & Dallager, C. J. (1996) | 78 introductory psychology students | Inductive social skills training (ISST) based on principles from Beck's cognitive therapy and cognitive-relaxation coping skills (CRCS) were compared to a no treatment control for general anger reduction. | Trait Anger Scale (TAS) | By 5-week follow-up, treatment groups, compared to the control showed reductions of trait anger, daffy anger level anger in response to a wide range of situations, anger in the person's greatest ongoing source of provocation, anger-related physiological arousal and trait anxiety. |
| 28. | Deschner, J. P., & McNeil, J. S. (1986) | 134 subjects either as a perpetrator or as a victim of violence | - | - | After anger control training 85% of the families were free of further violence and remained so, according to an independent survey completed 6-8 months later. |
| 29. | Dua, J. K., & Swinden, M. L. (1992) | 29 highly angry subjects | 1st group trained to reduce their negative thoughts, 2nd group trained to meditate, 3rd group were asked to imagine the high anger-arousing situations | | Subjects in the Negative-thought-reduction, Meditation and Placebo groups showed improvement in trait anger, anger aroused through high-anger situations, anger scores across a wide variety of situations, unconstructive |

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| | | | (placebo procedure), 4th group were given no treatment. | | coping, and anger measured through physiological symptoms. |
| 30. | Eastridge, M. D. (1984)* | 48 female undergraduates | nondirective control group, flooding, flooding plus cognitive behavior modification, and flooding plus assertiveness training | Novaco Anger Inventory | Subjects in the flooding treatment demonstrated improvement on systolic blood pressure and on several cognitive measures, but not on behavioral measures. Subjects in the flooding plus cognitive behavior modification treatment demonstrated the same general pattern of results as the flooding group. |
| 31. | Erwin, Heimberg, Schneier, & Liebowitz, (2003) | 68 persons treated for social anxiety disorder | - | STAXI | Among treatment completers, significant reductions in the frequent experience of anger. |
| 32. | Evans, Hearn, & Saklofske, (1973) | 20 nursing students | treatment and a no-treatment control group | | systematic desensitization reduces arousal and rated anger to the scenes |
| 33. | Evershed, S., Tennant, A., Boomer, D., Rees, A., Barkham, M., & Watson, A. (2003) | 8 male forensic patients with borderline personality disorder | A comparison group of 9 patient excluding DBT | Personality Assessment Inventory (PAI: Morey, 1991); NAS (Novaco, 1980); STAXI (Spielberger, 1996) | patients in the DBT group made greater gains than patients in the TAU group in reducing the seriousness of violence-related incidents, and in self-report measures of hostility, cognitive anger, disposition to anger, outward expression of anger and anger experience. |
| 34. | Fane, R. B. (1999) * | 52 adult males | - | STAXI | structured and the unstructured groups demonstrated change over time in the predicted direction on all subscales of the STAXI except the State Anger Scale and the Anger Control Scale. |
| 35. | Faulkner, K., Stoltenberg, C. D., Cogen, R., Nolder, M., & Shooter, E. (1992) | Study one (17 men)<br>Study two (19 men) | - | Anger and depression (Maiuro et al., 1988) | Two studies evaluating cognitive-behavioral treatment programs for male spouse abusers resulted in significant reductions in both indirect and direct threats of violence and direct and severe violence towards spouses. In addition, males showed lower levels" of passive-aggressiveness and increasing levels" of narcissism as a function of treatment. |
| 36. | Fava, Grandi, Rafanelli, Saviotti, Ballin, & Pesarin, (1993) | 20 patients suffering from panic disorder with agoraphobia | - | Kellner Symptom Questionnaire (Kellner,1987) | Hostility and irritable mood decreased, and friendliness increased in patients with panic disorder after treatment. |
| 37. | Fehrenbach, P. A., & Thelen, M. H. (1981) | 40 aggressive male undergraduates | assertion training consisting of Modeling, Rehearsal and Instructions (MRI); assertion training with Rehearsal and Instructions only (RI); Attention-Placebo therapy (AP); or Assessment-Only (AO). | - | The three treatment groups were significantly less aggressive than the AO group but did not differ among themselves. |

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| 38. | Galovski, T. E., & Blanchard, E. B. (2002) | court-referred aggressive drivers (N=20) and a self-referred community (N=8) | - | STAXI | Self-referred group improved more on measures of general anger. Motivation for participation in the study may be predictive of treatment outcome. |
| 39. | Gerlock, A. A. (1994) | 51 male veterans | The majority had a past or present substance abuse problem and described incidents of childhood trauma. | - | Paired t-test analysis indicated a significant drop in both state- and trait-anger, |
| 40. | Gerzina, M. A., & Drummond, P. D. (2000) | 6 self-referring police officers | treatment or a wait-list control – relaxation skills, cognitive reappraisal, response disruption and problem solving | STAXI belief scale (MalouV & Schutte, 1986) | Treatment group showed reduced scores on a majority of the anger measures compared to the control group. |
| 41. | Gidron, Y., Davidson, K., & Bata, I. (1999) | 22 high-hostile patients with coronary heart disease | hostility intervention (N=10) or an information-control group (N=12) | | The intervention's overall effect size was moderately strong (d′ = .62) |
| 42. | Gildea, T. J. (1989) * | - | a stress/anger management training group, a relaxation control group, and a delayed treatment control group | Anger Self-Report and the Symptom Checklist-90-R | examination of the Anger Self-Report and Symptom Checklist-90-R scores revealed no significant changes in perceived anger or psychiatric symptomatology. |
| 43. | Gonzalez-Prendes, A. A. (2003) | 12 women recovering from alcohol and or drug addiction | 8 in the anger-control group, and 4 in the traditional relapse prevention group | STAXI | The anger-control counseling group showed statistically significant decreases in their levels of trait-anger |
| 44. | González-Prendes, (2007) | 3 | - | STAXI | the three clients presented in this study appeared to have benefited from this treatment |
| 45. | Grodnitzky, G. R., & Tafrate, R. C. (2000) | 6 adult outpatients | imaginal exposure strategy | STAXI (1988) Idiographic anger measures | statistically significant and clinically meaningful change was evident at 15-months following the intervention |
| 46. | Haaga, D. A., Davison, G. C., Williams, M. E., Dolezal, S. L., Haleblian, J., Rosenbaum, J., . . . DeQuattro, V. (1994) * | 43 with borderline hypertension. | Progressive muscle relaxation (PMR) | Duke Hostility and Cynicism questionnaire (DHC) (Williams et al., 1980); Anger expression scale (Spielberger et al., 1985) | self-report questionnaires measuring trait hostility and anger-out did not have statistical significance. |
| 47. | Hanusa, D. R. (1994) * | 82 subjects identified either by self-selection or the court system | cognitive-behavioral treatment condition or the self-help group condition | Novaco Anger Index; hostility (Buss-Durkee Hostility Inventory) | The results of the study do not support the efficacy of cognitive-behavioral intervention package versus a self-help approach. |

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| 48. | Harris, A. H., Luskin, F., Norman, S. B., Standard, S., Bruning, J., Evans, S., & Thoresen, C. E. (2006) | 259 adults | Randomized to a forgiveness-training program (n=134) or a no-treatment control group (n =125)<br>All participants received $25 upon completion of the follow-up assessment. | Trait-Anger Subscale of STAXI | Significant treatment effects were found for forgiveness self-efficacy, forgiveness generalized to new situations, perceived stress, and trait-anger |
| 49. | Hart, K. E. (1984) | 5 introductory psychology class in treatment group and 5 in control group | to participate for extra credit points | Jenkins Activity Survey (Krantz, Glass and Snyder, 1974) | intervention focused<br>on the control of anger and hostility can result in significant reductions in Type A inventory scores. |
| 50. | Hazaleus, S. L., & Deffenbacher, J. L. (1986) * | 60 undergraduates | cognitive and relaxation coping skill interventions for anger reduction or in a no-treatment control | - | cognitive and relaxation groups reported significantly less general anger, physical symptoms of anger, daily ratings of anger, and less state anger. Cognitive and relaxation treatment did not differ from one another. |
| 51. | Hearn, M. T., & Evans, D. R. (1972) | 34 female student nurses | either a treatment or a no-treatment group | aggression scores on the Buss-Durkee Inventory | therapy group rated the treated anger-inducing scenes as less anger, tension, and excitement inducing |
| 52. | Johnson, & Wilborn, (1991) * | 17 women aged 65 and older | - | BDI | No significant differences were found in the posttreatment BDIs and the 1-month follow- up BDIs. |
| 53. | Kolko, D. J. (1996) | 38 physically maltreated children and their parents | Individual Child and Parent Cognitive-Behavioral Treatment (CBT) or Family Therapy (FT) | - | The overall levels of parental anger and physical discipline/force were lower in CBT than FT families |
| 54. | Lanza, Anderson, Boisvert, LeBlanc, Fardy, & Steel, (2002) | Veterans (N = 10) | 4 psychodynamic psychotherapy group (PPG) and a 6 cognitive-behavior group (CBG) | Overt Aggression Scale (Silver & Yudofsky, 1999 | PPG showed a trend toward improvement of overt aggression and significant improvement of trait aggression compared with CBG |
| 55. | Linehan, M. M., Heard, H. L., & Armstrong, H. E. (1993) | 39 women with borderline personality disorder | Dialectical behavior therapy versus treatment as usual | State trait anger scale | DBT Ss had significantly less parasuicidal behavior, less anger, and better self-rated social adjustment |
| 56. | Maurio, F. R. (1990) | 20 male cardiac rehabilitation out-patients | 10 control patients received training in Progressive Muscle Relaxation | Cook and Medley's Hostility Scale; State Anger Scale | results provide evidence that Anger Management Training is differentially effective in the reduction of anger and hostility. |
| 57. | McDermott, S. P. (1999) * | 45 men | - | State Anger Scale (SAS; Spielberger, 1988) | In response to the in-vivo provocation, the rational self-statement practice group reported significantly less state anger than the typical and irrelevant self-statement practice groups. Results indicate partial support for cognitive based interventions for anger. |
| 58. | Medd, J., & Tate, R. L. (2000) | 16 patients with traumatic brain injury | Treatment Group (TREAT) or Waiting List Group (WAIT) | STAXI | A significant decrease in anger on the State-Trait Anger Expression Inventory (STAXI) was found for TREAT in comparison with WAIT at post-treatment. |

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| 59. | Moon, J. R., & Eisler, R. M. (1983) * | 40 male undergraduates in Introductory Psychology | cognitive stress inoculation, problem-solving, social skills, or minimal attention groups | anger diaries, anger response-style ratings (RS), Anger Inventory scores (AI), and Anger Self-Report scores (ASR) | Cognitively oriented stress inoculation training significantly decreased anger-provoking cognitions but did not increase appropriate assertiveness. Problem solving and social skills training both reduced anger-provoking cognitions and increased assertive or socially skilled behaviors. Social skills and problem-solving approaches encouraged subjects to interact competently with the social environment whereas the stress inoculation training tended to foster withdrawal from anger-provoking stimuli. |
| 60. | Nomellini, S., & Katz, R. C. (1983) | 3 families | - | Novaco Anger Scale | During and after anger control training, parents showed significant reductions in aversive behavior, along with decreases in angry urges and overall proneness to provocation. |
| 61. | Novaco. (1975) | 34 persons | cognitive processes and relaxation techniques | - | cognitive control procedures can be effectively used to regulate anger arousal |
| 62. | Novaco, R. W. (1976) | 39 | cognitive self-control processes and relaxation techniques | - | Results support the efficacy of the developed therapeutic techniques for the treatment of chronic anger problems |
| 63. | O'Donnell, C. R., & Worell, L. (1973) * | 32 | 8 desensitization, 8 desensitization with cognitive relaxation, and 8 desensitization with the absence of relaxation training | Buss-Durkee Hostility | Post-hoc analyses indicated that Ss for whom desensitization was most effective reported less anger after the pretreatment anger arousal procedure, greater depth of relaxation during treatment, and were liked more by their therapists. |
| 64. | Olson, M. L. (1988) | 57 | | Buss-Durkee Hostility Inventory | treatment group would exhibit less overall anger and hostility than the control group on BDHI Total, Overt and Covert scores. |
| 65. | Rhoades, G. (1988) | 21 inpatients from four forensic wards | stress inoculation and wait-list control | Novaco Anger Scale | experimental treatment condition resulted in a significant self-perceived reduction in anger arousal as compared to the control condition |
| 66. | Rimm, Boord, Heiman, & Dillow, (1971) | 30 introductory psychology students | Desensitization, Placebo and Non-Treated Controls. | - | Desensitization group showed a significantly greater reduction than did either of the other two groups. |
| 67. | Rimm, Hill, Brown, & Stuart, (1974) | 13 | 6 assertive training group and 7 placebo group | - | Data suggest that assertive training may provide an effective means for dealing with anger |
| 68. | Schmitz, M. (2004) * | 30 | psychoeducational program – court-ordered, self-referred, or other referred | STAXI-II | A statistically significant increase was found only within dimension of Anger Control In |
| 69. | Shocket, S. (1986) * | 32 undergraduate psychology with driving anger | either a humorous rendition of each scene or relaxation and systematic desensitization, during 2 treatment sessions | - | Data revealed that the groups did not differ significantly in response to the treatments for any of the variables measured. |
| 70. | Siddle, Jones, & Awenat, (2003) | 11 | group Cognitive Behaviour Therapy (CBT) | STAXI | CBT treatment reported reductions in the frequency and intensity of their anger outbursts, anger traits. |
| 71. | Stapleton, J. A., Taylor, S., | 15 PTSD | prolonged exposure, eye movement desensitization | STAXI | Results suggest that all three treatments are associated with reductions in anger and guilt, even for patients who initially |

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|---|---|---|---|---|---|
| | & Asmundson, G. J. (2006) * | | and reprocessing, and relaxation training | | have high levels of these emotions. However, these PTSD therapies may not be sufficient for treating anger and guilt; additional interventions may be required. |
| 72. | Stermac, L. E. (1986) | 40 | short-term cognitive-behavioral anger control intervention with forensic patients and control group consisted of a psychoeducational treatment | Novaco provocation inventory | The results of the study demonstrated that following treatment, anger control subjects reported significantly lower levels of anger than did control subjects. In addition, following participation in the anger control treatment, subjects reported a greater use of cognitive restructuring strategies and less use of self-denigration strategies than did the controls. |
| 73. | Tafrate, R. C., & Kassinove, H. (1998) | 45 | Self-statement based on REBT versus self-statement not based on REBT<br>Treatment = Exposure to systemic anger provoking barb (Kaufman & Wagner, 1972) | STAXI | Subject in rational statement were less angry. Intensity, frequency, state anger and anger out decreased. |
| 74. | Tang, M. (2001) | Sixty-four clients, about 59% diagnosed with depressive disorder | | Anger Control Inventory & STAXI | Results indicated significant reduction in the overall experience of intense anger, improvement in cognitive and behavioral coping mechanisms, and significant improvement in anger control after treatment. |
| 75. | Terracciano, S. (2001) * | 27 married men | (a) barb exposure only (BE), (b) barb exposure with rational statement rehearsal (BERSR), or a (c) wait-list control (WL) | STAXI | Results indicated that men in the two treatment groups showed significantly greater improvements on STAXI Trait Anger, Anger-Out, and Anger-Control than WL men. Findings do not indicate increased efficacy for rehearsing rational coping statements during barb exposure, nor for the role of cognition in the regulation of anger. |
| 76. | Thurman, C. W. (1983) | 22 university students | rational-emotive therapy group or a no-treatment control group | Jenkins Activity Survey; Irrational Beliefs Test | Results support the efficacy of cognitive-restructuring methods in the modification of Type A behavior. |
| 77. | Thurman, C. W. (1985a) * | 51 faculty members | 2 treatments, cognitive-behavioral modification (CBM) and cognitive-behavioral modification plus assertiveness training (CBM/AT) | State-Trait Anger Scale, the Rational Behavior Inventory, and the Manifest Hostility Content Scale | both treatments were significantly more effective than a minimal treatment control in reducing self-reported Type A behavior, hostility, and irrational beliefs. However, the addition of assertiveness training in the CBM/AT treatment did not significantly increase its effectiveness in reducing the dependent variables, compared with the CBM treatment. |
| 78. | Timmons, P. L., Oehlert, M. E., Sumerall, S. W., Timmons, C. W., & Borgers, S. B. (1997) | 56 male veterans | computer guidance approach was compared with a group counseling approach, both utilizing stress inoculation training | STAXI | Results of the study demonstrate that the stress inoculation training was equally effective in reducing self-reported state anger, trait anger, and anger suppression for participants in the computer guidance and group counseling conditions with no differences in treatment satisfaction between the two groups. |

| | | | | | |
|---|---|---|---|---|---|
| 79. | Trampus, J. W. (1999) * | 50 Health Care Technicians | eight-week psycho-educational, multicomponent training program based on McKay and Paleg''s (1992) Focal Group Psychotherapy | STAS | Results revealed no support and suggest that this treatment was not effective in reducing levels of anger in the subjects. |
| 80. | Walley, J. C. (2002) | - | exposure and response prevention (ERP) intervention for anger and aggressive behavior | overt aggressive behavior | participants in the ERP condition increased their tendency to suppress their anger. Participants, regardless of condition, improved over time on outcome measures of negative emotions (depression and anxiety), trait anger, anger expression, self-reported overt aggressive behavior, and hostile cognitions. |
| 81. | Webb, M. G. (1995) | 43 | experimental group (n = 22) in a progressive relaxation intervention; control group (n = 21) watched a self-selected television program or listen to a radio program for 30 minutes daily. | STAXI | The experimental and control groups both had significant reductions in state anger, trait anger, and anger suppression. |
| 82. | Whiteman, M., Fanshel, D., & Grundy, J. F. (1987) | 55 families in which child abuse | experimental groups involved cognitive restructuring, a relaxation training program, a program emphasizing problem solution and a composite of the three techniques. | - | Results indicated a reduction in anger measures among subjects exposed to the experimental interventions, and the composite treatment resulted in the strongest degree of anger alleviation. |
| 83. | Wilson, D. L. (2002) | 12 African American and 15 Caucasian women | manualized anger management therapy (n = 13) or a no treatment control group (n = 14) | - | Results demonstrating that structured group therapy is efficacious in increasing the use of positive anger expression and decreasing cognitive anger or hostility. |
| 84. | Workman, J. V. (1995) * | - | Three groups, two trained in Progressive Relaxation techniques and one comparison | State-Trait Anger Expression Inventory | hypothesis that trained subjects would decrease Ax/Out and increase Ax/Con scores was not supported, nor did their scores significantly differ from those of the comparison group. Results of the study were inconclusive due to failure of subjects to practice regularly Progressive Relaxation techniques. |

* Studies with non-significant, partially significant, or inconclusive results

## 2. Rationale of present studies

Here, I explain how I developed my research questions regarding conducting randomized controlled trials for angry individuals (study 1), angry couples (study 2) and conducting research on core beliefs/schemas, anger and aggression (study 3). The rationale of explaining the theoretical part and its connection to research is as follow.

So far, five main important aspects were covered in theoretical part: 1) anger, 2) aggression, 3) core irrational beliefs/maladaptive schemas, 4) cognitive behavioral therapy for anger and aggression, 5) previous research on anger and aggression. Here are the reasons for including these five aspects in the theory section:

Anger was central part of this work, because it has been neglected in diagnostic classifications and treatment programs (Eckhardt & Deffenbacher, 1995; Kassinove & Sukhodolsky, 1995; Tavris, 2017). So, the latest theories, definition, and assessment of anger was reviewed.

Aggression is a behavior often accompanied in anger episodes (Novaco, 1994; Anderson & Bushman, 2002). Thus, the latest theories, definition, and types of aggression was discussed.

Core irrational beliefs and maladaptive schemas was thoroughly discussed because of being often cited in previous model as the cognitive cause of anger and aggression (e.g., models of Novaco, 1994, Kassinove & Tafrate, 2013, DiGiuseppe, & Tafrate, 2015).

Cognitive behavioral therapies (Ellis, 2007; Beck, 1999; Young et al., 2003) were reviewed since they are the available treatment for anger and aggression.

So far, it was the theoretical part of anger, aggression and irrational beliefs. However, above theories need to be tested in research. So, next step, I reviewed past and present research on anger and aggression. I found two types of researches. First type of research was 84 articles (including doctoral dissertation) investigating the effectiveness of treatment of anger and

aggression (for example Deffenbacher, 2000). I found several limitations in these researches (such as showing non-significant results) that led to conduct study 1 and 2. These limitations of previous research are discussed in the section of "Rationale of study 1 and 2".

Second type of research was 39 articles (22 for core irrational beliefs and 17 for maladaptive schemas) investigating the relationship of anger, aggression with core irrational beliefs (for example, Calvete et al, 2005; Eckhardt and Kassinove, 1998). I also found several limitations in this type of research (such as contrasting results), that led to conduct the third study. These limitations are discussed under the section of "Rationale of study 3".

**Rationale of study 1 and 2**

First, among the 84 studies reviewed, 25 studies (30%) found either non-significant or partially significant results supporting the effectiveness of cognitive behavioral therapy.

Second, all the five meta-analyses only targeted anger. Meta-analysis that target aggression are only in research with children and adolescents. This indicates that very few studies are conducted in adults with aggression. Studies to measure the effectiveness of CBT for self-referred aggressive individuals are few.

Third, to best of my review, there has been no study to measure the effectiveness of individually cognitive behavioral anger management among volunteer adults with anger issues. Some of the previous studies had samples such as college students (Deffenbacher, McNamara, Stark, & Sabadell, 1990a, 1990b; Deffenbacher & Stark, 1992; Deffenbacher, Story, Brandon, Hogg, & Hazaleus, 1988; Deffenbacher, Story, Stark, Hogg, & Brandon, 1987; Deffenbacher, Thwaites, Wallace, & Oetting, 1994; Moon & Eisler, 1983), aggressive drivers (Deffenbacher, Filetti, Lynch, Dahlen, & Oetting, 2002; Deffenbacher, Huff, Lynch, Oetting, & Salvatore, 2000; Galovski & Blanchard, 2002), and veterans (Chemtob, Novaco, Hamada, & Gross, 1997;

Gerlock, 1994; Lanza et al., 2002; Lee-Wesely, 1994; Morland et al., 2010). Studies with a sample of self-referred angry individuals are rare.

Fourth, among all the 84 studies, only six studies had a sample related to married couples or partners. These studies were among battering couples (Deschner & McNeil, 1986), male batterers (Chang & Saunders, 2002), angry married men (Terracciano, 2001), male spouse abusers (Faulkner, Stoltenberg, Cogen, Nolder, & Shooter, 1992), marital aggression in male alcoholics (Murphy & O'farrell, 1994), and post-divorce adjustment groups (Wu, 1989). No studies have had cognitive behavioral couple therapy of anger and aggression. Thus, second study will be conducted among couples who have anger and aggression.

Fifth, most of treatment researches have a module of group therapy and few studies have conducted individual therapy. There has been a tendency in anger research to focus on group therapy. DiGiuseppe (1999) reported that 80% of all research studies employ group therapy, although the result of two meta-analysis (DiGiuseppe & Tafrate, 2003; Nicoll et al., 2013) shows that individual therapy is more effective than group therapy. Therefore, there is a need to measure effectiveness of individual cognitive behavioral therapy.

Sixth, some studies have not directly addressed anger and aggression problem rather the anger presenting in other disorders such as in post-traumatic stress disorder (Chemtob et al., 1997), depression (Coon, Thompson, Steffen, Sorocco, & Gallagher-Thompson, 2003), schizophrenia (Chan, Lu, Tseng, & Chou, 2003), social anxiety disorder (Erwin, Heimberg, Schneier, & Liebowitz, 2003), panic disorder with agoraphobia (Fava et al., 1993), alcohol and or drug addiction (Gonzalez-Prendes, 2003), and brain injury (Medd & Tate, 2000). There is a need to understand anger and aggression among people who have no psychological disorders or chronic disease.

Seventh, surprisingly some studies have conducted therapy session only for 15 minutes (Evans, Hearn, & Saklofske, 1973; Hearn & Evans, 1972), or for one or two sessions (Conoley, Conoley, McConnell, & Kimzey, 1983; Fehrenbach & Thelen, 1981; Rimm, Boord, Heiman, & Dillow, 1971). Measuring the effectiveness of one or two sessions or 15 minutes therapy sessions could be misleading irrespective of results.

Eighth, some studies had very low numbers of participants such as three, six or eight patients (Fehrenbach & Thelen, 1981; O'Donnell & Worell, 1973; Rimm et al., 1971). This is again another similar limitation for measuring the effectiveness of CBT.

