Anima, Indonesian Psychological Journal
2011, Vol. 26, No. 4, 298-310

Cognitive Therapy to Enhance Self Efficacy in Asthmatics

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Asthma is a chronic disturbance of the lungs with inflammation and narrowing of the air pipes. An asthmatic attack could be triggered mainly by physical as well as psychological aspects. The psychological aspect is much affected by the patients' self-efficacy. A cognitive distortion could be a contribution for a low self-efficacy. This qualitative descriptive study with a positivistic approach aimed at enhancing self-efficacy by lowering the cognitive distortion through cognitive therapy. The informants of this study are two early adult patients with early onset asthma during childhood and categorized as non-allergic asthma. The mapping the psychological profile of the informants using EPPS, and TAT. The self-efficacy mapping used a mixed method design through the Stanford Chronic Disease Self-Efficacy Scale and an interview was conducted to delve into the patient's self-efficacy shaping source and aspects. The psychological unique profile seems to contribute to the effectiveness difference of the cognitive therapy in enhancing self-efficacy.

Keywords: asthma, self-efficacy, cognitive therapy

Asma adalah gangguan menahun pada paru, ditandai peradangan dan penyempitan saluran napas. Dua aspek pencetus serangan gejala asma yang utama adalah aspek fisik dan psikis. Aspek psikis sangat dipengaruhi keyakinan diri penderita. Distorsi kognitif dapat menjadi kontributor terbentuknya keyakinan diri (*self-efficacy*) yang rendah. Penelitian deksriptif kualitatif dengan pendekatan positivistik ini bertujuan meningkatkan *self-efficacy* dengan menurunkan distorsi kognitif melalui terapi kognitif. Informan pada studi ini adalah dua orang pada tahap dewasa awal, dengan awitan (*onset*) asma di masa kanak-kanak dan merupakan penderita asma *non-allergic*. Pemetaan profil psikologis menggunakan EPPS, dan TAT. Pemetaan *self-efficacy* dengan *mixed-method design* melalui instrumen *Chronic Disease Self-Efficacy Scale*-Stanford dan wawancara dilakukan sebagai upaya menggali aspek dan sumber pembentuk *self-efficacy*. Keunuikan profil psikologis tampak memberikan kontribusi pada perbedaan efektifitas terapi kognitif dalam meningkatkan *self-efficacy*.

Kata kunci: asma, keyakinan diri, terapi kognitif

The World Health Organization stated that the world population suffering from asthma was as many as 100-150 million, increasing by 180.000 people each year (Rahmawati, 2008). Asthma is a breathing disorder that seems to be acknowledged as a cause of death, predicted to increase in numbers in the future (Siswono, 2007). Even the Indonesian Nutrition Network (2007) collected data that there were 300 million of the world population suffering from asthma. The high number of asthma-caused death is caused by bad asthma control. Asthma control was often related to the catalysts of asthma attacks, either physical or psychological. This study focuses on the psychological aspect.

Asthma

The definition of asthma came from the Greek word asthma (from aazein) meaning shortness of breath or gasping for air (Yumizone, 2009). In asthmatics that are under attack, the respiration channel experiences inflammation, shown by swelling and irritation. The swelling decreases the flow of oxygen and carbon dioxide, making it not only experiencing inflammation, but also constriction. This inflammation and constriction become worse and more serious because the mucous glands are overproducing (GlaxoSmithKline, 2008; Taylor, 2006). The events cannot be observed easily because they are inside the asthmatics' body, inside their physiological map. Some of the shown symptoms during an asthma

An earlier version of this article was presented at the 3rd Meeting of the Indonesian Association of Child and Adolescent Mental Health in Jogyakarta, 6-7 May 2011. The author thanks Evy Tjahjono and Ninuk Suryantini for their helpful guidance and supervision on previous drafts of this article.

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attack are coughing, sneezing, feeling pressure on their chest, losing breath, and wheezing (Health Encyclopedia, 2009; National Heart Lung and Blood Institute, 2008); GlaxoSmithKline, 2008; Asthma Symptoms, 2006). The asthma definition that is more commonly known is a chronic illness inside the lungs, having the signs of inflammation and constriction on the respiration channel (Health Encyclopedia, 2009; National Heart Lung and Blood Institute, 2008; GlaxoSmithKline, 2008). McNaughton (2008) classified asthma based on several factors, while the asthma catalysts are categorized as follows:

Allergic asthma/extrinsic asthma. Allergic asthma usually happens because the asthmatic has an allergy towards a particular substance, often hereditary. Allergy are not always manifested in the form of asthma; it can also be allergic rhinitis or eczema. With the existence of the allergy factor that is manifested in the form of asthma, several asthmatics are categorized into the nocturnal asthma, which is the more severe asthma attack symptom at midnight, or at around 2- 4 AM. This kind of asthma is usually accompanied by sinus infection due to dust or pet fur allergy.

Non-allergic asthma/intrinsic asthma. Asthma not caused by the allergy factor is more general and can be experienced by anyone. The asthmatics react to cigarette smoke, combustion fumes, the smell of wet paint, scent of cuisine, particular perfume scent, deodorizer spray with particular scent and substances, and the process of house-cleaning. The sensitivity towards the substances can cause irritation in their respiratory channel, and if not treated, can cause infection. If individuals with normal respiration can experience asthma, then asthmatics will experience the attack even more seriously.

Exercise induced asthma. Asthma attacks that are caused by physical activities such as sports or exercises. The asthma attacks usually happen during the activity or after the activity. Other causes, including the first symptoms, can be from virus or bacterial infection that can also appear in influenza/flu. For asthmatics, this infection can increase asthma attacks drastically. An individual can easily be attacked by virus or bacteria because the individual's immunity system weakening, which can be caused by emotional pressure or stress.

Asthma in pregnancy. Asthma attacks that happen on pregnant asthmatics. Not all asthmatics experience asthmatic symptoms during pregnancy. A third of asthmatics will experience the increase in the frequency of asthmatic symptoms; another third will be stable; while the rest will experience better conditions (Dombrowski, 2006; Frezo, McMahon, & Pergament, 2002).

The definition regarding the causes of asthma is related to the physiological reaction. Asthma attacks can also be caused by psychological reaction. The psychological problems faced by individuals can really cause physical illness, not just psychosomatic ones.

