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REVIEW ARTICLE

Strategies used by psychotic individuals to cope with life stress and symptoms of illness: a systematic review

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Psychological models of schizophrenia and other psychotic disorders suggest that poor coping responses to life stressors and to symptoms of illness is central to their development and maintenance and influences recovery. These models are widely accepted and inform psychological treatments for psychotic disorders. In this paper, 85 studies that explore how individuals with established psychotic disorders cope with symptoms associated with their illness, and with independent life events and stressors are comprehensively reviewed. Reviewed research included cross-sectional and longitudinal investigations of self-initiated coping. Despite limitations in the existing research, it is concluded that most individuals experiencing psychosis implement at least one strategy to cope with symptoms, and life events and most implement more than one strategy. It appears that having a repertoire of strategies to employ leads to greater effectiveness than simply relying on one strategy. This suggests that treatment strategies that aim to enhance the coping of individuals with psychosis should emphasize the development of a range of coping strategies. It also seems that there is no one coping strategy that is universally effective and situational, or other factors may influence both the choice of coping strategy implemented and its efficacy.

Keywords: psychosis; schizophrenia; coping; appraisal

The stress-vulnerability (or stress-diathesis) model of schizophrenia suggests that the experience of stressful events that exceed an individual's capacity to cope, and/or the employment of ineffective coping strategies, may promote psychobiological changes that lead to the expression of psychotic symptoms (Myin-Germeys, van Os, Schwartz, Stone, & Delespaul, 2001; Nuechterlein & Dawson, 1984; Nuechterlein et al., 1994; Zubin & Spring, 1977). This model is widely accepted and reflected in psychological treatments for psychotic disorders emphasizing stress management and the development of appropriate coping strategies (Gleeson, Larsen, & McGorry, 2003; Haddock et al., 1998).

The challenge for individuals with psychotic disorders is three fold: they are required to cope with symptoms of their illness, the implications being unwell has on their personal, social, and occupational functioning (such as social rejection and stigma; Angermeyer, Beck, Dietrich, & Holzinger, 2004), as well as with everyday

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stressful events that are independent of their illness (Phillips, Francey, Edwards, & McMurray, 2007). The degree to which coping with such an array of stressors is successful and is thought to be an important factor contributing to recovery (Wiedl & Schottner, 1991). Those who are able to successfully "integrate" their illness with their view of themselves are more likely to develop successful coping strategies than those who "seal over" and perceive their illness as negative and interrupting the progress of their lives (Drayton, Birchwood, & Trower, 1998; Jackson et al., 1998; McGlashan, Levy, & Carpenter, 1975; Tait, Birchwood, & Trower, 2003; Thompson, McGorry, & Harrigan, 2003). Similarly, a capacity to cope with general life stress is thought to promote better outcomes (Yanos & Moos, 2007). Thus, an understanding of coping with psychosis is important in better understanding recovery. Additionally, it may assist in the refinement of psychological approaches to the treatment of psychosis and contribute to the development of preventative treatment approaches.

In this article, we examine research investigating how individuals with schizophrenia and other psychoses cope with symptoms related to their illness and with independent stressful events. Within this review, we discuss conclusions that can be drawn from research to date, as well as limitations and suggestions for future research.

Methodology

This review includes previously published studies that were identified through PsycINFO (from 1967 to October 2008) and Medline searches (from 1950 to October 2008) using the terms "*psychosis* or *schizophrenia* or *psychotic experiences*" and "*coping* or *stress*, *psychological*." Other articles were identified by examining reference lists of the articles found initially. In total, 1809 articles were initially identified. Further screening was then conducted by the first author. Articles were included in this review if they were published in English, involved human participants and addressed coping by affected individuals rather than coping experiences of caregivers or family members. Qualitative and quantitative studies were included. The reviewed articles were not limited to studies of individuals with schizophrenia, but also included studies with individuals with other psychotic disorders, such as schizophreniform disorder or schizoaffective disorder, and individuals who experienced psychotic symptoms but not necessarily at threshold for diagnosis of a Diagnostic and Statistical Manual of Mental Disorders (DSM; American Psychiatric Association, 2000) psychotic disorder. This review does not include intervention studies that have incorporated "coping strategies" or "stress management" approaches or studies exploring biological or physiological correlates of coping. Instead, it focuses on studies of behavioral, emotional, or psychological coping strategies which are self-initiated (also referred to as "natural" coping strategies). In total, 85 previously published articles are included in this review: 59 papers address coping with independent life events and stressors, 22 address coping with symptoms, and four studies address both types of stressors (Böker, Brenner, & Würgler, 1989; Lardinois et al., 2007; Macdonald, Pica, McDonald, Hayes, & Baglioni, 1998; Yanos, Knight, & Bremer, 2003). In total, 5136 individuals with psychotic disorders are included in these studies – an average of 68.5 participants per study (SD = 56.3). The minimum number of participants in a study was 10 and the maximum was 293. Most studies were conducted with outpatient cohorts only (56

studies, mean number of participants = 55.7; minimum = 10; maximum = 200), whilst 14 studies were conducted with inpatient cohorts only (mean number of participants = 103.6; minimum = 20; maximum = 293) and 13 studies included both inpatients and outpatients (mean number of participants = 85.3; minimum = 30; maximum = 199). Two studies were conducted with members of the general public who experienced psychotic symptoms, but potential diagnosis of a psychotic disorder was not investigated (Escher, Delespaul, Romme, Buiks, & Van Os, 2003: $n = 80$; Romme, Honig, Noorthoorn, & Escher, 1992: $n = 173$).

Coping with general life stressors

Sources of distress for patients with psychotic disorders extend beyond symptoms to aspects of personal and interpersonal functioning (Phillips et al., 2007; Wiedl, 1992). Macdonald and colleagues (1998) reported that the stressful events experienced by individuals with psychosis that are independent of illness are similar to those experienced by healthy, aged matched controls. Although this seems self-evident, there has been limited research addressing how individuals with psychotic disorders cope with more generalized stressors, or how coping with such events might influence the onset or course of psychotic illness. Table 1 shows a description of previously published papers investigating coping strategies used by individuals with psychosis in response to general stressors, whereas Table 2 shows the studies that have investigated strategies used to cope with both general stressors and symptoms.

Types and frequency of coping strategies employed

It has been consistently reported that individuals with schizophrenia and other psychoses are more likely than healthy comparison groups to report using avoidance as a coping strategy (Böker et al., 1989; Horan & Blanchard, 2003; Horan et al., 2007; van den Bosch, van Asma, Rambouts, & Louwerens, 1992). Reports on the frequency of the use of problem and emotion-focused coping have been less consistent (Berry, Barrowclough, Byrne, & Purandare, 2006; Brenner, Böker, Muller, Spichtig, & Würgler, 1987; Ritsner et al., 2006; van den Bosch et al., 1992). These varying results can be partly attributed to differences in participants and methods of assessing coping between studies. For example, participants in the study by Berry et al. (2006) were all outpatients aged over 65 years and a semi-structured questionnaire that was developed by the researchers was used to assess coping, whilst Ritsner et al. (2006) employed the Coping Inventory for Stressful Situations (Endler & Parker, 1990) to assess coping by inpatients with a mean age of 38 years. More consistent results have been gained from studies that have investigated how individuals respond to the same stressful events. For example, Horan and colleagues compared coping responses of individuals with schizophrenia to those of individuals with bipolar disorder and healthy controls following an earthquake in California in 1994 using archival data (Horan et al., 2007), whilst an experimental study incorporated roleplays (Horan & Blanchard, 2003). These studies both reported that individuals with psychosis utilize more maladaptive coping strategies, such as avoidance and less active coping, than healthy controls. It has also been reported that individuals with psychosis rate their capacity to cope with general stressors as less effective than healthy comparison groups (Berry et al., 2006; Macdonald et al., 1998).

