The Effect of Cognitive Behavioral Therapy in Reducing Psychotic Symptoms and Enhancing Functions in Schizophrenic Patients

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Abstract

**Objectives.** This study tried to develop a treatment group based on the cognitive behavioral approach, to help schizophrenic patients to cope with their psychiatric symptoms. The effectiveness of the treatment group in reducing psychotic symptoms and the functional improvement resulted among schizophrenic patients were assessed.

**Methods.** A total of 50 psychiatric in-patients who were diagnosed to be suffering from schizophrenia with active positive psychotic symptoms for more than one year (i.e., treatment resistant) were recruited from Kwai Chung Hospital. The experimental group received cognitive behavioral therapy group, whereas the control group received a series of educational groups. A pretest and two posttests (immediately after the treatment and at one-month follow-up) were conducted to assess patients’ schizophrenic symptoms and functional abilities. Two trained occupational therapists who were blinded to the hypothesis rated the participants in both conditions.

**Results.** Both measurement of symptom areas and functional abilities had a moderate to high internal consistency and inter-rater reliability. Patients who stayed longer in the hospital tend to have poorer self-care, more disturbing behavior, and lower social and general function. Social, affect, and thought process symptom categories were strongly negatively correlated with patients’ self-care, social contact, and communication skills. No significant difference
was found between the experimental and control group in their functional abilities after the treatments. Significant difference was found between the two groups in the symptom hallucinations when tested immediately after the treatments, but not on the one-month follow-up test.

**Discussion.** The fading of the improvement in the present study may be due to the lack of practice and environmental constraint. After the treatment phase, participants will have to resume to their previous daily routines in the hospital, which are not favorable to the practice of the cognitive behavioral coping method.
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The Effect of Cognitive Behavioral Therapy in Reducing Psychotic Symptoms and Enhancing Functions in Schizophrenic Patients

Studies of the symptomatology of schizophrenia have become a major focus in the field of psychiatric rehabilitation in the last decade (Lysaker & Bell, 1995; Fenton & McGlashan, 1991; Kay, 1991; Pogue-Geile, 1989; Kay, Fiszbein, & Opier, 1987; Walker, 1987; Harrow, Carone, & Westermeyer, 1985; Crow, 1980). Psychotic symptoms are both distressing and disabling, gross functional deficit can result from persistent psychotic symptomatology (Harrow, Rattenbury, & Stoll, 1988). The cost for treatment of these persistent symptoms in terms of lost individual potential, family burden and service utilization is high (WORLD HEALTH ORGANIZATION, 1991; Garety, Kuipers, Fowler, Chamberlain, & Dunn, 1994).

The correlation between psychiatric symptoms and wide varieties of functional deficits has drawn a considerable amount of attention. There are functional skills e.g. social skill, work performance & instrumental ADL, reported to be very much affected by psychiatric symptoms (Lysaker & Bell, 1995; Fenton & McGlashan, 1991; Pogue-Geile, 1989). These functional deficits eventually cause a lot of problems in clinical management and all these deficits hinder the patients to re-integrate back to the
In response to the fact that many schizophrenic patient are resistive to treatment, which in turn affects their functional ability, researchers have tried to apply psychological interventions, e.g. cognitive-behavioral treatment, to help these patients to cope with their symptoms. Although some of the outcomes are encouraging (Wykps, Parr, & Landau, 1999; Fowler, Garety, & Kuipers, 1995; Garety, Kuipers, Fowler, Chaiiberlain, & Dunn, 1994; Chadwick & Birchwood, 1994), a number of controversial issues have been brought up by some other authors (Curtis, 1999a, 1999b). This trend of interest in symptomatology also happens in the local scene of Hong Kong (Lee, Lieh-Mak, Yu, & Spinks, 1993).

As symptomatology and functional deficit are critical considerations in the rehabilitation of the schizophrenic patients, and there is a lack of related research in the Chinese population, this study aims at evaluating the effect of cognitive behavioral intervention on symptomatology, and to examine the functional changes resulted from the relief of psychiatric symptoms. A therapeutic group based on cognitive behavioral therapy approach is also developed.
CHAPTER 2: LITERATURE REVIEWS

SCHIZOPHRENIA

Schizophrenia is still a disorder of unknown causes; it is typically characterized by psychotic symptoms that significantly impair functioning. It involves disturbances in feeling, thinking, and behavior (Kaplan & Sadock, 1996). According to the definition of the ICD-10 (International Classification of Diseases-10) (World Health Organization, 1993), schizophrenic disorders are characterized in general by fundamental and characteristic distortion of thinking and perception, and affects that are inappropriate or blunted. In schizophrenic patients, clear consciousness and intellectual capacity are usually maintained, though certain cognitive deficits may evolve in the course of time. The most important psychopathological phenomena as described in ICD-10 (World Health Organization, 1993) include thought echo; thought insertion or withdrawal; thought broadcasting; delusions of control; hallucinatory voices commenting on or discussing the patient in the third person; thought disorders and negative symptoms.

Schizophrenia usually onset in late adolescence or early adulthood and often become chronic and disabling. In acute schizophrenia, the active clinical signs and symptoms are more prominent and may include delusions, hallucinations, jumbled and
incoherent thoughts, bizarre behaviors, etc. These may be collectively called positive symptoms. Whereas in the chronic stage of schizophrenic illness, the major phenomena may include psychomotor slowing; underactivity; blunting of affect; passivity and lack of initiative; poverty of quantity or content of speech; poor non-verbal communication by facial expression; eye contact, voice modulation and posture; and poor self-care and social performance (World Health Organization, 1993). These are sometimes referred to as negative symptoms.

Classically, the course of schizophrenia is deteriorating over time. Florid positive symptoms as mentioned above, tend to diminish in intensity, while the more residual negative symptoms, such as poor hygiene and flattened emotional response may actually increase.

The occurrence of schizophrenia in general population is about 1.5% and the prevalent age of onset is from 15 to 35 (Kaplan & Sadock, 1996). According to the record of the World Health Organization (World Health Organization, 1996), there was estimated 45 million people with schizophrenia in the world. More than 33 million of schizophrenia are reported in the developing countries. In Hong Kong, the estimated number of person suffered from schizophrenia who needed hospitalization in 1998 was
Epidemiological studies in the western countries have indicated that schizophrenia is more prevalent in low-income populations. Although research has provided little evidence for understanding the social origins of schizophrenia, it does provide strong support for the hypothesis that social and cultural factors affect the course and prognosis of the disease (World Health Organization, 1996). There is evidence that the first-degree biological relatives of individuals with schizophrenia have a risk for schizophrenia that is about 10 times greater than that of the general population (American Psychiatric Association, 1995).

Approximately 40% and 80% of schizophrenic patients relapse in 2 years with and without medication respectively. This is a relatively high re apse rate among many psychiatric disorders and it gives a huge burden on health care financing.