Asthma as a psychological reaction. As stated by Pramod Kelkar that the psychological aspect that affected asthma attack symptoms was stress (Hartfield, 2007). The American Stress Institute also stated that stress could affect the cardiovascular system, the gastrointestinal system, musculoskeletal system, immune system, and central nervous system. In asthmatics, the stress condition is usually related to emotion. If the emotion is not under control, it will affect the performance of the nervous system, causing tension in the soft muscles of the respiratory channel in the lungs, causing asthma attack symptoms or worse. If the emotional disorder is already experienced in a long period of time and has caused numerous asthma attack symptoms, medical treatment is no longer effective. Not only negative emotion, positive emotion such as happiness can cause asthma attacks. Extreme emotional expressions such as crying hard, laughing hard, or being furious can start hyperventilation and cause the constriction of the respiratory channel (GINA, 2006).

Self Efficacy

Self-efficacy is a part of self-reflectiveness. The process of self-reflectiveness is a cognitive work process that is related to the assessment of activities that are going to be conducted, motivation, personal values, and the meaning of attempted goals. The reflection process that happens need an adequate thinking system (Feist & Feist, 2006).

Self-efficacy as a cognitive mechanism also has a role in picturing the personality and change function in an individual. The concept of self-efficacy is related to the individual's judgment towards the ability to finish a task or deal with a specific situation (Hjelle & Ziegler, 1992). Bandura stated that the term self-efficacy was written as perceived efficacy. He explained that self-efficacy was a belief understood by the individual regarding his ability in arranging and finishing actions in order to produce a certain achievement or goal (1997).

Efficacy expectancy. The individual's belief towards his self in producing a successful behavior according to his hopes. Efficacy expectancy is different from self-efficacy, as self-efficacy is not the hope towards the results of a particular action (Feist & Feist, 2006). According to Maddux (1991), efficacy expectancy is the most important aspect; enabling the process of subjective acceptance/assessment regarding the effectiveness of a particular behavior's implementation. Efficacy expectancy is considered to have a big role in determining an individual's behavior (Bandura,

1997). Kirsch explained that in average, self-efficacy is a reflection of the accepted abilities, compared with the incentive/reward. Efficacy expectancy is the individual's belief towards the owned abilities in order to finish a particular activity (Maddux, 1991). Usually it is taken from the individual's main experience about his abilities in determining the behavior options, the needed efforts, the toughness in handling an un-optimal situation, and emotional/affective experiences. Alwisol (2008) regards it as the self's perception about how good the self will function in specific situations.

Outcome expectation. The belief that the actions conducted will lead to a particular outcome (Hall, Lindzey, & Campbell, 1997). It is simply different, because outcome expectation is about the belief towards a particular result, while the efficacy expectation is about the belief towards the self's abilities in making the result possible (Burger, 2004). Bandura put both components in a chart. Before the individual did an action, the existing concept was just the belief towards his abilities in doing that action. But after the implementation of the actions for the results, the existing one is outcome expectancy.

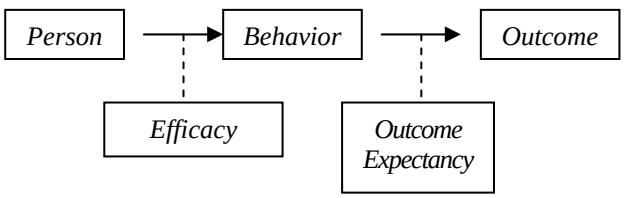

Figure 1. The position of efficacy beliefs and outcome (Bandura, 1997)

There are controversies in the critical areas that question the relationship between self-efficacy and outcome expectancy. In Bandura's frame of mind, outcome expectancy is considered to be less important, only relying to self-efficacy expectancies (Bandura, 1986a; Maddux, 1991). Bandura at first proposed that efficacy expectancy and outcome expectancy as individual concepts. The difference is that outcome expectancy is the anticipation towards result, strongly affected by the hope in achieving a particular result towards behavior (efficacy expectancy). Borkovec (1978), Kazdin (1978), Kirsch (1986), and Teasdale (1978, cited in Maddux, 1991) thought that Bandura's concept in differentiating the two was not clear. This study tried to define and measure, in order to consistently differentiate, the concept of self efficacy expectancy and outcome expectancy. Outcome expectancy is the belief that is focused on the possibility of a specific behavior and situation, that will lead individuals to a particular consequence or result.

Outcome value. The subjective value that is important in order to determine the result, consequence, and goal of a behavior (Maddux, 1991). Outcome value is important because it is related to the specific goal in a specific context. It is often known as reinforcement value or incentive value. Earlier researchers logically assumed that outcome value needed high self efficacy expectancy and outcome expectancy. In the research of expectancy value theory, it showed outcome value as an important predictor in causing a response. Outcome value is pictured as the reinforcing value and incentive value. Only some researches showed the role of outcome value in relation with self-efficacy expectancy and outcome expectancy (Maddux et al, 1986; Manning & Wright, 1983, cited in Maddux, 1991).

Self Efficacy Constituents

The forming process of self efficacy is affected by the contribution of several sources, which are enactive mastery experiences, vicarious experiences, verbal persuasion, and physical and emotional state (Bandura, 1997; Feist & Feist, 2006; Hjelle & Ziegler, 1992). These four sources can be assumed to be different in their strengths in affecting self-efficacy.

Enactive mastery experiences. A massive source in affecting individuals' self-efficacy, related to the past performances (Bandura, 1997). In general, past success will increase efficacy expectancies, while past failures will decrease efficacy expectancies (Feist & Feist, 2006). Individuals with low self efficacy levels can show fearful behavior in showing a particular performance. This will reinforce low self efficacy (Hjelle & Ziegler, 1992). This source is also called by Hjelle and Ziegler as performance accomplishment. On asthmatics, the experience in doing something and having an asthma attack can be an unforgettable experience. If one day an asthmatic is doing his morning jog and while jogging he experiences an asthma attack, he will think twice before doing his morning jogs again, possibly avoiding the activity altogether. The asthma attack is the main experience, resulting in the avoidance of doing any activities that preceed it.

Vicarious experiences. The individual's experience taken from another individual's experience. Bandura (1997) stated that individuals did not need real experiences in order to know their abilities' capacities. By watching other individuals' success in doing something, individuals can have strong perception towards their self efficacy if one day they experience something similar to the model (Hjelle & Ziegler, 1992). If an asthmatic once watched another asthmatic or watched television with an asthmatic role inside, able to cope with their asthma

attacks; the asthmatic may have high self efficacy when he/she is facing his own asthma attack. Feist & Feist (2006) stated blatantly that vicarious experience was a process of social modeling. Inside vicarious experiences are not just other people's successes or failures that cause self efficacy to be high or low. If the observed model is similar to the individual, then the model's performance can have a big role in self efficacy.