Table 1. Summary of studies investigating the general coping strategies used by individuals with psychotic disorders.

Authors	Participants	Method of assessment of coping and study design	Conclusions
van den Bosch, van Asma, Rambouts, and Louwerens (1992)	Individuals with schizophrenia (n = 30); individuals with depressive disorder (n = 19); individuals with "neurotic" disorders (n = 25); healthy comparison group (n = 21)	Utrecht Coping List (Schreurs, Van de Willige, Brosschot, Tellegen, & Graus, 1993) cross-sectional	All patient groups were significantly less likely to use problem solving and more likely to report depressive reaction to stress than the healthy comparison group. Additionally, patients with schizophrenia were more likely to report using avoidance than the healthy comparison group.
Hultman, Wieselgren, and Öhman (1997)	Inpatients with schizophrenia (n = 42)	Semi-structured interview developed by the researchers longitudinal – follow-up at nine months or relapse	Individuals with a high availability of attachment and utilizing support seeking as a coping strategy had a longer duration between the experience of life events and relapse.
van den Bosch and Rombouts (1997)	Individuals with schizophrenia (n = 20); individuals with depressive disorder (n = 14); individuals with "neurotic" disorders (n = 19); healthy comparison group (n = 19)	Utrecht Coping List (Schreurs et al., 1993) Two testing occasions but longitudinal analysis not performed	Three dimensions of coping obtained when data from all participants combined: "healthy" coping, "demoralized coping 1," and "demoralized coping 2." Results suggest that coping may play a mediating role between cognitive dysfunction and social competence in schizophrenia.
Pallanti, Quercioli, and Pazzagli (1997)	Recently relapsed outpatients with schizophrenia (n = 41)	Frankfurt Questionnaire of Complaints (Süllwold & Huber, 1986) longitudinal over six-year period	Participants who had experienced at least one severe life event in the month prior to relapse had a significantly higher rate of problem-centered coping strategies and used more effective behavioral and cognitive coping strategies than those who did not have any life events preceding relapse. No differences were found between the two patient subgroups in levels of emotional coping.
Blanchard et al. (1999)	Outpatients with schizophrenia (n = 32) or schizoaffective disorder (n = 7)	Self-report questionnaire of coping – the COPE: Carver, Scheier, and Weintraub (1989) cross-sectional	Traits of negative affect and disinhibition but not positive affect were associated with maladaptive coping including drug/alcohol use and denial; positive affect was associated with adaptive coping strategies, such as active coping and acceptance in response to stress.

Table 1 (*Continued*)

Authors	Participants	Method of assessment of coping and study design	Conclusions
Horan and Blanchard (2003)	Outpatients with schizophrenia ($n=36$); healthy male controls ($n=15$)	Self-report questionnaire of coping – the COPE: Carver et al. (1989) cross-sectional – experimental study	Schizophrenia group more likely to report maladaptive coping strategies than the comparison group.
Ritsner et al. (2003)	Inpatients with schizophrenia ($n=161$)	Coping Inventory for Stressful Situations (CISS; Endler & Parker, 1990) cross-sectional	Quality of life correlated negatively with emotion-oriented coping and positively with task-oriented and avoidance coping; emotion-oriented coping positively correlated with positive symptoms, anxiety and depression, task-oriented coping not correlated with psychopathology measures, distraction correlated positively with paranoid symptoms; 25% variance in quality of life accounted for by coping when adjusted for distress and general psychopathology.
Ventura, Nuechterlein, Subotnik, Green, and Gitlin (2004)	Outpatients with recent onset of schizophrenia, schizoaffective disorder, or schizophreniform disorder ($n=29$) and healthy comparison group ($n=24$)	Coping Responses Inventory (Moos, 1993) cross-sectional	Recent onset schizophrenia group were less likely to utilize "approach coping responses" (cognitive or behavioral coping strategies than a healthy comparison group but no differences were found between the groups in the use of avoidance coping responses. In the schizophrenia group, lower levels of self-efficacy and worse performance on a cognitive test assessing attention were associated with less use of approach coping strategies.
Caron, Lecomte, Stip, and Renaud (2005)	Outpatients with schizophrenia ($n=143$: paranoid schizophrenia 59%; schizoaffective disorders 20%; other psychotic disorder 21%)	Stress Appraisal Measure (Peacock & Wong, 1990) and Cybernetic Coping Scale (Edwards & Baglioni, 1993) cross-sectional but with reliability analysis six months later	Coping accounted for around 7% of variance in quality of life.

Table 1 (*Continued*)

Authors	Participants	Method of assessment of coping and study design	Conclusions
Lecomte and Mercier (2005)	Outpatients with schizophrenia ($n=101$)	Stress Appraisal Measure (Peacock & Wong, 1990) and Cybernetic Coping Scale (Edwards & Baglioni, 1993) cross-sectional	Adaptation to illness significantly influenced by coping – transactional model of coping supported (coping strategies can moderate relationship between stress and adaptation); "accommodation" (adjusting desires to meet the situation) significantly associated with increase in adaptation.
Strous, Ratner, Gibel, Ponizovsky, and Ritsner (2005)	Inpatients with schizophrenia ($n=237$) assessed at admission to hospital ("exacerbation") and after six months of stabilization of symptoms.	CISS (Endler & Parker, 1990) longitudinal – participants assessed at symptom exacerbation and again at stabilization	Emotional coping strategies reported more at admission to hospital than at stabilization; task and avoidance-oriented coping strategies remained unchanged in magnitude during the follow-up period.
Berry, Barrowclough, Byrne, and Purandare (2006)	Outpatients with psychosis ($n=48$; schizophrenia: $n=38$; schizoaffective disorder: $n=8$; delusional disorder: $n=2$), healthy comparison group ($n=25$), all participants aged over 65 years	Semi-structured interview developed by the researchers cross-sectional	Individuals with psychosis used a higher proportion of problem-focused coping strategies than the comparison group; severity of symptoms was positively correlated with effectiveness of coping.
Ritsner and Ratner (2006)	Outpatients with schizophrenia ($n=35$) assessed at baseline and 16 months later	CISS (Endler & Parker, 1990) longitudinal over 16 months	Pattern of coping strategies changed over time for around 40% of participants – becoming favorable for 18.2% and unfavorable for 19.6%. Coping that became "unfavorable" was associated with lower levels of self-efficacy at follow-up, whilst coping that became "favorable" was associated with a decrease in symptom levels over the follow-up period. Significant decreases in the severity of depressed mood and distress, but increases in self-esteem and social support were reported by the 35.8% of participants whose coping

Table 1 (*Continued*)