The cost for the treatment of schizophrenic population is huge in many societies. For instance in the United States, the direct cost of treatment of schizophrenia has been estimated to be close to 0.5% of the gross national product (World Health Organization, 1996).
POSITIVE AND NEGATIVE SYMPTOMS OF SCHIZOPHRENIA

The concept of positive and negative symptoms was originally formulated by the British neurologist John Hughlings Jackson in 1931 (Hales, Yudofsky, & Talbott, 1999). As mentioned in the above section, the major symptoms in schizophrenic disorder include hallucinations, thought disorder, and many other deficits in thinking.

Research suggests that if these symptoms are not resolved within the first two years of onset of the illness, schizophrenia tends to run a deteriorative course and to endure for the rest of one's life (Kay, 1991). Patients suffer from schizophrenia may ultimately lose the ability to take care of themselves in the later course of the development of schizophrenia.

Crow (1980) and Andreason and Olsen (1982) have suggested that two distinct syndromes in schizophrenia can be discerned from the phenomenological profile. Type I, or positive, syndrome is composed of florid symptoms, such as delusions, hallucinations, and disorganized thinking, which are superimposed on the patient’s mental status. Type II, or negative, syndrome is characterized by deficits in cognitive, affective, and social functions, including blunting of affect and passive withdrawal.

According to Crow (1980), positive symptoms prevail in the acute stage and may
signify an excessive transmission of dopamine in the brain. As us is characterized by the neurochemical abnormality, it would be expected to respond to neuroleptics medication. He further suggested that negative symptoms, on the other hand, prevail in the chronic stage and may signify structural brain abnormality, e.g. enlarged ventricles in the brain, hence cell loss and cortical atrophy. Therefore, it would be expected to have neuroleptics medication resistance. But this suggestion is later challenged by another group of researchers (Carpenter, Heinrichs, & Alphs, 1985) who suggested that negative symptoms do not form a stable and unitary construct. In other words, this group of researchers proposed that the structural brain abnormality would not necessarily be an irrecoverable one.

A significant proportion of patients with psychotic illness experience persistent positive symptoms. Harrow, Carone, and Westenneyer (1985) reported from the result of a two-year follow up study that about 55 to 60% of patients with schizophrenia continue to be deluded to some extent after they have been discharged from mental hospital. These persistent psychotic symptoms are reported to be very distressing and disabling for the schizophrenic patients. These also increase the affective symptoms of schizophrenia (Garety et al, 1994). Moreover, as these positive symptoms continuously disturb the
schizophrenic patients, the risk of suicide in schizophrenia is suspected to be very high. And this problem is being increasingly recognized by health care professionals.

The psychopathological development of schizophrenia changes throughout the course of illness. In the acute and early phase, schizophrenia usually presents prominently with the type I or positive symptoms, with some degree of the type II or negative symptoms. But gradually, the dominance of symptoms shifts from positive to negative. In the chronic phase of schizophrenia, the patients would be recognized by marked negative symptoms. However, positive and negative symptoms are not mutually exclusive in the process of schizophrenia, but instead, they may appear simultaneously. A schizophrenic patient may experience auditory hallucination and delusion together with a clinical presentation of neglecting his self-care and avoiding social interaction. From clinical observation, it is more frequent to have schizophrenic patients with both positive and negative symptoms together instead of either one. This is also supported by the description in DSM-IV (Diagnostic and Statistical Manual of Mental Disorders 4th edition) which states that the essential features of schizophrenia are a mixture of characteristic signs and symptoms, both positive and negative, that have been present for a significant portion of time during a 1-month period, with some signs of the disorder persisting for at
east 6 months (American Psychiatric Association, 1995).

Although the distinction of the positive and negative symptoms seems to be an obvious appeal, the validity of such a distinction remains a matter of debate. Carpenter and colleagues (1985) had argued that several symptoms which have been classified as negative, e.g. disorientation and attentional impairment might actually be secondary to positive features. Therefore, a patient who is floridly psychotic may seem more distracted, isolated, confused, or dysfunctional without presenting a true deficit syndrome. Other researchers (Bilder et al., 1985; Comblatt et al., 1985) had confirmed that an attentional impairment, for example, clusters equally with negative and positive phenomena. Kay (1991) also challenged that the classification of positive aid negative symptoms are grossly misleading as the description of negative syndrome is not specific in previous research studies.

In order to avoid the ambiguities with regards to positive and negative categorization, this study will employ groupings according to the nature of the symptoms concerned. The following are symptom areas fat are widely accepted in the field of psychiatry: (a) perceptual disorder (hallucinations), (b) thought content disorder (delusional beliefs), (c) thought process disorder (disorganized speech including loosening of associations), (d)
social withdrawal, (e) affect abnormality (affect bluntness and inappropriateness), and (e) behavioral agitation.

SYMPTOMATOLOGY AND FUNCTIONING

Wide varieties of functional deficits had been documented to have correlation with psychiatric symptoms, e.g. social skill, work performance, instrumental ADL, etc (Lysaker & Bell, 1995; Fenton & McGlashan, 1991; Pogue-Geile, 1989). These functional deficits cause a lot of problems in the clinical management of the schizophrenic patients and all these deficits hinder the patients to re-integrate back to the community. Besides, psychotic symptoms are both distressing and disabling (Harrow, Rattenbury, & Stoll, 1988). Cost of these persistent symptoms in terms of lost individual potential, family burden and service use is huge (World Health Organization, 1996; Garety, Kuipers, Fowler, Chamberlain, & Dunn, 1994).

There is a complex relationship between positive symptoms, negative symptoms and general deficit in functioning in schizophrenic patients as described by Tarrier (1992). Social withdrawal, for instance, is a common clinical presentation of schizophrenia. This may be due to persistent paranoid ideas or persecutory delusions.; But, on the other hand,
it may also be a result of the development of negative symptoms. This complex relationship is farther complicated by the effect as well as side-effect of psychiatric medication. This complex relationship resulted in few researches focused in this area.

But among the few, Walker (1987) concluded from previous researches on neuropsychological tasks performance of schizophrenia that, positive and negative symptoms are not associated in a general manner with generalized performance deficits across the board. Instead, it appears that the two symptom dimensions are linked with different types of impairments. The neuropsychological tasks associated with positive symptoms share two qualities which require auditory processing and involve linguistic stimuli. Whereas, negative symptoms are associated with tasks demanded for visual information processing and visual-motor coordination.

In the present study, the functional abilities that are required for independent living in the community are of particular interest. From daily clinical observation, these abilities can be classified into five major areas: (a) self care (the ability to take care of oneself, e.g. hygiene), (b) non-turbulence (the present or absent of disturbing behaviors), (c) social contact (the ability to use community facilities), (d) communication (the ability to communicate with others), and (e) responsibility (the ability to take duties and
responsibilities). All these functional areas contribute to whether a psychiatric patient is ready for discharge back to the community from the hospital.