Ninth, some studies had conducted only one or two CBT intervention such as forgiveness intervention (Harris et al., 2006), relaxation (Webb, 1995; Workman, 1995), psychoeducational skill training interventions (Coon et al., 2003; Trampus, 1999), negative-thought-reduction and meditation (Dua & Swinden, 1992), and systematic desensitization (Evans et al., 1973; Rimm et al., 1971). Conducting one or two techniques cannot represent the whole cognitive behavioral interventions. Very few studies have conducted all the cognitive behavioral interventions for anger and aggression.

Tenth, among all these 84 studies, six studies targeted aggression in the samples such as aggressive parents (Acton & During, 1992), and male alcoholics (Murphy & O'farrell, 1994). Randomized controlled trials for aggression among adults are scarce.

Eleventh, there are 18 studies done by Deffenbacher's research group on measuring the effectiveness of cognitive behavioral intervention and cognitive-relaxation for anger and aggression. They have also published two articles for their follow-up studies. Deffenbacher's research is cited in all the five meta-analyses. Mostly, all the participants are first year introductory psychology students who received credit in participating the research. His research increases our knowledge about effectiveness of cognitive behavior therapy, however,

at the same time, it favors five CBT meta-analyses by increasing the overall size effect in them, i.e., by creating a bias in favoring the effectiveness of cognitive behavioral therapy.

Twelfth, effectiveness of CBT across different culture have been rarely reported. Most of the studies are conducted in English language countries such as America, England, Australia, and Canada. There could be some treatment-control design written in other languages, but since they had no abstract in English or have not been published in peer reviewed journals, therefore they are not accessible. Yet, reporting the effectiveness of CBT across cultures would be valuable for the generalizability of CBT.

Thirteenth, reviewing the methodology, most of the studies have used a single measure for anger and no measure for aggression. They have used the old-version of State trait anger expression (Spielberger, 1988). They have considered few items of trait anger or anger expression, as the representative of anger reduction. This could lead to erroneous results since self-reported items in itself have several limitations. Thus, measuring multidimensions of anger only with few items would be inaccurate.

Accordingly, based on the above reasons in effectiveness of CBT for anger and aggression, the first and second study are a randomized control trial of brief individually cognitive behavioral anger management with a focused sample on adult individuals (first study) and couples (second study) self-referred for treatment of their anger and aggression. The effect of cognitive, emotive, and behavioral techniques of cognitive behavioral therapy (CBT) as an intervention program for treatment of clients with anger and aggression is evaluated. Therefore, the followings are hypothesized:

1) There is a significant difference between the treatment group and control group in the level of anger and aggression at the end of treatment.

2) CBT would significantly reduce the anger domains of cognitive, arousal and behavioral, in comparison with relaxation training.

**Rationale of study 3**

Now, we will review the limitations of previous research on schemas that led to conduct the 3rd study:

First, although the researchers have considered some schemas as the predictors of anger and aggression, however, there are some contrasting results. One study (Gilbert et al., 2013) identified no relationship between mistrust/abuse and past aggression. Study of Chakhssi et al. (2014) found that maladaptive schemas were not related to institutional violence. Frias et al. (2018) in the sample of borderline personality disorder patients found that impaired limits had no significant relationship with aggression. One study found that self-sacrifice schema was negatively related to anger (Calvete et al., 2005).

Second, the problem with studies of schema domains is that every domain consists of several schemas and it is not clear which one of the schemas in a particular domain is exactly related to anger and aggression.

Third, only one study compared clinical group with non-clinical group. Seven studies had only a non-clinical sample of adolescent, undergraduate and college students. The rest of studies had a sample from court, prisons, forensic, batters, and personality disorder offenders. In this study, we compare the anger group with outpatient and control volunteer group.

Fourth, most of the previous studies are usually conducted with Schema questionnaire short-form 75 items or the outdated long-form, that were initially developed in 1998 and consist of only 15 schemas. So far, only four studies have used the new version of YSQ-3 (2005) that consists of 18 schemas (3 newly added schemas are negativity, punitiveness, and approval seeking). Furthermore, the importance of the difference between the application of 75 items

(15 schemas) and 90 items (18 schemas) is that 75 items version had a different scoring method. The old version considers only the sum of the responses of 4, 5 and 6 as the determinant of a schema, whereas in my study the sum of all the 5 items related to each schema is calculated.

Last, to the best of my knowledge, no study has assessed the Novaco's cognitive-behavioral model (1994) of anger with the 18 EMSs of Young (J. E. Young, 2005).

Therefore, in third study, a hypothesis was derived based on previous research as well as theoretical explanation of schema model. Findings of eight studies of relationship between schema, anger and aggression (Calvete et al., 2005; Calvete & Orue, 2012; Calvete et al., 2013; Crawford & Wright, 2007; Dunne et al., 2018; Gilbert et al., 2013; McKee et al., 2012; Tremblay & Dozois, 2009) shows that entitlement, insufficient self-control and mistrust/abuse are the most strong predictors of anger and aggression. On the other hand, theoretical considerations of schema model and schema mode (Young et al., 2003, page 273) explains that the common associated schemas with anger are abandonment, mistrust/abuse, emotional deprivation, and subjugation. Therefore, it is hypothesized that six schemas of entitlement/grandiosity, insufficient self-control, mistrust/abuse, abandonment/instability, emotional deprivation, and subjugation might strongly predict the cognitive, arousal and behavioral dimension of anger.

## Part II: RESEARCH

## 3. Study one: Anger management for adult individuals - Randomized controlled trial

### 3.1 Methods

#### *3.1- 1 Participants*

A randomized controlled trial compares CBT with relaxation training in 33 clients (experimental group ($n$ = 17) and control group ($n$ = 16)). They were all Iranian, 12 Male and 21 Female with a mean age of 32.06 (SD= 6.88) ranging from 22 to 50 years old. Table 14 shows the socio-demographic characteristics of participants based on gender, education and marital status.

The criteria for patients to be included in this study was to have a problem in controlling anger and/or anger related issues as the chief complaints. The first exclusion criteria was that the patients must have no diagnostic criteria that fully met any specific disorder/syndrome in DSM-five. The second criteria was that participants below the age of 18 years were excluded as the sample was only among adult individuals. Two participants with 15 and 16 years of age were excluded from the study.

*Table 14. Socio-demographic characteristics of participants*

| | | Frequency | Percent |
|---|---|---|---|
| Group | Experimental Group | 17 | 51.5% |
| | Control Group | 16 | 48.5% |
| Gender | Male | 12 | 36.4% |
| | Female | 21 | 63.6% |
| Education | High School Graduate | 9 | 27.3% |
| | Degree Graduate | 12 | 36.4% |
| | Post Graduate | 12 | 36.4% |
| Marital Status | Single | 16 | 48.5% |
| | Married | 13 | 39.4% |
| | Divorced | 4 | 12.1% |

### *3.1- 2 Data collection*

Regarding the collection of data, I tried to find and contact the research center, university institute, or organization that are exclusively active in the area of anger or aggression. Unfortunately, I found no organization to have anger or aggression as a research topic. I only found a small public center called "Center for prevention and control of anger" established in 2014 by the ministry of youth and sport in Tehran. Reported in an interview with the head of the center, the clients were mostly couples referred for their anger issues. They showed interest in cooperating for my research project, however the main obstacle was that "it required approval by the governmental sector".

The successful data collection strategy was: Since most of the Iranian use a social network software called "Telegram", a channel was created that targets a large number of population. Also, an internet page was created to inform about the study and procedure of registration. Most of the participants registered for this research through Telegram channel.

### *3.1- 3 Procedure*

A telegram channel called "anger management with CBT" was created on 30 November 2015 with the following address: https://t.me/angermanagementwithcbt

Announcement in Farsi language [4] was done on 22 December 2015 and a total of 207 people signed as a group member of anger management with CBT (see Figure 16). Around 4743 people viewed the post.

[4] Translation: Greetings. A research study of cognitive-behavioral therapy for controlling anger and aggression will be conducted soon in Tehran. This program is for a period of three-months. Those interested to register, please call the following number on the line or via telegram. Best Regards. Iman Askari.

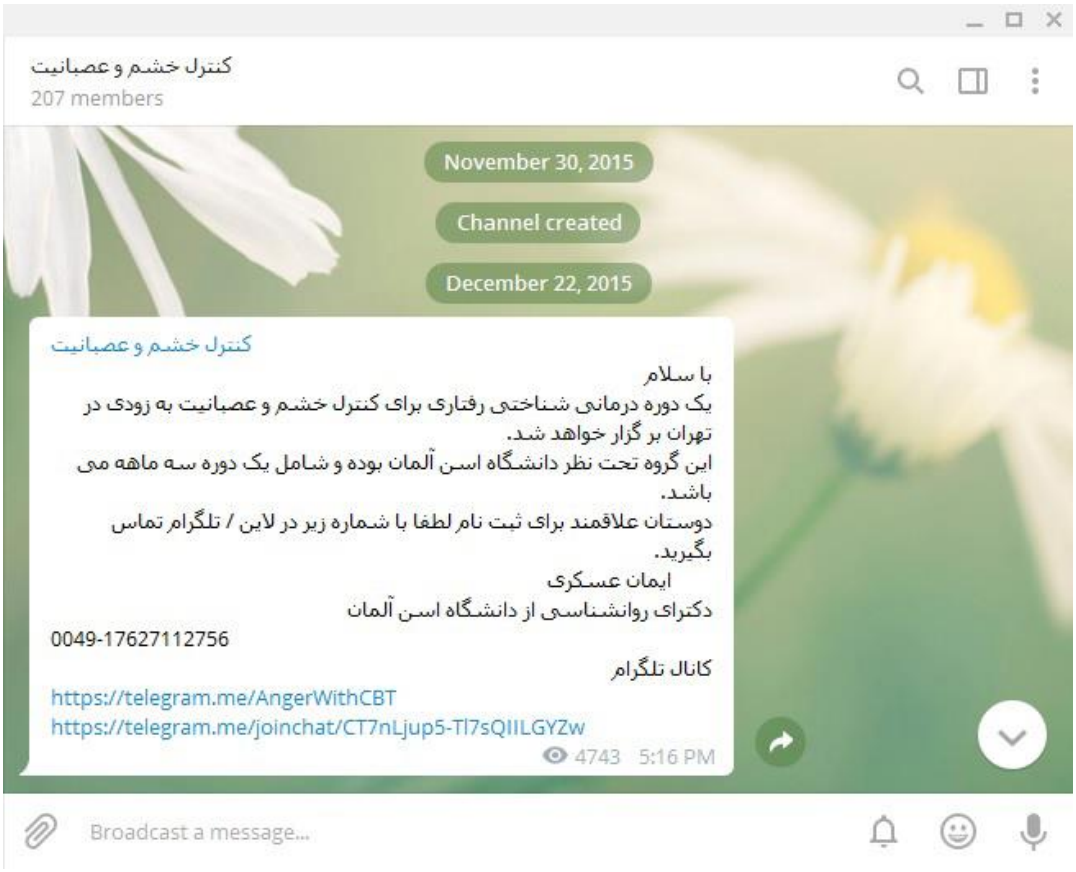


*Figure 16. Telegram software "Anger management with CBT"*

Among 207 members, 49 participants met the preliminary criteria for this study. At first, they were informed about the study, and the primary interview for screening was performed. Majority of the clients (over 80%) stated that they are more interested in individual therapy than group therapy. According to ethical standards, the consent for participation was collected from participants and privacy of collected information was assured to them. In case of meeting the study criteria, they filled out the personal data sheet and four inventories. In total, the measures took approximately 60-70 minutes to complete. Next, participants were randomly assigned using a computer-generated program (SPSS) to either an experimental group or a control group. The experimental group received a 12-week cognitive behavioral intervention program for anger management [5]. The participants of control group received: psychoeducation for relaxation training (one session), muscle relaxation (one session), breathing techniques (one

[5] refer to cognitive behavioral interventions, 1.3

session), autogenic training (one session), brief meditation and mindfulness (one session) [6]. There were 16 clients who dropped out from the study. Three participants from the experimental group and 13 participants from the control group. Last, the participants (n=33) of both group were assessed after the completion of the treatment course in order to measure the effectiveness of the intervention program.

### *3.1- 4 Measures*

Four scales were translated from English to Farsi. They were re-translated from Farsi to English by another expert in order to reassure the reliability and validity of translated version as well as for cultural differences in items. There were few items that had to be translated with higher precision that is mentioned in table 15. The reason for applying the four inventories was to measure anger and aggression from all the current proposed models and understanding its complexity and dimensional structures.

[6] refer to managing physical arousal with relaxation training and meditation, 1.3.7- 4

*Table 15. Items containing cultural phrases and idioms: examples*

| STAXI-2 | |
|---|---|
| 18. I am a hotheaded person | person with quick-tempered nature |
| 21. I fly off the handle | A phrase meaning “losing temper” |
| 33. I pout or sulk | Pout: showing displeasure by thrusting out the lips<br>Sulk: being silent |
| 36. I try to simmer down | to become calm or peaceful. |
| 45. I tend to harbor grudges that I don’t tell anyone about | Harbor grudges: To hold persistent and continual resentment or ill feelings toward someone |
| Novaco anger scale | |
| 7. My muscles feel tight and wound-up | Wound-up: tension |
| 39. A lot of little things bug me | Bug me: annoy me or bother me |
| 47. I feel like I am getting a raw deal out of life | receiving unfair treatment in life |
| Aggression questionnaire | |
| 2. Other people always seem to get the breaks | Others always take the opportunities |
| 3. I flare up quickly but get over it quickly | Flare up: a sudden outburst of something |
| Anger disorder scale: short | |
| 8. When I get upset with people, I push or shove them around | Shove someone around: push someone forcefully |
| 12. I feel bitter and think that I have had more bad breaks than others | Bad break: having bad chances or opportunities |

The following table shows the scales and subscales that are administered for both the experimental and control group before and after the intervention. Same colors indicate the similarity of the subscales.

*Table 16. Comparison of subscales of inventories*

| | | |
|---|---|---|
| **NAS & PI** | **Cognitive** | Justification, Rumination, Hostile attitude, Suspiciousness |
| | **Arousal** | Intensity, Duration, Somatic Tension, Irritability |
| | **Behavior** | Impulsive Reaction, Verbal Aggression, Physical Confrontation, Indirect Expression |
| | **Anger Regulation** | Cognitive Coping, Arousal Calming, Behavioral Control |
| | **Provocation Inventory** | |
| **ADS:S** | **Reactivity /Expression** | Scope of Anger Provocation, Physiological Arousal, Duration of Anger Problems, Rumination, Impulsivity, Coercion, Verbal Expression |
| | **Anger-In** | Hurt/Social Rejection, Episode Length, Resentment, Tense Reduction, Brooding |
| | **Vengeance** | Physical Aggression, Relational Aggression, Passive Aggression, Indirect Aggression, Revenge, |
| **Staxi-2** | **State Anger** | **Feeling Anger, Feel Expressing Anger Verbally, Feel Like Expressing Anger Physically** |
| | **Trait Anger** | **Angry Temperament, Angry Reaction** |
| | **Anger Expression-Out** | |
| | **Anger Expression-In** | |
| | **Anger Control-Out** | |
| | **Anger Control-In** | |
| **Aggression Questionnaire** | **Physical Aggression** | |
| | **Verbal Aggression** | |
| | **Anger** | |
| | **Hostility** | |
| | **Indirect Aggression** | |

*1) State-Trait Anger Expression Inventory–2 (STAXI–2):* Spielberger (1999) developed the STAXI-2 to assess the experience, expression, and control of anger. There were two primary reasons for the development of STAXI-2: 1) to assess components of anger for detailed evaluations of normal and abnormal personality, and 2) to provide a mean of measuring the contributions of various components of anger to the development of medical conditions. There are 57 items with a 4-point scale ("Not at all/Almost never" to "Very much so/Almost Always") that takes approximately 12 to 15 minutes for completion. The psychometric properties included high alpha coefficients for internal reliability for all subscales. Concurrent validity is strongly presented in correlations with two scales of Minnesota Multiphasic Inventory (Hathaway & McKinley, 1967) and Buss-Durkee Hostility Inventory (Buss & Durkee, 1957). STAXI-2 consists of six scales, five subscales, and an Anger Expression Index, which provides an overall measure of expression and control of anger. Scales assess anger as follows Spielberger (1999, p. 1-2):

> State Anger Scale (S-Ang) assesses the intensity of angry feelings and the extent to which a person feels like expressing anger at a particular time. It includes three subscales: *Feeling Angry* (S-Ang/F) measures the intensity of angry feelings the person is currently experiencing (Item 3, "I feel angry"), *Feel Like Expressing Anger Verbally* (S-Ang/V) measures the intensity of current feeling related to the verbal expression of anger (Item 4, "I feel like yelling at somebody"), and *Feel Like Expressing Anger Physically* (S-Ang/P) measures the intensity of current feelings related to the physical expression of anger (Item 8, "I feel like hitting someone").
>
> Trait Anger (T-Ang) scale measures how often angry feelings are experienced over time. It includes two subscales: *Angry Temperament* (T-Ang/T) measures the disposition to experience anger without specific provocation (Item 16, "I am quick

tempered") and *Angry Reaction* (T-Ang/R) measures the frequency that angry feelings are experienced in situations that involve frustration and/or negative evaluations (Item 19, "I get angry when I am slowed down by other's mistake").

Anger Expression and Anger Control have four major components. First component, *Anger Expression-Out* (AX-O) measures how often angry feelings are expressed in verbally or physically aggressive behavior (Item 39, "I make sarcastic remarks to others"). Second one, *Anger Expression-In* (AX-I) measures how often angry feelings are experienced but not expressed/suppressed (Item 41, "I boil inside, but I don't show it"). *Anger control-out* (AC-O), third component, measures how often a person controls the outward expression of angry feelings (Item 54, "I control my angry feelings"). Fourth component, *Anger control-In* (AC-I) measures how often a person attempts to control angry feelings by calming down or cooling off (Item 52, "I do something relaxing to calm down"). *Anger Expression Index* (AX Index), provides a general index of anger expression based on these four components. This index is computed from the following formula:

AX index = (AX-O + AX-I) – (AC-O + AC-I) + 48

*2) Novaco Anger Scale and Provocation Inventory (NAS-PI)* by Novaco (2012) is a well-standardized, research-based, two-part, self-report instrument designed to assess anger as a problem of psychological functioning and physical health and to assess therapeutic change. NAS-PI is composed of two parts: Novaco Anger Scale (60 items), which tells us how an individual experiences anger; and the Provocation Inventory (25 items), which identifies the kind of situations that induce anger in individuals. NAS items assesses the cognitive (e.g., the likelihood of rumination), arousal (e.g., intensity and duration of somatic tension), behavior (e.g., an indirect expression such as smashing objects), anger regulation aspects of anger (e.g.,

cognitive coping and calming down), and a NAS total Score. Provocation Inventory (PI) focus on the kind of situation that leads to anger in five content areas: disrespectful treatment, unfairness, frustration, annoying traits of others, and irritations. The response format for the NAS is a 3-point scale with response option of 1 = never true, 2 = sometimes true, and 3 = Always true. The PI response scale is a rating of the level of anger, ranging from 1 = Not at all angry to 4 = Very angry. The NAS-PI has consistently been found to have good reliability and validity across many different samples. Internal reliability estimates were 0.94 for NAS Total score and 0.95 for the PI total score. Validity work has demonstrated that NAS-PI scores have a strong correlation with other measures of anger and hostility. The followings are the description of NAS-PI subscales (Novaco, 2012, p. 13-19):

> NAS Total Score. It is the general inclination of anger reactions, based on cognitive, arousal, and behavior subscales. High score shows difficulty in some areas of anger regulation that can be clarified by examining subscales scores.
>
> Cognitive (COG) fall into the following categories: Justification (Item 16, "I get angry because I have a good reason to be angry"), rumination (Item 17, "Once something makes me angry, I keep thinking about it"), hostile attitude (Item 33, "If someone cheats me, I'd make them feel sorry"), and suspiciousness (Item 49, "When someone does something nice for me, I wonder about the hidden reason").
>
> Arousal (ARO) is marked by physiological activation in the cardiovascular, endocrine, and limbic systems as well as other autonomic and central nervous system, and by skeletal muscular tension. It focusses on the physical experience of the anger response and contains following: intensity (Item 36, "when I get angry, I feel like smashing things"), duration (Item 8, when I get angry, I stay angry for hours"),

somatic tension (Item 53, “my head aches when people annoy me”), and irritability (Item 24, “I get annoyed when someone interrupts me”).

Behavior (BEH) subscale ask about behaviors that are problematic or indicate a risk of violence, including impulsive reaction (Item 26, “If someone bothers me, I react first and think later”), verbal aggression (Item 27, “If I don’t like somebody, I tell them off”), physical confrontation (Item 43, “If somebody hit me first, I hit them back”), and indirect expression (Item 29, “When I get angry, I throw or slam things”).

Anger regulation (REG). A central characteristic of problematic anger is loss of regulatory control. A person’s capacity to regulate the frequency, intensity, duration and the expression of anger is reflective of self-control and personal efficacy. High scores indicate the endorsement of effective anger regulation skills. It contains following categories: cognitive coping (Item 5, “When something makes me angry, I put it out of my mind and think of something else”), arousal calming (Item 10, “If I feel myself getting angry, I can calm myself down”), and behavioral control (Item 60, “I can walk away from an argument”).

Provocation inventory total score (PI). It is intended to provide an index of anger intensity and generality across a range of provocations. It is different from the NAS in that it asks about anger in specific situations rather than focusing on an individual’s personal disposition toward anger. Respondents are asked to rate how angry each situation would make them. A reflection of five content areas: disrespectful treatment (Item 13, “Someone makes fun of clothes you are wearing”), unfairness (Item 11, “Someone else gets credit for the work that you did”), frustration (Item 20, “You lend something to someone, and they fail to return it”), annoying traits of others (Item 16,

"People who think that they are always right"), and irritations (Item 5, "Being slowed down by another person's mistakes").

*3) Anger Disorder Scale: Short (ADS:S)* developed by DiGiuseppe and Tafrate (2010) is an 18-item self-report measure designed to identify clinically dysfunctional anger in individuals aged 18 years or older. ADS:S scores are measured in a five-point Likert scale and it take approximately 5-10 minutes to complete. The ADS:S provides a total score and three factors scores that correspond to the higher order factor scores: Reactivity/Expression, Anger-In, and vengeance. The ADS possess good psychometric characteristics that were assessed using internal consistency (Cronbach's Alpha ranged from 0.97 to 0.98 for the ADS total score) and test-retest for reliability and strong correlational studies with STAXI-2 (Spielberger, 1999), Aggression questionnaire (Buss & Warren, 2000), and MCMI-III (Millon & Davis, 1997) for validity. The followings are three higher order factor scores (DiGiuseppe & Tafrate, 2010):

*Reactivity/Expression*: scope of anger provocations, physiological arousal, duration of anger problem, rumination, impulsivity, coercion (intent to control others) and verbal expression. For example, item 3, "I use my anger to control others".

*Anger-In*: hurt/social rejection, episode length, suspiciousness, resentment, tension reduction, and brooding (Item 9, "I get angry if someone makes me look bad in front of others").

*Vengeance*: revenge, physical aggression, passive aggression, relational aggression, and indirect aggression (Item 16, "When I get angry with someone, I have tried to find ways to make that person fail without knowing that I did it").

*4) Aggression Questionnaire* (Buss & Warren, 2000): AQ is a unique measure of aggression, consisting of 34 items on five scales, scored along a five-point Likert scale from 1 = "Not at all like me" to 5 = "Completely like me". It is a full revision of the Buss-Durkee Hostility

Inventory (Buss & Durkee, 1957) that consist of AQ Total score, and five subscales: Physical aggression (PHY), Verbal aggression (VER), Anger (ANG), Hostility (HOS), and Indirect aggression (IND). The AQ reliability of instruments was measured through the internal consistency estimates 0.94 for AQ total score as well as test-retest reliability for two studies showed correlation ranges from 0.80 to 0.85 for AQ total score that demonstrates acceptable stability for the AQ scores. The predictive validity of AQ scores with regard to the potential for violence in clinical settings is promising. The AQ scores were reported to have a high positive relationship with Novaco Anger Scale (Novaco, 2012), Attitudes towards guns and violence (Shapiro, 2000) and Children's Inventory of Anger (Nelson & Finch, 2000). Following are the interpretation of AQ total score and subscales (Buss & Warren, 2000, p. 13)

> AQ total score is based on all 34 items and measures the general level of anger and aggression of the individual. When the AQ total score is high, it is important to examine the individual subscales scores and other concurrently available information in order to understand what kind of experience the individual has reported.
>
> Physical aggression (PHY) focus on the use of physical force when expressing anger or aggression, e.g., item 17 "I have become so mad that I have broken things". High score shows the lack of ability to control urges towards physical aggression.
>
> Verbal aggression (VER) pertains to quarrelsome and hostile speech. People with high scores are more argumentative, e.g., item 26 "I tell my friends openly when I disagree with them".
>
> Anger (ANG) relates to arousal and sense of control, e.g., item 12 "I have trouble controlling my temper". People with High ANG scores usually have more irritability, frustration, emotional lability and temperamental gesturing than most people.