Authors	Participants	Method of assessment of coping and study design	Conclusions
			pattern was labeled "stable favorable" and a "stable unfavorable" pattern of coping was associated with no improvement in clinical or psychosocial levels.
Ritsner et al. (2006)	Inpatients with schizophrenia ($n=237$) and healthy comparison group ($n=175$)	CISS (Endler & Parker, 1990) cross-sectional	Emotion-focused coping and emotional distress most likely in schizophrenia patients; task-oriented coping, self-efficacy, perceived social support, and satisfaction with quality of life more common in a healthy control group.
Cooke et al. (2007)	Outpatients with schizophrenia ($n=59$) or schizoaffective disorder ($n=6$)	A revised form of the COPE (Carver et al., 1989) cross-sectional	Insight into illness – positively correlated with "positive reinterpretation and growth" coping style and negatively correlated with "mental disengagement"; awareness of illness associated with greater distress and no relationship was found between denial as a coping strategy and insight or distress.
Horan et al. (2007)	Outpatients with schizophrenia ($n=85$), outpatients with bipolar disorder ($n=18$), and healthy non-psychiatric controls ($n=18$)	Coping Responses Inventory (Moos, 1993) administered five weeks after the Northridge Earthquake in California, January 1994 longitudinal – first assessment one week after earthquake, second assessment one month later	Schizophrenia group reported lower levels of active coping than controls with bipolar group intermediate. Within the schizophrenia group alone, higher levels of avoidance at the initial assessment predicted higher levels of stress symptoms at follow-up.
Martins and Rudnick (2007)	Outpatients with schizophrenia ($n=58$)	Ways of Coping Checklist (WOCC: Folkman & Lazarus, 1988) adapted for assessing coping with psychosis by Lysaker et al. (2004b) cross-sectional	Coping inversely correlated with QOL-finances only; Negative symptoms significant inverse correlation with coping; Few significant correlations between domains of quality of life and symptoms; Model of coping outlined by Lysaker, Bryson, Marks, Greig, and Bell (2004a) not replicated.

Changes in coping over the illness course

Most of the studies shown in Tables 1 and 2 have a cross-sectional design. However, it is important to know if the coping strategies that are employed by individuals with psychosis change over time and the relationship between coping and fluctuations in symptoms. Ritsner and Ratner (2006) reported that the strategies used to cope with general stressors changed over a 16-month period for 38% of a cohort of inpatients with schizophrenia. In another study, the same group of researchers reported that patients with schizophrenia tend to use more emotion-focused coping strategies at admission to hospital, when symptom intensity and frequency were elevated, than when their symptoms have stabilized (Strous, Ratner, Gibel, Ponizovsky, & Ritsner, 2005).

Two studies have investigated the temporal relationship between the experience of life events, *relapse* and coping. Pallanti, Quercioli, and Pazzagli (1997) examined the coping strategies of individuals who experienced a relapse psychotic episode and found that those who had experienced at least one severe independent life event in the month prior to relapse utilized a significantly higher rate of problem-focused coping strategies and more effective behavioral and cognitive coping to address relapse symptoms, but no difference in emotion-focused coping than those who did not have any life events preceding relapse. The authors concluded that the additional stress associated with life events is sufficient to result in relapse despite the implementation of what was considered more effective coping strategies. As the study did not include non-relapsing patients (with and without the experience of at least one life event), it is unknown at this stage whether those differences in coping are associated with experiencing a relapse or the experience of life events. In a study which includes a non-relapsing group, Hultman, Wieselgren, and Öhman (1997) reported that 50% participants who relapsed reported at least one life events in the three weeks prior to relapse compared to 7% of a non-relapsing cohort who reported experiencing a life event in a comparison of three-week period. Within the relapsing group, the duration between the experience of a life event and relapse was significantly longer for those with higher levels of social support who also sought that support as a coping strategy suggesting that this coping strategy buffered against the developing relapse episode. Whilst, the results of these studies reinforce the clinical importance of considering coping in the treatment of individuals with schizophrenia, further longitudinal research is required to fully tease out the temporal relationships between the experience of stressors, coping, and clinical course.

Relationship between coping and quality of life

Coping has been proposed as a critical determinant of *quality of life* of individuals with schizophrenia and other psychotic disorders (Yanos & Moos, 2007). Ritsner and colleagues (2003) reported that utilizing emotion-oriented coping strategies to cope with stressful events that are independent of illness was inversely associated with quality of life, whilst task-oriented and social avoidance coping were the strongest predictors of quality of life. However, whilst Ritsner et al. (2003) found that approximately 25% of variance in quality of life was accounted for by coping after adjusting for distress and general psychopathology, Caron, Lecomte, Stip, and Renaud (2005) reported that only 7% of variance in quality of life was accounted for by coping, and Martins and Rudnick (2007) found few significant correlations between coping

Table 2. Summary of studies investigating both general coping and specific strategies used to cope with psychotic symptoms.

Authors	Participants	Method of assessment of coping and study design	Conclusions
Böker, Brenner, and Würgler (1989)	Outpatients with schizophrenia ($n=11$); compared with relatives – high vulnerability (VR; $n=11$) and low vulnerability (NVR: $n=12$)	Stress Coping Questionnaire (Janke, Erdmann, & Boucsein, 1984) cross-sectional	Patients significantly fewer coping strategies than VR and significantly more than NVR; patients significantly more problem-solving oriented behaviors than NVR but no difference than VR; Patient group most likely to use coping strategies labeled as "shift in behavior," "reality testing," or "behavioral stereotypes."
Macdonald, Pica, McDonald, Hayes, and Baglioni (1998)	Outpatients with early psychosis ($n=50$); healthy comparison group ($n=23$)	Self-report questionnaires: Coping Questionnaire for Adolescents and Critical Incident Stress and Coping Rating (Madden, 1991) cross-sectional	Patient group perceived that they coped less well with stressors than the comparison group did. Symptom-related distress was associated with internalizing, seeking social support, and distraction. Stressful social relationships were associated with problem solving, seeking social support, and internalizing. Stressful everyday functioning was associated with using internalizing and seeking social support.
Yanos, Knight, and Bremer (2003)	Outpatients with schizophrenia or schizoaffective disorder ($n=91$)	Coping with Symptoms Checklist (developed by authors) and Coping Responses Inventory (Moos, 1993) cross-sectional	Problem-focused and neutral strategies tended to be reported more than avoidance; Participants who used more problem-centered strategies to cope with symptoms had better social functioning and were more likely to report using problem-focused strategies to deal with life stressors.
Lardinois et al. (2007)	Outpatients with schizophrenia ($n=35$)	Structured interview developed by researchers (Maastricht Assessment of Coping Strategies (MACS); Bak et al., 2001a) cross-sectional	Frequency of symptomatic coping negatively correlated with frequency of non-symptomatic coping; Participants who use more symptomatic coping – poorer coping with everyday stressors; Participants who use more non-symptomatic coping reported higher levels of distress associated with symptoms.

and various aspects of quality of life. It is noted that participants in the study by Ritsner et al. (2003) were inpatients at the time of assessment, whilst those in the other two studies were outpatients and therefore the latter may have been more engaged in social and occupational roles at the time of assessment which may account for some of these differences. There is also great variability between measures of quality of life (Price et al., 2008) and each of these studies uses a different measure. Prospective research is required to explore this relationship further.