**DRUG TREATMENT FOR THE SCHIZOPHRENIC SYMPTOMS**

The first antipsychotic drugs appeared in early 1950s (Janes & Holliday, 1996). And soon after the development of chlorpromazine, a drug is still used nowadays in the 90s, a lot of antipsychotic medications were developed. This offers treatments that consistently lead to a decrease in the severity of psychotic symptoms in the schizophrenic population. With this new development of medication in the 50s and 60s, pharmacotherapy has been consistently considered the most effective first-line treatment (Lee, Lieh-Mak, Yu, & Spinks, 1993). All of the positive symptoms associated with schizophrenia are reported to be affected to some degree by the antipsychotic drugs (Marder. 1992). Although antipsychotic medications seem to act on the mental process that leads to psychotic thinking in schizophrenics, they are not exclusively anti-schizophrenic'. These drugs have a number of important limitations, e.g. they are not effective for all patients, they have a number of serious adverse effects, and they are limited in what they can do (Marder, 1992). It was found that after long-term usage of ant
psychotic medication, there would be increased risk of serious extrapyramidal and motor side effects on the patients (Jones & Hollidays, 1996). Besides, the majority of these drugs are designed to produce a blockade of the dopamine (D2) receptors. This focus leads to the development of medications that treats the positive (psychotic) symptoms of schizophrenia but not the negative symptoms. Moreover, the dopamine down-regulation in the motor system lead to side effects such as parkinsonism, dystonia, akathisia, and tardive dyskinesia (Jones & Hollidays, 1996).

In response to these drawbacks, a second generation of antipsychotic medication was developed in the 1980s. Researches also showed that these newer drugs appeared to improve the positive as well as the negative symptoms of schizophrenic patients without major side effects. But still, not all schizophrenic patients react satisfactorily to these second-generation antipsychotic drugs.

TREATMENT RESISTANT SCHIZOPHRENIA

There are multiple definitions of treatment resistance in schizophrenia. Meltzer (1990) considered treatment resistance to be present when any positive symptoms or significant negative symptoms persisted despite treatment. Whereas Kan et al. (1988)
specifically defined treatment resistance in terms of symptoms that persist after treatment trials of at least three different antipsychotics from at least two different classes which are given for a period of six weeks each at a dose of at least 1000 mg of chlorpromazine equivalents.

Collins, Hogan, and Awad (1992) found that one-half of the patients in a long-stay psychiatric institution who had schizophrenia that showed resistance to treatment were given antipsychotic medications at doses similar to those of patients with acute schizophrenia. Moreover, some clinical findings show that there appears to be no benefit from increasing dosages of antipsychotic medications in the treatment resistant schizophrenic group (Rifkin et al., 1991). Therefore, it is reasonable to suspect that lack of response to medication may be a general phenomenon, rather than the results of a failure of a particular therapeutic agent.

**PSYCHOLOGICAL TREATMENT FOR SCHIZOPHRENIC SYMPTOMS**

Increasingly over the past decade, consideration has been given to the possibility that patients may not be totally impotent in relation to their symptoms; they may be able to exercise control over them, at least developing an ability to cope with them. Hamilton
(1984) suggests that patients should be advised to ignore their "voices" and delusions. Lee et al (1993) reported that 42% of their research subjects endorsed "cognitive coping efforts" to control their symptoms. Fallen and Talbot (1981) also investigated 40 patients with persistent auditory hallucinations and uncovered three groups of strategies they used to cope with these symptoms, namely behavior change, efforts to lower physiological arousal, and cognitive coping methods. McNally and Goldberg (1997) identified nine types of self-talk that schizophrenic patients use actively in their own efforts toward managing psychotic symptoms and they called these types of self-talk as "coping self-talk" which pertained to cognitive strategies.

Based on many naturalistic research findings, it is reasonable to hypothesize that cognitive intervention may be a useful approach to help schizophrenic patients to manage their symptoms. Among all cognitive interventions, the cognitive behavioral approach is one of the most well documented approaches to help the schizophrenic patients to control psychiatric symptoms (Fowler, Garety, & Kuipers, 1995; Kingdon & Turkington, 1995; Tarrier et al, 1993, 1998, 1999). A general treatment principle of the cognitive behavioral therapy for schizophrenia has been suggested and will be further explained in the next section (Nelson, 1997).
Besides, many other psychological treatments for schizophrenic symptoms have also been developed. Multiple psychological approaches have been documented to be effective in treating the schizophrenic patients. These include self-instructional training (Meichenbaum & Cameron, 1973), belief modification (Hawton, Salkovskis, Kirk, & dark, 1989), modification of cognitive processes (Adams, Malatesta, Brontley, & Turkat, 1981), thought stopping (Lamontagne, Audet, & Elie, 1983), self-control (Alford, Fleece, & Rothblum, 1982), coping strategies (Tarrier, Harwood, Yiasopoff, Beckett, & Baker, 1990), control of auditory input (Feder, 1982), etc.

All these treatment methods derived from general psychological theories and applied to clinical problems rather than being directly formulated from specific psychological theories of schizophrenic psychopathology. Moreover, as reported by Tamer (1992), there is a lack of group controlled studies with the majority of published reports describing uncontrolled comparisons or single cases. This limits the generalizability of any results.

BASIC CONCEPTS OF THE COGNITIVE BEHAVIORAL MODEL

A basic concept for the cognitive behavioral model of therapy is the relationship
between our thoughts and our feelings (Nelson, 1997). This suggests that the way we feel about a situation or experience depends on the way we perceive and interpret it. The following figure is an illustration of the relationship between thoughts, feelings and beliefs.

![Diagram](image)

*Figure 1. The relationship between our thoughts, feelings and belief.*

Another basic concept for cognitive behavioral therapy is that the thoughts we have about a situation are influenced by our beliefs about ourselves and the world (Nelson, 1997). For different persons, THE same situation led to different thoughts and hence to different feelings, but it is also true that the same thought can lead to different emotional responses in different people. Thus, it is clear that beliefs that a person brings to a situation mediate the basic “situation → thought → emotion” process mentioned above.

In the “situation → thought → emotion” process, thoughts flow through our minds
in a steady stream and produce other thoughts. This has been called "thought chain". In normal people, this thought chain maintains concentration and emotion, and it is quite essential to our daily life. But, in the case of mentally ill person, this thought chain becomes a maladaptive cycle. Psychotic experiences of the mentally ill persons tend to influence subsequent thoughts in such a way as to maintain or exacerbate the emotional state (Nelson, 1997). The symptoms - thought relationship is then a two-way mechanism. The thoughts produce the symptoms but then the symptoms influence the thoughts. This is often called the “symptom maintenance cycle”. Therefore, based on the therapeutic assumption of cognitive behavioral therapy, it is possible for us to arrest this cycle by modifying the thought of a person.