Hostility (HOS) is associated with pervasive social maladjustment, as well as severe psychopathology and even physical illness. It represents attitudes of bitterness, social alienation, and paranoia e.g., item 16 “I wonder what people want when they are nice to me”.

Indirect aggression (IND) measures the tendency to express anger in actions that avoid direct confrontation, for example, item 30 “When someone really irritates me, I might give him or her the silent treatment”. Individuals with elevated IND experience high levels of chronic frustration in some areas of their lives.

### *3.1- 5 Research design*

Research hypothesis should be proved in a scientific environment. Theories should be repeatable to be considered reliable. A randomized controlled trial (RCT) was used to test the hypothesis in the present study. RCT is an evaluation design that includes the establishment of an experimental and a control group by random assignment of subjects from the study population with pretest and post-test measures in both groups. In spite of the ongoing debate on the criteria of judging evidence, the most acceptable evidence-based research is still the RCT. Recently Lilienfeld, McKay, and Hollon (2018) stated that randomized controlled trials of psychological treatments are still essential. RCTs are advantageous because they have high internal validity and they ensure that the participants’ responses are unbiased estimates of the average responses of the whole population.

### *3.1- 6 Statistics*

Statistical analyses were carried out using SPSS, version 20. Analysis of data was undertaken using repeated measure analysis of variance for testing differences between and within groups.

## 3.2 Results

### *3.2-1 State-trait anger expression*

Table 17 shows the results of repeated measure ANOVA for state-trait anger expression inventory–2 (STAXI–2). State anger scale (S-Ang) was excluded from the results since it assesses the intensity of angry feelings at the time of filling the inventory.

Trait anger is measured from the sum of two subscales of angry temperament and angry reaction. There was a significant reduction in all the three subscales, however, only trait anger and angry temperament had a significant result. The mean of trait anger in the experimental group reduced from 22.82 to 15.76 with an effect size of 0.173. During the intervention, clients were taught about their hypersensitivity as well as their temperament. The focus was to make individuals able to manage their anger when there are only little provocations. They learn about the alternative reaction when they are criticized, receive negative feedback, or believe they are being treated badly. They also acquire the skills to re-evaluate whether the criticism or the events were real, unintended, or maybe just imagined by themselves (Spielberger, 1999).

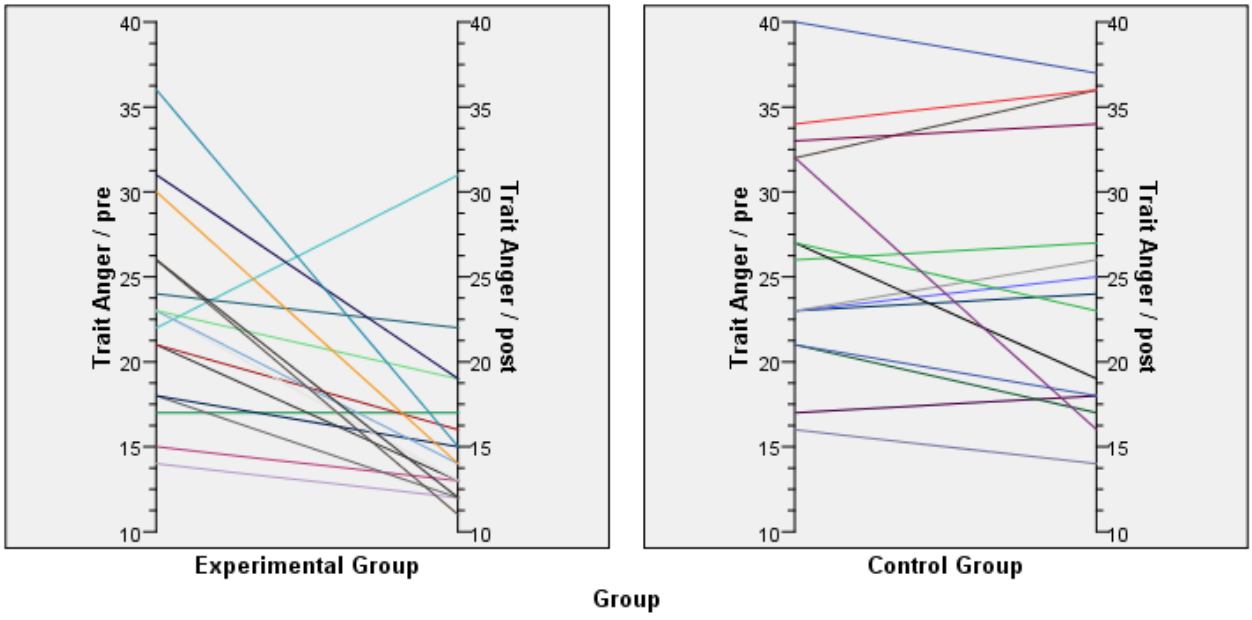


*Figure 17. Parallel comparison of trait anger in experimental and control group*

Color guide: Every color represents a participant

The scale further measures anger expression and anger control. Each of the scales has two parts: Anger expression-in and anger expression out, anger control-in and anger control-out. There was a significant reduction $F(1,31) = 5.51$, $p<0.05$ in the experimental group with regard to the level of anger expression out. Anger expression-out scale describes the extent of expressing the emotional experience of anger in an outwardly negative and poorly controlled manner (Spielberger, 1999). The intervention focused on teaching clients to express anger in a healthy way rather than an expression of verbally or physically aggressive behavior. They were taught to avoid the expression of hostile or aggressive actions (e.g., assaulting other people, destroying objects, and making rude gestures), or the verbal anger (e.g., insults, the use of foul language, and shouting) (Spielberger, 1999).

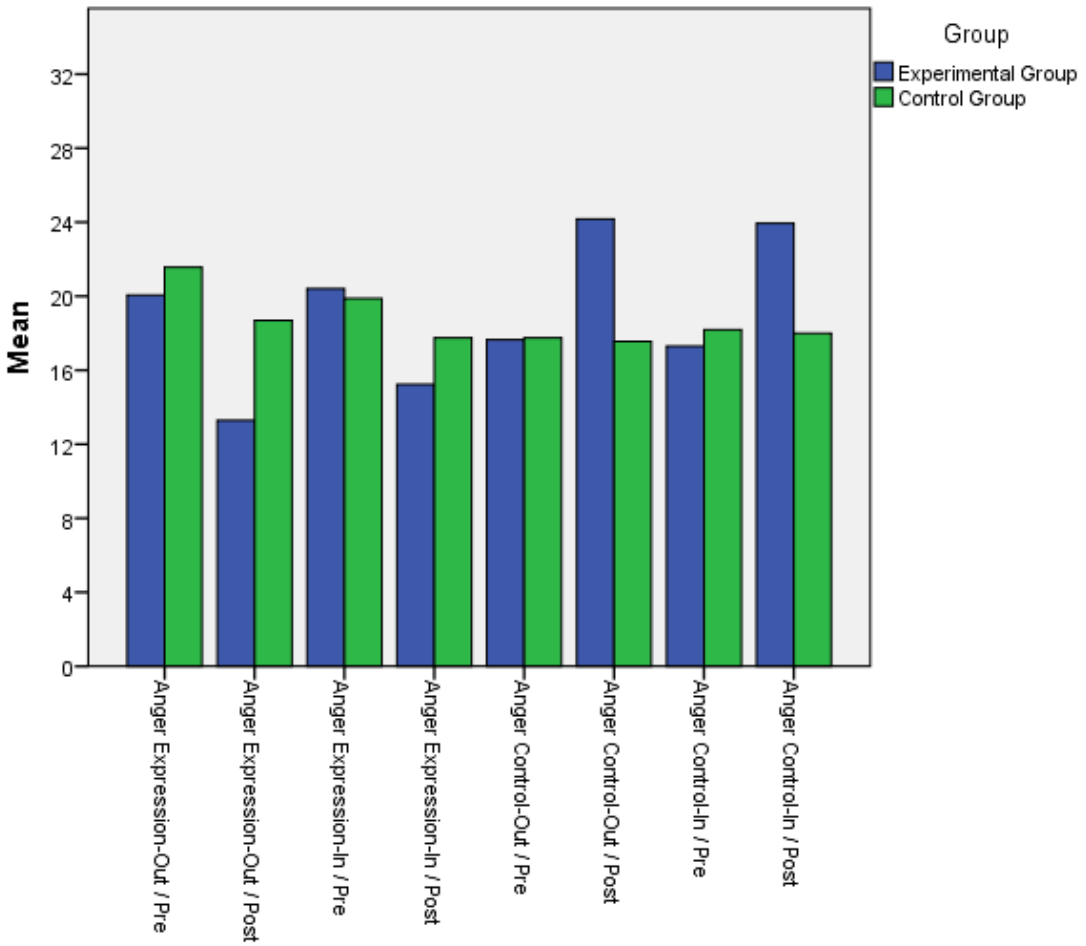


*Figure 18. Pre-post means for anger expression (In and out) and anger control (In and out)*

On the other hand, there was no significant result in anger expression-in (AX-I). One reason could be that most of the participants had anger problems that are mostly expressed out in an unhealthy and aggressive way. AX-I measures how often angry feelings are experienced but not expressed or suppressed (Spielberger, 1999). In some situations, if the experience of anger is unpleasant enough, the angry feelings are suppressed and replaced with guilt and, ultimately, with feelings of anxiety and depression as the person blames themselves for the problems. Hence, these clients refer for depression and anxiety and not for the treatment of anger (Spielberger, 1999). Clients with suppressed anger are encouraged to get in touch with their feelings and don't suppress their angry feelings, rather express them in a healthy, constructive way. They neither have to blame themselves nor blame the other person (blame deactivation), rather try to find solutions in the future for similar events and learn from the past mistakes.

Anger control-out (AC-O) measures the individual's level of control. Clients with anger problem usually score low in this scale. There was a significant increase ($P<0.01$) in the experimental group, however, the control group had no changes. In the intervention, client learn how to control the physical or verbal expressions of anger. There are possibilities that some resistant clients falsely claim to have good control over their anger and would score high in anger control scale. Anger control-in (AC-I) measures how often the client attempts to relax, calm down, and reduce angry feelings before they get out of control. The results indicate an increase in this scale, meaning that individuals were more able to remain calm, relaxed, tolerant and understanding at the end of the intervention program. There is a caution during the interpretation of inventory, as there are some angry clients who over-control their emotion and score very high in anger control. They usually suppress their emotion in an overly controlled way and sometimes act in a passive-aggressive manner or might explode with a little provocation (Spielberger, 1999).

Anger expression index is an overall estimate of the person's tendencies to express anger either outwardly toward other people, or inwardly toward self. There was a significant reduction in anger expression index $F(1, 31) = 16.378$, $p<0.001$, $\eta^2 = .346$. The results of anger expression index should be interpreted carefully. The individuals with high score experience intense angry feelings which may be suppressed or expressed in aggressive behavior, or both. Persons with a high score are more at risk of developing medical disorders and are likely to have difficulties in interpersonal relationships (Spielberger, 1999).

*Table 17. Mean, SD, and repeated measure ANOVA for State-Trait Anger Expression Inventory–2*

| Descriptive | | | | | F (1, 31) | p | $\eta^2$ |
|---|---|---|---|---|---|---|---|
| | | Group | Mean | SD | | | |
| Angry Temperament | Pre | Experimental Group | 9.47 | 3.223 | 5.621 | .024 | .153 |
| | | Control Group | 11.13 | 3.403 | | | |
| | Post | Experimental Group | 6.65 | 2.621 | | | |
| | | Control Group | 10.56 | 3.915 | | | |
| Angry Reaction | Pre | Experimental Group | 9.76 | 2.990 | 2.477 | .126 | .074 |
| | | Control Group | 10.00 | 3.596 | | | |
| | Post | Experimental Group | 6.82 | 2.856 | | | |
| | | Control Group | 9.19 | 2.903 | | | |
| Trait Anger | Pre | Experimental Group | 22.82 | 5.812 | 6.499 | .016 | .173 |
| | | Control Group | 25.75 | 6.933 | | | |
| | | Total | 24.24 | 6.452 | | | |
| | Post | Experimental Group | 15.76 | 4.931 | | | |
| | | Control Group | 24.25 | 7.819 | | | |
| | | Total | 19.88 | 7.705 | | | |
| Anger Expression-Out | Pre | Experimental Group | 20.06 | 5.618 | 5.516 | .025 | .151 |
| | | Control Group | 21.56 | 4.501 | | | |
| | Post | Experimental Group | 13.29 | 3.255 | | | |
| | | Control Group | 18.69 | 5.677 | | | |
| Anger Expression-In | Pre | Experimental Group | 20.41 | 4.345 | 3.322 | .078 | .097 |
| | | Control Group | 19.88 | 5.365 | | | |
| | Post | Experimental Group | 15.24 | 3.683 | | | |
| | | Control Group | 17.75 | 4.669 | | | |
| Anger Control-Out | Pre | Experimental Group | 17.65 | 5.477 | 13.648 | .001 | .306 |
| | | Control Group | 17.75 | 4.450 | | | |
| | Post | Experimental Group | 24.18 | 4.707 | | | |
| | | Control Group | 17.56 | 4.115 | | | |
| Anger Control-In | Pre | Experimental Group | 17.29 | 3.949 | 13.376 | .001 | .301 |
| | | Control Group | 18.19 | 5.049 | | | |
| | Post | Experimental Group | 23.94 | 3.665 | | | |
| | | Control Group | 18.00 | 5.645 | | | |
| Anger Expression Index | Pre | Experimental Group | 53.53 | 14.483 | 16.378 | .000 | .346 |
| | | Control Group | 53.50 | 13.456 | | | |
| | | Total | 53.52 | 13.775 | | | |
| | Post | Experimental Group | 28.41 | 8.959 | | | |
| | | Control Group | 48.88 | 14.904 | | | |
| | | Total | 38.33 | 15.878 | | | |

### *3.2-2 Cognitive, arousal, behavioral and regulation*

In table 18, results are shown for mean, SD and repeated measures ANOVA for Novaco anger scale (NAS) and four subscales of cognitive, arousal, behavioral and regulation.

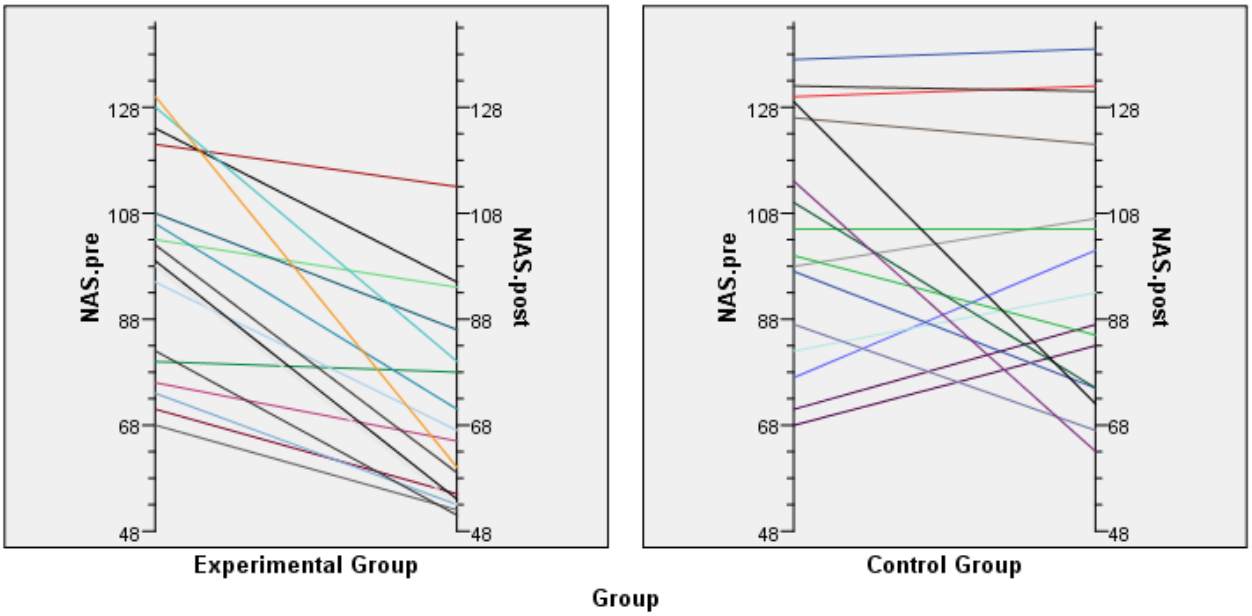


*Figure 19. Parallel comparison of NAS total score in experimental and control group*

Color guide: Every color represents a participant

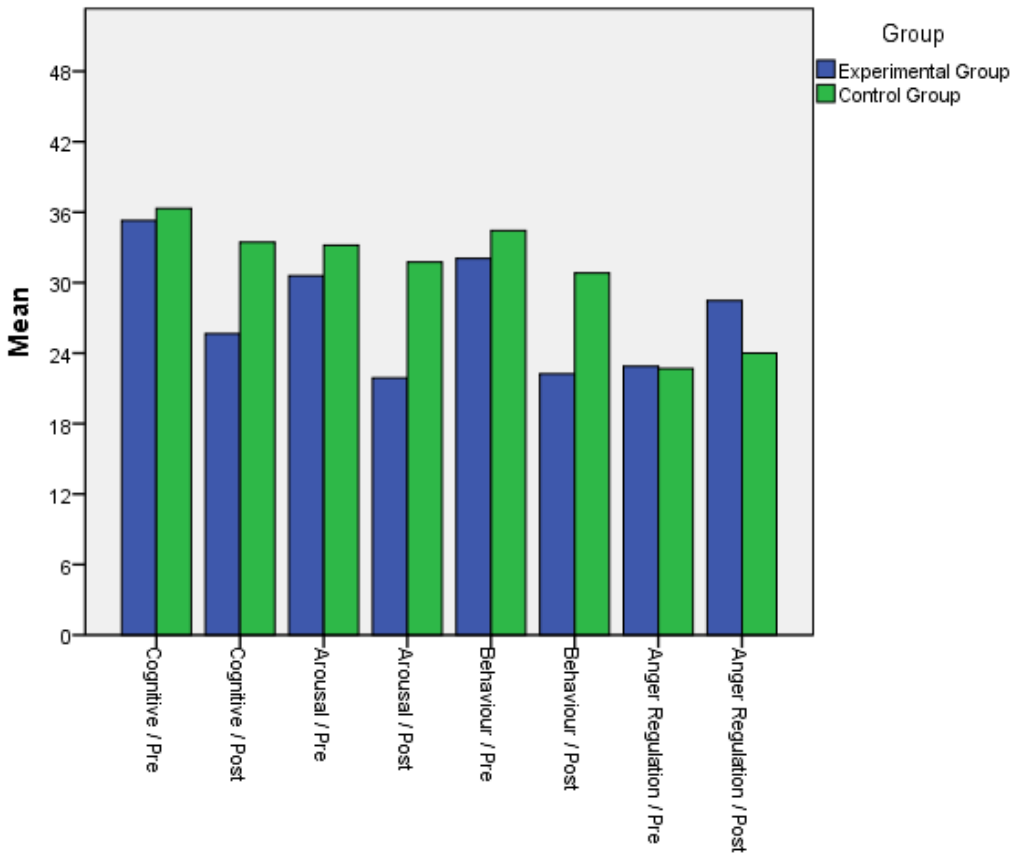


*Figure 20. Pre-post means for cognitive, arousal and behavioural subscale of NAS*

Cognitive level in the experimental group reduced from 35.29 (SD=7.89) to 25.6 (SD=7.15) with 0.203 effect size. The cognitive scale has four components: justification (blaming others), rumination (prolonged, intensified thinking about provocation), hostile attitude (over-generalized antagonistic appraisal of others), and suspiciousness.

Subscales in the Arousal scale focus on intensity, duration of anger, somatic tension, and irritability. The ultimate key for arousal is relaxation. In this study, both experimental group and control group received relaxation techniques. Clients learned how to rate the intensity of their anger on a scale of 0 to 100 and tried to reduce it to the level of 20 or 30. They further observed the duration of lasting anger to reduce it as much as they can. “Somatic tension can be avoided with continuous meditation and muscle relaxation techniques” (Novaco, 2012). Relaxation and breathing techniques reduced the arousal level of anger in both groups, however, the mean scores showed better results in the experimental group.

The mean of behavioral scale reduced in both groups $F(1, 31) = 6.43$, $p = .016$, $\eta^2 = .172$. Subscales in the behavioral domain examine the tendency to respond impulsively, verbal aggression, physical retaliation, and indirect aggression (Novaco, 1994). To tackle the tendency of responding impulsively (Novaco, 2012) clients are encouraged to, before doing any impulsive action, take as much time as required to cool down during angry episodes. Verbal aggression is viewed as a conflict escalator as well as an obstacle for solving problems.

Individuals with frequent anger are not able to control their emotion and behavior. Anger regulation measures the level of control. The goal was to achieve a higher score at the end of the intervention. It is similar to “anger control-in/out” from STAXI-2. The result is significant only at the $p<0.05$ level. Both the experimental group and control group had an increase in their level of anger regulation.

NAS total score is the sum of cognitive, arousal and behavioral subscales. Overall, the significant result F (1,31) = 7.70, p<0.01, $\eta^2$ = .199 shows that intervention was effective in domain of cognitive, arousal and behavioral.

*Table 18. Mean, SD, and repeated measures ANOVA for Novaco Anger Scale*

| **Descriptive Statistics** | | | | | F (1, 31) | p | $\eta^2$ |
|---|---|---|---|---|---|---|---|
| Group | | | Mean | SD | | | |
| Cognitive | Pre | Experimental Group | 35.29 | 7.896 | 7.909 | .008 | .203 |
| | | Control Group | 36.31 | 7.134 | | | |
| | | Total | 35.79 | 7.436 | | | |
| | Post | Experimental Group | 25.65 | 7.158 | | | |
| | | Control Group | 33.44 | 7.694 | | | |
| | | Total | 29.42 | 8.307 | | | |
| Arousal | Pre | Experimental Group | 30.59 | 7.559 | 5.221 | .029 | .144 |
| | | Control Group | 33.19 | 9.368 | | | |
| | | Total | 31.85 | 8.453 | | | |
| | Post | Experimental Group | 21.88 | 5.487 | | | |
| | | Control Group | 31.75 | 8.637 | | | |
| | | Total | 26.67 | 8.666 | | | |
| Behavior | Pre | Experimental Group | 32.06 | 7.941 | 6.432 | .016 | .172 |
| | | Control Group | 34.44 | 8.571 | | | |
| | | Total | 33.21 | 8.211 | | | |
| | Post | Experimental Group | 22.24 | 6.685 | | | |
| | | Control Group | 30.81 | 9.867 | | | |
| | | Total | 26.39 | 9.324 | | | |
| Anger Regulation | Pre | Experimental Group | 22.88 | 4.314 | 4.459 | .043 | .126 |
| | | Control Group | 22.69 | 4.238 | | | |
| | | Total | 22.79 | 4.211 | | | |
| | Post | Experimental Group | 28.47 | 4.502 | | | |
| | | Control Group | 24.00 | 5.279 | | | |
| | | Total | 26.30 | 5.324 | | | |
| NAS Total | Pre | Experimental Group | 97.94 | 20.330 | 7.700 | .009 | .199 |
| | | Control Group | 103.93 | 22.778 | | | |
| | | Total | 100.84 | 21.427 | | | |
| | Post | Experimental Group | 69.76 | 18.488 | | | |
| | | Control Group | 96.00 | 24.481 | | | |
| | | Total | 82.48 | 25.082 | | | |

### *3.2-3 Three higher order factors*

Table 19 displays the result of anger disorder scale: short version. Three higher-order factors of Reactivity/expression, Anger-In, and Vengeance were categorized through factor analysis. The ADS total is the sum of three higher-order factors. High score shows severe anger pathology that influences most or all areas of life. DiGiuseppe and Tafrate (2010) recommend clinicians to evaluate high score clients for Axis I and II disorders, as several disorders are likely to be comorbid in this group (Substance-related disorders, depression, anxiety, and borderline personality disorders are among most common). As expected, the mean score of ADS total dropped down in the experimental group from 47.41 (SD= 8.85) to 31.94 (SD= 8.40).