Coping style

Whilst the studies described so far have examined coping strategies of individuals with psychosis, Lysaker and colleagues have conducted a series of studies focusing on the more enduring aspect of coping *style* and its determinants. They have reported that individuals with schizophrenia who performed worse on a range of neurocognitive tests of executive functioning and memory and who also had heightened levels of neuroticism were more likely to utilize avoidant coping strategies and less likely to employ active problem solving, whilst increased extraversion was associated with social support seeking (Lysaker, Bryson, Marks, Greig, & Bell, 2004a; Lysaker, Wilt, Plascak-Hallberg, Brenner, & Clements, 2003). Interestingly, poorer executive function and verbal memory in combination with a greater reliance on avoidance predicted higher levels of hope suggesting that in some cases avoidance may shield the individual from painful subjective experiences (Lysaker, Clements, Wright, Evans, & Marks, 2001). Individuals with higher levels of insight and high hope about the future demonstrated the most adaptive coping strategies whilst those with high insight and lower hope demonstrated the least (Lysaker, Campbell, & Johannsen, 2005a). This reflects findings by another group of researchers of a positive correlation between insight and distress and complex relationships between dimensions of insight and coping (Cooke et al., 2007). In another study, Lysaker, Davis, Lightfoot, Hunter, and Stasburger (2005b) addressed the relationship between coping with general stressors and the type of psychotic symptoms experienced and found that individuals with higher levels of negative symptoms were highly likely to be resigned to their experiences (i.e., chose not to act because of a perception that nothing can be done) whilst those with higher levels of positive symptoms were more likely to ignore their symptoms. In a final study, Hofstetter, Lysaker, and Mayeda (2005) reported that quality of sleep was positively correlated with frequency of positive appraisals of strategies used to cope with stressful events. Whilst the results of these studies require replication, they suggest that psychosocial treatments for individuals with schizophrenia should be tailored to consider neurocognitive functioning, personality, quality of sleep, and the symptoms profile of the individual and that consideration of mediating and moderating variables in coping are important. It is noted that the model of coping that has been developed by Lysaker and colleagues as well as their categorization of coping styles has been challenged by Martins and Rudnick (2007) who concluded that further research is required to better understand how individuals with psychosis cope with general stressors to best inform treatment approaches.

Insight and coping

Lack of illness *insight* has been associated with higher use of avoidance strategies (Lysaker et al., 2003). However, illness awareness does not appear to be sufficient to predict coping. In a more recent study, Lysaker and colleagues (2005a) reported that psychotic individuals with greater insight into their illness and also hope of improvement and recovery were more likely to utilize problem-focused coping and less likely to use avoidance than individuals with either low-hope and high-insight or high-hope and low-insight. Solano and Whitbourne (2001) reported that acceptance of illness – a feature of the "integration" recovery style first described by McGlashan and colleagues (1975) – increases with increasing perceptions of the efficacy of coping and Lecomte and Mercier (2005, p. 145) reported that adaptation or integration of psychotic illness is enhanced with accommodation to illness defined as "adjusting desires to meet the situation." Jackson, Knott, Skeate, and Birchwood (2004) argued that the traumatic impact of a psychotic episode may be mediated by the appraisals that are made of these potentially traumatic events. They suggested that individuals who appraised factors associated with their illness as traumatic were more likely to utilize coping strategies that enabled them to avoid recall of those events and hence to "seal over." This finding has obvious implications for the development of intervention strategies.

Strategies used to cope with symptoms of psychosis

The symptoms associated with schizophrenia are often confusing and upsetting for the affected individual (Wiedl & Schottner, 1991). This is not only the case for individuals with longstanding illness, but also for those with a more recent onset as highlighted by Macdonald et al. (1998). A diverse range of strategies have been reported by individuals with psychotic disorders to cope with psychotic symptoms (Tables 2 and 3), and most studies report that the overwhelming majority of participants can identify at least one strategy they employ (Carter, Mackinnon, & Copolov, 1996; Falloon & Talbot, 1981; Farhall & Voudouris, 1996; Johns, Hemsley, & Kuipers, 2002; O'Sullivan, 1994; Ramanathan, 1984; Tarrier, 1987; Wahass & Kent, 1997). An exception to this is Lobban, Barrowclough, and Jones (2004) who reported that 42% of participants in their study did not appraise their current symptoms as problematic, and therefore did not endorse the use of any strategies to cope with them.

Types of coping strategies employed

A number of methods of *categorizing symptom-focused coping strategies* have been developed. For example, Carr (1988) differentiated between *symptomatic* (" . . . any form of behavior employed with the intention of relieving discomfort but which resulted in the increased expression of illness-related behaviors, such that the outward manifestations of psychopathology would be likely to be augmented rather than concealed" (p. 349)) and *non-symptomatic* coping. Following from Carr (1988), Bak and colleagues (2001a) defined four categories of non-symptomatic coping: behavioral, social, cognitive, and care. Other classification systems include those developed by Falloon and Talbot (1981) (behavioral, physiological, and cognitive), Takai, Uematsu, Kaiya, Inoue, and Ueki (1990) (withdrawal, behavior change, strategic

intervention, medical, and struggle), O'Sullivan (1994) (active/hopeful engagement, passive/despairing rejection, active/ambivalent acceptance, and active/hopeful rejection), Carter et al. (1996) (competing auditory stimulation, active/vocalizing, and constructive alternative focus), and Wahass and Kent (1997) (religious, distraction, physiological, social, individualistic, and cessation). Yanos et al. (2003) suggested that the dichotomy of problem-centered and avoidant coping may not readily apply to coping of individuals with severe mental illness to their illness, and categorized strategies which do not fall into either category, such as consciously engaging in activities to distract from symptoms, as neutral. Although, classification of coping strategies aims to assist communication, there is a lack of agreement between the categories in many cases which can lead to confusion.

Proactive coping

Only one study to date has specifically explored the use of *proactive coping* strategies (strategies put in place to mitigate the impact or form of a stressful event if it does occur or to prevent its occurrence all together; Yanos, 2001). Most participants utilized at least one proactive coping strategy aimed at symptoms – most frequently accessing social support, using professional services, taking medication, engaging in physical activity, and maintaining personal hygiene. Additionally, a positive relationship was found between number of proactive strategies reported and social functioning. Yanos (2001) called for more research addressing proactive coping which they believe would provide clear recommendations for these strategies to be incorporated into treatment.

Coping with auditory hallucinations

A number of the studies shown in Table 3 report on strategies used to cope with a specific type of psychotic symptom, such as *auditory hallucinations* (Carter et al., 1996; Falloon & Talbot, 1981; Farhall & Gehrke, 1997; Farhall & Voudouris, 1996; Johns et al., 2002; Lee, Chong, Chan, & Sathyadevan, 2004; Mackinnon, Copolov, & Trauer, 2004; Nayani & David, 1996; O'Sullivan, 1994; Ramanathan, 1984; Romme et al., 1992; Tsai & Ku, 2005; Wahass & Kent, 1997; reviewed by Farhall, Greenwood, & Jackson, 2007), negative symptoms (Modestin, Soult, & Malti, 2004; Mueser, Valentiner, & Agresta, 1997; Rudnick, 2001; Wiedl, 1992) and persecutory delusions (Freeman, Garety, & Kuipers, 2001; Freeman et al., 2007). When reviewing studies addressing strategies used to cope with voices, Farhall et al. (2007) concluded that most, if not all, people who experience hearing voices implement some type of strategy in an attempt to cope with them, and in most cases have tried more than one strategy. It also appears that individuals who experience high levels of negative symptoms are more likely to use emotion-oriented coping strategies (Rudnick, 2001; Wiedl, 1992), whilst individuals reporting high levels of positive symptoms are more likely to use cognitively oriented coping strategies (Wiedl, 1992). However, most coping strategies are not specific to any one symptom type, but tend to be applied across the range of symptoms associated with psychosis.