/. **Functional and dysfunctional beliefs**

Beliefs can be described either as functional or dysfunctional. Functional beliefs normally refer to those that are useful and positive to a person in. Many functional beliefs serve as a protective mechanism to us, e.g. "If I jump down from the second floor of a building, I will get hurt or die". Dysfunctional beliefs on the other hand are those that are unhelpful and negative to a person holding them. e.g. "My work performance gets better
after I take some cannabis!"

//. **Belief formation and Self-confirmation of delusional belief**

For a normal person, beliefs develop from experience of the world. This includes both internally generated experiences as well as our direct experiences of the world (Nelson, 1997). And new beliefs are influenced by the existing belief system because the existing beliefs affect the perception and interpretation of any new information. This in turn results in a tendency that new beliefs developed would resemble the exiting belief system and will fit without causing inconsistencies. But, when new beliefs contradict and be held more strongly than the existing belief, the latter has to be changed or adapted in order to incorporate the new belief.

Our beliefs sometimes confirm themselves by influencing the perception and interpretation of incoming evidence. The following figure illustrates the relationship.
In people with schizophrenia, the delusional beliefs appear to behave in a similar way (Nelson, 1997). When facing contradictory evidence to the delusional belief, many schizophrenic patients tend to distort the perception and interpretation of the incoming evidence so as to maintain their existing beliefs. Thus, one of the basic principles of cognitive behavioral therapy is to modify the existing belief in order to arrest this viscous cycle.
DIFFERENT TYPES OF COGNITIVE BEHAVIORAL THERAPY

I. Modification of delusional beliefs (Garety et al., 1994)

The therapist carefully elicits the person's view of the reasons for the development and maintenance of the delusional beliefs. This involves discussion of the development of beliefs in the past. Then the therapist invites the patient to consider alternative interpretations of specific pieces of evidence cited by the patient. I lore peripheral evidence and beliefs are addressed before moving to a re-evaluation of central belief.

II. Modifying dysfunctional assumptions (Garety et al., 1994)

Some patients with persistent psychotic symptoms hold dysfunctional assumptions about the self which imply worthlessness, uselessness, etc. These assumptions may be associated with self-defeating patterns of thought and behavior. Therapy then starts by attempting to clarify the nature of the assumptions held. Once dysfunctional assumptions have been clarified, cognitive therapy procedures are used to restructure such assumptions and develop more adaptive and positive self-appraisals.

III. Copying Strategies based on Cognitive Behavioral Principles (Garety et al., 1994)

A. Cognitive Behavioral Coping Strategies

Cognitive behavioral coping strategies aim to equip the patient with a set of
adaptive ways of managing the episode of psychotic experience. Detailed analysis of environmental situation associated with the patient's experience of psychotic symptoms is conducted before using cognitive behavioral coping strategies. These analyses are then discussed with the patient and the implication of new ways in which the patient may act or think to reduce frequency of symptom onset, or distress or disability in such situations are discussed. The patient is then encouraged to practice the new coping strategies and to experiment with a number of different strategies until a useful coping repertoire is developed.

B. Psychoeducation (Garety et al, 1994)

The aim of psychoeducation is to help the person to re-label psychotic experiences and to suggest that such experiences are not unique, but have been described by others in the group (Kingdon & Turkington, 1991). Therapy starts with eliciting specific examples of psychotic experience and then by suggesting that there may be rational explanations for the occurrence of such experience. This probably leads to the development of rationales for taking medication, or adapting behavioral patterns likely to reduce the risk of relapse. This results in new understanding toward reducing the risk for psychotic experience in the future.
Although there are a lot of overseas research studies reporting the usage of cognitive behavioral therapy for schizophrenia, very few research studies have been documented in the local Chinese mental health scene. In this study, a therapeutic group will be conducted by the researcher, developed on the basis of cognitive coping methods. Its effectiveness will also be evaluated.

LIMITATION OF COGNITIVE BEHAVIOURAL THERAPY

Although cognitive behavioral therapy has been shown to have positive effect on controlling psychotic symptoms, some authors held very different views. Curtis (1999a) argued that cognitive behavioral therapy is no better than supportive counselling in schizophrenia. As many schizophrenic patients were receiving other forms of routine care when cognitive behavioral therapy was conducted, e.g. supportive counselling, it was hard to say that what interventions affect the course of the illness. He further argued that although evidence has been provided that the course of schizophrenia can be improved by psychological support, it couldn't conclude that cognitive behavioral therapy exerts any direct effect (Curtis, 1999b).

It is hard to determine whether cognitive behavioral therapy actually has specific
Effect of CBT on Schizophrenic Patients

Effect over placebo. Besides, in many previous researches, patients who received cognitive behavioral therapy would get better "quality" of attention. Thus, result from therapeutic intervention in cognitive behavioral therapy may be biased in term of the outcome of treatment.

Apart from the challenge of the "non-specific" effect of cognitive behavioral therapy, the financial cost is another issue that receives plenty of criticism. Reported by Tarrier et al. (1998), there was no significant difference between cognitive therapy and non-specific "supportive counselling" in improving symptoms in people with schizophrenia. But financially, cognitive behavioral therapy is more expensive than supportive counselling. This in turn indicates a fact that more money is spent on a therapeutic intervention with very little evidence.

AIMS OF THE PROPOSED STUDY

After reviewing the literature, it was found that the effect of cognitive behavioral therapy in reducing psychotic symptoms was not clearly known. Moreover, there was lack of research evidence demonstrating functional enhancement of schizophrenic patients after reduction of psychotic symptoms. Therefore, this study tried to develop a
treatment group based on the cognitive behavioral approach to help schizophrenic patients to cope with their psychiatric symptoms. And the effectiveness of this newly developed group in reducing psychotic symptoms in schizophrenic patients was evaluated. Finally, functional improvement resulted from the reduction of symptoms was assessed,

**HYPOTHESIS**

The followings hypotheses were then set up for this study:

1. There would be reduction in psychotic symptoms, including hallucination, delusion, thought process disorder, social withdrawal, affect abnormality and behavioral agitation of the schizophrenic patients immediately and one-month after receiving cognitive behavioral therapy.

2. There would be improvement in five areas of functioning, namely self care, non-turbulence, social contact, communication and responsibility in schizophrenic patients immediately and one-month after receiving cognitive behavioral therapy.

3. The improvement in functioning immediately and one-month after treatment is secondary to concurrent reduction in psychotic symptoms. That is, the improvement in functioning would be diminished after controlling for symptoms levels.
CHAPTER 3: METHODOLOGY

PARTICIPANTS

50 psychiatric in-patients of Kwai Chung Hospital were recruited in this study by purposive sampling. All participants were diagnosed by psychiatrists or psychiatry trainees to be suffering from schizophrenia with active positive psychotic symptoms for more than one year (i.e. treatment resistant). Matched Pairs Design method was employed in order to ensure the participants in the experimental and control group had the same characteristics (Portney & Watkins, 1993). These characteristics included sex, length of stay in the hospital and age. During the inclusion of participants, pairs of objects were purposefully selected within the subject pools. Participants that most matched each other on sex, length of stay in the hospital and age were selected and then randomly assigned to either control or experimental group.