Verbal persuasion. Feist & Feist (2006) used the term social persuasion. It is often that another person's words are able to affect others. The existence of others is considered to be social. Bandura (1997) stated that self efficacy could be increased with social persuasion. If the person talking has a form of authority towards the individual, the words will be considered as a form of truth (Burger, 2004). Several forms of verbal persuasion are advices, pressures, self instructions, and meanings (Hall, Lindzey, & Campbell, 1997). Compared to other sources, verbal persuasion can be effective, if combined with successful performance (Feist & Feist, 2006). For asthmatics that have been under protection through their whole lives, social persuasion becomes quite important. If the asthmatic is repeatedly told with the information regarding a particular activity that causes asthma attacks, then the asthmatic will rethink his/her actions or feel unable to cope with the activity. The effect is increased if the verbal persuasion comes from significant persons.

Physical and emotional state. The last source stated by Bandura. Strong emotional conditions are often followed with weaker performances. When individuals are feeling strongly towards fear, extreme anxiety, or high stress levels; then it can be said that these feelings will lower self efficacy, even more so with the asthmatics that are physically sensitive, adding the sources for stress (Feist & Feist, 2006; Abousaffy, 1999). But, when the individuals have decided to be calm and relaxed, then the individuals will have better efficacy compared to when they are anxious and in tension, in both coping with stress or asthma attacks (Abousaffy, 1999; Hjelle & Ziegler, 1992).

The emotional and physical conditions that affect self efficacy is often associated with unpleasant emotions when the individuals were performing poorly, unsatisfactory, or incompetently, even experiencing failure. When the individuals realize the unpleasant physical surge, the individuals will doubt the competence of a behavior even more. It is clear that asthmatics have physical breathing sensitivity that is different with that of normal individuals. Asthma attacks can happen anytime, related to particular objects or situations. Asthmatic conditions can cause a particular level of self efficacy, that can be even more serious when added with particular emotional conditions that are lacking the empowerment factor, making the individuals feel unable, helpless, and overly reliant to their relationship bonds.

Uncertainty can be caused by warnings, bans, and threats, coming from significant persons, so it is easier to be accepted by the asthmatics (verbal persuasion). Even more if the statements were correct in the past (enactive mastery experiences) as real experiences. Confusion, anxiety, and the feeling of incompetence (without relating it to the assessment of the activity's success) were assumed by the author to be in the emotional condition. Negative emotional conditions, such as all kinds of the 'no' word, that were experienced by the asthmatics can open the opportunity for pressuring the asthmatics' feelings even more.

When individuals experience strong feelings towards uncertainty, fear, chronic anxiety, or high stress levels, then it can be considered that the emotional state that is supported by the fragile physical state towards the attack can cause low self efficacy (Feist & Feist, 2006).

Low self efficacy is related to an activity that is currently being done or will be done in the future by the asthmatics. Whether the self efficacy of the asthmatics in handling their asthma attacks would cause a certain stressor for them or not was unknown by the author. Asthmatics that have been experiencing asthma attacks for more than five years were supposed to be used to them, able to be calm when they were experiencing asthma attacks. In reality, that does not seem to be the case. The knowledge and reality that death is a possibility is able to cause the asthmatics to feel even more pressured during their asthma attacks.

The protection and warning that was given by the environments were considered by the author as a stimulus that was heard or seen by asthmatics. Any kind of information from the environment should be neutral in nature. The meaning that was given to the received information is a cognitive process that is followed by subjective meaning.

The meaning of self efficacy in dealing with asthma attacks as an event was understood by the author as a result of conflict in the subjective cognitive process. The feeling of incompetence in dealing with asthma attacks, the fear of dealing with malignant conditions, and the fear of facing death if there is a respiratory failure were reflected through the interaction between the affective and biological arousal. The author saw that negative affective (low self efficacy, fear) and biological arousal were both related to the severity of the asthma attack symptoms. Asthmatics stated that the more they were unable to handle their asthma attacks, the higher their fear was towards failure. This surge of negative affect was often capable of making the asthma attack symptoms more severe. The more severe the experienced asthma attack symptoms (the role of perception) could be caused

by inaccurate perception that was caused by the fusion of negative affect and cognitive distortion.

Individuals that has low assessment towards their own abilities and were only focused on their weaknesses (hopelessness, succorance), incompetence, and predictions regarding their inability to deal with threatening situations (dying and going to hell) were formulated by Beck as the role of low self efficacy (Beck & Weishaar, 2005).

One of the researchers that believed in the effectiveness of cognitive therapy in affecting the cognitive work orientation was Bandura (Rush & Beck, 2000). Bandura as the researcher in social-cognitive theory understood that there was a meaning given by the individuals towards the stimulus that in the end was determined by the following behavior. Bandura discussed the process of giving meaning and assessment that was happening in the observational study system. Bandura's theory clearly stated the importance of the cognitive aspect, one of it in the concept of self efficacy. Self efficacy as the individual's belief that he is able to finish an activity, related to the individual's thinking patterns, in this case the asthmatics'.

Regarding personal self efficacy, in the process of assessing and concluding the self's abilities, individuals go through a cognitive process. The wrong cognitive process can cause low or incorrect self efficacy. It seemed that the correct intervention was by using cognitive based intervention (Bandura, cited in Beck & Weishaar, 2005). The cognitive point of view used by the author was related to the appearance of low self efficacy in dealing with asthma attacks, rarely discussed by earlier researchers. Researches discussing self efficacy of asthmatics related to self-management were based on the behavioristic approach (Guevara, 2003; Lemaigre, et al, 2005; Valerio, et al, 2006). This study was considered to be a cognitive reconstructing support in order to control the asthma attack catalysts. The author felt the need to have a cognitive reconstructing management with the nature of helping the emotional management, especially in handling problems with significant value by the asthmatics' lives.