Reactivity/Expression decreased in the experimental group with an effect size of $\eta^2 = 0.199$. It consists of items from the scope of anger provocation, physiological arousal, duration, rumination, impulsivity, coercion, and verbal expression. Since the reactivity/expression has only one item from each of the above subscales, the scores should be carefully interpreted. If we compare the subscale of reactivity/expression with subscales of Novaco anger scale, we can see that physiological arousal and duration falls into arousal subscale of NAS, rumination in cognitive subscale and verbal expression in behavioral subscale. In other words, reactivity/expression includes cognitive, arousal and behavioral dimensions of anger. Interpretation of reactivity/expression scale is also dependent on another score. For example, if both anger-In and reactivity/expression are high, the respondent is likely to express their anger after long periods of holding in their anger (DiGiuseppe & Tafrate, 2010).

The second higher order factors, anger-In, is a composite of subscales of hurt/social rejection, episodes length, suspiciousness, resentment, tension reduction and brooding. Anger-In reduced in the experimental group, however, the size effect is not so strong ($\eta^2 = 0.134$).

In the same way, vengeance also dropped in the experimental group, but results are not strongly significant p= 0.046. Vengeance has four items for aggression (physical, relational, passive, and indirect), and one item for revenge.

*Table 19. Mean, SD, and repeated measure ANOVA for Anger Disorder Scale: Short*

| Descriptive | | | | | F (1, 31) | p | $\eta^2$ |
|---|---|---|---|---|---|---|---|
| Group | | | Mean | SD | | | |
| Reactivity/ Expression | Pre | Experimental Group | 18.35 | 4.485 | 7.702 | .009 | .199 |
| | | Control Group | 22.88 | 6.908 | | | |
| | | Total | 20.55 | 6.139 | | | |
| | Post | Experimental Group | 11.82 | 3.206 | | | |
| | | Control Group | 21.44 | 7.589 | | | |
| | | Total | 16.48 | 7.480 | | | |
| Anger-In | Pre | Experimental Group | 18.24 | 3.492 | 4.784 | .036 | .134 |
| | | Control Group | 19.88 | 4.530 | | | |
| | | Total | 19.03 | 4.050 | | | |
| | Post | Experimental Group | 13.12 | 5.243 | | | |
| | | Control Group | 18.25 | 4.879 | | | |
| | | Total | 15.61 | 5.629 | | | |
| Vengeance | Pre | Experimental Group | 10.82 | 3.812 | 4.331 | .046 | .123 |
| | | Control Group | 12.94 | 6.836 | | | |
| | | Total | 11.85 | 5.506 | | | |
| | Post | Experimental Group | 7.00 | 2.449 | | | |
| | | Control Group | 12.00 | 6.986 | | | |
| | | Total | 9.42 | 5.685 | | | |
| ADS Total | Pre | Experimental Group | 47.41 | 8.853 | 6.724 | .014 | .178 |
| | | Control Group | 55.69 | 17.106 | | | |
| | | Total | 51.42 | 13.928 | | | |
| | Post | Experimental Group | 31.94 | 8.400 | | | |
| | | Control Group | 51.69 | 18.202 | | | |
| | | Total | 41.52 | 17.059 | | | |

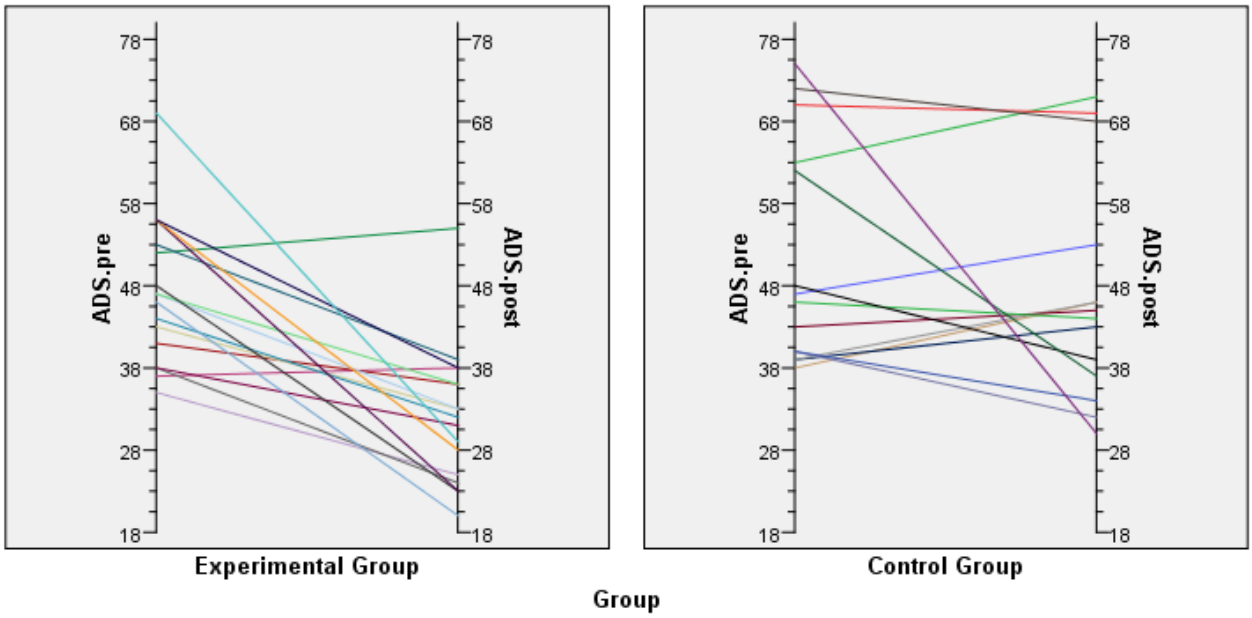


*Figure 21. Parallel comparison of ADS total score*

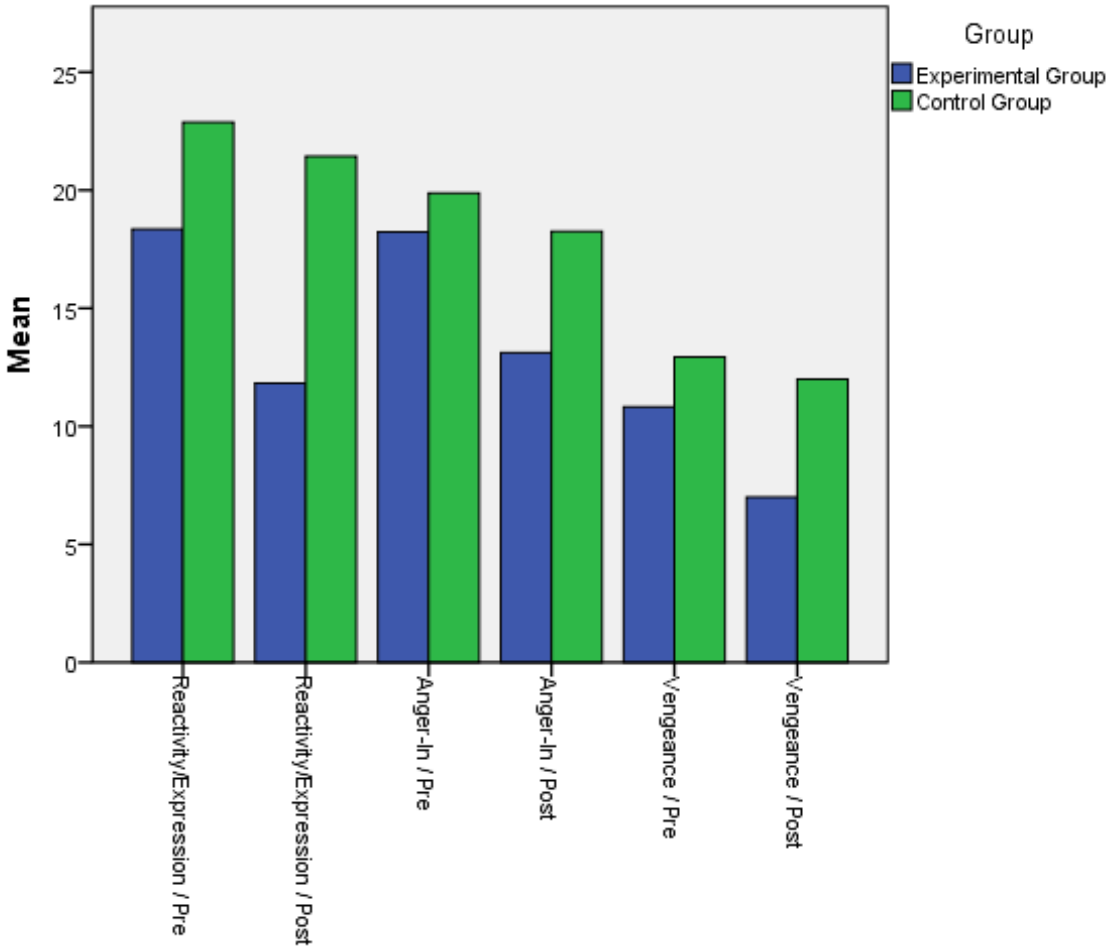


*Figure 22. Pre-post means for ADS subscales*

### *3.2-4 Aggression*

Aggression is measured in all the above inventories as the behavioral dimension of anger. However, aggression questionnaire (AQ) is designed exclusively to measure aggressive behaviors. Overall, AQ total shows that aggressive behaviors decreased in both experimental and control group with very small effect size $\eta^2 = 0.127$ (see Table 20). One possible reason could be that the intervention mainly targeted the beliefs that were related to aggression, but the development of alternative constructive behavior was not emphasized.

Besides, physical aggression, anger, and indirect aggression had no significant results. Verbal aggression had significant result $F(1,31) = 5.47$, $p=0.026$, $\eta^2 = 0.150$. Intervention comprises teaching clients how to monitor their behavior. The verbal aggression usually occurs during anger episodes. The clients needed to focus on their tone, loudness, appropriate using of words, avoiding insults, avoiding sarcastic and disrespecting words along with other verbal and non-verbal communication skills. It is also necessary for clients to learn about the other types of aggression (physical, passive, indirect, relational) and understand why they are destructive in relationship with others as well as to themselves. It wondered many clients when they found out that practical jokes could be seen as indirect aggressive behavior.

Hostility subscale is most closely associated with pervasive social maladjustment consisting of items related to attitudes of bitterness, social alienation, and paranoia (Buss & Warren, 2000). In this study, the result of hostility is not significant ($p= 0.048$), indicating that intervention was not effective in reducing the hostility construction of Buss and Warren (2000).

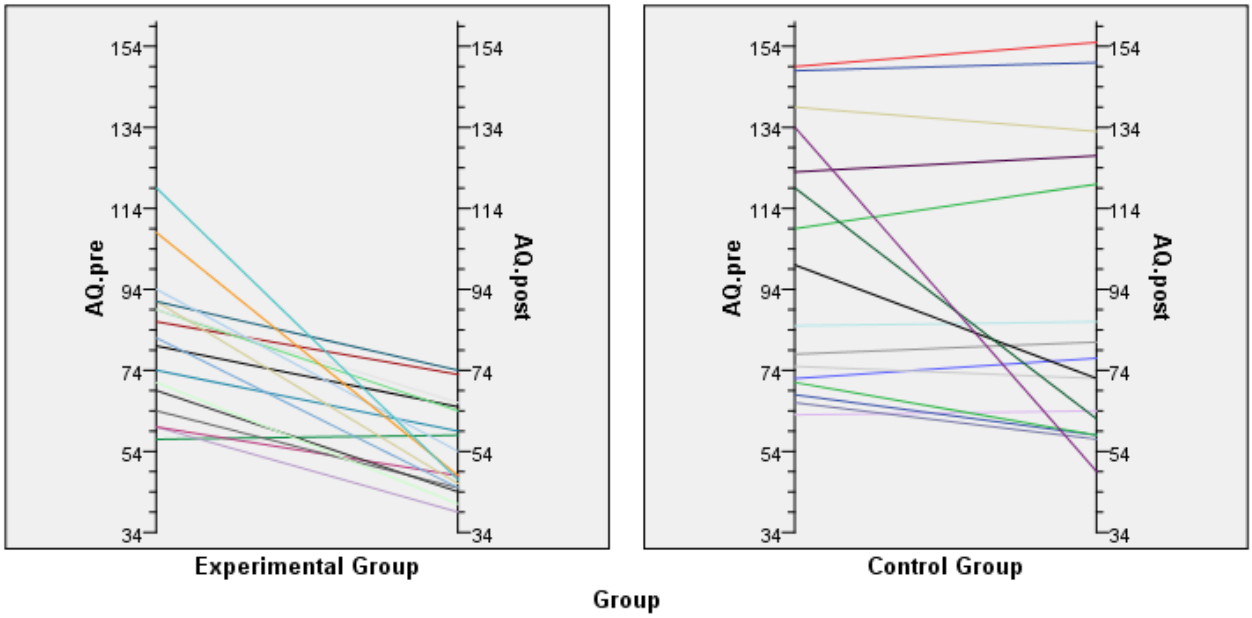


*Figure 23. Parallel comparison of Aggression total score*

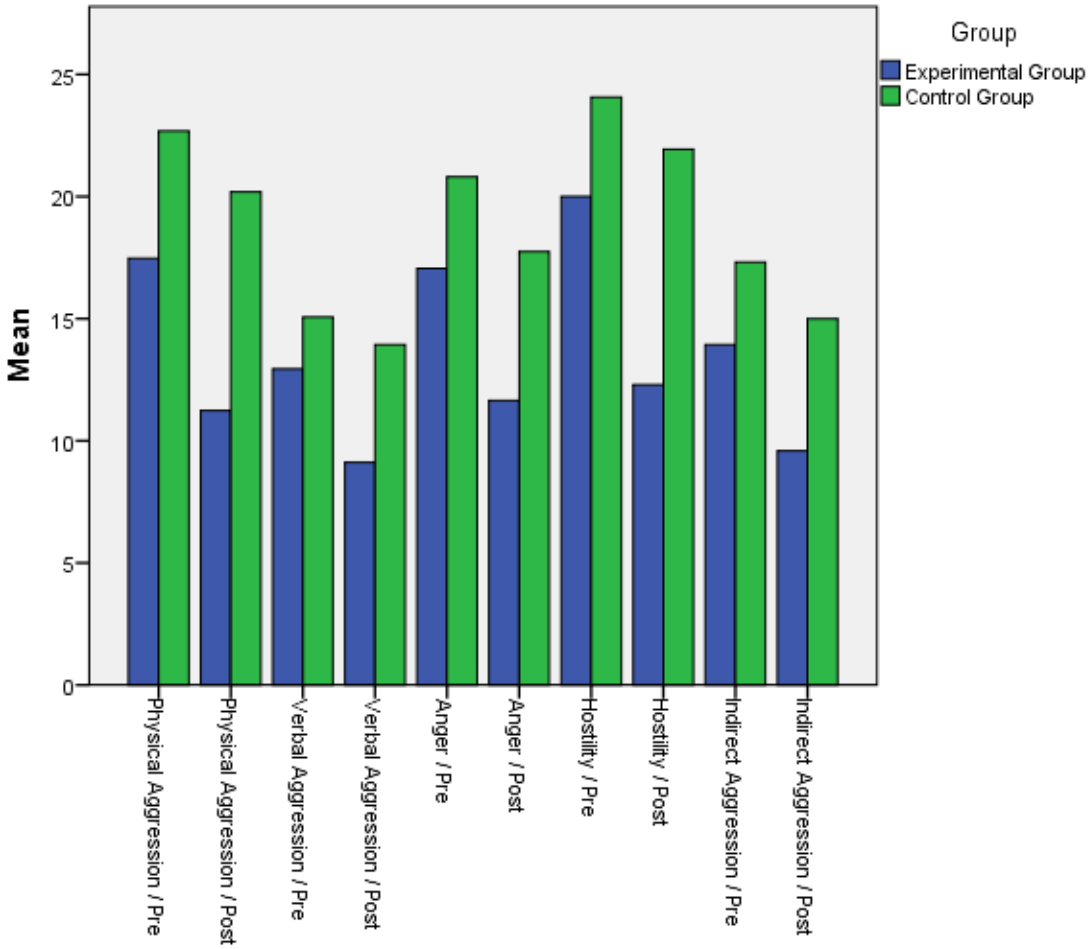


*Figure 24. Pre-post means for AQ subscales*

*Table 20. Mean, SD, and repeated measure ANOVA for Aggression questionnaire*

| Descriptive | | | | | F (1, 31) | p | $\eta^2$ |
|---|---|---|---|---|---|---|---|
| Group | | | Mean | SD | | | |
| Physical Aggression | Pre | Experimental Group | 17.47 | 6.875 | 2.313 | .138 | .069 |
| | | Control Group | 22.69 | 11.717 | | | |
| | | Total | 20.00 | 9.747 | | | |
| | Post | Experimental Group | 11.24 | 3.437 | | | |
| | | Control Group | 20.19 | 12.172 | | | |
| | | Total | 15.58 | 9.798 | | | |
| Verbal Aggression | Pre | Experimental Group | 12.94 | 3.132 | 5.469 | .026 | .150 |
| | | Control Group | 15.06 | 5.000 | | | |
| | | Total | 13.97 | 4.217 | | | |
| | Post | Experimental Group | 9.12 | 2.446 | | | |
| | | Control Group | 13.94 | 5.092 | | | |
| | | Total | 11.45 | 4.597 | | | |
| Anger | Pre | Experimental Group | 17.06 | 3.682 | 2.235 | .145 | .067 |
| | | Control Group | 20.81 | 5.504 | | | |
| | | Total | 18.88 | 4.961 | | | |
| | Post | Experimental Group | 11.65 | 2.422 | | | |
| | | Control Group | 17.75 | 5.802 | | | |
| | | Total | 14.61 | 5.321 | | | |
| Hostility | Pre | Experimental Group | 20.00 | 4.975 | 4.257 | .048 | .121 |
| | | Control Group | 24.06 | 8.418 | | | |
| | | Total | 21.97 | 7.060 | | | |
| | Post | Experimental Group | 12.29 | 3.255 | | | |
| | | Control Group | 21.94 | 9.567 | | | |
| | | Total | 16.97 | 8.494 | | | |
| Indirect Aggression | Pre | Experimental Group | 13.94 | 3.491 | 2.347 | .136 | .070 |
| | | Control Group | 17.31 | 4.542 | | | |
| | | Total | 15.58 | 4.323 | | | |
| | Post | Experimental Group | 9.59 | 1.839 | | | |
| | | Control Group | 15.00 | 5.292 | | | |
| | | Total | 12.21 | 4.729 | | | |
| AQ Total | Pre | Experimental Group | 81.41 | 17.201 | 4.490 | .042 | .127 |
| | | Control Group | 99.94 | 31.476 | | | |
| | | Total | 90.39 | 26.472 | | | |
| | Post | Experimental Group | 53.88 | 11.202 | | | |
| | | Control Group | 88.81 | 35.695 | | | |
| | | Total | 70.82 | 31.213 | | | |

### 3.3 Discussion

Findings of the present study provide empirical support for the multidimensional beliefs system model. Both of the hypotheses are accepted, in which targeting and changing irrational beliefs with cognitive, emotive and behavioral techniques of CBT help to reduce anger episodes. I introduced the beliefs system model in the introduction, therefore, I discuss the results from domain aspect.

There was a significant decrease in the cognitive domain of anger that are measured in Anger disorder scale (mixed in reactivity/expression and anger/in), and Novaco anger scale (suspicion, hostile attitude, rumination, impulsive, attention focus). STAXI-2 fails to include any scale in cognitive domain. The cognitive techniques targeting suspicion, rumination, and impulsivity helped in reduction of the cognitive domain in NAS and ADS:S.

Similarly, there was a reduction in physiological domain of anger. Relaxation training (muscle relaxation, breathing techniques, meditation) was conducted in both groups. Although the relaxation was mainly focused on group control, but the result shows that the experimental group had more improvement in reducing physiological arousal. The subscales related to arousal domain are: Physiological arousal, duration, episode length (in ADS:S); somatic tension, duration, intensity, irritability (in NAS); trait anger (in STAXI-2); and anger (in AQ). One possible explanation could be related to the domain approach. For example, trait anger and anger subscale (AQ) are considered in arousal domain, although, they do not contain a statement regarding somatic tension or physiological arousal, rather some statement related to temperament (AQ item no. 12 & 32). Thus, considering them in the arousal domain could be misleading.

Most agreed upon domain in the four inventories is the behavior. It is measured in vengeance scale in ADS:S (revenge, physical aggression, indirect aggression, passive aggression,

relational aggression), behavior scale in NAS (indirect anger, physical confrontation, verbal aggression), anger-in, anger out in STAXI-2, and physical, verbal, and indirect aggression in AQ. The subscales of physical, verbal, and indirect aggression are common among them. The significant decrease in aggression was only noticeable in Novaco anger scale. Scale of vengeance (ADS:S), physical aggression (AQ), indirect aggression (AQ), and anger in (STAXI-2) had no significant reduction. One explanation is related to the limitation of aggression questionnaire. The AQ subscales and total scale are related to frequency and intensity of aggressive behavior. Thus, "a high score can be obtained by someone who reports relatively few but extremely intense aggressive episodes, as well as by someone who reports episodes that are less intense but relatively chronic" (Buss & Warren, 2000). Another possible reason could be that, in this study, mostly cognitive techniques were emphasized, and lesser attention was paid to behavioral techniques.

Last domain, anger control, is measured in STAXI-2 and NAS. Experimental group had significant improvement. Control group reported having better control after the end of treatment too. One explanation is that completing the inventories could have been therapeutic for the control group. More specifically, some studies have shown that "filling out an inventory can make participants more aware of their feelings and behavior or help them to regulate their negative affect in a more adaptive way" (Arrindell, 2001).

Above results in supporting the effectiveness of cognitive behavioral therapy are consistent with a recent review of meta-analyses by Lee and DiGiuseppe (2018). They found that cognitive behavioral treatments are the most common intervention for both anger and aggression. They further discussed that "while it appears that behavioral interventions are more effective than cognitive ones for some populations, we are far from identifying which components work best for which clients". I believe that the application of cognitive and

experiential interventions is very useful for clients with anger. Clients with aggression require behavioral techniques as the priority and cognitive and arousal techniques subsequently.

There are numerous research studies (Cox, Stabb, & Hulgus, 2000; Fives et al., 2011; Kring, 2000; Ross & Van Willigen, 1996; Thomas, 1989) that argue about the gender difference in expressing anger and aggression. Previous research by Anderson and Huesmann (2007) suggests that "females are more likely to engage in indirect forms of aggression, whereas males are more likely to engage in direct physical aggression. In addition, both genders are about equally likely to engage in verbal aggression". In the present study, we found no significant difference regarding gender and expression of anger and aggression. Every individual had a unique way of expressing anger and the physical and verbal aggression was seen equally among clients. Although the mean of physical aggression was slightly higher among men, and women had higher score in verbal aggression.

### 3.3.1 Limitations

Several limitations should be acknowledged. First important limitation is most of researchers such as Spielberger, DiGiuseppe and Tafrate, and Novaco agree with the role of cognitions (beliefs) as the main cause of anger and aggression. However, their inventories STAXI, ADS, or NAS respectively, lack the scales to assess dysfunctional beliefs and cognitions from the perspective of REBT or CT. It means that "CBT clinicians must look elsewhere to determine a client's specific beliefs and appraisals of triggers" (Feindler, 2006).

Second, there are problems in comparing experimental and control group. Many people in the control group would not stand the waiting list. Some other clients in the control group change the therapist and leave the treatment when they feel no immediate result.

Third, there are some clients who show little interest in filling up inventories, especially when there are so many items. They may fill up the inventory with little interest and answer the items with little attention. This would lead to inaccurate results.

Fourth, there is a post-test effect. Since all the clients have already filled up the inventory, they are familiar with the items. It might unconsciously have an effect similar to good impression or "faking good". They may answer the items in such a way that is very much related to their state of mood during that very moment or their difficult day/week.

Fifth, many clients have some ongoing issues with their partner, family member or loved-ones. This situation would be difficult when the other person (partner or family member) declines to visit the therapist or is not attending the therapy regularly.

Sixth, there are limitations for anger inventories and aggression questionnaire. "As with all trait scales, the trait anger scales may not reflect what led to anger at a particular moment, in response to a particular trigger in a particular client" (Feindler, 2006). Regarding aggression questionnaire (AQ), some items are about, "how others would think about the client" (e.g., item no.1 & 32). There are also items indicating the person would feel aggressive towards everyone in general (e.g., item no. 4, 6, 8, 10, 16). Yet, it was very common among clients who stated that they were aggressive towards a particular circle of people and not with everyone in general. Therefore, the AQ scores might not accurately measure aggression in these clients.