After the matching procedure, same numbers of male and female were assigned in the control and experimental group. Moreover, no statistical differences were found in the length of stay in the hospital \((t_{48} = 0.346, p > .01)\) and age \((t_{48} = 1.342, p > .01)\) between the two groups.

The recruitment of the sample in Kwai Chung Hospital had been approved by the
"Hospital Ethics Committee". Detailed explanation of the aims and procedures of the study were given to the participants by the researcher. And they were informed that all services they were receiving in Kwai Chung Hospital would not be changed in the duration of study. All participants provided written consent to participate in this study.

There were 38 males and 12 females in the sample (Figure 4) and their mean age was 44.4 with a range from 22 to 69 (Figure 5).
Their average length of stay in the hospital was 26.24 months with a range from 12 months to 68 months (Figure 6).
RESEARCH DESIGN

A pretest-posttest control group design was used in this research study (Cook & Campbell, 1979; Portney & Watkins, 1993). The experimental group received cognitive behavioral therapy group, whereas the control group received a series of educational groups. Pretest and two posttests (immediately after treatment aid at one-month follow-up) were conducted in order to assess the effect of cognitive behavioral therapy.

EXPERIMENTAL GROUP (n=20)

There were totally five 6-session treatment groups conducted with 5 participants in each group.

The content of the 6 sessions developed on the basis of cognitive behavioral coping strategies, modification of beliefs and psychoeducation approach described in Chapter 2.

The contents of session 1 and 3 are based on the psycho-educational approach. These two sessions provide information on delusion and hallucination respectively. Contents include rational explanations for the occurrence of psychotic experience.

Session 2 based on the approach of modification of delusional belief (Garety et al., 1994). The aim of this session is to identify and verbalize the delusional beliefs of the participants and help them to accept the delusion as a disease symptom. Session 4 and 5
introduce coping strategies based on cognitive behavioral principles (Garety et al., 1994).

These two sessions aim to provide patient with adaptive ways of managing the episode of psychotic experiences. Session 6 is a round up session which summaries the whole group.

The participants were taught about the nature of delusions and hallucinations, and the possible methods to cope with delusions and hallucinations. Practice and cognitive rehearsal were conducted during the session. Participants were encouraged to practice the teachings after the sessions.

**CONTROL GROUP (n=20)**

There were also five six-session groups with 5 participants in each group. The content of these sessions mainly included educational talk on half-way house; sheltered workshop; long stay care home, day activity center, singleton hostel and day hospital services. The total number of contact hours in the control group was the same a. that in the experimental group.
MEASUREMENTS

Measurement of Symptomatology

The Positive and Negative Syndrome Scale (PANSS) (Kay, 1991) was adapted to provide measurement of schizophrenia symptomatology. The original scale contains 7 items for positive symptoms and another 7 for negative symptoms. (The General Psychopathology subscales was not included as it was irrelevant to the purpose of the study). However, as mentioned, this study will not employ the positive-negative distinction Items from PANSS were therefore selected to provide an assessment of six symptom areas: (a) hallucinations (1 item), (b) delusions (3 items), (c) thought process disorder (3 items), (d) social withdrawal (2 items), (e) affect abnormality (2 items), and (f) behavioral agitation (2 items).

The assessment of these symptoms was provided by an occupational therapist who worked with the patients on a day-to-day basis and therefore knew them well, but who was blind to the study hypotheses. A behavioral evaluation plus a four-phase 35-minute interview was conducted (Table 1). Description of each symptom was explained to the administrator. This was followed by seven-point ratings on the symptoms with ‘Absent = 1’, ‘Minimal = 2’, ‘Mild = 3’, ‘Moderate = 4’, ‘Moderate
severe = 5’, ‘Severe = 6’, ‘Extreme = 7’. The ratings provide summary scores on all the six symptom areas.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Approx. time (mins.)</th>
<th>Objectives</th>
<th>Interview Strategy</th>
<th>Areas of Inquiry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-interview</td>
<td>5</td>
<td>Obtain specific data on functioning outside the interview situation</td>
<td>Inquiry from primary care staff or family</td>
<td>Social behavior, emotional involvement, motor functions, life functions, hostility, impulse control, and management problems</td>
</tr>
<tr>
<td>I</td>
<td>5-10</td>
<td>Establish rapport; Observe spontaneous organization of ideas; abnormal behavior, and pathological themes</td>
<td>Unstructured; Nondirective</td>
<td>History, onset of illness, events that led to hospitalization, and special concern</td>
</tr>
<tr>
<td>II</td>
<td>15</td>
<td>Systematically pursue areas of psychopathology to ascertain the presence and severity of symptoms</td>
<td>Semistructured; Use of leading questions that become progressively more focused</td>
<td>Impaired insight, delusions, hallucinations, suspiciousness, and guilt feelings</td>
</tr>
<tr>
<td>III</td>
<td>5-10</td>
<td>Directly assess subjective feelings, orientation, and abstract reasoning</td>
<td>Structured; Use of specific set of questions</td>
<td>Mood state, anxiety, orientation to three spheres, and abstract reasoning ability</td>
</tr>
<tr>
<td>IV</td>
<td>5-10</td>
<td>Clarify information; Assess full range of psychopathology; Observe response to stress and vulnerability to disorganization</td>
<td>Directive; Testing of limits</td>
<td>Further probe of responses that were avoided, ambivalent, or illogical</td>
</tr>
</tbody>
</table>

Table 1
Organization of the Clinical Interview (Kay, 1991)

The Life Skill Profile (LSP)

The LSP (Hadži-Pavlović, Rosen, & Parker, 1992) was applied to measure the
functional abilities of the participants, which were required for their survival to live in the community. The LSP measures patients' ability rather than disability. It consists of 39 four-point items, with ‘not at all = 4’, ‘slight = 3’, ‘moderate = 2’ to ‘extreme = 1’. In another words, the higher the score, the higher is the functional level.

The 39 items are included in five sub-scales in the LSP namely, 'self-care', 'non-turbulence', 'social contact', 'communication' and 'responsibility'. Self-care subscale includes items that reflect ability to take care of oneself. Non-turbulence subscale identifies disturbing behaviors of an individual living in the community. Items that measure ability to make contact with the community institution, e.g. day-care center are included in the Social Contact subscale. Communication subscale refers to the initiative and skills of an individual to communicate with others. The Responsibility subscale reflects whether an individual can fulfill one's social role in the community. All 39 items are included to measure the functional abilities required to live in the community of the participants in the present study.