The relationship between coping and course of illness

The relationship between *coping and course of illness* is unclear and appears complex. Whilst Thurm and Häfner (1987) reported that the longer an individual had been unwell, the more strategies they used to cope with symptoms, Carter et al. (1996) found no relationship between duration of illness and number of coping strategies used. Apart from Takai and colleagues (1990) who reported that individuals with a later age of onset of illness utilized more coping strategies, other studies have failed to find any differences in the coping strategies used by individuals with schizophrenia who have had a single or multiple episodes of illness, between inpatients and outpatients, or between individuals with an early or late onset of illness (Cohen & Berk, 1985; Falloon & Talbot, 1981; Yagi, Kinoshita, & Kanba, 1991).

Hospitalization often reflects relapse or symptom exacerbation. Wiedl and Schottner (1991) reported that people with schizophrenia with fewer hospital admissions were more likely to use problem-oriented coping, but Takai et al. (1990) found that people who had spent less time in hospital were more likely to use emotion-oriented coping. Cohen and Berk (1985) failed to find an association between the type of coping strategies used and the likelihood of having been hospitalized in the previous 18 months. Once again, coping has been assessed using different scales in each of these studies and this may account for some differences in results and prospective studies that map the coping strategies of individuals prior to, during and after hospital admission are required.

Understanding coping responses to increased intensity or frequency of symptoms, for example, in the earliest stages of a relapse episode, can inform the development of interventions. Bechdolf, Schultze-Lutter, and Klosterkötter (2002) found that individuals with schizophrenia were less likely to deliberately respond to early symptoms of relapse than depressed individuals were likely to respond with early signs of a depressive relapse. Members of the schizophrenia group who did respond to early symptoms were likely to respond directly to the symptoms (for example, coping with auditory hallucinations by responding to them or distracting themselves) unlike individuals with depression who were more likely to avoid events and tasks that they perceived to be influencing the occurrence of relapse symptoms. As all of the individuals in this study experienced a relapse episode, it is assumed that their coping attempts did not successfully influence the illness course or other factors outweighed the impact of their coping attempts. Further studies comparing the coping strategies of individuals who experience a relapse compared to those who do not, may provide important information for the development of interventions.

Effectiveness of coping

In addition to simply cataloguing the range of strategies used to cope with psychotic symptoms, it is important to understand whether those strategies are *effective* or helpful for the individual. Although, the majority of individuals with psychosis are able to identify strategies they use in an attempt to cope with symptoms, they also report that these strategies are often ineffective (Romme et al., 1992; Tarrier, 1987). Falloon and Talbot (1981) and Tarrier (1987) reported that individuals who reported coping best with their illness and had most confidence in coping strategies utilized a range of strategies. This relates to research in the general population that has

Table 3. Summary of studies investigating the strategies used to cope with psychotic symptoms.

Authors	Sample	Method of assessment of coping and design of study	Results
Falloon and Talbot (1981)	Outpatients with Research Diagnostic Criteria (RDC) diagnosed schizophrenia ($n=40$) – all had experienced auditory hallucinations	Semi-structured interview developed by the researchers cross-sectional	All participants reported at least one coping strategy. Three categories of coping strategies described: behavioral, physiological, and cognitive.
Breier and Strauss (1983)	Inpatients with a range of diagnoses – all had experienced some psychotic symptoms ($n=20$; schizophrenia: $n=3$; schizoaffective disorder: $n=9$; bipolar disorder: $n=6$; major depression: $n=2$)	Semi-structured interview developed by the researchers cross sectional	Three categories of coping strategies described: self-instruction/self-talk; decrease activity/minimize external stimuli; increase activity/distraction.
Ramanathan (1984)	Outpatients with schizophrenia who had experienced auditory hallucinations in the 24 hours prior to assessment ($n=30$)	Semi-structured interview developed by researchers – overall coping style reported and effectiveness of strategies rated cross-sectional	All participants reported use of at least one coping strategy. Using fewer coping strategies was identified as more effective than using many.
Cohen and Berk (1985)	Outpatients with schizophrenia ($n=86$)	Semi-structured interview developed by the researchers cross-sectional	Coping strategies in descending order of usefulness: fighting back; do nothing/helpless; do nothing/acceptance; diversion; time out; increased social contact; prayer; take medication/consult health professional.
Carr and Katsikitis (1987)	Outpatients with schizophrenia ($n=200$)	Semi-structured interview developed by the researchers cross-sectional	Coping strategies classified as: Arousal reduction (most commonly used), self-stimulation, social relations, inward attention, adaptive learning, and maladaptive behaviors.
Tarrier (1987)	Outpatients with schizophrenia ($n=25$)	Semi-structured interview developed by the researcher cross-sectional	Seventy-two percentage of respondents identified a coping strategy – primarily cognitive or behavioral.

Table 3 (*Continued*)

Authors	Sample	Method of assessment of coping and design of study	Results
Thurm and Häfner (1987)	Outpatients with schizophrenia ($n = 37$)	Semi-structured questionnaire developed by the researchers – the Instrument for Assessment of Coping Behavior cross-sectional	Avoiding conflict and emotional strain (43% of participants); avoiding overexertion (35%); taking regular medication (27%); adhering to a regulated lifestyle (24%); low-social involvement (41%); engaging in work or leisure (27%); "intrapsychic" coping (43%); helplessness (8%).
Carr (1988)	Outpatients with schizophrenia ($n =$ 200)	Semi-structured interview developed by the researchers cross-sectional	Over 350 individual coping strategies identified – five categories: behavior control; cognitive control; socialization; medical; symptomatic.
Kumar, Thara, and Rajkumar (1989)	Outpatients with schizophrenia ($n = 30$)	Semi-structured interview developed by researchers cross-sectional	Positive self-talk (reported by 43% of participants); talking to a relative/friend (23%); seeking psychiatric help (7%); adjusting medication (13%); engaging in work (10%).
Dittman and Schlutter (1990)	Individuals with schizophrenia ($n = 50$); 92% inpatients	Semi-structured interview developed by the researchers cross-sectional	Withdrawal (reported by 28% participants); increased interpersonal contact (18%); tried to ignore experiences or convince self they were unreal (18%); adjusted their medication (8%); could not identify any coping strategies (8%).
Takai, Uematsu, Kaiya, Inoue, and Ueki (1990)	Individuals with schizophrenia ($n = 60$) – inpatients and outpatients	Semi-structured interview developed by researchers cross-sectional	Coping styles classified into five categories: withdrawal; behavior change; strategic intervention; medical; struggle.
Wiedl and Schottner (1991)	Individuals with schizophrenia ($n = 40$; 50% inpatients; 50% outpatients)	Semi-structured interview developed by researchers cross-sectional	Behavioral strategies most likely to be reported, followed by cognitive and then emotional; participants reporting highest levels of stress

Table 3 (*Continued*)

Authors	Sample	Method of assessment of coping and design of study	Results
			associated with symptoms were most likely to utilize more emotional and less cognitive coping strategies.
Yagi, Kinoshita, and Kanba (1991)	Inpatients with schizophrenia ($n=42$) and depression ($n=27$)	Semi-structured interview developed by researchers cross-sectional	Ninety-eight percentage of schizophrenia cohort and 96% depression cohort were able to identify at least one coping strategy; Schizophrenia cohort more likely to increase physical activity and to change though content from negative to positive thoughts than depression cohort.
Romme, Honig, Noorthoorn, and Escher, (1992)	Individuals in general public who responded to a TV advertisement because they have experienced chronic auditory hallucinations ($n=173$)	Semi-structured interview developed by researchers cross-sectional	Four coping strategies reported: distraction, ignoring the voices, selective listening to them, and setting limits on their influence. Sixty-six percentage of responders reported being unable to cope with hallucinations and "non-copers" were more likely to be hospitalized than "copers."
Wiedl (1992)	Individuals with schizophrenia (outpatients: $n=20$; inpatients: $n=40$)	Self-report questionnaire developed by researchers and diary of daily stressful events and coping responses cross-sectional	Patients reporting higher levels of stress: more likely to utilize non-problem-oriented coping strategies; patients reporting higher levels of negative symptoms: more likely to use emption-oriented coping strategies and reported coping strategies less effective than patients with positive symptoms; patients reporting higher levels of positive symptoms: more likely to use cognitively oriented coping strategies.
Lee, Lieh-Mak, Yu, and	Outpatients with schizophrenia ($n=101$)	Semi-structured interview developed by researchers cross-sectional	(In order of "helpfulness"): medication; cognitive coping efforts; social support and guidance; better