Last, it was observed that many clients have difficulty filling the provocation inventory as they found it too general or too unspecific. "Models of emotion emphasize the importance of provocation of affective responses or attending to the eliciting stimuli" (DiGiuseppe & Tafrate, 2004). Novaco anger scale (NAS) includes five subscales in the provocation domain. However, the items that are given for this scale are not somehow concrete. For example, item no. 5 "being slowed down by another person's mistake". Participants answer that, they would react

depending on the person who has done the mistakes. For example, their anger would be different when the mistakes were done by their parents, spouses, children, colleagues, strangers, etc. They would also question the level of mistake, as “was it so problematic or could it be neglected”. There are also some other questions in provocation inventory which would make the clients request more details in order to answer the items. The clients might feel disrespected by the in-laws but have no experience of disrespect in society. Thus, it might have a lower score than what she really should have had in provocation inventory. As there are many different experiences, the given examples in provocation inventory would not be the exact same experience of the person, and as a result, a person would score lower than what he/she actually is. Therefore, the provocation inventory was removed from the analysis of the present study.

## 4. Study two: Cognitive behavioral therapy for couples with anger and aggression

### 4.1 Methods

#### *4.1- 1 Participants*

Participants were 14 couples (n=28) with mean age of 31.86 (SD = 5.72; range = 24 to 49), randomized in experimental group (n = 16) and control group (n = 12). Six married couples and eight couples in a relationship had the employment status of employed (n=16), self-employed (n=5), housewife (n=4), unemployed (n=2) and student (n=1). Their education level stated as high school graduate (n=7), degree graduate (n=15) and postgraduate (n=6). The criteria for clients to be included in this study were to have difficulties in controlling anger and/or aggression, and/or anger related issues as the chief complaints. The clients must not have any diagnostic criteria that fully met a specific disorder/syndrome in DSM 5. The participants below the age of 18 years (minors) and above the age of 60 years (senior citizens) were excluded from the study.

#### *4.1- 2 Design and procedure*

A total of 46 people were interviewed in a private clinic in Tehran, Iran (see Figure 25 for an overview). At first, they were informed about the study and in terms of consent for participation, the screening and thorough interview was conducted. The consent of participation, privacy of collected information and other ethical standards were provided to the participants. Among them, 6 female participants were excluded since their partner did not agree to appear for the therapy session. The rest of participants (n=40) were randomly assigned using a computer-generated program to either experimental or control group. They filled out the personal data sheet, informed consent, and four inventories. In total, the measures took approximately 60-70 minutes to complete. From the control group, two couples did not continue after one session and one couple did not continue after two sessions. From the

experimental group, a couple discontinued intervention after six sessions. There were four participants (experimental (n=2) and control group (n=2)), who did not participate in the post-test measure and their data were excluded from the analysis. In the end, 8 couples in experimental group and 6 couples in control group were assessed before and after the completion of treatments course (5 months). All 14 couples of the study reported having experience of frequent and severe anger. They also reported several incidents of physical and verbal aggression during past six months. Two male participants from the experimental group and three female participants in the control group reported being more able in controlling anger and aggression than their partner most of the times.

### *4.1- 3 Intervention*

The treatment program was the same as already discussed for the first study. It recommends the "couples to elaborates upon ways to identify preliminary anger cues, establish a ground rule that aggression is unacceptable, develop alternative responses that interrupt conflict patterns, and modify faulty relationship assumptions" (Margolin, 1979). "The therapeutic task is to help individuals recognize already low levels of anger, reduce anger arousal by monitoring the belief the individual has regarding the partner's actions, and use coping skills that reduce the likelihood that aggressive verbal or physical behaviors will result from anger" (Stith & Hamby, 2002). Understanding the partner's anger emotion would be valuable in handling the situation and it would be of great help to improve the mutual understanding and healthy communication as they learn about each other's frequency of mood changes, coping mechanisms, ways of controlling anger, duration and intensity of episodes. The experimental group received between 6 to 12 individual sessions (60 to 90 minutes) of cognitive-behavioral intervention program for anger management (see Table 3). The control group received relaxation training, such as muscle relaxation and breathing techniques.

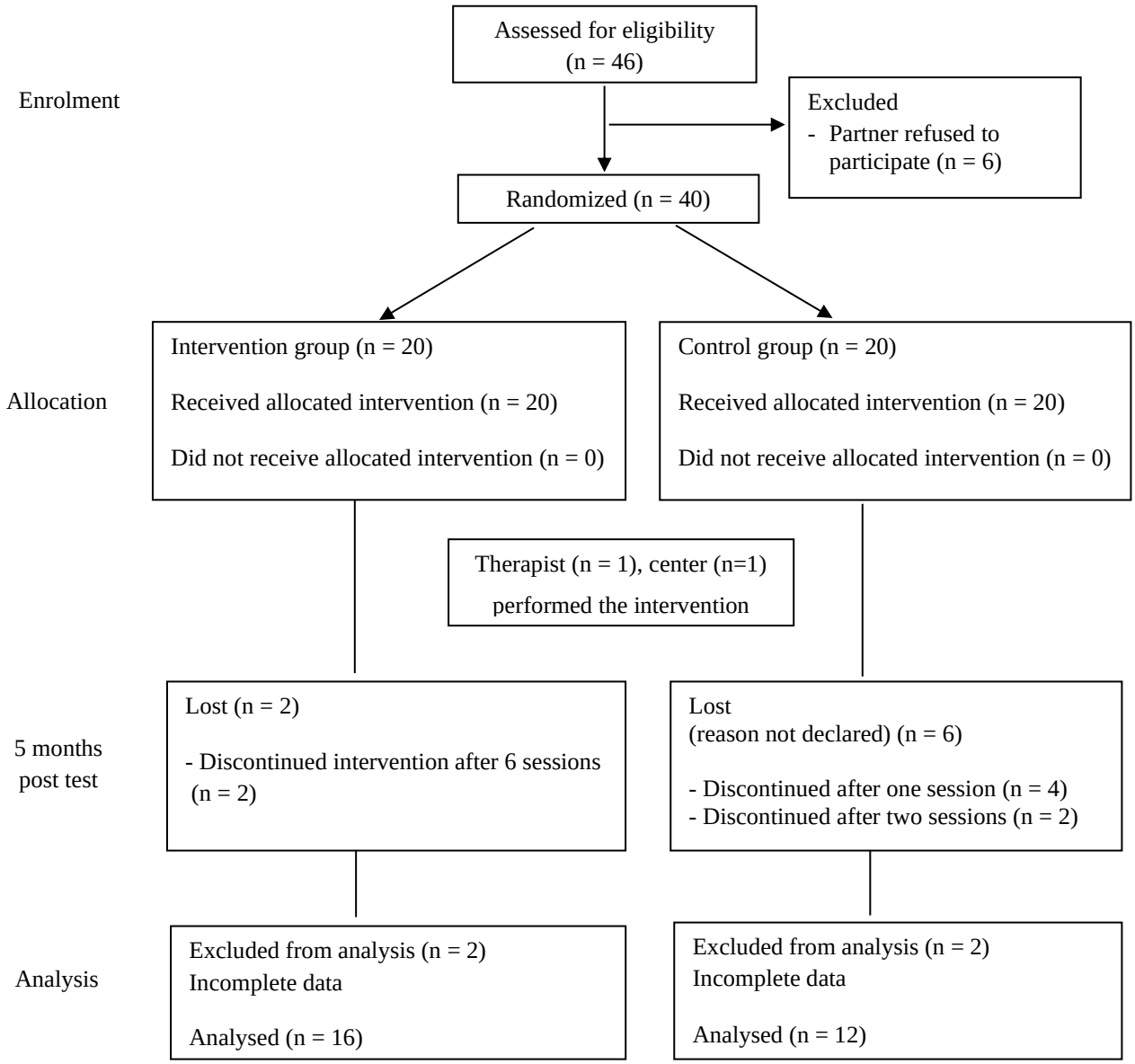


*Figure 25. Flow diagram for RCT of cognitive behavioral anger management therapy for couples*

### *4.1- 4 Measures*

Four measures were applied before and after the intervention: State-Trait Anger Expression Inventory–2 (Spielberger, 1999), Novaco Anger Scale (Novaco, 2012), Anger Disorder Scale: Short (DiGiuseppe and Tafrate, 2010), Aggression Questionnaire (Buss and Warren, 2000).[7]

[7] For detailed description, please refer to 3.1- 4

## 4.2 Results

A repeated measure analysis of variance was conducted to evaluate the hypothesis that there is a significant change in anger and aggression scores when measured before and after the CBT intervention. Table 21 shows the result of mean and standard deviation for STAXI–2. There was a significant effect on trait anger and its subscales. Anger expression and anger control, has four major components. Except for anger expression-in, all the other subscales, as well as anger expression index had a significant effect. The mean score of Anger expression-In decreased in the experimental group, although it is not significant (p=.083).

*Table 21. Mean, SD, and tests of within-subjects for State-Trait Anger Expression Inventory*

| | | Experimental Group (n=16) | | Control Group (n=12) | | Tests of within-Subjects Group * Time | | |
|---|---|---|---|---|---|---|---|---|
| | | Mean | SD | Mean | SD | F (1,26) | p | $\eta^2$ |
| Angry Temperament | Pre | 13.00 | 2.58 | 10.42 | 2.07 | 12.68 | .001 | .328 |
| | Post | 7.56 | 2.03 | 8.83 | 1.95 | | | |
| Angry Reaction | Pre | 11.75 | 3.21 | 10.33 | 2.96 | 13.52 | .001 | .342 |
| | Post | 7.13 | 2.94 | 9.58 | 3.48 | | | |
| Trait Anger | Pre | 29.44 | 5.43 | 24.67 | 4.42 | 13.53 | .001 | .342 |
| | Post | 18.44 | 5.89 | 21.92 | 5.26 | | | |
| Anger Expression-Out | Pre | 23.94 | 4.30 | 21.00 | 3.81 | 16.76 | .000 | .392 |
| | Post | 15.31 | 5.12 | 20.58 | 5.66 | | | |
| Anger Expression-In | Pre | 20.44 | 7.44 | 20.00 | 4.71 | 3.25 | .083 | .111 |
| | Post | 15.69 | 5.93 | 20.17 | 4.55 | | | |
| Anger Control-Out | Pre | 16.56 | 5.07 | 19.33 | 3.70 | 14.08 | .001 | .351 |
| | Post | 22.25 | 5.18 | 18.00 | 4.86 | | | |
| Anger Control-In | Pre | 17.06 | 5.12 | 17.50 | 3.63 | 14.30 | .001 | .355 |
| | Post | 22.44 | 5.68 | 16.33 | 5.40 | | | |
| Anger Expression Index | Pre | 58.75 | 8.48 | 52.17 | 7.47 | 21.94 | .000 | .458 |
| | Post | 34.31 | 16.16 | 54.42 | 16.30 | | | |

Table 22 presents the mean, SD and tests of within-subjects for Novaco Anger Scale (NAS). There was a significant effect on all the subscales as well as the total score. Experimental group had a significant decrease in the level of cognition compared to control group. Arousal and behavior subscale had a significant decrease in the experimental group too. The NAS total score is the sum of item response values for all the NAS items on the COG, ARO, and BEH subscales. The result of NAS total indicates that the intervention had a moderate effect ($\eta^2$ = 0.528) on participants of the study. The comparison of the result of the study with NAS standardization sample (n=1546) shows that the post-test result of experimental group (M=71.19, SD=8.77) was lower than the scores of NAS Total (M=83.9, SD=15.6) in the standardization group. In other words, at the end of the intervention, experimental group had lower score in NAS total and the subscales than standardization sample.

*Table 22. Mean, SD and tests of within-subjects for Novaco Anger Scale*

| | | Experimental Group (n=16) | | Control Group (n=12) | | Tests of within-Subjects Group * Time | | |
|---|---|---|---|---|---|---|---|---|
| | | Mean | SD | Mean | SD | F (1,26) | P | $\eta^2$ |
| Cognitive | Pre | 37.63 | 4.66 | 37.00 | 7.29 | 13.13 | .001 | .336 |
| | Post | 25.25 | 4.23 | 33.75 | 7.03 | | | |
| Arousal | Pre | 37.00 | 4.94 | 34.67 | 7.80 | 27.14 | .000 | .511 |
| | Post | 23.25 | 3.21 | 31.83 | 8.23 | | | |
| Behavior | Pre | 37.94 | 4.97 | 35.00 | 7.53 | 22.51 | .000 | .464 |
| | Post | 22.69 | 4.27 | 32.58 | 8.26 | | | |
| Anger Regulation | Pre | 24.25 | 4.25 | 25.50 | 2.88 | 7.10 | .013 | .215 |
| | Post | 26.31 | 4.94 | 22.58 | 4.27 | | | |
| NAS Total | Pre | 112.56 | 11.66 | 106.67 | 20.08 | 29.05 | .000 | .528 |
| | Post | 71.19 | 8.77 | 98.17 | 21.58 | | | |

Anger Disorders Scale: Short (ADS:S) is constructed by choosing the one best item from each ADS subscale so that all the domains and aspects would be presented in the ADS:S (DiGiuseppe & Tafrate, 2010). Table 23 displays the mean, SD and results of tests of within-subjects. The mean score of experimental group in ADS:S total scale decreased significantly, however, the effect size was low ($\eta^2 = .339$). "Interpretation based solely on the total score may misrepresent an individual's anger problem" (DiGiuseppe & Tafrate, 2010). The mean and SD of post-test scale and subscale scores in the experimental group was compared with the normative sample (n=1197) of anger disorder scale. The mean score of ADS:S total in the post-test experimental group is slightly higher than normative sample (M = 31.38, SD=9.12).

*Table 23. Mean, SD and results of tests of within-subjects for Anger Disorder Scale: Short*

| | | Experimental Group (n=16) | | Control Group (n=12) | | Tests of within-Subjects Group * Time | | |
|---|---|---|---|---|---|---|---|---|
| | | Mean | SD | Mean | SD | F (1,26) | p | $\eta^2$ |
| Reactivity/ Expression | Pre | 23.38 | 5.61 | 22.08 | 5.14 | 10.08 | .004 | .280 |
| | Post | 15.44 | 4.75 | 20.25 | 4.59 | | | |
| Anger-In | Pre | 20.25 | 2.91 | 18.58 | 4.27 | 12.08 | .002 | .317 |
| | Post | 13.13 | 3.98 | 17.50 | 4.52 | | | |
| Vengeance | pre | 14.19 | 5.04 | 13.42 | 5.82 | 7.07 | .013 | .214 |
| | post | 8.00 | 3.01 | 12.00 | 4.63 | | | |
| ADS:S Total | Pre | 57.81 | 10.57 | 54.08 | 13.91 | 13.35 | .001 | .339 |
| | Post | 36.56 | 9.34 | 49.75 | 12.24 | | | |

Results of aggression questionnaire (AQ) are shown in table 24. The results of a univariate test of within subjects in AQ subscales are significant. Mean of AQ total score decreased from 109 (SD=26.17) to 69 (SD=24.40). There was a significant decrease in physical, verbal and indirect aggression of experimental group. The participants of the control group had slightly decreased scores in the subscales except in verbal aggression. The physical aggression was quite high in both groups, however, the intervention helped to decrease the physical aggression and hostility to a great extent.

*Table 24. Mean, SD and results of tests of within-subjects for Aggression Questionnaire*

| | | Experimental Group (n=16) | | Control Group (n=12) | | Tests of within-Subjects Group * Time | | |
|---|---|---|---|---|---|---|---|---|
| | | Mean | SD | Mean | SD | F (1,26) | p | $\eta^2$ |
| Physical Aggression | Pre | 26.12 | 7.97 | 23.08 | 9.44 | 7.16 | .013 | .216 |
| | Post | 15.13 | 6.31 | 20.75 | 8.45 | | | |
| Verbal Aggression | Pre | 15.81 | 4.58 | 15.17 | 4.90 | 12.13 | .002 | .318 |
| | Post | 10.69 | 4.35 | 15.17 | 5.25 | | | |
| Anger | Pre | 22.94 | 4.96 | 22.58 | 4.81 | 6.59 | .016 | .202 |
| | Post | 15.44 | 6.27 | 20.17 | 6.66 | | | |
| Hostility | Pre | 25.69 | 7.91 | 26.83 | 8.81 | 7.08 | .013 | .214 |
| | Post | 15.69 | 5.78 | 24.00 | 9.70 | | | |
| Indirect Aggression | Pre | 19.13 | 5.21 | 19.42 | 4.54 | 11.91 | .002 | .314 |
| | Post | 12.13 | 4.46 | 18.08 | 4.36 | | | |
| AQ Total | Pre | 109.69 | 26.17 | 107.08 | 25.77 | 11.14 | .003 | .300 |
| | Post | 69.06 | 24.40 | 98.17 | 29.91 | | | |

### 4.3 Discussion

The focus of the present study was to understand the role of beliefs and its effect on anger and aggression. Some of these beliefs in short-term and some others were chronically and negatively affect the relationship. The research question was whether studying the two groups of experimental and control while focusing on changes of the beliefs relating to anger and aggression only in the experimental group, could reduce the level of anger and aggression by the end of the treatment. During intervention with couples, the main concentration was on cognitive elements of anger and aggression. An attention was given exclusively to the core beliefs of both partners towards themselves, their beliefs towards each other, towards their relationship, cognitive distortions, problem-solving, analytical thinking, their belief related to their emotion (anger) and their behavior (aggression).

The result of univariate test of within-subjects indicated low to moderate effect size of CBT intervention for the total score of four measures as well as their subscales. The Novaco anger scale had a moderate effect size, while the ADS:S and AQ had low effect size.

Regarding aggression, the results also indicate a reduction in the level of physical, verbal and indirect aggression. They were measured independently as the subscales of aggression questionnaire and also indirectly in behavior subscale of NAS and vengeance subscale of ADS:S. Aggression as a behavior outcome is preventable when new beliefs are established. The beliefs could change the person's view on any type of aggression and consider them as unacceptable acts and behaviors that should be immediately stopped with or without reasons.

Lastly, anger regulation and anger control were measured in the scale of NAS and STAXI-2. The items are related to "anger management capabilities and an individual's capacity to calm down" (Novaco, 2012). There was an increase in the level of anger regulation in the experimental group. The intervention techniques helped the individuals to regulate their behavior and emotion whenever they were experiencing an anger episode, although the effect size was low.

"Individuals with difficulty in controlling anger and aggression or those who commit the act of intimate violence are a diverse group" (Olson, 2007). Many couples might primarily refer for treatment of their anger and aggression, however, there are always several other issues involved. The differences in readiness and motivation level for change, therapeutic relationship, financial issues, occupational stressors, social or family problems, history of drug abuse, history of trauma, childhood abuses, anxiety, depression, chronic diseases, and personality issues should be also addressed simultaneously. The cognitive behavioral approach in anger management is promising and effective. In order to reach a successful intervention with high effect size, an integrative treatment approach relying primarily on the cognitive behavioral therapy, social learning (C M Murphy & Eckhardt, 2005), personality problems (Dutton, 2010) and also other applicable psychotherapeutic approaches related to that particular issues (Acceptance and Commitment, Schema model, Gestalt model, family therapy, etc.) is suggested, to address the individual differences in clients with anger and aggression.

### 4.3.1 Limitations

The discussion of the present study is written with careful consideration due to the following limitations. Although the expectation was to have higher effect sizes, it wasn't possible as: first, the sample of the study was small (n=28). Second, there was a reduction in the level of anger and aggression among the control group but not as significant as the experimental group. This could be related to behavioral techniques of relaxation and breathing techniques that were practiced in the control group as well as for some participants with the firm decision for controlling the anger during the 5 months. Third, this study was primarily designed to measure a 12 months follow-up. Though, the analysis was not possible since many participants did not show any interest in further follow-up contacts. Among them, only one couple from experimental group continued their therapy sessions for other 15 sessions (Although, the female partner decided to end the relationship afterwards).

## 5. Study three: Early maladaptive schemas, anger and aggression

### 5.1 Methods

#### *5.1- 1 Participants*

Participants included 86 adults living in Germany (n=40), Iran (n=33), and other countries (n=13) including Austria, Australia, England, India, Italy, Malaysia, Russia, and Spain (see Table 25). They had either permanent residency (citizen, dual citizen, immigrant, refugee) or temporary residency (work or study visa) of above-mentioned countries. They were 54 females and 32 males with a mean age of 32.17 (SD = 9.39; range = 19 to 64). Categorization based on the origins, culture, nationality or race was not meaningful. Most of the participants had a mixed origin or an immigration background that would make it difficult to categorize them in a certain group for e.g., a female participant that was raised in Germany from an immigrant family of a German-Iranian mother and Iranian father.

*Table 25. Socio-demographic characteristics of participants*

| | | Nationality | | | | | |
|---|---|---|---|---|---|---|---|
| | | Iranian | German | Dual Citizen "Iranian/German" | Other Nationality | Iranian Refugee | Total |
| Place of living | Iran | 33 | 0 | 0 | 0 | 0 | 33 |
| | Germany | 8 | 8 | 9 | 6 | 9 | 40 |
| | Other Country | 4 | 0 | 3 | 5 | 1 | 13 |
| Groups | Anger group (AG) | 18 | 0 | 3 | 0 | 3 | 24 |
| | Control group (CG) | 12 | 8 | 0 | 9 | 0 | 29 |
| | Outpatient group (CG) | 15 | 0 | 9 | 2 | 7 | 33 |

#### *5.1- 2 Design and procedure*

Data were collected from announcing the study for treatment of anger and aggression in a created internet website; referred by some practitioners of a private clinic in Iran; volunteer

students of University of Duisburg-Essen; and collected via refugees' center in Essen, Germany. Twenty-four participants in Anger group (AG) were self-referred for treatment of their anger and had reported an incident of verbal or physical aggression against other people within past 12 months. Twenty-nine participants in control group (CG) voluntarily participated in the study. Among them, seven participants reported a history of psychological problems such as burn out, depression or anxiety and some of them received psychological interventions in past. Thirty-three participants in the Out-patient group (OG) were referred with problems other than anger or aggression and were later diagnosed with depression, anxiety, personality disorders, etc. The participants of Anger group (AG) and Out-patient group (OG) completed the inventories before the start of their therapy sessions. All participants signed the consent form of participation and completed inventories in either language of English, German or Persian. After the scoring of the inventories was done, due to the limitation of self-report inventories, the majority of participants (n=62, 72.1%) was interviewed either online, in-person or via telephone for 60-180 minutes under the supervision of a certified schema therapist in order to discuss the result and to ensure correct schema identification.

### *5.1- 3 Measures*

*Young Schema Questionnaire – Short Form, 3rd Edition* (J. E. Young, 2005) is a 90-item self-report inventory designed to measure the 18 EMSs: Emotional deprivation, abandonment/ instability, mistrust/abuse, social isolation/alienation, defectiveness/shame, failure to achieve, incompetence/dependence, vulnerability to harm or illness, enmeshment/undeveloped self, subjugation, self-sacrifice, emotional inhibition, unrelenting standards/hypercriticalness, entitlement/grandiosity, insufficient self-control/self-discipline, approval-seeking/recognition-seeking, negativity/pessimism, and punitiveness. Interpretation of schema questionnaire while working with angry clients helps our understanding of the nature of schemas that they are holding about themselves, others and the world. Each scale consists of five items (e.g., "I feel

that people will take advantage of me" or "I'm special and shouldn't have to accept many of the restrictions placed on other people") rated on a six-point scale (1 = completely untrue of me; 6 = describes me perfectly). YSQ-S3 demonstrates internal and test re-test reliability as well as congruent and convergent validity (Baranoff, Oei, Cho, & Kwon, 2006; Phillips, Brockman, Bailey, & Kneebone, 2017).

*Novaco anger scale* (Novaco, 2012) is a 60-item self-report scale constructed to assess anger disposition. The scale has four subscales of cognitive (e.g., "I know that people are talking about me behind my back"), arousal (e.g., "I get annoyed when someone interrupts me"), behavioral (e.g., "When I get mad, I can easily hit someone"), and anger regulation (e.g., "If I disagree with someone. I try to say something constructive"). The sum of three subscales of cognitive (COG), arousal (ARO), behavior (BEH) forms the NAS total score and the anger regulation (REG) is calculated separately. All items are rated on a 3-point scale of 1 = never true, 2 = sometimes true, and 3 = always true. Prior research has supported both validity and reliability (e.g., internal reliability = 0.94) of the NAS (Novaco, 2012).

### *5.1- 4 Statistical procedure*

Six statistical procedures are conducted with SPSS 20 (see table 26):

1) Pearson correlation was conducted between NAS total with EMSs.

2) One-way analysis of variance was conducted for Groups (AG, CG, OG) and EMSs.