As reported by Hadži-Pavlović et al. (1992), the test-retest ratings made by case workers, residential carers and parents on two occasions four weeks apart showed intra-class correlations of 0.90, 0.84, 0.87, 0.78, 0.84, and 0.89 for the self-care,
non-turbulence, social contact, communication, responsibility and total score respectively.

Inter-rater agreement measured with Pearson correlation ranged from 0.53 to 0.75 for tile sub-scales and 0.80 for the total.

Validity was also reflected by findings that the LSP scores were significantly associated with complaints to police, complaints by neighbours and hospital readmission (Hadži-Pavlović et al. 1992).

PROCEDURE

Three individual measurements were conducted at different points in time: 1) before the first session, 2) immediately after the final session, and 3) one month after the group sessions.

During the first measurement, the six symptoms measures were measured and the Life Skills Profile (LSP) were administered. A debriefing of the group was conducted at the end of the final session and the measurements were again administered. The participants were individually contacted one month later to provide another measurement in the hospital by an occupational therapist.

The LSP was used to measure the functional level of the participants, whereas the
symptomatology of the participants was measured by the six symptom areas.

One trained occupational therapist who was blind to the hypothesis was responsible for rating the participants.

In order to assess the reliability of the assessment results, another trained occupational therapists who was also blind to the study was invited to rate the experimental and control participants in the pretest session.
CHAPTER 4: RESULTS

RELIABILITY OF THE INSTRUMENTS

The Cronbach's $\alpha$ was 0.78, 0.92, 0.96, 0.88 and 0.60 for the delusion, thought process disorder, social withdrawal, affect abnormality and behavioral agitation respectively (hallucination category consisted of only one item). Pearson's correlation analysis found that the inter-rater reliability ranged from 0.50 to 0.95 with $p < .005$ for the five symptom areas (Table 3).

The Cronbach's $\alpha$ was 0.86, 0.88, 0.92, 0.92, & 0.80 for LSP's self care, non-turbulence, social contact, communication & responsibility subscale. Pearson's correlation analysis revealed that the inter-rater reliability in LSP ranged from 0.81 to 0.93 with $p<.005$ (Table 2).

These findings indicated that both measurement of symptom areas and LSP had a moderate to high internal consistency and inter-rater reliability.
Effect of CBT on Schizophrenic Patients

Correlation between the (1) length of stay in the hospital, (2) symptom areas, and (3) LSP’s subscale and total score, was conducted on the pre-test measurements. It was found that:

1. Length of stay in the hospital was positively correlated with the social withdrawal \( r = 0.56, p < .001 \); the affect abnormality \( r = 0.63, p < .001 \); and the thought process disorder \( r = 0.56, p < .001 \).

2. Length of stay in the hospital was negatively correlated with LSP’s self care subscale \( r = -0.401, p < .001 \); non-turbulence subscale \( r = -0.313, p < .005 \); social contact

### Table 2.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson’s Correlation (n = 25)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Symptom Areas</strong></td>
<td></td>
</tr>
<tr>
<td>Hallucinations</td>
<td>0.50 (&lt;.005)</td>
</tr>
<tr>
<td>Delusions</td>
<td>0.91 (&lt;.005)</td>
</tr>
<tr>
<td>Thought Process</td>
<td>0.94 (&lt;.005)</td>
</tr>
<tr>
<td>Social Withdrawal</td>
<td>0.95 (&lt;.005)</td>
</tr>
<tr>
<td>Affect Abnormality</td>
<td>0.91 (&lt;.005)</td>
</tr>
<tr>
<td>Agitation Behaviors</td>
<td>0.92 (&lt;.005)</td>
</tr>
<tr>
<td><strong>LSP</strong></td>
<td></td>
</tr>
<tr>
<td>Self Care Subscale</td>
<td>0.81 (&lt;.005)</td>
</tr>
<tr>
<td>Non Turbulence Subscale</td>
<td>0.92 (&lt;.005)</td>
</tr>
<tr>
<td>Social Contact Subscale</td>
<td>0.92 (&lt;.005)</td>
</tr>
<tr>
<td>Communication Subscale</td>
<td>0.90 (&lt;.005)</td>
</tr>
<tr>
<td>Responsibility Subscale</td>
<td>0.92 (&lt;.005)</td>
</tr>
<tr>
<td>Total Score</td>
<td>0.93 (&lt;.005)</td>
</tr>
</tbody>
</table>
subscale ($r = -0.544, p < .001$); communication subscale ($r = -0.530, p < .001$) and total score ($r = -0.599, p < .001$).

3. Thought content disorder was negatively correlated with the LSP non-turbulence subscale ($r = -0.48, p < .001$).

4. Agitation behavior was negatively correlated with the LSP non-turbulence subscale ($r = -0.32, p < .001$).

5. Social withdrawal was negatively correlated with the LSP's self-care subscale ($r = -0.38, p < .001$); social contact subscale ($r = -0.77, p < .001$); and communication subscale ($r = 0.60, p < .001$).

6. Affect abnormality was negatively correlated with the LSP’s self-care subscale ($r = -0.39, p < .001$); social contact subscale ($r = -0.74, p < .001$); and communication subscale ($r = -0.73, p < .001$).

7. Thought process disorder was negatively correlated with LSP’s self-care subscale ($r = -0.30, p < .005$); social contact subscale ($r = -0.64, p < .001$); and communication subscale ($r = 0.82, p < .001$).
BASELINE COMPARISON

Independent t-tests showed that there was no significant difference between the control and experimental group in all the pretest measure (Table 4).
DIFFERENCE BETWEEN CONTROL AND EXPERIMENTAL GROUP

I. Posttest

There was a significant difference found between the two groups in the hallucinations ($t_{(48)} = -2.919$, $p < .01$). There were no significant differences found in other symptom measures. There were also no significant differences found between the two groups in the LSP’s subscale and total score (Table 5). This finding indicated that the experimental group reported fewer hallucinatory behaviors than the control group immediately after the treatment.
There were no significant differences found in all the six symptom areas between the experimental and the control group. Moreover, there were also no significant differences found in the LSP’s subscale and total score between the two groups in the one-month follow-up measurement (Table 6).