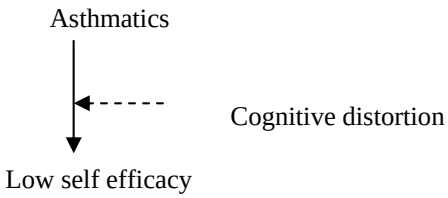

Figure 2. The role of cognitive distortion in self efficacy

Table 1
Bella's Psychological Dynamics

		Self Reaction	Environmental Reaction	Bella's Reaction Towards Environmental Reaction
Final childhood stage	Asthma onset: Low	Trying to cope with oil massage.	Mother cared by giving particular warnings of not doing physical activities (overprotective). Father fulfilled wishes with criterias (permissive). Teachers giving dispensations on assignments. Friends cared by immediately helping during attacks Friends giving dispensations on assignments	Doing what mother said (*autonomy,* C-, *dominance,* C-, *change,* R), even though while feeling annoyed because the warn-ings were limiting her wish to do fun activities. Fulfilling wishes by pleading to father *(succorance, C+)* Being happy because teachers cared *(succorance, C+).* Being happy because friends cared *(succorance, C+).*
Early teenage stage	Asthma attack frequency: Seldom Asthma Intensity: High	Feeling helpless, unable to do anything to calm the attacks *(succorance, C+)*	Confused in finding solutions to calm the experienced breathing difficulties, by: using oil massage, reducing the numbness on legs and arms, giving hot beverages, and providing a calm situation.	Being happy because the environment cared. Being thankful towards the helpful environment.
Final teenage stage	Asthma Attack Frequency: more frequent Asthma Intensity: medium and high	Feeling helpless, unable to do anything to calm the attacks. Starting to feel fear of failure during heavy asthma attacks.	Limiting the activities that Bella could do, including limiting her relationships. (*intraception*,T; *nurturance*,R; *affiliation*, C-, *heterosexual*,R)	Trying to fulfill the fun activities in her own ways (*deference*,R ; *aggression*, T). Not caring for the consequences.
Young adult stage	*Mild intermittent* : Randomly in a day, bothering the activities	Accepting as a uniqueness as not everyone's experiencing asthma. Fearing death during one of the asthma attacks.	Tend to continue protecting by giving warnings and limitations in doing particular activities.	If willing, would comply. If the desire to do the activity was high, will still do it regardless of the consequences.

Note. SR = Very Low, R = Low, C- = Average Low, C = Average, C+ = Average High, T = High, ST = Very High

Tabel 2
Cyril's Psychological Dynamics

		Self Reaction	Environmental Reaction	Cyril's Reaction towards Environmental Reaction
Childhood stage	Asthma onset	Difficulty breathing, unable to do anything. Asthma attack felt terrifying.	Stopping the journey and calm Cyril down, taking to the Emergency Care Unit. Giving facilities for better preventive actions.	Feeling happy because environment cared and loved. Feeling happy and appropriate because treated specially (*succorance*, T).
Early teenage stage	Asthma frequency: Seldom Intensity: low	Shocked with the new learning system. Feeling unable to follow one teacher's learning system.	Mother: limiting relationship and activity (overprotective). Searching and taking to medical treatments and alternative to heal. Teachers giving special treatment and physical activities dispensation. Friends limiting and giving task dispensations.	Feeling upset because of the limitations but did not do anything (*deference*,R;*dominance*,R; *aggression*, SR) Feeling embarrassed in front of friends. Feeling happy because teachers cared. Feeling appropriated and happy because of special treatment. Enjoying. (*succorance*, T)
Final teenage years	Asthma frequency: increased, often Intensity: low - high (Separation of parents because of family issues)	Constantly sad because of parents' separation (*intraception*, T). Feeling embarassed in relationships. Wanting to have father again. Fearing that unable to cope with asthma attacks.	Telling Cyril about the separation's reason (inadvertently giving pressure and stress) Limiting relationships and activities. Father tried to continue caring, though minimalistic. Strengthening the belief that after death was hell and loneliness.	Feeling that expression was limited (*affiliation*, T; *heterosexual*, C) Feeling difficulties in adapting to new environments (*exhibition*, C-, *nurturance*, R) Feeling happy when father fulfilled every wish (*succorance*, T) Feeling fear of being alone and not having people that cared (*succorance*, T)
Young adult stage	Asthma attack frequency: lowered *mild persistent* Intensity : low	Starting to rearrange the unstable emotion (as an asthma source) – (*change*,T ; *endurance*, R)	Giving advices to help with breathing but leaving the implementation to Cyril herself.	Trying to deal with the asthma attacks alone and manage the extreme emotions (*autonomy*, C) Occasionally feeling the desire to be helped by others (*succorance*, T)

Note. SR = Very Low, R = Low, C- = Average Low, C = Average, C+ = Average High, T = High, ST = Very High

If there is a fault in the process, the information will be inaccurate and non-realistic as a cognitive processing material. There is a need for a stage to understand the asthmatic's cognitive process that is categorized into the cognitive distortion, bias in the thinking process, later on intercepted by using a guide to straighten the distortion and bias in the cognitive system (Leahy, 2003). The cognitive role in accepting and giving meaning to an event is not an independent process. The cognitive system interacts with the affective system (such as high succorance preference), motivation and physiology (asthma attack symptoms such as numbness and body spasm) in order to process information from the social and physical environment, so a particular response can be produced (Beck, 2008). It is very likely that individuals can produce a maladaptive response (such as learned helplessness) that is caused by a fault in perception, interpretation, or dysfunctional in giving meaning to a particular nature (Beck & Weishaar, 2005).

Cognitive distortion that develops turn the individuals to think that what they were feeling in their minds as correct. This kind of cognitive distortion indicates an irrational thinking pattern. Irrational thinking patterns should be intervened immediately, so the rational and functional thinking portions are back. The use of psychotherapy is able to manage cognitive distortion. One of the psychotherapy that was already proven in effectiveness was the cognitive therapy (Beck & Weishaar, 2005; Beck, 2008).

This study was conducted in order to be able to find a picture of self efficacy dynamics in dealing with asthma attacks and the self efficacy forming process in asthmatics when they were dealing with their asthma attacks. On the following stage, the intervention stage, this study had the aim to find how effective cognitive based therapy was in handling asthma attacks.