3) In order to have another perspective, the individuals were categorized differently based on mean scores $\left[\frac{192\,\{48\,(\min score)+144\;\;(Max\;score)\}}{2}=96\right]$ of NAS Total into two groups. One group with a score of 48 to 95 as Non-anger group and another group with a score of 96 to 144 as anger group. The independent sample t-test and binary Logistic regression were conducted for this dichotomous category.

4) Several sets of multiple Linear regression (Enter) were separately performed for each of the NAS total, cognitive, arousal, behavioral as target and EMSs as predictor variables.

5) Three sets of multiple linear regression (Enter) were conducted separately for each of the three groups (AG, CG, OG), NAS as target and EMSs as predictor variables.
6) Hierarchical linear regression was performed for NAS total as a target, groups (AG, CG, OG) entered in the first step and EMSs entered in the second step.

### 5.2 Results

Five schemas of abandonment, mistrust, entitlement, subjugation, and approval seeking were significantly correlated with NAS total and 3 subscales (COG, ARO, BEH) (See Appendix for correlation table of EMS). Surprisingly, emotional deprivation was only slightly correlated with cognitive subscale and neither with other dimensions of anger and nor with NAS total.

Anger regulation had a significant negative correlation with NAS total, cognitive, arousal and behavioral dimension of anger. With regard to schemas and anger regulation, only abandonment was negatively correlated. It could be interpreted that people with high scores in abandonment had more difficulty regulating and controlling their anger.

One-way ANOVA for EMSs among AG, CG, and OG shows that the two schemas of emotional deprivation and abandonment/instability were significant. Comparing the means of three groups, the control group had a lower mean score in COG, ARO, and BEH subscales and a high score in REG. As expected, the mean score of NAS total was highest in anger group and lowest in the control group. In addition, the high mean scores of abandonment/instability and emotional deprivation are accounted for outpatient group. Entitlement/grandiosity and mistrust/abuse were almost equal in mean score among both anger and outpatient group, though it was not significant.

A dichotomous category was generated based on the NAS total mean score: Anger group and Non-anger group. Four schemas of abandonment, mistrust, entitlement, and approval seeking were significant in the results of the t-test. These four schemas had a higher mean score in

anger group. The emotional deprivation was almost equal in both anger and non-anger group. Furthermore, the result of binary logistic regression shows that emotional deprivation, abandonment, and mistrust were good predictors in anger and non-anger group.

Two sets of automatic linear modeling show that entitlement and abandonment were good predictors of NAS total across the 3 groups of AG, CG, and OG at the level of p=0.01.

The result of multiple linear regression indicates that the emotional deprivation, abandonment, and entitlement were predictors of NAS total score. In cognitive dimension, the entitlement was a predictor. In arousal dimension, the emotional deprivation, abandonment, mistrust, and self-sacrifice were the predictors. In behavioral dimension, the emotional deprivation, abandonment, and entitlement were the predictors.

For each of the 3 groups, a set of multiple linear regression was performed. The schemas emotional deprivation, abandonment, self-sacrifice, and punitiveness were a good predictor in anger group. Moreover, no predictors were found in the other two groups.

In the last procedure, hierarchical regression model shows that the abandonment and entitlement schemas were good predictors of NAS total score. The complete tables are provided in appendix.

*Table 26. Summary of statistic results*

| | Statistical procedure | Variable / Target | Variable / predictors | Results | | | |
|---|---|---|---|---|---|---|---|
| 1. | Correlation significant at the 0.01 level (2-tailed) | NAS total and subscales | **Abandonment** | **0.467**** | | | |
| | | | **Mistrust** | **0.458**** | | | |
| | | | **Entitlement** | **0.445**** | | | |
| | | | Subjugation | **0.347**** | | | |
| | | | Approval seeking | **0.428**** | | | |
| 2. | One way-ANOVA P <0.01 | | Emotional Deprivation | F= 5.873 | df= (2, 83) | p= .004 | |
| | Groups (anger, control, outpatient) categorized according to participation procedure | | **Abandonment** | F= 5.932 | df= (2, 83) | p= .004 | |
| 3. | Independent sample T-test p <0.01 | | **Abandonment** | t = 3.145 | df= (1, 84) | p= .002 | |
| | | | **Mistrust** | t = 3.566 | df= (1, 84) | p= .001 | |
| | Groups (anger and non-anger) categorized based on mean score of NAS | | Approval seeking | t = 3.360 | df= (1, 84) | p= .001 | |
| | | | **Entitlement** | t = 2.864 | df= (1, 84) | p= .005 | |
| | Binary logistic regression | | Emotional Deprivation | B = -0.227 | df= (1, 18) | p=.007 | |
| | | | **Abandonment** | B = 0.155 | df= (1, 18) | p=.040 | |
| | Groups (anger and non-anger) | | **Mistrust** | B = 0.134 | df= (1, 18) | p=.046 | |
| 4. | Linear Regression (Enter) | | | **R= 0.71** | **R2= 0.50** | **F= 3.82**** | **df= (18, 67)** |
| | | NAS | Emotional deprivation | B = -.840 | Beta= -.35 | t= -2.62 | p=.011 |
| | | | **Abandonment** | B = .773 | Beta= .372 | t= 2.432 | p=.018 |
| | | | **Entitlement** | B = .793 | Beta= .303 | t= 2.50 | p=.015 |
| | | | | **R= 0.71** | **R2= 0.50** | **F= 3.79**** | **df= (18, 67)** |
| | | Cognitive | **Entitlement** | B = .257 | Beta= .263 | t= 2.17 | p=.033 |
| | | | | **R= 0.71** | **R2= 0.511** | **F= 3.88**** | **df= (18, 67)** |
| | | Arousal | Emotional deprivation | B = -.366 | Beta= -.413 | t= -3.13 | p=.003 |
| | | | **Abandonment** | B = .310 | Beta= .405 | t= 2.66 | p=.010 |
| | | | **Mistrust** | B = .205 | Beta= .235 | t= 2.046 | p=.045 |
| | | | Self-Sacrifice | B = .197 | Beta= .210 | t= 2.046 | p=.045 |
| | | | | **R= 0.61** | **R2= 0.373** | **F= 2.21**** | **df= (18, 67)** |
| | | Behavioral | Emotional deprivation | B = -.343 | Beta= -.371 | t= -2.48 | p=.015 |
| | | | **Abandonment** | B = .307 | Beta= .386 | t= 2.24 | p=.028 |
| | | | **Entitlement** | B = .321 | Beta= .137 | t= 2.349 | p=.022 |
| 5. | Linear Regression (Enter) | | | **R= 0.978** | **R2= 0.957** | **F= 6.189*** | **df= (18, 5)** |
| | | NAS. AG | Emotional Deprivation | B = -2.89 | Beta= -1.619 | t= -3.38 | p=.020 |
| | Groups (anger group (AG), control group (CG), outpatient group (OG)) | | **Abandonment** | B = 1.26 | Beta= 1.066 | t= 2.85 | p=.036 |
| | | | Self-Sacrifice | B = 1.10 | Beta= .694 | t= 2.99 | p=.030 |
| | | | Punitiveness | B = 1.92 | Beta= .822 | t= 2.91 | p=.033 |
| | | NAS. CG | Non-significant | **R= 0.84** | **R2= 0.71** | **F= 1.38** | **df= (18, 10)** |
| | | NAS. OG | Non-significant | **R= 0.89** | **R2= 0.80** | **F= 3.11*** | **df= (18, 10)** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 6. | Hierarchical linear regression<br><br>Groups (AG, CG, OG) entered in step one<br><br>EMS entered in step two | NAS | Model 2 | **R= 0.76** | **R2= 0.59** | **F= 5.03**** | **df= (19, 66)** |
| | | | **Abandonment** | B = .806 | Beta= .388 | t= 2.76 | p=.007 |
| | | | **Entitlement** | B = .874 | Beta= .334 | t= 3.00 | p=.004 |

### 5.3 Discussion

This study builds a bridge between EMSs and EMSs domain research. The previous nine EMSs domain studies consider two domains of disconnection/rejection and impaired limits mostly associated with anger and aggression. Yet, it was not clear which of the schemas in these two domains have more influence. From the other hand, seven EMSs studies considered mistrust/abuse, entitlement/grandiosity, and insufficient self-control to be mostly associated with anger and aggression. In the present study, the bridges between EMSs domain study and EMSs studies were built, concluding that the abandonment/instability and mistrust/abuse schema among the five schemas of disconnection/rejection domain, and the entitlement/ grandiosity from impaired limits domain, were the strongest predictors of anger and aggression.

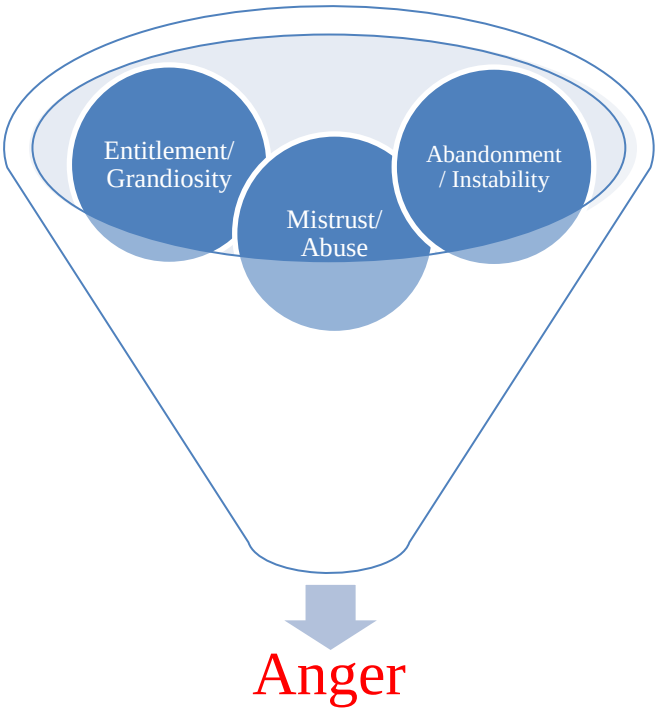


*Figure 26. Three schemas mostly related to anger*

The entitlement schema was the predictor of cognitive dimension of anger. It could be explained that "people with entitlement schemas might have several distortions, expectations, and scripts that support anger" (Huesmann, 1998; Novaco, 1994). This could be also advantageous for future assessment and test construction of anger and aggression to consider entitlement schemas in the cognitive dimension of anger and aggression. Furthermore, the cognitive dimension of anger by Novaco includes the items of suspiciousness. Nevertheless, the mistrust/abuse schema and cognition were only associated in correlation and not in regression.

Abandonment, entitlement, and emotional deprivation were the predictor of behavioral dimension. It could be considered that the activation of these three schemas simultaneously predict aggression to some extent.

The schema of insufficient self-control was significant only in ANOVA procedures. Although the previous research and theoretical consideration consider it as a predictor of anger and aggression, I could not find other supporting statistics for it.

Along with the schemas of abandonment, entitlement, and mistrust, the 3 schemas of unrelenting standards, self-sacrifice, and approval seeking had a higher score in Anger group compare to other groups. The unrelenting standards schema in anger group was significant at the level of 0.05 and the anger group had a higher mean score compared to the non-anger group. This schema typically presents: a) perfectionism, b) rigid rules and "shoulds" in many areas of life, or c) preoccupation with time and efficiency that are very much identical to the REBT concept of demands (must/absolute, should/ought). Overall, all the three groups (AG, CG, OG) had the highest mean in unrelenting standards/hypercriticalness compared to other schemas.

The mean score of self-sacrifice schema was also high in anger group, though it was not significant. It could be interpreted that self-sacrifice by itself would not lead to anger, yet, it

might increase the level of expectation of the individual. Since the individual is dedicating and sacrificing a lot to significant others, he/she would expect to be treated differently or specially.

Approval seeking schema was also high in anger group. It includes an "overemphasis on status, appearance, social acceptance, money, or achievement as means of gaining approval, admiration, or attention. This frequently results in major life decisions that are inauthentic or unsatisfying or in hypersensitivity to rejection" (Martin & Young, 2010, p. 324). We might connect this unsatisfying life decision and hypersensitivity to rejection as the two main causes of the high level of anger in people with approval seeking/recognition-seeking schema.

### 5.3.1 Limitations

Some limitations should be acknowledged. First, although 72% of the participants were interviewed to confirm the presence of schemas, however, YSQ may be limited in the sense that during the filling inventories in some individuals several schemas might get activated at one time (Dunne et al., 2018), and it would affect the responses negatively.

Depending on the coping style, an individual might react to the activation of schemas. For example, some individuals in anger group might show that things are going on well because of overcompensating or avoidance coping style, and other individuals in the outpatient group might exaggerate and express that, things are worse than what they really are. Second, the current state of mood during the filling the YSQ-3 might also negatively effect on EMSs (Stopa & Waters, 2005). Third, there is an argument (Marais, Moir, & Lee, 2017) regarding the short version of YSQ-S3 (90-item) that it could not be a very precise detector of the schemas. It is, therefore, suggested that additional scales such as "faking bad", "faking good" or internal consistency would increase the reliability and validity of responses of Young schema questionnaire. Alternatively, the application of YSQ-3 long version, for both therapeutic and research purpose in future research, is further suggested.

### 5.3.2 Implication for future research

Although, the schema therapy supports the use of traditional behavioral techniques such as anger management, self-control strategies, assertiveness training, and relaxation but it differs from some related techniques of anger management in CBT approach. Catharsis for patients with anger and aggression would not be useful since venting is practicing how to behave aggressively (Bushman, 2002). Ellis (2003), Kassinove and Tafrate (2013), and some of the life-long researchers in anger and aggression (Bushman, 2002; Geen & Quanty, 1977; Nighswander & Mayer, 1969) do not recommend techniques of catharsis, venting out, hitting a pillow, screaming, and yelling at others in a therapy session. However, a schema therapist might instruct the patient to pound a pillow or the couch with his fist as he speaks to abusive mother (Young, et al., 2003, p. 143). The reason is firstly because schema therapy has integrated cognitive behavioral model with psychoanalytic technique of catharsis and secondly schema therapy is not designed for the clients with anger and aggression rather for personality disorder patients. Still, it can be hypothesized that the catharsis might be helpful only for the patients with high scores in subjugation and emotional inhibition schemas since they suppress their emotions and have difficulty showing it. Therefore, future research (for example, a randomized control trial) might test this hypothesis via comparing the effectiveness of catharsis in patients with subjugation and emotional inhibition.

## Part III: OVERALL DISCUSSION

We have already discussed and concluded the results of each study separately. Following is the overall discussion:

First, I explain how all pieces of this research are connected to each other. As we saw in theory part, I reviewed the theories of anger and aggression and explained how each of them emphasized on the role of cognition and core irrational beliefs. I also reviewed three cognitive behavioral therapy approach that similarly concentrate on core beliefs, irrational beliefs and maladaptive schemas that cause negative unhealthy emotions and maladaptive behavior. Despite the emphasis of previous theories on cognitive restructuring and changing beliefs, after reviewing 84 randomized control trials of anger, I noticed that very few studies reported the changes of core beliefs. Studies did not mention about targeting, identification and tracking of beliefs. Although theory almost always emphasizes on the role of beliefs but only few studies concentrated on detecting them, disputing and reporting their change. Very few of them tracked the reduction of core irrational beliefs. These studies only reported the total score of irrational beliefs and did not report which of the beliefs did not decrease at the end of intervention. Indeed, many studies did not use a scale that measured the cognition and changes of beliefs. This is how theory and research are unconnected because of lacking on concentration on core irrational beliefs while conducting a treatment control trial. I further investigated the irrational beliefs or core beliefs that cause of anger and aggression. I found 22 studies in that Ellis's four irrational beliefs of demandingness, low frustration tolerance, global rating of self and others, and awfulizing/catastrophizing were cited to be highest cause of anger and aggression respectively. Therefore, with regard to the limitation of previous treatment-control studies (such as inefficacy of CBT in 30% of previous studies), I conducted randomized control trials that mainly concentrate on Ellis's irrational beliefs and Beck's core beliefs. Although, most of those 22 studies only concentrated on Ellis irrational beliefs and Beck' core belief was rarely

considered, but I considered Beck's belief in working with angry clients since previous research (Dahlen, & Deffenbacher, 2000; Deffenbacher, Dahlen, Lynch, Morris, & Gowensmith, 2000) showed that Beck's cognitive therapy is effective in reducing anger.

I found that cognitive behavioral therapy is low to moderately effective in reducing cognitive, arousal, and behavioral dimension of anger. Therefore, major question in this research was addressed on whether a brief structured cognitive behavioral intervention for anger management would be effective with a sample of self-referred individual and couples. In study one with individuals (n=33) and study two with couples (n=28), cognitive behavioral therapy (CBT) was effective (low to moderate effect size) in helping treatment group to reduce their anger and aggression by modifying their core/irrational beliefs. Frequency, duration and intensity of anger was significantly altered by intervention. Overall, when changes between pre- and post-treatment were considered, clients receiving CBT treatment showed greater gains on a number of measures. CBT, consistent from a theoretical perspective, was effective on changing the measures of physiological dimension (trait anger, anger temperament, arousal), behavioral dimension (aggression, anger expression-out, verbal aggression, vengeance), and cognitive dimension (hostility, reactivity/expression). CBT also helped in increasing anger regulation and anger control ability.

In study one and two, the control group received relaxation training and psychoeducation. Cognitive behavioral interventions were more effective than relaxation training. This finding is in contrast with previous studies such as Hazaleus and Deffenbacher, (1986), Deffenbacher, Story, Brandon, Hogg, and Hazaleus (1988), Deffenbacher, Filetti, Lynch, Dahlen, and Oetting, (2002) in that cognitive relaxation and relaxation had no difference. Based on my result, it can be concluded that relaxation training is favorable in treatment of anger, but it is not as effective as cognitive behavioral techniques. The main reason is that relaxation trainings only target one of the outer layers of beliefs system that is physiology. Relaxation trainings help to reduce

physiological arousal, muscle tension, and deactivation of sympathetic system, however, it does not target the overall beliefs system such as cognitive beliefs and schemas of demandingness and entitlement that caused anger and aggression at first place.

One of the limitations of working with control group was answering their questions regarding the problems and issues in their life. Similarly, for couples who have an anger and aggression problem, it is difficult to conduct only relaxation training and do not reply their questions regarding disagreements, arguments, and conflicts. This might cause dissatisfaction in intervention and leading to drop-out. It is also unethical to have a waiting list for clients who suffer from anger and aggression. Therefore, for future comparison studies, I suggest the comparison of two therapy approaches rather than comparing a treatment group with a control group.

Although the follow up procedure could not be possible since many participants were either not interested or did not respond, however the results of previous studies such as Thurman (1985), Deffenbacher (1988), and Linehan, Heard, and Armstrong (1993) support the long-term effectiveness of brief cognitive–behavioral treatments in reducing anger and aggression.

The first and second study are valuable since they have a unique sample of volunteer adults with anger and aggression. As mentioned earlier, most of the previous studies had samples such as college students, offenders, prisoners, aggressive drivers, and people with intellectual disabilities who were either referred by court or other authority figures. Therefore, the motive of participating was inconclusive. Furthermore, 80% of all research studies for anger and aggression were reported to be in group therapy (DiGiuseppe, 1999). In my data, the individual and couple therapy module, in the 1$^{st}$ and 2$^{nd}$ study, showed the effectiveness of CBT in these two types of therapy.

Though there are critics of cognitive behavioral therapy, but based on my results, I agree with previous researches (Lee & DiGiuseppe, 2018) that cognitive behavioral therapy is still the most effective technique in reducing anger and aggression with considering the motivation in individuals for changing core irrational beliefs. Furthermore, comparing the number of studies (13 meta-analyses of treatments targeting anger and 8 meta-analyses of treatments targeting aggression), the studies that found no effectiveness of cognitive behavioral therapy are very few. One possible reason for having non-significant results could be related to methodology of the studies that compare one or two techniques in CBT. Some studies have only compared a particular technique such as systematic desensitization, relaxation, or a cognitive technique. Either significant or non-significant result could be misleading as one or two techniques cannot be the representative of whole CBT. Therefore, including the results of comparative studies of one or two techniques in meta-analysis would be deceptive. Another possible reason could be that some studies have employed master or doctoral students as the therapists or the leader of group therapy. Considering the years of experience in working with clients would play an important role in establishing rapport, detecting and disputing core irrational beliefs, and conducting the sessions. This could explain why some studies conducted trials with master or PhD students as the therapist, have found non-significant results.

Although overall comparison of my data showed the effectiveness of CBT, but similar to some previous research in reporting non-significant results, some subscales in my data also showed non-significant results and few subscales had low effect size. While working with clients, I realized that some beliefs are not very specific and understandable for them. For example, clients had difficulty with irrational beliefs of “demandingness” in Ellis theory and similarly the distortion of “should statement” proposed by Beck. They could not differentiate when they should demand and when they should not be demanding. If they had need for love and respect, they did not know if they should demand it, when their loved one is indifferent or inattentive

to them. I consider another possible reason for having low effect size could be that clients were not able to detect their core beliefs, or had difficulty changing them. In this way a link from first and second study is built to third study, i.e., from concentrating on changes of core irrational beliefs to investigating their relationship with anger and aggression. I reviewed literature of recent development on topic of core irrational beliefs and found the schema focused approach that is designed for resistant clients. In schema therapy, early maladaptive schemas are similar to core irrational beliefs, however they have been categorized from a different point of view. I reviewed the previous literature (n=17) on relationship of early maladaptive schemas with anger and aggression and found several limitations (such as contrasting results in predicting anger and aggression). Consequently, I conducted a study to investigate the relationship of early maladaptive schemas with anger and aggression.

Results indicated that maladaptive schemas of entitlement, mistrust, abandonment, emotional deprivation, insufficient self-control, unrelenting standards, approval seeking, subjugation, self-sacrifice, and punitiveness, cause anger and aggression. It was an important finding on determining the core irrational beliefs and cognitive schemas in individuals with anger and aggression. Finding these beliefs that are maladaptive, dysfunctional or irrational, helps to have an understandable plan of fighting against them. Result of study three is useful for anger and aggression therapies such as cognitive behavioral therapy or schema therapy as it helps to facilitate the detection of core beliefs/schemas among individuals with anger and aggression. The core beliefs/schemas mostly related to anger were: entitlement/grandiosity, mistrust/abuse, and abandonment/ instability. The cognitive schemas predicting aggression were: abandonment/instability, entitlement/grandiosity, and emotional deprivation. It could be considered that the simultaneous activation of these schemas results in anger or aggression. The next beliefs/schemas that predicted anger and aggression and could be targeted in therapy are insufficient self-control, unrelenting standards (high self-expectation/personal perfection),

punitiveness (blame proneness), approval seeking (demand for approval), subjugation, and self-sacrifice. A comprehensive assessment and interpretation of these schemas, their interaction, nature (conditional and non-conditional), origins, and coping styles (surrender, avoidance, and overcompensation) in the treatment of clients with anger and aggression could be considered.

It was surprising to find out the beliefs/schemas specially entitlement caused anger and aggression. This schema can be targeted primarily in brief intervention. Angry and aggressive individuals have many irrational beliefs, however in a brief intervention some therapist might unintentionally target irrational beliefs other than entitlement and mistrust that may not be very relevant in anger management session. This could be another possible reason why some previous brief interventions could not achieve high effect size or significant results.

Overall, I suggest that future randomized control trials of anger and aggression might consider using all the scales of tracking the irrational beliefs, core beliefs and early maladaptive schemas simultaneously. It would be also great to report which of the beliefs did not decrease by end of intervention so that different therapy techniques could be developed in future. Also, future research needs to target the irrational beliefs and early maladaptive schemas of entitlement, mistrust/abuse, insufficient self-control, demandingness and low frustration tolerance as their first priorities.

In conclusion, the results of these studies are consistent with previous research and theoretical perspective on emphasizing the importance of focusing on changes in beliefs system and cognitive restructuring for reduction and control of anger and aggression. Entitlement and mistrust were two central schemas predicting anger and aggression that need to be targeted first during the cognitive behavioral therapy.

**Outlook**

Maybe, the most important outcome of these studies is the new conceptualization of beliefs system model [8]. We all have the beliefs system consisting of inner layers (core irrational beliefs/schemas, personality, appraisal, expectations, rules, norms, needs and motivation) and outer layers (cognitions, emotions, behavior, physiology, learning, culture and social factors) that co-occur, rapidly interacting with and influencing each other simultaneously in such a way that they tend to be experienced as a phenomenon. This model is unique, since none of the previous models have integrated theories and researches of cognition, emotion, behavior, physiology, learning, and social factors together. I placed the core beliefs at the center of model, however, this model is dynamic, i.e., any inner layers or outer layers can be placed in center and then the view is changed. For example, behaviorists could replace central part with behavior and the model would be looked from behavioral perspective. Or researchers in emotion could place any emotion in the center and look at it from emotional perspective.