Table 3 (*Continued*)

Authors	Sample	Method of assessment of coping and design of study	Results
Spinks (1993)			organization/occupation of time; work; stress reduction; efforts at self-improvement; positive life events; health promotion; hospital admission; professional help; development of sense of responsibility; learning from illness experience; miscellaneous.
O'Sullivan (1994)	Outpatients with Schizophrenia ($n=32$); schizoaffective disorder ($n=3$); other ($n=5$)	Semi-structured interview including coping checklist developed by researcher cross-sectional	Thirty-nine of 40 participants reported using strategies to cope with auditory hallucinations. Strategies were classified as active/hopeful engagement passive/despairing rejection, active/ambivalent acceptance, and active/hopeful.
Frederick and Cotanch (1995)	Outpatients with schizophrenia ($n=33$)	Semi-structured interview developed by researchers cross-sectional	Strategies were classified as physiological, cognitive, and behavioral; many respondents reported using more than one type of strategy.
Carter, Mackinnon, and Copolov (1996)	Outpatients: 69%, inpatients: 21%; schizophrenia: $n=52$, schizophreniform disorder: $n=15$, schizoaffective disorder: $n=7$, mood disorder: $n=18$, other: $n=8$. All participants had experienced auditory hallucinations	Semi-structured interview developed by the researchers – the Mental Health Research Institute Unusual Perceptions Scale (MUPS) (Carter, Mackinnon, Howard, Zeegers, & Copolov, 1995) cross-sectional	Majority of respondents reported successful ways of coping with auditory hallucinations. Three groups of strategies were described: competing auditory stimulation, active/vocalizing, and constructive alternative focus. Yelling or talking back was the most common coping strategy used.
Farhall and Voudouris (1996)	Inpatients experiencing persistent auditory hallucinations: schizophrenia: $n=33$, schizoaffective disorder: $n=2$	Structured interview including coping checklist developed by researchers cross-sectional	All participants reported utilizing at least one strategy to cope with auditory hallucinations. Sleeping, prayer/meditation, and doing a task to divert attention were reported as the most successful strategies.

Table 3 (*Continued*)

Authors	Sample	Method of assessment of coping and design of study	Results
Nayani and David (1996)	Outpatients (45%) and inpatients (55%); schizophrenia disorder ($n=73$), mood disorder with psychotic features ($n=27$)	Self-report questionnaire developed by the researchers cross-sectional	The majority of respondents reported using one or more strategies to cope with auditory hallucinations. Talking to someone else, sleeping, and thinking about something else were reported as the most successful strategies.
Farhall and Gehrke (1997)	Outpatients (48%), inpatients (52%); schizophrenia: $n=78$; mood disorder: $n=3$	Structured interview including coping checklist developed by researchers cross-sectional	Eighty-four percentage of participants reported using one or more strategies to cope with auditory hallucinations: taking action against the problem (utilized by 32% of respondents); mental disengagement (26%); behavioral disengagement (26%); decreasing physiological arousal (20%).
Jimeno Bulnes, Jimeno Valdes, Vargas Aragon, and Lopez Fernandez (1997)	Two hundred ninety-three inpatients with psychotic disorder (schizophrenia: $n=123$; substance-related psychosis: $n=65$; brief reactive psychosis/schizophreniform disorder: $n=105$); healthy comparison group ($n=40$)	Self-report questionnaire developed by the researchers cross-sectional	Various strategies reported including avoiding quarrels, pace themselves when doing activities, focus on one thing at a time, minimize interactions with others, and avoid emotions.
McNally and Goldberg (1997)	Outpatients with schizophrenia or schizoaffective disorder ($n=10$)	Semi-structured interview with open ended questions are coping with symptoms cross-sectional	Behavioral techniques (“fighting and ignoring”); “belief in recovery”; coping with symptoms with the aid of medication, doctors, therapists; distraction techniques; “moment of doubt” strategies (not defined further by the authors); and nine different styles of coping self-talk.

Table 3 (*Continued*)

Authors	Sample	Method of assessment of coping and design of study	Results
Middelboe and Mortenson (1997)	Residents of group home for individuals with a mental illness ($n=93$); 65.6% treated as outpatient, 34.4% inpatients on the verge of discharge (schizophrenia spectrum disorder: 85%; personality disorder: 11%; mood disorder: 4%; other: 6%)	Instrument developed for the study – influenced by Carr (1988) cross-sectional	Mean number of coping strategies per participant was 3.8 (range 0–12). More active strategies reported per participant (2.3, range 0–8) than passive (mean 1.5, range 0–5). Eleven participants reported no strategies, seven reported using only one strategy. Behavioral control most commonly reported (47.6%) followed by social change (24.3%), cognitive control (15.4%), physiological change (8.5%), and symptomatic behavior (4.2%). Twenty-nine of 377 strategies reported were recorded as very successful (cessation of psychotic symptoms).
Mueser, Valentiner, and Agresta (1997)	Outpatients with schizophrenia ($n=20$)	Semi-structured interview and rating strategy influenced by previous research cross-sectional	Patients reported an average of 4.6 coping behaviors in response to negative symptoms: significantly more behavioral responses than cognitive, slightly more social than non-social responses and the same number of problem focused as emotion-focused. More coping strategies overall and specifically more non-social strategies employed in response to apathy than blunting, alogia or social anhedonia, more problem-focused coping strategies in response to inattention than blunting, alogia and social anhedonia and for apathy than for blunting; efficacy index higher for apathy than other negative symptoms.
Wahass and Kent (1997)	Inpatients and outpatients experiencing schizophrenia – recruited from Saudi Arabia ($n=37$) and UK ($n=33$)	Questionnaire developed by the researchers cross-sectional	Over 85% of respondents reported using at least one coping strategy to cope with auditory hallucinations. Strategies were divided into six themes: religious, distraction, physiological, social, individualistic, and cessation.