Methods

This study was a mixed method design study with two approaches. First the qualitative approach adapt the positivistic paradigm while still focusing in understanding the meaning of life stories based on the asthmatics' subjective point of view (Creswell, 2007; Poerwandari, 1998). The author tried to reconstruct the dynamics of self efficacy forming that was understood by the asthmatics (Alsa, 2003). The second was a quantitative approach, used to support the qualitative approach. This approach was related to the process of finding and confirming the findings with the theories. A more general matter was the possibility to predict human beha-

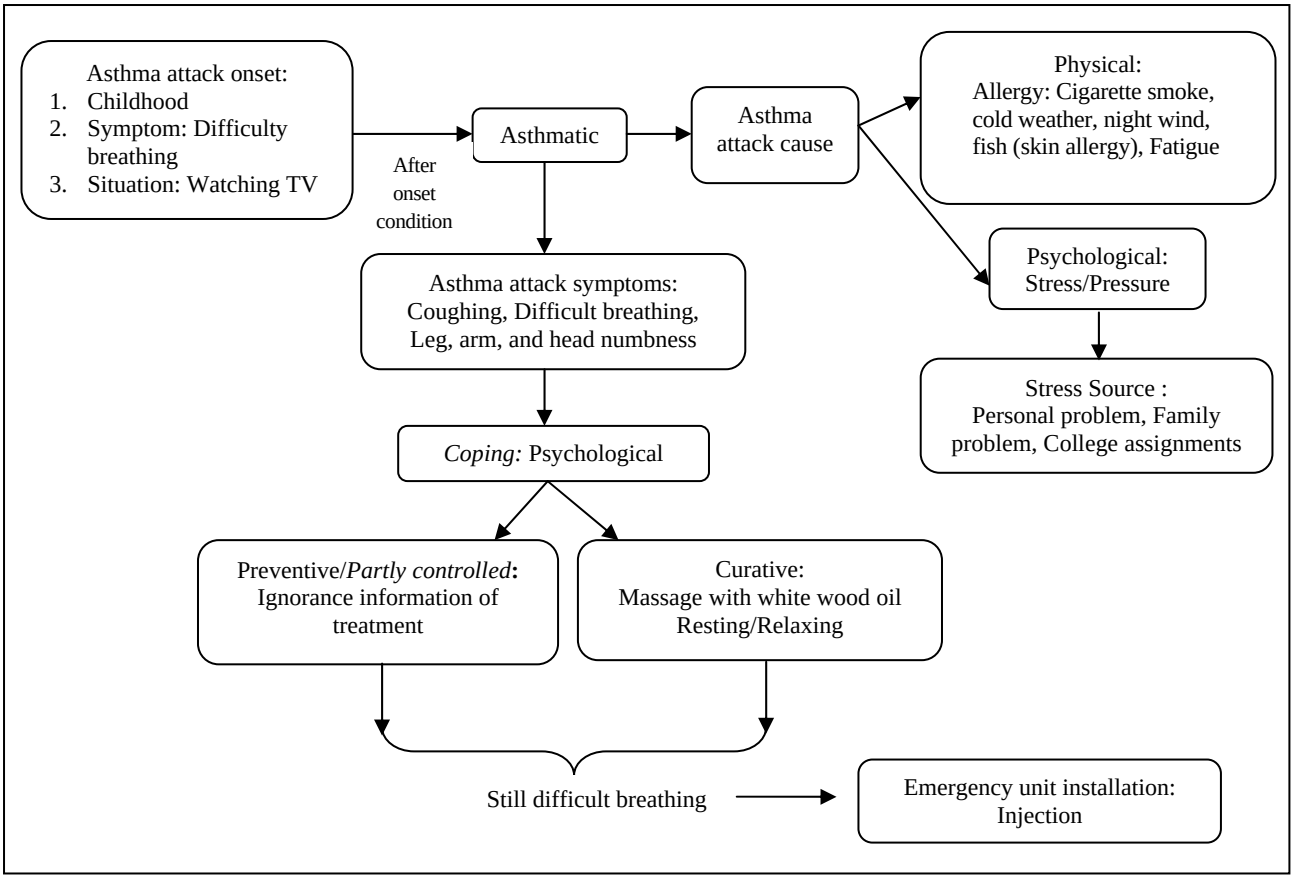

Figure 3. Bella's asthma attack dynamics

Table 3
Bella's Stanford Chronic Disease Self Efficacy Survey's Low Scored Items

Measurement Aspect	Item Number	Item Score	Category
Exercise Regularly Scale	1, 2	4,4	R
Manage Disease in General	13	3	R
Manage Symptoms Scale	22, 23, 24, 25	4, 3, 3, 3	R
Manage shortness of breath	27	4	R
Control/manage depression scale	29	3	R

Note. R = Low

vior (Neuman, 2003) by using the asthmatics' physical characteristics.

Participants

The two participants in this study were asthmatics with the onset of first asthma attack during childhood, being permanent until both of them were young adults. Related to asthma, the participants were non-allergic asthmatics with the medium severe level. Other characteristics that were not related to the criteria were considered to be individual uniqueness.

Instrument

The researcher used several data collection techniques during the assessment stage, based on the instruments that were used, (1) screening survey for the asthma history, used to find participants that fit the criteria for the research, specifically individuals who experienced asthma attacks since childhood, not because of allergy, and currently at the young adult development phase; (2) self-monitoring of the asthma attacks as the base of the assessment to detect the appearance and type of cognitive distortion, Edward Personal Preference Schedule (EPPS) that contributed in detecting the psychological needs, Stanford Chronic Diseases Self Efficacy Scales survey, published by Stanford Patient Education Research Center (Lorig et al, 1996) in order to measure self efficacy pre- and post-intervention process.

Results of the Assessment Stage

Results of the assessment stage found unique dynamics from both asthmatics related to the anamnesis of

the first asthma attack and the following attacks that were caused by various catalysts. Bella and Cyril's asthma attack dynamics showed that not only physical, but also emotional problems could be a source of an attack (see Table 1 and Table 2).

Both Bella and Cyril's psychological dynamics showed that the role of the base theory triadic reciprocal determinism was real, and even when unnoticed by both environment and the asthmatics, the response of the environment would have a dependence effect on the asthmatics. The dynamics since the onset until the current time also had a role in Bella and Cyril's personalities as asthmatics, especially in giving meaning to asthma and handling asthma attacks (Chetta et al, 1998).

The similar lowest aspects of Bella and Cyril were how to manage disease in general, how to manage symptom scale, and how to control/manage depression scale. The three aspects were related to the consciousness and ability in self-management in dealing with asthma attack symptoms. The aspects were explained in detail in Table 3 and Table 4.

Results of the psychological mapping done to the two participants showed two related points, which were low need for nurturance that showed that the participants had the need to be constantly helped by others (succorance) on a high frequency. Other findings were considered to be each individuals' unique psychological needs.