There are three important facts about beliefs system: First, there are several categorizations for beliefs system such as 3 core beliefs (by Beck), 4 appraisals (irrational beliefs by Ellis), 10 cognitive distortions (by Burns and Beck), and 18 early maladaptive schemas (schemas by Young). Most of the categorizations overlap with each other. For example, the belief that "others must respect me" could be considered as "demandingness appraisal" by Ellis, "should statement" as cognitive distortion by Beck, and "entitlement/grandiosity" schema by Young. In other words, all these approaches overlap with each other, and identify the beliefs that cause maladaptive behaviors or unhealthy negative emotions.

Second, regarding the identification of beliefs, humans have many innumerable beliefs. There would be some beliefs that have not yet been identified by CBT. Therapist might come across

[8] See figure one

some beliefs that are not falling into any of the above categories. Therefore, there are possibilities that in future, there would be some more research-based categorizations of beliefs system.

Third, there are some limitations in current belief / schema inventories. There could be some beliefs that cannot be identified by application of current inventories or questionnaire. For example, the belief of "I am unattractive". This belief is a part of defectiveness/shame schema. In study three, for participants who preferred the German language, I used the German version of Young Schema Questionnaire (Wichmann, 2012). This version of YSQ consists of 19 schemas. German researcher has added a subscale of "unattractive schema". Surprisingly, the participants with belief of "I am unattractive", scored low in defectiveness/shame schema and high in unattractive schema. This could be informative as the individual might not be in any coping style (such as avoidance or overcompensation), rather they just don't report their belief until they read it in the inventory. Therefore, there are possibilities that some beliefs might not be identified in inventory, although clients might have them.

There are some consideration for future research. In psychotherapy research, it is unethical to have no treatment for control group. For this purpose, the relaxation treatment was conducted for control group. However, this method may have some effect on the results of the study one and two. In principle, my control group is a "positive control group", which means a known response is expected, i.e., relaxation would decrease anger and aggression. For this reason, it may have a negative effect on measuring the effectiveness since both treatment and control group will have a decrease in score of anger and aggression. If we did not apply any treatment in the control group (negative control group), perhaps the effect size would be higher, yet it would be unethical. This could be also true to all the previous psychotherapy research which had positive control group. Consequently, they would have lower effect size.

Furthermore, the implementation of an RCT study may require a double-blind approach to achieve more accurate results. For example, a double-blind RCT may result in more precise outcomes. In this method, two independent therapists with an almost equal years of experience, may perform two different manual-based therapies. Both of these therapists should not be aware of the presence of the treatment group or the control group, so that better results can be obtained with eliminating the bias. The presence of follow-up is required for six months and one year to ensure the effectiveness of the therapeutic approach.

Regarding the cultural consideration, although the Gallup's report (2017) of global emotions presents that Iranians are the angriest population in the world, but it doesn't discuss the methodology, data collection, assessment and scales that are used to measure anger. Overall, in all three studies, when comparing the scores of anger and aggression with normative clinical and normal sample, the level of anger and aggression of Iranian participants (either clinical or normal) was slightly higher than in normative sample. The limitation for not generalizing this finding is due to small sample size. Additional cross-cultural research is required in large scale to find out about collective core/irrational beliefs and maladaptive cognitive schemas.

Future research might test the effectiveness of two new techniques that applied in present research. I developed two new cognitive techniques and applied them for treatment of anger and aggression: a) Slow motion technique, and b) Ten golden questions. A new CBT treatment plan was also devised and published for anger and aggression.

Comparing the number of studies conducted for anger and aggression, only few studies have targeted aggression among adults. More studies are required for understanding aggressive behaviors among adults.

Although maladaptive schemas are designed for personality disordered patients, the results of third study indicate that maladaptive schemas can be found in normal sample as well as in

angry clients who have no particular psychological diagnosis. Surprisingly, it was observed that control group had responded to some schemas even higher than anger group and equal to outpatient group for example, social isolation and self-sacrifice. The healthy control group even had highest score in schemas of emotional inhibition and punitiveness. Further research is required to understand the reasons for this result.

The YSQ-3 items related to unrelenting standards and entitlement such as “I must meet all my responsibilities” and “I'm special and shouldn't have to accept many of the restrictions placed on other people” were seen to be very high in participants of this study. A comparative cross-cultural study might compare the level of unrelenting standards and entitlement in different societies.

Except for anger, I did not consider other emotions in present study. A comprehensive study of emotions and schemas would be promising to understand the relation of the activation of several schemas with a particular emotion.

In schema therapy, positive schemas are briefly mentioned, but it doesn’t focus on how positive schemas work and what happens to them during an anger episode. There is a new inventory in schema therapy that focus on positive schemas (Louis, Wood, Lockwood, Ho, & Ferguson, 2017). Future anger and aggression research would include positive schemas in comparing the anger group with the healthy control and measure the functionality and relationship to anger and aggression.

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# Appendix

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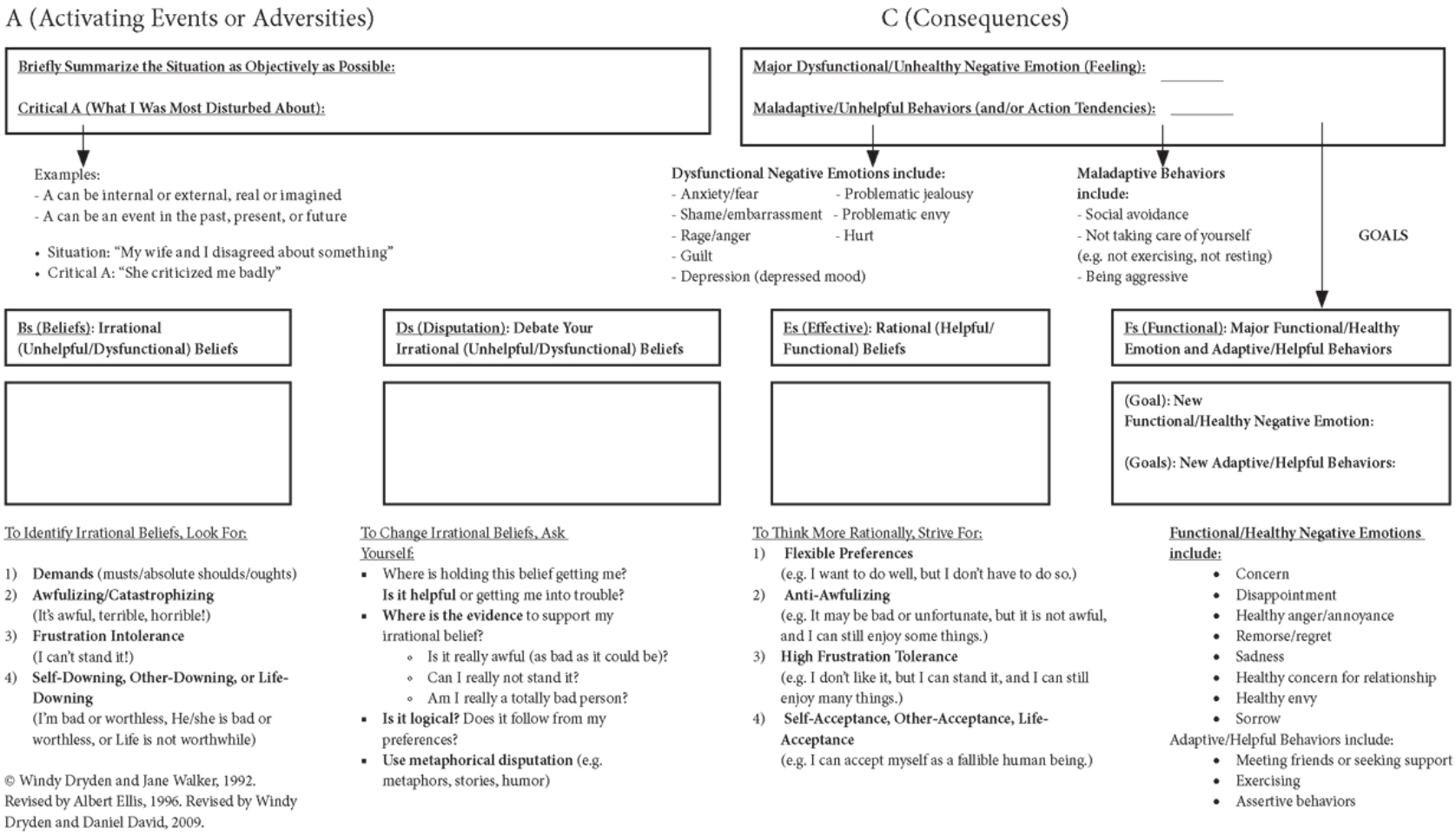


Raymond A. Digiuseppe, Kristene A. Doyle, Windy Dryden, Wouter Backx
A Practitioner's Guide to Rational Emotive Behavior Therapy: Appendix . 

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*Table 28. Correlation for EMS, NAS total and subscales*

| | NAS | COG | ARO | BEH | REG | Emotional Deprivation | Abandonment | Mistrust | Social Isolation | Defectiveness | Failure | Dependence | Vulnerability | Enmeshment | Subjugation | Self-Sacrifice | Approval Seeking | Entitlement | Insufficient Self Control | Unrelenting Standards | Emotional Inhibition | Negativity | Punitiveness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NAS | 1 | | | | | | | | | | | | | | | | | | | | | | |
| COG | .870** | 1 | | | | | | | | | | | | | | | | | | | | | |
| ARO | .896** | .658** | 1 | | | | | | | | | | | | | | | | | | | | |
| BEH | .904** | .667** | .740** | 1 | | | | | | | | | | | | | | | | | | | |
| REG | -.600** | -.410** | -.595** | -.598** | 1 | | | | | | | | | | | | | | | | | | |
| Emotional Deprivation | .141 | .231* | .082 | .065 | .031 | 1 | | | | | | | | | | | | | | | | | |
| Abandonment Instability | .467** | .421** | .452** | .375** | -.219* | .562** | 1 | | | | | | | | | | | | | | | | |
| Mistrust/ Abuse | .458** | .469** | .391** | .363** | -.089 | .319** | .434** | 1 | | | | | | | | | | | | | | | |
| Social Isolation | .303** | .384** | .251* | .176 | -.103 | .382** | .456** | .435** | 1 | | | | | | | | | | | | | | |
| Defectiveness Shame | .246* | .306** | .161 | .189 | -.030 | .434** | .545** | .516** | .624** | 1 | | | | | | | | | | | | | |
| Failure to Achieve | .176 | .207 | .083 | .179 | -.067 | .503** | .354** | .376** | .521** | .615** | 1 | | | | | | | | | | | | |
| Dependence Incompetence | .180 | .119 | .146 | .215* | -.098 | .565** | .581** | .370** | .351** | .497** | .590** | 1 | | | | | | | | | | | |
| Vulnerability To Harm | .271* | .293** | .209 | .223* | -.183 | .434** | .470** | .439** | .448** | .517** | .515** | .433** | 1 | | | | | | | | | | |
| Enmeshment Undeveloped | .257* | .249* | .165 | .270* | -.072 | .270* | .508** | .439** | .326** | .505** | .341** | .520** | .447** | 1 | | | | | | | | | |
| Subjugation | .347** | .345** | .296** | .286** | -.090 | .586** | .665** | .424** | .448** | .623** | .576** | .596** | .479** | .555** | 1 | | | | | | | | |
| Self-Sacrifice | .303** | .205 | .389** | .218* | -.202 | .229* | .378** | .218* | .285** | .250* | .192 | .184 | .187 | .339** | .391** | 1 | | | | | | | |
| Approval Seeking | .428** | .433** | .319** | .390** | -.170 | .401** | .512** | .347** | .145 | .300** | .329** | .381** | .418** | .383** | .445** | .220* | 1 | | | | | | |
| Entitlement Grandiosity | .445** | .456** | .347** | .384** | -.190 | .242* | .232* | .467** | .174 | .288** | .122 | .161 | .372** | .282** | .183 | .166 | .369** | 1 | | | | | |
| Insufficient Self Control | .284** | .258* | .240* | .261* | -.187 | .361** | .528** | .345** | .262* | .455** | .537** | .584** | .445** | .456** | .573** | .233* | .451** | .238* | 1 | | | | |
| Unrelenting Standards | .355** | .403** | .379** | .170 | -.109 | .305** | .242* | .196 | .135 | .035 | .045 | -.021 | .215* | .032 | .270* | .318** | .307** | .375** | -.002 | 1 | | | |
| Emotional Inhibition | .325** | .357** | .278** | .235* | -.155 | .187 | .268* | .277** | .577** | .394** | .373** | .192 | .347** | .220* | .331** | .173 | .183 | .304** | .165 | .274* | 1 | | |
| Negativity Pessimism | .373** | .436** | .325** | .237* | -.191 | .531** | .596** | .447** | .542** | .597** | .622** | .466** | .640** | .394** | .687** | .237* | .450** | .253* | .527** | .315** | .427** | 1 | |
| Punitiveness | .221* | .250* | .153 | .188 | .058 | .354** | .338** | .375** | .384** | .522** | .537** | .407** | .347** | .314** | .612** | .184 | .208 | .275** | .348** | .290** | .287** | .653** | 1 |

Correlation is significant at the 0.01 level (2-tailed). **
Correlation is significant at the 0.05 level (2-tailed). *

*Table 29. Mean, SD, Anova for EMS, NAS and Subscales*

| | Anger group (AG) N=24 | | Control group (CG) N= 29 | | Outpatient group (CG) N= 33 | | Total N= 86 | | F | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Mean | SD | Mean | SD | | |
| NAS | 98.38 | 8.43 | 79.10 | 11.78 | 86.33 | 16.55 | 87.26 | 15.03 | 14.299 | .000 |
| COG | 33.50 | 4.29 | 28.41 | 4.81 | 30.06 | 6.25 | 30.47 | 5.61 | 6.226 | .003 |
| ARO | 33.12 | 3.25 | 26.21 | 5.00 | 29.58 | 5.65 | 29.43 | 5.53 | 13.295 | .000 |
| BEH | 31.75 | 4.37 | 24.48 | 3.93 | 26.70 | 6.19 | 27.36 | 5.76 | 14.180 | .000 |
| REG | 23.87 | 4.35 | 28.10 | 3.47 | 25.97 | 4.13 | 26.10 | 4.27 | 7.434 | .001 |
| Emotional Deprivation | 10.83 | 4.72 | 10.76 | 4.21 | 15.27 | 7.65 | 12.51 | 6.22 | **5.873** | **0.004** |
| Abandonment Instability | 15.38 | 7.11 | 12.00 | 5.46 | 18.00 | 7.70 | 15.24 | 7.23 | **5.932** | **0.004** |
| Mistrust/Abuse | 14.63 | 6.41 | 13.10 | 6.08 | 14.73 | 6.54 | 14.15 | 6.33 | 0.596 | 0.553 |
| Social Isolation Alienation | 10.38 | 4.01 | 14.21 | 6.76 | 14.48 | 7.55 | 13.24 | 6.64 | **3.287** | **0.042** |
| Defectiveness Shame | 7.96 | 2.99 | 9.52 | 5.49 | 11.09 | 6.07 | 9.69 | 5.27 | 2.564 | 0.083 |
| Failure to Achieve | 9.96 | 4.08 | 12.03 | 6.36 | 13.64 | 7.34 | 12.07 | 6.35 | 2.409 | 0.096 |
| Dependence Incompetence | 10.25 | 5.47 | 8.90 | 5.29 | 12.48 | 6.60 | 10.65 | 6.01 | 2.958 | 0.057 |
| Vulnerability To Harm Illness | 11.58 | 5.10 | 11.17 | 5.73 | 13.39 | 6.28 | 12.14 | 5.81 | 1.291 | 0.28 |
| Enmeshment Undeveloped Self | 9.50 | 4.75 | 10.17 | 6.50 | 11.00 | 5.57 | 10.30 | 5.67 | 0.493 | 0.613 |
| Subjugation | 11.54 | 3.79 | 11.48 | 5.88 | 14.64 | 7.79 | 12.71 | 6.36 | 2.55 | 0.084 |
| Self-Sacrifice | 16.08 | 5.31 | 15.52 | 6.14 | 15.39 | 6.18 | 15.63 | 5.88 | 0.101 | 0.904 |
| Approval Seeking Recognition Seeking | 17.38 | 5.53 | 13.79 | 5.98 | 15.88 | 7.15 | 15.59 | 6.43 | 2.145 | 0.123 |
| Entitlement Grandiosity | 16.58 | 5.59 | 15.38 | 5.51 | 16.58 | 6.13 | 16.17 | 5.74 | 0.414 | 0.662 |
| Insufficient Self Control Self-Discipline | 14.54 | 5.24 | 13.34 | 5.36 | 17.55 | 6.70 | 15.29 | 6.10 | **4.204** | **0.018** |
| Unrelenting Standards Hyper criticalness | 20.79 | 4.97 | 18.69 | 6.34 | 19.15 | 5.51 | 19.45 | 5.66 | 0.98 | 0.38 |
| Emotional Inhibition | 11.21 | 5.61 | 14.07 | 5.77 | 13.15 | 6.31 | 12.92 | 5.98 | 1.564 | 0.215 |
| Negativity Pessimism | 12.88 | 5.60 | 14.24 | 6.16 | 16.73 | 6.92 | 14.81 | 6.45 | 2.76 | 0.069 |
| Punitiveness | 11.38 | 3.60 | 15.38 | 5.89 | 13.61 | 7.25 | 13.58 | 6.10 | 2.958 | 0.057 |

*Table 30. Mean, SD, T-Test for EMS, NAS and subscales*

| | Non-anger group N= 56 | | Anger Group N= 30 | | Total N= 86 | | t-test | Sig |
|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Mean | SD | | |
| NAS | 78.52 | 9.94 | 103.57 | 7.24 | 87.26 | 15.03 | 12.168 | .000 |
| COG | 27.64 | 4.05 | 35.73 | 4.12 | 30.47 | 5.61 | 8.782 | .000 |
| ARO | 26.82 | 4.66 | 34.30 | 3.25 | 29.43 | 5.53 | 7.815 | .000 |
| BEH | 24.05 | 3.78 | 33.53 | 3.07 | 27.36 | 5.76 | 11.793 | .000 |
| REG | 27.57 | 3.83 | 23.37 | 3.72 | 26.10 | 4.27 | -4.903 | .000 |
| Emotional Deprivation | 12.45 | 5.52 | 12.63 | 7.47 | 12.51 | 6.22 | .132 | .895 |
| Abandonment Instability | 13.54 | 6.56 | 18.43 | 7.45 | 15.24 | 7.23 | **3.145** | **.002** |
| Mistrust/Abuse | 12.48 | 5.63 | 17.27 | 6.46 | 14.15 | 6.33 | **3.566** | **.001** |
| Social Isolation Alienation | 12.73 | 5.94 | 14.20 | 7.81 | 13.24 | 6.64 | .976 | .332 |
| Defectiveness Shame | 9.04 | 4.90 | 10.90 | 5.80 | 9.69 | 5.27 | 1.576 | .119 |
| Failure to Achieve | 11.86 | 6.19 | 12.47 | 6.73 | 12.07 | 6.35 | .422 | .674 |
| Dependence Incompetence | 10.38 | 5.45 | 11.17 | 7.00 | 10.65 | 6.01 | .580 | .563 |
| Vulnerability To Harm Illness | 11.38 | 5.78 | 13.57 | 5.69 | 12.14 | 5.81 | 1.686 | .095 |
| Enmeshment Undeveloped Self | 9.80 | 5.81 | 11.23 | 5.35 | 10.30 | 5.67 | 1.117 | .267 |
| Subjugation | 11.82 | 6.21 | 14.37 | 6.40 | 12.71 | 6.36 | 1.792 | .077 |
| Self-Sacrifice | 15.27 | 5.81 | 16.30 | 6.04 | 15.63 | 5.88 | .775 | .441 |
| Approval Seeking Recognition Seeking | 13.98 | 6.21 | 18.60 | 5.80 | 15.59 | 6.43 | **3.360** | **.001** |
| Entitlement Grandiosity | 14.93 | 5.68 | 18.50 | 5.17 | 16.17 | 5.74 | **2.864** | **.005** |
| Insufficient Self Control Self-Discipline | 14.93 | 6.18 | 15.97 | 6.00 | 15.29 | 6.10 | .750 | .455 |
| Unrelenting Standards Hyper criticalness | 18.52 | 5.93 | 21.20 | 4.74 | 19.45 | 5.66 | **2.136** | **.036** |
| Emotional Inhibition | 12.27 | 5.79 | 14.13 | 6.24 | 12.92 | 5.98 | 1.387 | .169 |
| Negativity Pessimism | 13.79 | 5.92 | 16.73 | 7.04 | 14.81 | 6.45 | **2.058** | **.043** |
| Punitiveness | 13.39 | 6.20 | 13.93 | 6.01 | 13.58 | 6.10 | .390 | .698 |

*Table 31. Binary Logistic Regression / Omnibus Tests of Model Coefficients*

| | | Chi-square | df | Sig. |
|---|---|---|---|---|
| Step 1 | Step | 39.429 | 18 | .002 |
| | Block | 39.429 | 18 | .002 |
| | Model | 39.429 | 18 | .002 |

*Table 32. Binary Logistic Regression / Variables in the Equation*

| | | B | S.E. | Wald | Sig. | Exp(B) |
|---|---|---|---|---|---|---|
| Step 1[a] | Emotional Deprivation | **-.227** | **.084** | **7.269** | **.007** | **.797** |
| | Abandonment Instability | **.155** | **.075** | **4.238** | **.040** | **1.167** |
| | Mistrust/Abuse | **.134** | **.067** | **3.980** | **.046** | **1.143** |
| | Social Isolation Alienation | -.024 | .076 | .103 | .748 | .976 |
| | Defectiveness Shame | -.005 | .089 | .003 | .957 | .995 |
| | Failure to Achieve | .028 | .085 | .104 | .747 | 1.028 |
| | Dependence Incompetence | .022 | .088 | .061 | .805 | 1.022 |
| | Vulnerability to Harm Illness | -.031 | .074 | .174 | .677 | .970 |
| | Enmeshment / Undeveloped Self | -.103 | .075 | 1.887 | .170 | .902 |
| | Subjugation | .149 | .101 | 2.186 | .139 | 1.160 |
| | Self-Sacrifice | -.039 | .060 | .409 | .523 | .962 |
| | Approval (Recognition) Seeking | .088 | .063 | 1.970 | .160 | 1.092 |
| | Entitlement Grandiosity | .152 | .083 | 3.334 | .068 | 1.165 |
| | Insufficient Self Control<br>Self-Discipline | -.114 | .072 | 2.486 | .115 | .892 |
| | Unrelenting Standards<br>Hyper criticalness | .055 | .078 | .498 | .480 | 1.057 |
| | Emotional Inhibition | -.018 | .070 | .063 | .802 | .983 |
| | Negativity Pessimism | .091 | .087 | 1.103 | .294 | 1.096 |
| | Punitiveness | -.155 | .088 | 3.130 | .077 | .856 |
| | Constant | -4.726 | 1.978 | 5.707 | .017 | .009 |

a. Variable(s) entered on step 1: Punitiveness, Self-Sacrifice, Approval Seeking/ Recognition Seeking, Emotional Inhibition, Entitlement/ Grandiosity, Emotional Deprivation, Enmeshment/ Undeveloped Self, Unrelenting Standards/ Hyper criticalness, Mistrust/Abuse, Insufficient Self Control/ Self Discipline, Vulnerability to Harm Illness, Social Isolation/ Alienation, Abandonment/ Instability, Dependence/ Incompetence, Defectiveness/ Shame, Failure to achieve, Subjugation, Negativity/ Pessimism

*Table 33. Linear Regression NAS total and EMS / Model Summary*

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .712[a] | .507 | .374 | 11.89335 | .507 | 3.823 | 18 | 67 | .000 |

a. Predictors: (Constant), Punitiveness, Self-Sacrifice, Approval Seeking/ Recognition Seeking, Emotional Inhibition, Entitlement/ Grandiosity, Emotional Deprivation, Enmeshment/ Undeveloped Self, Unrelenting Standards/ Hyper criticalness, Mistrust/Abuse, Insufficient Self Control/ Self Discipline, Vulnerability to Harm Illness, Social Isolation/ Alienation, Abandonment/ Instability, Dependence/ Incompetence, Defectiveness/ Shame, Failure to achieve, Subjugation, Negativity/ Pessimism