Table 3 (*Continued*)

Authors	Sample	Method of assessment of coping and design of study	Results
Boschi et al. (2000)	Ninety-five inpatients experiencing first-psychotic episode (schizophrenia: $n=76$; schizoaffective disorder: $n=17$; schizophreniform disorder: $n=2$)	Semi-structured interview developed by researchers longitudinal – 24-month follow-up	Active-behavioral strategies were reported as most helpful followed by active cognitive and associated with better symptom profile at 24-month follow-up. Avoidant strategies were rated least helpful.
Bak et al. (2001a)	Outpatients with schizophrenia ($n=21$)	Structured interview developed by researchers (the Maastricht Assessment of Coping Strategies: MACS) cross-sectional	Fourteen coping strategies were classified into five categories – active problem solving, passive illness behavior, active problem avoiding, passive problem avoiding, and symptomatic behavior. Almost all respondents reported using coping strategies with symptomatic behavior being the most common.
Bak et al. (2001b)	Outpatients with schizophrenia ($n=21$)	Structured interview developed by researchers (MACS: Bak et al. 2001a) cross-sectional	Coping strategies most likely to be utilized in response to depressive symptoms, least likely to be utilized in response to euphoria, hostility, and negative symptoms. Perceptions of control over symptoms most highly associated with active, cognitive coping.
Freeman, Garety, and Kuipers (2001)	Outpatients with current persecutory delusions and a diagnosis of schizophrenia, schizoaffective disorder or delusional disorder: $n=24$	Semi-structured interview and questionnaire developed by the researchers – the Safety behaviors Questionnaire – Persecutory Beliefs cross-sectional	All participants reported use of at least one safety behavior in response to delusions in the previous month, mean number of safety behaviors in the past month was 7.6 (SD $=4.7$, median $=6.0$); Avoidance most commonly used safety behavior (92% of participants), in-situation safety behaviors (vigilance, protection etc.: 68%), escape (36%); compliance (24%); help seeking (36%), aggression (10%); perceptions of ability to cope with delusions lower if more depressed and lower self-esteem; 75% participants reported some level of efficacy of safety behaviors.

Table 3 (*Continued*)

Authors	Sample	Method of assessment of coping and design of study	Results
Lysaker, Clements, Wright, Evans, and Marks (2001)	Outpatients with schizophrenia ($n=33$) or schizoaffective disorder ($n=16$)	Ways of Coping Checklist (WOCC; Folkman & Lazarus, 1988) adapted to assess coping with psychosis cross-sectional	Greater levels of neurocognitive deficit predicted higher levels of hope and well-being; higher levels of avoidant coping predicted higher levels of hope, self-efficacy, and well-being. Neurocognitive deficits and coping style were independently related to hope and well-being.
Meyer (2001)	Inpatients with psychotic disorders ($n=70$; schizophrenia: $n=39$; other psychotic disorders; $n=41$)	Brief COPE (Carver et al., 1989) longitudinal – six-week follow-up	Individuals with schizophrenia were less likely to utilize "adaptive" coping approaches than non-schizophrenia comparison group. There were no differences between the groups in the use of "maladaptive" coping (denial, disengagement, self-blame, and so forth). Members of the schizophrenia group who endorsed adaptive coping at intake were less likely to experience positive psychotic symptoms at follow-up (six weeks after hospital discharge).
Rudnick (2001)	Outpatients with schizophrenia ($n=58$)	WOCC (Folkman & Lazarus, 1988) cross-sectional	Problem-focused and emotion-focused coping did not moderate the relation between symptoms and quality of life.
Rudnick and Kravetz (2001)	Outpatients with schizophrenia ($n=58$)	WOCC (Folkman & Lazarus, 1988) cross-sectional	Negative symptoms correlated inversely with level of problem-oriented coping.
Yanos (2001)	Outpatients with schizophrenia ($n=60$)	Semi-structured interview developed by the researcher cross-sectional	Ninety-three percentage of respondents used at least one proactive coping strategy: talking with health professionals; sports/exercise; attending to personal hygiene; accessing social support; taking medication; ensuring proper sleep/diet; religious observance/ prayer.

Table 3 (*Continued*)

Authors	Sample	Method of assessment of coping and design of study	Results
Bechdolf, Schultze-Lutter, and Klosterkötter (2002)	Inpatients with schizophrenia ($n=27$) and individuals with depression without psychotic features ($n=23$)	The Bonn Scale for the Assessment of Basic Symptoms – developed by the researchers (Gross, Huber, Klosterkotter, & Linz, 1987) cross-sectional	Sixty-three percentage of schizophrenia and 87% of depressed patients reported trying to cope with early signs of relapse. Schizophrenia patients more likely to report directly responding to the symptoms.
Johns, Hemsley, and Kuipers (2002)	Outpatients diagnosed with schizophrenia ($n=14$); nine experiencing current auditory hallucinations, five in remission. Non-patient group of tinnitus sufferers, all who had experienced auditory hallucinations ($n=16$)	Semi-structured interview developed by Carter et al. (1995) (MUPS) cross-sectional	Most respondents reported utilizing a strategy to cope with auditory hallucinations. Six strategies were reported as effective: talking to somebody, humming, watching TV, listening to music, concentrating on something else, and repeating numbers subvocally. Shouting at hallucinations was reported as least helpful.
Wilder-Willis, Shear, Steffen, and Borkin (2002)	Outpatients with schizophrenia ($n=35$)	Personal Vision of Recovery Questionnaire (Borkin et al., 2000) cross-sectional	Greater negative symptoms significantly correlated with reduced coping involving action and help seeking. Individuals with more severe executive functioning deficits less likely to report using active coping strategies to deal with illness.
Singh, Sharan, and Kulhara (2003)	Outpatients diagnosed with schizophrenia ($n=75$)	Used interview developed by Thurm and Häfner (1987) the Instrument for Assessment of Coping Behavior cross-sectional	Help-seeking strategies most likely to be used to cope with hallucinations, followed by diversion, problem solving, and avoidance.
Bak et al. (2003)	Outpatients with psychotic disorder; $n=47$ (need for care subgroup: $n=19$; no need for care subgroup: $n=28$)	Structured interview developed by researchers (MACS: Bak et al., 2001a) cross-sectional	Symptomatic coping, most common form of coping by participants identified with need for care as well as those with no need for care, followed by active problem solving and passive problem avoidance. Participants who utilized symptomatic

Table 3 (*Continued*)

Authors	Sample	Method of assessment of coping and design of study	Results
			coping reported less control over their symptoms and higher probability of need for care.
Escher, Delespaul, Romme, Buiks, and Van Os (2003)	Adolescents who reported hearing voices ($n=80$)	Semi-structured interview designed by researcher longitudinal over three-year periods	Number of coping strategies deployed was correlated with severity of positive psychotic symptoms. Level of coping at baseline – with the exception of active coping – was significantly predictive of severity of depressive symptoms over a three-year period independent of a range of features at baseline including global functioning, depression, and demographic factors.
Lysaker, Wilt, Plascak-Hallberg, Brenner, and Clements (2003)	Outpatients with schizophrenia ($n=42$) or schizoaffective disorder ($n=22$)	WOCC (Folkman & Lazarus, 1988) adapted to assess coping with psychosis cross-sectional	Participants with poor insight and average levels of executive functioning more likely to report denial as a coping strategy than those with poor insight and poor executive functioning (even after controlling for executive function). The coping scores of participants with good insight group did not differ significantly from either poor insight group.
Lee, Chong, Chan, and Sathyadevan (2004)	Inpatients diagnosed with schizophrenia ($n=20$)	Semi-structured interview developed by researchers cross-sectional	A range of strategies reported to cope with auditory hallucinations including prayer, medication, listening to music, thinking about something else, talking to someone, sleep, doing housework, blocking ears with cotton wool or fingers and going to the beach.
Lobban, Barrowclough, and Jones (2004)	One hundred twenty-four outpatients diagnosed with schizophrenia	Semi-structured interview developed by researchers following up Positive and Negative Syndrome Scale (Kay, Fiszbein, & Opler, 1987): coping strategies	Forty-two percentage of participants did not perceive any problems and therefore did not employ any coping strategies (Group 1); 29% employed a high frequency of positive strategies (Group 2); 17% high