Table 4

Cyril's Stanford Chronic Disease Self Efficacy Survey's Low Scored Items

Measurement Aspect	Item Number	Item Score	Category
Exercise Regularly Scale	2	4	R
Get Information about Disease Ite	4	3	R
Obtain Help from Community, Family, Friends Scale	6, 7, 8	9,3,3	ST, R, R
Communicate with Physician Scal	10	4	R
Manage Disease in General Scale	13	2	SR
Social / Recreational Activities Scal	20,21	10, 9	ST, ST
Manage Symptoms Scale	23	4	R
Control / Manage Depression Scale	28, 29	4, 3	R, R

Note. SR = Very Low, R = Low, ST = Very High

Figure 5 showed that the harder the asthma attacks experienced, the lower the self efficacy, continually affecting one another until help came for the asthmatics, supporting them in relaxing and arranging their breath.

The role of cognition was great in both participants.

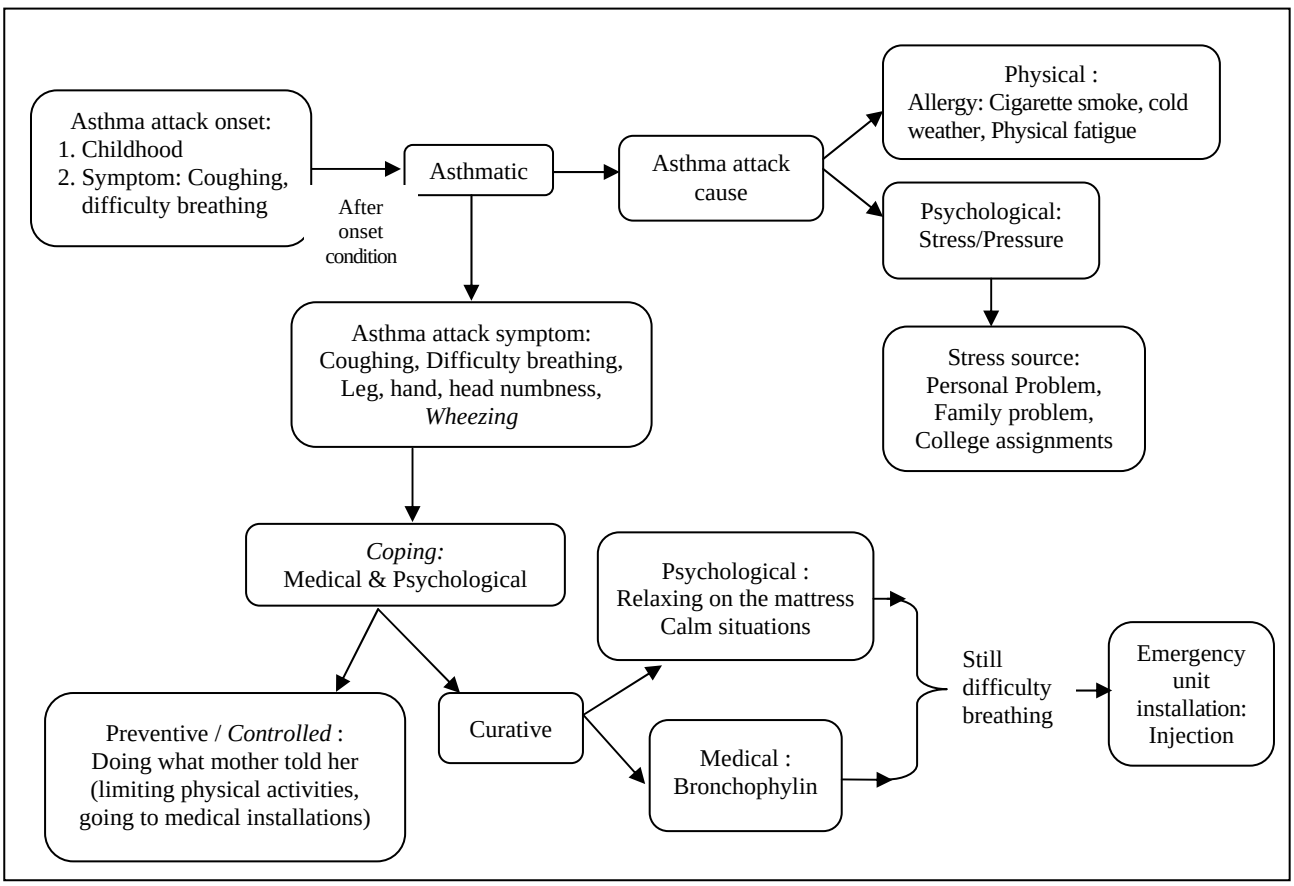

Figure 4. Cyril's asthma attack dynamics

Table 5
Bella and Cyril's EPPS Preferences

EPPS Preference Aspects	Category Norm	
	Bella	Cyril
Succorance	T	C+
Deference	R	R
Achievement	C-	C
Abasement	C	C
Heterosexual	C	R
Intraception	C	T
Endurance	R	C
Order	C-	C+
Aggression	T	SR
Affiliation	T	C-
Exhibition	C-	C+
Nurturance	R	R
Autonomy	C	C-
Change	T	R

Note. SR = Very Low, R = Low, C- = Average Low, C = Average, C+ = Average High, T = High, ST = Very High

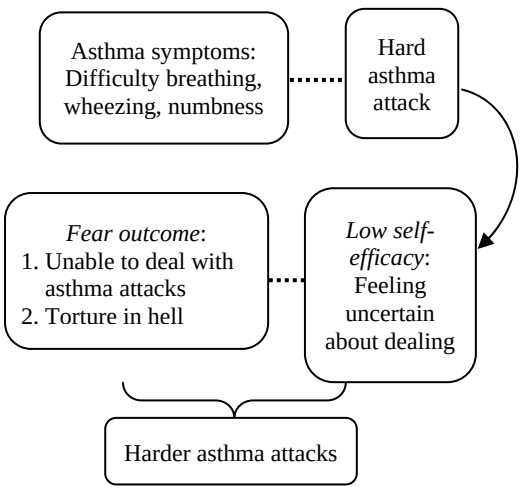

Figure 5. Bella and Cyril's self efficacy in dealing with asthma attacks

The thoughts that were inside the cognitive scheme have big roles in the individuals' lives. Various houghts, everything that is beautiful and sweet (such as Heaven); and also everything that is evil and bad (such as Hell) can be created. Cognitive system is related to how individuals accept, give meaning, and assess the meaning of an event. Cognitive role in accepting and giving meaning to an event does not work independently. Cognitive system interacts with the affective system, motivation and physiology to process information from physical and social environment, producing a particular response (Beck & Weishaar, 2005).