*Table 34. Linear Regression NAS total and EMS / Coefficients*

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | 53.151 | 6.333 | | 8.393 | .000 | | |
| | **Emotional Deprivation** | **-.840** | **.320** | **-.348** | **-2.626** | **.011** | .420 | 2.382 |
| | **Abandonment Instability** | **.773** | **.318** | **.372** | **2.432** | **.018** | .315 | 3.176 |
| | Mistrust/Abuse | .518 | .274 | .218 | 1.892 | .063 | .555 | 1.803 |
| | Social Isolation Alienation | .279 | .313 | .123 | .891 | .376 | .385 | 2.597 |
| | Defectiveness Shame | -.570 | .419 | -.200 | -1.361 | .178 | .341 | 2.936 |
| | Failure to Achieve | .210 | .364 | .089 | .577 | .566 | .312 | 3.208 |
| | Dependence Incompetence | -.102 | .358 | -.041 | -.286 | .776 | .361 | 2.774 |
| | Vulnerability To Harm Illness | -.324 | .329 | -.125 | -.984 | .329 | .456 | 2.192 |
| | Enmeshment Undeveloped Self | -.294 | .327 | -.111 | -.897 | .373 | .483 | 2.068 |
| | Subjugation | .406 | .401 | .172 | 1.014 | .314 | .257 | 3.898 |
| | Self-Sacrifice | .165 | .263 | .064 | .626 | .534 | .696 | 1.436 |
| | Approval Seeking Recognition Seeking | .365 | .274 | .156 | 1.330 | .188 | .536 | 1.867 |
| | **Entitlement Grandiosity** | **.793** | **.317** | **.303** | **2.506** | **.015** | .504 | 1.985 |
| | Insufficient Self Control Self-Discipline | -.032 | .320 | -.013 | -.100 | .921 | .437 | 2.289 |
| | Unrelenting Standards Hyper criticalness | .252 | .320 | .095 | .788 | .434 | .507 | 1.974 |
| | Emotional Inhibition | .112 | .294 | .044 | .380 | .705 | .539 | 1.855 |
| | Negativity Pessimism | .301 | .399 | .129 | .753 | .454 | .251 | 3.986 |
| | Punitiveness | -.274 | .344 | -.111 | -.797 | .428 | .378 | 2.647 |

a. Dependent Variable: NAS

*Table 35. Linear Regression COG and EMS / Model Summary*

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .711[a] | .505 | .372 | 4.443 | .505 | 3.795 | 18 | 67 | .000 |

a. Predictors: (Constant), Punitiveness, Self-Sacrifice, Approval Seeking/ Recognition Seeking, Emotional Inhibition, Entitlement/ Grandiosity, Emotional Deprivation, Enmeshment/ Undeveloped Self, Unrelenting Standards/ Hyper criticalness, Mistrust/Abuse, Insufficient Self Control/ Self Discipline, Vulnerability to Harm Illness, Social Isolation/ Alienation, Abandonment/ Instability, Dependence/ Incompetence, Defectiveness/ Shame, Failure to achieve, Subjugation, Negativity/ Pessimism

*Table 36. Linear Regression COG and EMS / Coefficients*

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | 17.459 | 2.366 | | 7.379 | .000 | | |
| | Emotional Deprivation | -.131 | .120 | -.145 | -1.092 | .279 | .420 | 2.382 |
| | Abandonment Instability | .156 | .119 | .201 | 1.314 | .193 | .315 | 3.176 |
| | Mistrust/Abuse | .176 | .102 | .199 | 1.724 | .089 | .555 | 1.803 |
| | Social Isolation Alienation | .207 | .117 | .245 | 1.766 | .082 | .385 | 2.597 |
| | Defectiveness Shame | -.094 | .157 | -.089 | -.602 | .549 | .341 | 2.936 |
| | Failure to Achieve | .038 | .136 | .043 | .279 | .781 | .312 | 3.208 |
| | Dependence Incompetence | -.187 | .134 | -.200 | -1.398 | .167 | .361 | 2.774 |
| | Vulnerability To Harm Illness | -.175 | .123 | -.181 | -1.421 | .160 | .456 | 2.192 |
| | Enmeshment Undeveloped Self | -.011 | .122 | -.011 | -.088 | .930 | .483 | 2.068 |
| | Subjugation | .097 | .150 | .110 | .650 | .518 | .257 | 3.898 |
| | Self-Sacrifice | -.077 | .098 | -.080 | -.781 | .437 | .696 | 1.436 |
| | Approval Seeking Recognition Seeking | .162 | .102 | .186 | 1.582 | .118 | .536 | 1.867 |
| | **Entitlement Grandiosity** | **.257** | **.118** | **.263** | **2.172** | **.033** | .504 | 1.985 |
| | Insufficient Self Control Self-Discipline | .028 | .120 | .031 | .237 | .813 | .437 | 2.289 |
| | Unrelenting Standards Hyper criticalness | .168 | .120 | .170 | 1.408 | .164 | .507 | 1.974 |
| | Emotional Inhibition | .013 | .110 | .014 | .119 | .905 | .539 | 1.855 |
| | Negativity Pessimism | .187 | .149 | .215 | 1.252 | .215 | .251 | 3.986 |
| | Punitiveness | -.122 | .129 | -.132 | -.947 | .347 | .378 | 2.647 |

a. Dependent Variable: COG

*Table 37. Linear Regression ARO and EMS / Model Summary*

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .715[a] | .511 | .379 | 4.354 | .511 | 3.884 | 18 | 67 | .000 |

a. Predictors: (Constant), Punitiveness, Self-Sacrifice, Approval Seeking/ Recognition Seeking, Emotional Inhibition, Entitlement/ Grandiosity, Emotional Deprivation, Enmeshment/ Undeveloped Self, Unrelenting Standards/ Hyper criticalness, Mistrust/Abuse, Insufficient Self Control/ Self Discipline, Vulnerability to Harm Illness, Social Isolation/ Alienation, Abandonment/ Instability, Dependence/ Incompetence, Defectiveness/ Shame, Failure to achieve, Subjugation, Negativity/ Pessimism

*Table 38. Linear Regression ARO and EMS / Coefficients*

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | 17.473 | 2.318 | | 7.537 | .000 | | |
| | **Emotional Deprivation** | **-.366** | **.117** | **-.413** | **-3.129** | **.003** | .420 | 2.382 |
| | **Abandonment Instability** | **.310** | **.116** | **.405** | **2.661** | **.010** | .315 | 3.176 |
| | **Mistrust/Abuse** | **.205** | **.100** | **.235** | **2.046** | **.045** | .555 | 1.803 |
| | Social Isolation Alienation | .058 | .115 | .070 | .508 | .613 | .385 | 2.597 |
| | Defectiveness Shame | -.209 | .153 | -.200 | -1.364 | .177 | .341 | 2.936 |
| | Failure to Achieve | -.006 | .133 | -.007 | -.044 | .965 | .312 | 3.208 |
| | Dependence Incompetence | .074 | .131 | .081 | .567 | .573 | .361 | 2.774 |
| | Vulnerability To Harm Illness | -.098 | .120 | -.103 | -.818 | .416 | .456 | 2.192 |
| | Enmeshment Undeveloped Self | -.221 | .120 | -.227 | -1.845 | .069 | .483 | 2.068 |
| | Subjugation | .132 | .147 | .152 | .901 | .371 | .257 | 3.898 |
| | **Self-Sacrifice** | **.197** | **.096** | **.210** | **2.046** | **.045** | .696 | 1.436 |
| | Approval Seeking Recognition Seeking | .024 | .100 | .028 | .241 | .811 | .536 | 1.867 |
| | Entitlement Grandiosity | .215 | .116 | .224 | 1.858 | .068 | .504 | 1.985 |
| | Insufficient Self Control Self-Discipline | .009 | .117 | .010 | .074 | .941 | .437 | 2.289 |
| | Unrelenting Standards Hyper criticalness | .156 | .117 | .160 | 1.329 | .188 | .507 | 1.974 |
| | Emotional Inhibition | .041 | .108 | .045 | .385 | .701 | .539 | 1.855 |
| | Negativity Pessimism | .185 | .146 | .216 | 1.267 | .210 | .251 | 3.986 |
| | Punitiveness | -.157 | .126 | -.173 | -1.243 | .218 | .378 | 2.647 |

a. Dependent Variable: ARO

*Table 39. Linear Regression BEH and EMS / Model Summary*

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .611[a] | .373 | .204 | 5.134 | .373 | 2.213 | 18 | 67 | .010 |

a. Predictors: (Constant), Punitiveness, Self-Sacrifice, Approval Seeking/ Recognition Seeking, Emotional Inhibition, Entitlement/ Grandiosity, Emotional Deprivation, Enmeshment/ Undeveloped Self, Unrelenting Standards/ Hyper criticalness, Mistrust/Abuse, Insufficient Self Control/ Self Discipline, Vulnerability to Harm Illness, Social Isolation/ Alienation, Abandonment/ Instability, Dependence/ Incompetence, Defectiveness/ Shame, Failure to achieve, Subjugation, Negativity/ Pessimism

*Table 40. Linear Regression BEH and EMS / Coefficients*

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | 18.218 | 2.734 | | 6.665 | .000 | | |
| | **Emotional Deprivation** | -.343 | .138 | -.371 | -2.485 | .015 | .420 | 2.382 |
| | **Abandonment Instability** | .307 | .137 | .386 | 2.241 | .028 | .315 | 3.176 |
| | Mistrust/Abuse | .137 | .118 | .150 | 1.156 | .252 | .555 | 1.803 |
| | Social Isolation Alienation | .014 | .135 | .016 | .105 | .917 | .385 | 2.597 |
| | Defectiveness Shame | -.267 | .181 | -.245 | -1.475 | .145 | .341 | 2.936 |
| | Failure to Achieve | .178 | .157 | .196 | 1.133 | .261 | .312 | 3.208 |
| | Dependence Incompetence | .010 | .154 | .011 | .067 | .946 | .361 | 2.774 |
| | Vulnerability To Harm Illness | -.051 | .142 | -.051 | -.356 | .723 | .456 | 2.192 |
| | Enmeshment Undeveloped Self | -.062 | .141 | -.061 | -.437 | .664 | .483 | 2.068 |
| | Subjugation | .177 | .173 | .195 | 1.022 | .310 | .257 | 3.898 |
| | Self-Sacrifice | .044 | .114 | .045 | .390 | .698 | .696 | 1.436 |
| | Approval Seeking Recognition Seeking | .178 | .118 | .199 | 1.509 | .136 | .536 | 1.867 |
| | **Entitlement Grandiosity** | .321 | .137 | .320 | 2.349 | .022 | .504 | 1.985 |
| | Insufficient Self Control Self-Discipline | -.069 | .138 | -.073 | -.499 | .619 | .437 | 2.289 |
| | Unrelenting Standards Hyper criticalness | -.072 | .138 | -.071 | -.520 | .605 | .507 | 1.974 |
| | Emotional Inhibition | .057 | .127 | .059 | .451 | .653 | .539 | 1.855 |
| | Negativity Pessimism | -.071 | .172 | -.080 | -.414 | .680 | .251 | 3.986 |
| | Punitiveness | .004 | .148 | .004 | .028 | .978 | .378 | 2.647 |

a. Dependent Variable: BEH

*Table 41. Linear Regression NAS total and EMS of Anger Group / Model Summary*

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Groups = (AG) (Selected) | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .978[a] | .957 | .802 | 3.74856 | .957 | 6.189 | 18 | 5 | .027 |

a. Predictors: (Constant), Punitiveness, Self-Sacrifice, Approval Seeking/ Recognition Seeking, Emotional Inhibition, Entitlement/ Grandiosity, Emotional Deprivation, Enmeshment/ Undeveloped Self, Unrelenting Standards/ Hyper criticalness, Mistrust/Abuse, Insufficient Self Control/ Self Discipline, Vulnerability to Harm Illness, Social Isolation/ Alienation, Abandonment/ Instability, Dependence/ Incompetence, Defectiveness/ Shame, Failure to achieve, Subjugation, Negativity/ Pessimism

*Table 42. Linear Regression NAS total and EMS of Anger Group / Coefficients*

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | 84.297 | 7.996 | | 10.543 | .000 | | |
| | **Emotional Deprivation** | -2.890 | .854 | -1.619 | -3.382 | .020 | .037 | 26.671 |
| | **Abandonment Instability** | 1.265 | .443 | 1.066 | 2.855 | .036 | .062 | 16.237 |
| | Mistrust/Abuse | -.344 | .364 | -.262 | -.944 | .389 | .112 | 8.937 |
| | Social Isolation Alienation | .447 | .625 | .213 | .715 | .506 | .097 | 10.291 |
| | Defectiveness Shame | 1.131 | 1.162 | .400 | .973 | .375 | .051 | 19.697 |
| | Failure to Achieve | -.839 | .745 | -.406 | -1.126 | .311 | .066 | 15.132 |
| | Dependence Incompetence | -.526 | .297 | -.341 | -1.773 | .136 | .232 | 4.313 |
| | Vulnerability To Harm Illness | -.524 | .323 | -.317 | -1.623 | .166 | .226 | 4.431 |
| | Enmeshment Undeveloped Self | .419 | .350 | .236 | 1.197 | .285 | .221 | 4.529 |
| | Subjugation | -.168 | .494 | -.075 | -.340 | .748 | .174 | 5.737 |
| | **Self-Sacrifice** | 1.102 | .368 | .694 | 2.992 | .030 | .160 | 6.259 |
| | Approval Seeking Recognition Seeking | .542 | .267 | .355 | 2.027 | .098 | .280 | 3.575 |
| | Entitlement Grandiosity | .634 | .326 | .421 | 1.943 | .110 | .183 | 5.452 |
| | Insufficient Self Control Self-Discipline | -.192 | .331 | -.119 | -.580 | .587 | .203 | 4.920 |
| | Unrelenting Standards Hyper criticalness | -.735 | .464 | -.433 | -1.583 | .174 | .115 | 8.706 |
| | Emotional Inhibition | -.058 | .262 | -.038 | -.220 | .835 | .282 | 3.542 |
| | Negativity Pessimism | -.448 | .376 | -.297 | -1.193 | .286 | .138 | 7.235 |
| | **Punitiveness** | 1.927 | .661 | .822 | 2.916 | .033 | .108 | 9.254 |

a. Dependent Variable: NAS

b. Selecting only cases for which Groups = Anger group (AG)

*Table 43. Linear Regression NAS total and EMS in Control group / Model Summary*

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Groups = (CG) (Selected) | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .844[a] | .713 | .197 | 10.56045 | .713 | 1.381 | 18 | 10 | .307 |

a. Predictors: (Constant), Punitiveness, Self-Sacrifice, Approval Seeking/ Recognition Seeking, Emotional Inhibition, Entitlement/ Grandiosity, Emotional Deprivation, Enmeshment/ Undeveloped Self, Unrelenting Standards/ Hyper criticalness, Mistrust/Abuse, Insufficient Self Control/ Self Discipline, Vulnerability to Harm Illness, Social Isolation/ Alienation, Abandonment/ Instability, Dependence/ Incompetence, Defectiveness/ Shame, Failure to achieve, Subjugation, Negativity/ Pessimism

*Table 44. Linear Regression NAS total and EMS in Control group / Coefficients*

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | 50.826 | 11.484 | | 4.426 | .001 | | |
| | Emotional Deprivation | .022 | .750 | .008 | .030 | .977 | .399 | 2.506 |
| | Abandonment Instability | .615 | .819 | .285 | .750 | .470 | .199 | 5.022 |
| | Mistrust/Abuse | -.024 | .793 | -.012 | -.030 | .976 | .171 | 5.845 |
| | Social Isolation Alienation | .693 | .767 | .398 | .904 | .387 | .148 | 6.743 |
| | Defectiveness Shame | -.306 | .862 | -.142 | -.354 | .730 | .178 | 5.624 |
| | Failure to Achieve | .179 | .904 | .096 | .198 | .847 | .121 | 8.285 |
| | Dependence Incompetence | -.422 | .950 | -.189 | -.444 | .667 | .158 | 6.335 |
| | Vulnerability To Harm Illness | .028 | 1.041 | .014 | .027 | .979 | .112 | 8.950 |
| | Enmeshment Undeveloped Self | -.021 | .845 | -.012 | -.025 | .980 | .132 | 7.587 |
| | Subjugation | -.252 | .880 | -.126 | -.286 | .780 | .149 | 6.719 |
| | Self-Sacrifice | .339 | .751 | .176 | .451 | .662 | .187 | 5.338 |
| | Approval Seeking Recognition Seeking | -.456 | .752 | -.232 | -.607 | .557 | .197 | 5.082 |
| | Entitlement Grandiosity | 1.073 | .739 | .502 | 1.451 | .177 | .240 | 4.171 |
| | Insufficient Self Control Self-Discipline | -.304 | .668 | -.138 | -.455 | .659 | .311 | 3.215 |
| | Unrelenting Standards Hyper criticalness | .242 | .674 | .131 | .360 | .726 | .218 | 4.583 |
| | Emotional Inhibition | -.188 | .942 | -.092 | -.200 | .846 | .135 | 7.412 |
| | Negativity Pessimism | .517 | .976 | .270 | .529 | .608 | .110 | 9.067 |
| | Punitiveness | -.145 | 1.013 | -.072 | -.143 | .889 | .112 | 8.959 |

a. Dependent Variable: NAS

b. Selecting only cases for which Groups = Control group (CG)

*Table 45. Linear Regression NAS total and EMS in Outpatient group / Model Summary*

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Groups = (OG) (Selected) | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .895[a] | .800 | .544 | 11.18142 | .800 | 3.117 | 18 | 14 | .018 |

a. Predictors: (Constant), Punitiveness, Self-Sacrifice, Approval Seeking/ Recognition Seeking, Emotional Inhibition, Entitlement/ Grandiosity, Emotional Deprivation, Enmeshment/ Undeveloped Self, Unrelenting Standards/ Hyper criticalness, Mistrust/Abuse, Insufficient Self Control/ Self Discipline, Vulnerability to Harm Illness, Social Isolation/ Alienation, Abandonment/ Instability, Dependence/ Incompetence, Defectiveness/ Shame, Failure to achieve, Subjugation, Negativity/ Pessimism

*Table 46. Linear Regression NAS total and EMS in Outpatient group / Coefficients*

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | 36.123 | 11.543 | | 3.129 | .007 | | |
| | Emotional Deprivation | -.801 | .617 | -.371 | -1.299 | .215 | .175 | 5.710 |
| | Abandonment Instability | .430 | .644 | .200 | .668 | .515 | .159 | 6.281 |
| | Mistrust/Abuse | .336 | .737 | .133 | .456 | .656 | .168 | 5.953 |
| | Social Isolation Alienation | .788 | .593 | .359 | 1.327 | .206 | .194 | 5.144 |
| | Defectiveness Shame | -.582 | .648 | -.213 | -.897 | .385 | .252 | 3.962 |
| | Failure to Achieve | .058 | .614 | .026 | .095 | .926 | .192 | 5.199 |
| | Dependence Incompetence | -.021 | .662 | -.008 | -.032 | .975 | .205 | 4.876 |
| | Vulnerability To Harm Illness | -.849 | .559 | -.322 | -1.519 | .151 | .317 | 3.151 |
| | Enmeshment Undeveloped Self | .525 | .672 | .176 | .781 | .448 | .279 | 3.584 |
| | Subjugation | .926 | .844 | .435 | 1.097 | .291 | .091 | 11.049 |
| | Self-Sacrifice | -.320 | .575 | -.119 | -.556 | .587 | .309 | 3.240 |
| | Approval Seeking Recognition Seeking | .213 | .476 | .092 | .448 | .661 | .337 | 2.966 |
| | Entitlement Grandiosity | 1.044 | .728 | .387 | 1.435 | .173 | .196 | 5.091 |
| | Insufficient Self Control Self-Discipline | .529 | .534 | .214 | .992 | .338 | .306 | 3.270 |
| | Unrelenting Standards Hyper criticalness | .417 | .684 | .139 | .610 | .551 | .276 | 3.629 |
| | Emotional Inhibition | .684 | .648 | .260 | 1.055 | .309 | .234 | 4.270 |
| | Negativity Pessimism | -.275 | .906 | -.115 | -.304 | .766 | .099 | 10.071 |
| | Punitiveness | -.082 | .834 | -.036 | -.098 | .923 | .107 | 9.369 |

a. Dependent Variable: NAS

b. Selecting only cases for which Groups = Outpatient group (OG)

*Table 47. Hierarchical Linear Regression NAS total and EMS / Model Summary*

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .286[a] | .082 | .071 | 14.48876 | .082 | 7.511 | 1 | 84 | .007 |
| 2 | .769[b] | .592 | .474 | 10.90376 | .509 | 4.573 | 18 | 66 | .000 |

a. Predictors: (Constant), Groups

b. Predictors: (Constant), Groups, Punitiveness, Self-Sacrifice, Approval Seeking/ Recognition Seeking, Emotional Inhibition, Entitlement/ Grandiosity, Emotional Deprivation, Enmeshment/ Undeveloped Self, Unrelenting Standards/ Hyper criticalness, Mistrust/Abuse, Insufficient Self Control/ Self-Discipline, Vulnerability to Harm Illness, Social Isolation/ Alienation, Abandonment/ Instability, Dependence/ Incompetence, Defectiveness/ Shame, Failure to achieve, Subjugation, Negativity/ Pessimism

*Table 48. Hierarchical Linear Regression NAS total and EMS / Coefficients*

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | 98.418 | 4.362 | | 22.562 | .000 | | |
| | Groups | -5.303 | 1.935 | -.286 | -2.741 | .007 | 1.000 | 1.000 |
| 2 | (Constant) | 66.410 | 6.821 | | 9.736 | .000 | | |
| | Groups | -6.312 | 1.704 | -.341 | -3.703 | .000 | .730 | 1.370 |
| | Emotional Deprivation | -.535 | .305 | -.222 | -1.758 | .083 | .389 | 2.570 |
| | **Abandonment Instability** | **.806** | **.292** | **.388** | **2.765** | **.007** | .315 | 3.179 |
| | Mistrust/Abuse | .385 | .254 | .162 | 1.517 | .134 | .544 | 1.840 |
| | Social Isolation Alienation | .355 | .288 | .157 | 1.236 | .221 | .383 | 2.611 |
| | Defectiveness Shame | -.521 | .384 | -.183 | -1.355 | .180 | .340 | 2.939 |
| | Failure to Achieve | .237 | .334 | .100 | .710 | .480 | .312 | 3.209 |
| | Dependence Incompetence | -.248 | .330 | -.099 | -.751 | .455 | .355 | 2.814 |
| | Vulnerability To Harm Illness | -.404 | .302 | -.156 | -1.336 | .186 | .454 | 2.203 |
| | Enmeshment Undeveloped Self | -.212 | .301 | -.080 | -.703 | .484 | .481 | 2.080 |
| | Subjugation | .438 | .367 | .185 | 1.191 | .238 | .256 | 3.900 |
| | Self-Sacrifice | .045 | .243 | .017 | .184 | .855 | .684 | 1.462 |
| | Approval Seeking Recognition Seeking | .125 | .259 | .054 | .483 | .631 | .502 | 1.990 |
| | **Entitlement Grandiosity** | **.874** | **.291** | **.334** | **3.002** | **.004** | .501 | 1.996 |
| | Insufficient Self-Control Self-Discipline | .129 | .296 | .052 | .433 | .666 | .428 | 2.339 |
| | Unrelenting Standards Hyper criticalness | .110 | .296 | .041 | .372 | .711 | .498 | 2.007 |
| | Emotional Inhibition | .132 | .269 | .052 | .489 | .626 | .539 | 1.856 |
| | Negativity Pessimism | .468 | .369 | .201 | 1.268 | .209 | .247 | 4.047 |
| | Punitiveness | -.352 | .316 | -.143 | -1.115 | .269 | .376 | 2.659 |

a. Dependent Variable: NAS

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IMAN ASKARI

January 2019

Essen, Germany

## Declaration (Erklärung)

Ich gebe folgende Erklärungen ab:

**1) Erklärung zur Selbstständigkeit**

Hiermit erkläre ich, dass ich die eingereichte Dissertation selbstständig verfasst habe. Die Arbeit ist unter Supervision von Prof. Dr. Gisela Steins entstanden.

**2) Erklärung zur Abfassung der Dissertation**

Hiermit erkläre ich, dass ich bei der Abfassung der Dissertation nur die angegeben Hilfsmittel benutzt und alle wörtlich oder inhaltlich übernommenen Stellen als solche gekennzeichnet habe.

**3) Erklärung zur Einreichung**

Hiermit erkläre ich, dass ich die Dissertation nur in diesem Promotionsverfahren eingereicht habe.

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Hiermit erkläre ich, dass es keine vorausgegangenen Promotionsverfahren in diesem Fach oder einem anderem Fach gegeben hat.

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**Iman Askari**