**Table 5.**
Comparison between the control and experimental group immediately after treatment

<table>
<thead>
<tr>
<th>Variable</th>
<th>Experimental Group</th>
<th>Control Group</th>
<th>Independent t test (df=48)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td><strong>Symptoms Areas</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hallucinations</td>
<td>4.32</td>
<td>0.63</td>
<td>4.88</td>
</tr>
<tr>
<td>Delusions</td>
<td>8.16</td>
<td>2.06</td>
<td>9.32</td>
</tr>
<tr>
<td>Thought Process</td>
<td>6.48</td>
<td>1.56</td>
<td>7.16</td>
</tr>
<tr>
<td>Social Withdrawal</td>
<td>6.48</td>
<td>1.69</td>
<td>6.72</td>
</tr>
<tr>
<td>Affect Behavior</td>
<td>6.72</td>
<td>1.72</td>
<td>7.08</td>
</tr>
<tr>
<td>Agitation Behavior</td>
<td>5.48</td>
<td>1.58</td>
<td>6.12</td>
</tr>
<tr>
<td><strong>LSP</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LSP Self Care Subscale</td>
<td>26.36</td>
<td>4.71</td>
<td>27.80</td>
</tr>
<tr>
<td>LSP Non Turbulence Subscale</td>
<td>30.08</td>
<td>4.98</td>
<td>31.36</td>
</tr>
<tr>
<td>LSP Social Contact Subscale</td>
<td>17.32</td>
<td>2.73</td>
<td>16.16</td>
</tr>
<tr>
<td>LSP Communication Subscale</td>
<td>16.69</td>
<td>4.28</td>
<td>16.32</td>
</tr>
<tr>
<td>LSP Responsibility Subscale</td>
<td>13.32</td>
<td>2.17</td>
<td>12.80</td>
</tr>
<tr>
<td>LSP Total Score</td>
<td>104.04</td>
<td>13.46</td>
<td>104.44</td>
</tr>
</tbody>
</table>

** p < .01 (1-tailed)

II. One-month follow up

There were no significant differences found in all the six symptom areas...
CHAPTER IN HALLUCINATORY BEHAVIOR OVER TIME IN THE CONTROL AND EXPERIMENTAL GROUP

“Hallucinatory behaviors” was selected for further study because it was the only item that showed a reduction after cognitive behavioral therapy. To take a closer look at the effect of cognitive behavioral therapy on hallucinations, the mean scores for hallucinatory behavior from pretest to one-month follow-up, for both groups of patient, are present in Figure 7.
This Finding showed that both groups had decreased in the hallucinatory behaviors in the posttest measurements compared with that in the pretest and one-month follow-up. The change in the control group was smaller compared with the experimental group. And the mean score of hallucinatory behavior relapsed to its pretest level one month after the treatment. In fact, the treatment group had even more hallucinations than the control group at follow-up, though the difference was not statistically significant. The findings suggested that the effect of cognitive behavior therapy on hallucinatory behavior was transient and the participants in the experimental group soon reported to experience hallucinations again.
EFFECT OF THE LENGTH OF STAY ON SYMPTOMATOLOGY AND FUNCTIONING

Social withdrawal and affect abnormality were positively co-related with the length of stay in the hospital. Besides, LSP’s self care, non-turbulence, social contact, communication subscale score and the LSP’s total score were also negatively correlated with the length of stay in the hospital. In other words, social-affective dysfunction seems to increase with the length of stay in the hospital and patients who are staying longer in the hospital tend to have poorer self-care, more disturbing behavior, lower social and general functioning. These are consistent with clinical observation. Institutionalization effect may account for part of the issue. Another factor that have to be addressed is the psychopathology of schizophrenia, which suggests that gradually, negative symptoms become marked in the later phase of schizophrenia (Kay, 1991). Self-care ability, disturbing behavior, social functioning and general functioning may also deteriorate as symptoms increase. This is further supported by the result that social, affect and thought process symptom categories had strong negatively correlations with the self-care, social contact and communication skills. These finding were consistent with previous studies.
Thought content and agitation symptoms were negatively correlated with the LSP’s non-turbulence subscale score. This result supported Monahan's (1992) assertion that when patients are actively experiencing psychotic symptoms like delusions and hallucinations, their risk of violence is significantly elevated.

EFFECT OF COGNITIVE BEHAVIORAL THERAPY ON PSYCHOTIC SYMPTOMS

The result showed that cognitive behavioral therapy had no significant effect on the psychotic symptoms, except hallucinatory experience, of the participants in the experimental group, compared with those in the control group, however, this difference between the control and experimental group had faded out when the measurement was taken one-month after treatment.

Delusional Belief

Delusional symptoms of experimental group participants did not show any superiority over those in the control group. Delusional symptoms did not demonstrate any reduction after the therapy in the experimental group- But previous studies had reported improvement in delusional symptoms after cognitive behavioral therapy (Tarrier et al.,...
1999; Jakes, Rhodes, & Turner, 1999; Garety et al., 1994; Tarrier et al., 1993). This inconsistency might be due to multiple factors.

Based on the General Model of Cognitive Behavioral Therapy (Figure 3), it was proposed that with appropriate therapy, e.g. education on mental illness and delusion, more adaptive beliefs and perspectives could be induced in the patients. These in turn alter the patient's interpretation of the situation and modify the maladaptive delusional beliefs.

But Watts, Powell, and Austin (1973) argued that this is danger with any attempt at modifying delusions. He further suggested a phenomenon called “psychological reactance”, where too direct an approach might serve to reinforce the belief instead. Watts et al. (1973) drew up some guiding principles designed to keep reactance to a minimum. They recommended that the modification should begin with those beliefs that are least strongly held. Moreover, the therapist should only ask to consider an alternative to their belief, rather than request them to adopt the alternative.

In the current study, these important elements were left out when designing the experimental group sessions. And most of the delusional beliefs that were being modified might not be those least strongly held. These might hinder the modification process and
eventually, the group exerted no significant effect on the participants.

Moreover, the content was focused on educating and inspiring 'rationality' to the participants. This was partly based on an assumption that delusions can be explained by rationalizing the psychotic symptoms (Jakes, et al., 1999). However, many other authors suggested that delusions are not solely inferences of abnormal experiences and they seem to reinforce themselves without responding to perception. (Jakes et al., 1999; Krystal et al., 1994). Thus, it may be impossible to modify the delusional belief by correcting abnormal experiences alone.

Another problem that obstructed the effect of the cognitive behavioral therapy group was that delusion was considered as "private experiences". Many participants in the experimental group regarded their delusion as "my own way of thinking". Cognitive behavioral therapy may bring about changes in the participants’ overt behavior, but not at the covert level. The participants simply acknowledged that their beliefs seemed unbelievable to others without really doubting their truth value. Similar observation was noted by Chadwick & Lowe (1990) in their study that patients tended to regard their delusion as their own way of thinking and they simply ignored all advised given by the researchers.
Freud (1926) also addressed this phenomenon. He explained that the delusional constructions of psychotic persons offer them a perspective and imagination, which enables a flow of mental activity which they could not easily find elsewhere. In other words, delusion is a desirable experience to the psychotic person. Freud called this "secondary gain from illness". He further suggested this gain helps the ego in its endeavor to incorporate the symptom and increases the symptom's fixation. The ego and symptom bonds together and operates to resist the external environment and they are not easy loosened.