Similar to the words by John Milton in Paradise Lost, individuals can create Heaven and Hell in their minds. Individuals can really achieve happiness if they can create Heaven on real life events, and suffer if they create Hell on real life events. Because of this, it is very possible for individuals to have maladaptive responses, caused by mistakes in perception, interpretation, or dysfunctional, related to giving meaning to a nature (Beck & Weishaar, 2005). Individual cognitive system is important in dealing with life experiences, making cognitive therapy very important in identifying cognitive distortions, bias in thinking process, with the following process of guiding so the individuals change to no longer having distortions and bias in their cognitive system (Leahy, 2003).

Discussion

Results from the assessment stage of the research showed that asthmatics had low self efficacy, especially in dealing with asthma attacks. One of the sources that seemed to have a big role was verbal persuasion from significant persons. It was not just the significant persons that gave ideas of low self efficacy, but also the social environment outside the home such as teachers and friends. The researcher focused on two point of views, which were the environment's and the asthmatics'. Environment unconsciously built low self efficacy inside the asthmatics. While environment had a good reason, by caring for the asthmatics and trying to prevent the painful experience for the asthmatics, wanting the asthmatics to not feel pain, the method that the environment used by giving warnings and limitations was not good for the asthmatics' psychological development. Continuous limitations and warnings could decrease the asthmatics' ability to believe on themselves, making them feel that they were unable to do several physical activities, even handling the asthma attacks themselves. This kind of protection caused the asthmatics to have high succorance preference. Succorance preference that appeared simultaneously with asthma attack symptoms resulted in even greater asthma attack symptoms. The more severe the symptoms being felt, the self efficacy of the asthmatics decreased, possibly down to the asthmatics feeling that they were helpless. Cognitive process had a big role in giving meanings to events, also in building levels of self efficacy.

Self efficacy as a Cognitive Process

The protection and bans given by the environment were seen by the author as a stimulus that was heard and seen by the asthmatics. Every information that comes

from the environment were supposed to be neutral. The meaning given by the individuals towards the received information was a cognitive process that is followed with subjective meaning.

"The mind is its own place, and in itself
Can make a Heav'n of Hell, a Hell of Heav'n."
—John Milton, Paradise Lost –

Thoughts that are inside the cognitive scheme have an important role in the individual's life. In reality, the individual's mind can create Heaven on Hell or Hell on Heaven (Ray, 2004). Everything that is good or everything that is bad can be created by individuals using their minds. Cognitive system is faced with individuals' ways in accepting, giving meaning, and assessing the meaning of an event.

It was also true for the meaning of self efficacy in dealing with asthma attacks as an event, understood by the research as a result of the subjective cognitive processing conflict. The feeling of incompetence in handling asthma attacks, the fear of experiencing extreme asthma attack symptoms, and the fear of facing death during respiratory failure were pictured as the interaction between the affective and biological arousal. The author saw that the negative affective (low self efficacy, fear) and biological arousal were both related to the extremeness of the asthma attack and the fear of failure. The surge of negative affective were not seldom in making the asthma attack symptom more severe. The more severe the perception towards the asthma attack symptom can be an even more inaccurate perception caused by the fusion of negative affective and cognitive distortion.

In this assessment stage, the researcher also detected the types of cognitive distortion inside Bella and Cyril. The assessment stage was done in one week, finding that Bella and Cyril both have cognitive distortion though the types were different.

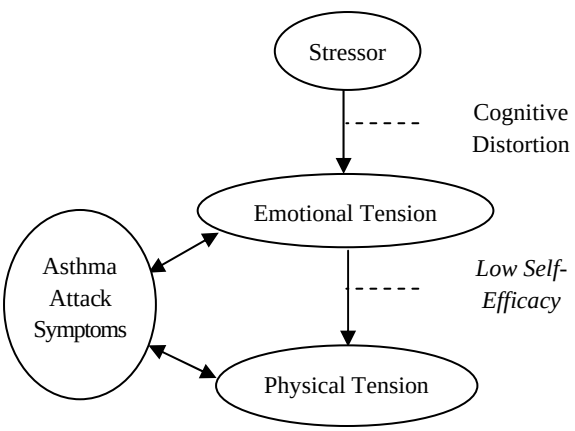

Figure 6. The relation between cognitive distortion, self efficacy, and asthma attack

Individuals that have low assessment on their abilities only focus on their weaknesses (helplessness, succorance), incompetence, and predict that they will be unable to face threatening situations (dying and going to Hell). Beck formulated this situation as the result of low self efficacy (Beck & Weishaar, 2005). Table 6 shows that Bella and Cyril both had cognitive distortion that affected their self efficacy in facing their everyday activities and in facing asthma attacks.

Cognitive Therapy as Self Efficacy Intervention on Asthmatics

One of the earlier researchers that believed in the effectiveness of cognitive therapy in affecting cognitive work orientation was Albert Bandura (Rush & Beck, 2000). Bandura as a figure in social-cognitive theory understood that there was a meaning-giving process done by individuals when they received a stimulus, eventually determining what behavior was going to be used. Bandura discussed this process of meaning-giving and assessment in the observational learning system. Bandura's theory stated that the cognitive aspect was very important, one of it inside the self efficacy concept. Self efficacy is the individual's belief on whether he would be able to do an activity, related to the individual's thinking patterns, in this case to asthmatics.

In assessing and concluding their own abilities, individuals go through a cognitive process. The wrong cognitive process can result in low or incorrect self efficacy. Cognitive based intervention seemed to be the correct choice for individuals (Bandura, 1997, cited in Beck & Weishaar, 2005). The cognitive point of view was discussed by the author, related to the appearance of low self efficacy in facing asthma attacks that was still rare, rarely discussed by earlier researchers. Based on research journals, self efficacy on asthmatics that were related to self-management leaned on the behavioristic approach (Guevara, 2003; Lemaigre et al, 2005; Valerio et al, 2006). The researcher felt the need to have cognitive management to help emotional management, especially in dealing with problems of significant value, with the earlier research as the support for this control management.

A mistake in the process will cause the information to be an incorrect cognitive processing material, even unrealistic. A stage is needed to know the cognitive process of asthmatics, categorized into the cognitive distortion, bias in the thinking process, and later on a guide to straightten the distortion and bias (Leahy, 2003). The cognitive role in accepting and giving meaning on an event is not independent. The system interacts with the affective system, motivation and physiology to process

Table 6
Cognitive Distortion Self-Monitoring Results

Asthmatic	Type of Cognitive Distortion	Comparison Sum of Cognitive Distortion		
		1st week	2nd week	3rd week
Bella	Over Generalization	2	0	0
	Magnification	3	1	1
	"Should" statement	1	0	0
	Emotional reasoning	1	1	4
	Fortune Telling	3	1	0
	In Exact Labeling	1	0	0
Cyril	Over Generalization	1	0	0
	Magnification	1	0	0
	"Should" statement	0	1	0
	Fortune Telling	7	1	3
	In Exact Labeling	3	0	0
	Personalization	1	0	0
	Blame Others	0	1	0

Table 7
Bella's Self Efficacy Low Score Change during Intervention Stage

Measurement Aspect	Item Number	Assessment Stage		Intervention Stage	
		Item Score	Category	Item Score	Category
Exercise Regularly Scale	1, 2	4,4	R	6, 6	C
Manage Disease in General	13	3	R	3	R
Manage Symptoms Scale	22, 23, 24, 25	4, 3, 3, 3	R	4, 4, 5, 6	R, C
Manage shortness of breath	27	4	R	2	SR
Control/manage depression scale	29	3	R	2	SR

Table 8
Cyril's Self efficacy Low Score Change during Intervention Stage

Measurement Aspect	Item Number	Assessment Stage		Intervention Stage	
		Item Score	Category	Item Score	Category
Exercise Regularly Scale	2	4	R	9	ST
Get Information about Disease Item	4	3	R	8	T
Obtain Help from Community, Family, Friends Scale	7, 8	3, 3	R, R	9, 9, 9	ST, ST
Communicate with Physician Scale	10	4	R	8	T
Manage Disease in General Scale	13	2	SR	8	T
Manage Symptoms Scale	23	4	R	9	ST
Control / Manage Depression Scale	28, 29	4, 3	R, R	8, 7	T, T

information from the physical and social environment, resulting in a particular response (Beck, 2005). It is possible that individuals responds in a maladaptive way, caused by mistakes in perception, interpretation, or dysfunctional in giving meaning to an event or nature (Beck & Weishaar, 2005).

Cognitive distortion that has been developed caused the individuals to think that their thoughts were correct, indicating irrational thinking patterns that should be intervened immediately in order to restore it back to the rational and functional pattern. One intervention that can be used to manage cognitive distortion is psychotherapy, one of them being the cognitive therapy (A. T. Beck & Weishaar, 2005; J. S. Beck, 2008).

On the start of the second week, participants were invited to pay attention to their thinking processes, finding objective sentences that were logical, countering their cognitive distortions. During this week, both participants did their self-monitoring in order to find their feelings and thoughts. After they were considered to have progressed in countering their distortions, both were asked to reconfirm their self-monitoring during the third week, by really understanding the types of cognitive distortion automatically and being able to control and counter it logically.

Intervention Effectiveness

The stages and goal of the cognitive therapy is to reduce the cognitive distortion, eventually increasing the aspects of self efficacy on the Stanford Disease Self Efficacy quantitatively. On the assessment stage, the researcher felt the need to assess the item score in the low and very low category. The researcher wanted to see if after the intervention, the asthmatics would change for the better. Bella had low item scores during the assessment stage, not changing for the better in general. Bella showed better change on her self efficacy towards being able to do physical sports activities (item 1 and 2). After the therapy, Bella believed that she was able to protect herself from the fatigue that caused asthma attack symptoms; even though it was against Bella's desire to do the activities (item 24 and 25).

Bella's belief on being able to protect the self from general illness symptoms (item 13) was still in the low category. In managing herself in preventing the asthma attacks (item 23), Bella's self efficacy was in the low category. This was similar with when she's facing the unpleasant feeling caused by asthma attack (item 22), her self efficacy was still in the low category.

Bella's self efficacy increased on two items, which were (1) the belief of being able to manage breathing during asthma attack symptom, (2) the belief of being able to control depression so she would not fall down further into her problems. This was different from Cyril who had several items with increased scores on the self efficacy's aspects. Several measurement aspects that increased by one category, from low to high, which were (1) the belief to be able to exercise regularly, (2) the belief of being able to consult a physician and being open in sharing the problems that were experienced, (3) the belief of being able to manage disease in general, and (4) the belief of being able to control depression. Several aspects increased by two categories, from average to very high, which were (1) the belief to obtain help from community, family, and friends, (2) the belief of being able to manage the asthma attack symptoms, (3) the belief of being able to get information about diseases. In majority, most aspects increased in scores and categories, while the aspects that were originnally on the high or very high category stayed on the respective categories (social/recreational activities scale – ST; manage shortness of breath item-T). Cyril's belief on being able to do the everyday work increased by one category, from high to very high.

Limitations

This study's weaknesses were on the fact that it only measured the score change and the self efficacy category, also the cognitive distortions of both participants pre- and post-cognitive therapy. The study still had not measured the real behavior that showed a proof of the increased self efficacy, because after the therapy process was nearing the end, both asthmatics experienced a decrease in the asthma attack frequency, where several specific situations that used to cause the asthma attacks, no longer cause asthma attacks for several months after the therapy. It was assumed that the participants did particular actions in handling the activities and events after the therapy.

Conclusion

Asthmatics have a unique way of thinking regarding their selves and their environment. Often those thoughts are cognitive distortions, resulting in asthmatics to veer away from the reality and objectivity of their situation. This causes their emotion and behavior to reflect what they are thinking, including during experiencing asthma attacks. The cognitive distortion of their perception towards mastery experience, vicarious experience, verbal persuasion, and physical-emotional state can be one of the causes of low self efficacy. Low self efficacy can be a self-fulfilling prophecy, as what the asthmatics are thinking strongly are the matters that turn into reality. There is a need for commitment and motivation from the asthmatics to follow though with a chain of tasks in cognitive therapy, so they will be able to determine the effectiveness. It also cannot be denied that unpleasant and confusing events during the therapy phase can make the asthmatics less able to do automatic control on their cognitive distortion, because they are already ruled and overwhelmed by their thoughts and feelings towards the problem at hand.

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