From the above discussion, it can be concluded that using the psychoeducational approach of cognitive behavioral therapy alone may not be sufficient to modify delusional beliefs. Additional elements should be considered. These include (1) evaluating the strength of the delusional beliefs, (2) adopting a helping instead of 'forcing attitude, and (3) identifying the secondary gain of delusional beliefs. Taking these elements into consideration, the treatment group would become more individualized and specific. Further research is recommended to evaluate these effects on modifying delusional beliefs.
Another important finding in this study is that the only symptom type that responded to cognitive behavioral therapy was hallucinatory behavior. This finding supported Tamer's argument that, in a more detailed analysis of symptom types, greater improvement is shown in hallucinations in those who received cognitive behavioral therapy (Curtis, 1999a).

Homework practical elements of the cognitive behavioral therapy group, including using walkman and watching TV, were reported by the participants to be most helpful. The changes in daily habit when doing the homework practice may be a possible reason that affects the outcome. The insertion of the homework practice in the daytime routine reduces the chance of preoccupation of the participants. Most of them reported that they were more conscious of their hallucinations and they started to spend some of their daytime in learning to cope with the hallucination. This is suggested to be the main contribution of the homework practice.

But, interestingly, unlike previous studies, the reduction in hallucinatory experience could not be maintained over time. The hallucination of the participants only showed significant improvement immediately after the cognitive behavioral therapy
group but not one month after the treatment. When compared with the control group (Figure 6), the relapse in the treatment group was of a larger scale when treatment was discontinued. Besides, the hallucinatory behavior of the control group also had a slight decrease. These indicated that the treatment effect on the hallucinatory experience was rather transient.

These findings appeared to have slightly discrepant from those of previous studies (Tarrier et al., 1993; Tarrier et al., 1998; Tarrier et al., 1999; Wykes et al., 1999). Wykes and his colleagues (1999) found in their study that after 16 sessions of cognitive behavioral therapy, participants in their study showed improvement in hallucinations and this improvement maintained over six months after treatment.

Difference in the using of booster session might be one of the contributing factors to the discrepancy. In Tarrier et al. study in 1999, they reported that the improvement of hallucination could be maintained up to 12 months after the treatment. And monthly booster sessions were given for four months after the end of the treatment phase, Booster sessions are virtually identical to previous sessions, like a booster shot. Obviously, the authors had anticipated or expected lost of the improvement gained from treatment. The fading of the improvement in the present study might be due to the following factors: 1)
lack of practice, and 2) environmental constraint. After the treatment phase, the participants had to resume to their previous daily routines in the hospital. These routines surely were not favorable to the practice of the cognitive behavioral coping method. The hospital environment might actually reinforce the hallucinatory behaviors instead of reducing them (Goffman, 1962). As the participants resumed their previous routines in the hospital, they actually resumed the patient's role and identity. And it might be rather frustrating when they have to get back to their previous social groups in the hospital. Moreover, in order to fulfill their role as a patient, they may behave in a psychotic way again (Goffman, 1962). From clinical observation, many psychotic experiences reported by some patients, especially with mental retardation, are learned rather than true experiences. All these factors increase the likelihood that early gains in treatment would disappear.

Moreover, in a study of a community program for chronic psychiatric patients, Fairweather (1969) suggested that, some measures of attitude and behavior are situational specific. Within different communities or institutions, psychiatric patients adopted specific norms and took up the role required in different situations. During and after the treatment sessions, the participants might adopt different norms for their behaviors. The
modal behaviors suggested by the researcher during the treatment sessions obviously differed from the prevailing norms in the hospital wards. For example, treatment group participants were requested to share their psychotic experiences with other. During this process, a group norm was built up naturally. With this new norm the participants were unconsciously resuming some of their "forgotten" roles, e.g. to control their impulse and emotion in front of others. As there is no environmental requirement after the treatment, they might just take up the old patient role and stopped doing what they might actually be able to do.

EFFECT OF COGNITIVE BEHAVIORAL THERAPY ON FUNCTIONINGS

After the six sessions, no significant difference in functioning was found between the experimental group and the control group. The findings of the present study suggested that participants who had received cognitive behavioral therapy showed no advantage in any functional ability, despite there was a reduction of hallucinatory behaviors. This may be due to multiple reasons.

Firstly, the content of the cognitive behavioral therapy group was not designed to enhance functional level. As reported by many authors (Vaccaro et al., 1992), learning of
functional skills in mentally ill patients needs frequent practice and opportunity for skill transfer, thus the cognitive behavioral therapy should have no direct effect on the functioning of the participants.

Secondly, the Pearson's correlations between hallucinatory behaviors and the subscales of LSP ranged from -0.191 to 0.257. These weak correlations suggest that hallucinatory behaviors may have no effect on the functional ability of the participants. Therefore, no functional improvement was observed with the improvement of hallucinatory behaviors after the cognitive behavioral therapy.

From the results, it was also found that functional ability of the participants had relatively higher correlation with delusions than hallucination, which ranged from -0.481 to 0.174. These correlations show that delusions may have larger influences on the functional ability of the participants. As discussed previously, delusions were not amenable to change in this present study. This may in turn result in insignificant improvement in functional ability after the cognitive behavioral therapy.

LIMITATION OF THE STUDY

With regard to the methodology, there are limitations in the present study Firstly,
the numbers of group sessions are small and the duration was short-lived when compared with previous research studies, in which 15 or more sessions were the norm (Tarrier et al., 1993; Tarrier et al., 1998; Tarrier et al., 1999; Wykes et al., 1999). But due to time limitation, each treatment group could only contain six sessions (as it had to be repeated 5 times). The fewer number of sessions certainly affects the potency of the cognitive behavioral therapy. Moreover, as the treatment groups are conducted on a weekly base, the duration may be too long between each treatment session. This may further dilute the effect of the treatment.

Besides, two different occupational therapists were responsible for the treatments in experimental and control group. This may induce an "experimenter bias" (Portney & Watkins, 1993). The occupational therapist who was responsible for the experimental group may have more active behaviors, expectations and positive attitudes toward the participants, when compared with the control group's therapist.

Another major methodological limitation is the lack of booster session. From the results of Tarrier et al. (1999) study, booster session seems to be very crucial to the maintenance of the treatment effect. But in the present study, no booster session was included and this might be the main reason for the relapse in hallucinatory behaviors seen
at the follow-up.

CONCLUSION

Many treatment resistive patients live alongside their psychiatric symptoms. And the number of this group of patients makes up a considerable amount of the psychiatric population. Although many atypical medications have been developed in order to cater for this group of patients, not all of them respond well to these medications. Psychological interventions may thus be an alternative for this group of patients.

From the result of the current study, it was found that cognitive behavioral therapy had a positive effect on hallucinatory behavior and communication ability of the schizophrenia. These improvements certainly have positive effect on the clinical presentation of the schizophrenic patients with persistent symptoms. Although the improvement gained after the treatment faded out rather quickly, this serves as the first evidence in applying the cognitive behavioral therapy in Hong Kong Chinese. Further refinement on the group content is suggested. More practical exercise should be included in the group. Besides, increased the number of group sessions and the inclusion of booster sessions are also indicated.
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