Table 3 (*Continued*)

Authors	Sample	Method of assessment of coping and design of study	Results
		classified as "positive" (appropriate and potentially effective) and "negative" (inappropriate and potentially ineffective) as described by Tarrier (1987) cross-sectional study but with reliability analysis six months later	frequency of negative strategies; 12% low–moderate use of either positive or negative strategies. Group 1 – experienced fewer symptoms and reported greater belief in control over symptoms than other participants; Group 2 higher perception of personal control than individuals who reported few positive strategies. No significant differences between two assessment points.
Lysaker et al. (2004a)	Outpatients with schizophrenia ($n=50$) or schizoaffective disorder ($n=21$)	WOCC (Folkman & Lazarus, 1988) adapted to assess coping with psychosis cross-sectional	Cognitive deficits and neuroticism associated with increased avoidant coping decreased active problem solving; extroversion associated with social support seeking.
Mackinnon, Copolov, and Trauer (2004)	Inpatients and outpatients diagnosed with a range of psychotic disorders ($n=199$); 130 reported experiencing command hallucinations (CH) regularly, 16 reported rare CHs; 47 reported never experiencing CH	MUPS developed by researchers (Carter et al., 1995) cross-sectional	Coping strategies for command and other auditory hallucinations – yell/talk back, talk to someone else, listen to radio or music; people who resisted command hallucinations used a greater number of coping strategies than those who did not resist the hallucinations.
Modestin, Soult, and Malti (2004)	Individuals with schizophrenia ($n=75$); 77% inpatients	Integration and Sealing Over Scale (McGlashan, 1987) cross-sectional	Intensity of negative symptoms significantly negatively correlated with integration (positively correlated with sealing over).
Roe, Chopra, and Rudnick (2004)	Inpatients diagnosed with a psychotic disorder ($n=43$; schizophrenia: $n=22$; schizoaffective disorder: $n=13$; major affective disorder with psychotic features ($n=8$)	Semi-structured interview developed by Strauss, Hafez, Lieberman, and Harding (1985) longitudinal over a year	A range of coping strategies reported including regulating activity, involvement with external stimuli, and hope.

Table 3 (*Continued*)

Authors	Sample	Method of assessment of coping and design of study	Results
Bak et al. (2005)	Outpatients with psychotic disorder ($n=36$)	Semi-structured interview developed by researchers (MACS; Bak et al., 2001a) cross-sectional	Individuals with psychosis who also had a history of trauma experienced higher levels of distress and less perceived control over psychotic experiences than psychotic individuals who had not experienced trauma.
Hofstetter, Lysaker, and Mayeda (2005)	Outpatients with schizophrenia or schizoaffective disorder ($n=29$)	WOCC (Folkman & Lazarus, 1988) adapted to assess coping with psychosis cross-sectional	Quality of sleep was positively correlated with frequency of positive appraisals of strategies used to cope with stressful events.
Lysaker, Campbell, and Johannsen (2005a)	Outpatients with schizophrenia ($n=62$) or schizoaffective disorder ($n=34$)	WOCC (Folkman & Lazarus, 1988) adapted to assess coping with psychosis cross-sectional	Participants with high-insight and high-hope reported higher levels of active coping than those with high-insight and lower hope.
Lysaker, Davis, Lightfoot, Hunter, and Stasburger (2005b)	Outpatients with schizophrenia ($n=22$) or schizoaffective disorder ($n=18$)	WOCC (Folkman & Lazarus, 1988) adapted to assess coping with psychosis cross-sectional	Higher levels of negative symptoms associated with less adaptive coping strategies while higher level of positive symptoms and lower cognitive functioning associated with ignoring symptoms.
Tsai and Ku (2005)	Inpatients diagnosed with schizophrenia ($n=200$)	Participants asked to name three strategies used to cope with auditory hallucinations cross-sectional	Thirty-six strategies identified to cope with auditory hallucinations with behavioral strategies (such as ignoring hallucinations, covering ears, and watching TV) were most frequently reported.
Freeman et al. (2007)	Outpatients and inpatients with schizophrenia ($n=86$) and schizoaffective disorder ($n=14$)	Semi-structured interview and questionnaire developed by the researchers – the Safety behaviors Questionnaire –	Ninety-six percentage of individuals reported using at least one safety behavior in previous month, most common – in-situation behaviors followed

Table 3 (*Continued*)

Authors	Sample	Method of assessment of coping and design of study	Results
		Persecutory Beliefs cross-sectional – replication of Freeman et al. (2001)	by escape, compliance, help seeking, and aggression; more safety behaviors associated with higher levels of depression and anxiety, but no relationship with negative symptoms. No difference in safety behaviors between male and female participants, individuals with histories of violence or suicidality reported using more safety behaviors than individuals without history.
Hayashi, Igarashi, Suda, and Nakagawa (2007)	Individuals with schizophrenia or schizoaffective disorder and experience of auditory hallucinations in two weeks prior to interview ($n = 144$)	Semi-structured interview developed by the researchers – the Matsuzawa Assessment Schedule for Auditory Hallucinations (MASAH; Hayashi, Igarashi, Suda, & Nakagawa, 2004) cross-sectional	Coping strategies most commonly reported: ignoring symptoms, listening to music, moving body posture, sleeping, responding/retorting, and thinking of other things; conversation with others or doing hobbies reported as most successful coping strategies, responding/retorting least successful.
Phillips and Stein (2007)	Outpatients with schizophrenia ($n = 22$) and bipolar disorder ($n = 26$)	Religious coping assessed using the RCOPE (Pargament, Koenig, & Perez, 2000) cross-sectional	Religious coping used by mentally ill sample at levels comparable to the general population.
Bak et al. (2008)	Outpatients with schizophrenia ($n = 32$)	Structured interview developed by researchers (MACS; Bak et al., 2001a) cross-sectional	Executive functioning was not found to be significantly associated with either frequency of coping or the application of symptomatic or non-symptomatic coping strategies.

Table 3 (*Continued*)

Authors	Sample	Method of assessment of coping and design of study	Results
Hacker, Birchwood, Tudway, Meaden, and Amphlett (2008)	Outpatients and inpatients with psychosis and current experience of auditory verbal hallucinations for at least six months ($n = 30$)	Safety behavior Questionnaire (Freeman et al., 2001) cross-sectional	About 86.7% participants reported using safety behavior to cope with auditory hallucinations in the previous month – 76.7% reported using avoidance, 70% reported "in-situation safety behaviors," 23.3% reported "escape"; 53.3% "pre-emptive aggression," 50% "compliance and appeasement," 40% "help-seeking," and 10% "rescue factors"; 91.3% rated behavior as at least five out of 10 in reducing threat; predictors of safety behaviors were omnipotence of voices and voice characteristics (negative content and loudness).

indicated that individuals who have flexibility in their coping responses are more likely to have higher levels of psychological well-being than those who only have a limited coping repertoire (Aldwin & Revenson, 1987). Boschi et al. (2000) reported that individuals who had recently been diagnosed with a psychotic disorder indicated that behavioral strategies helped them to cope the most, followed by cognitive strategies, whilst avoidance was reported as the least helpful. Takai et al. (1990) reported that individuals with severe positive symptoms were more likely to indicate that they were unable to find a satisfactory way of coping with them than individuals with less severe symptoms. This is unsurprising given that severe and longstanding symptoms by their very nature have not responded to either treatment or self-initiated attempts to limit them. Meanwhile, Wiedl (1992) reported that the techniques used to cope with negative symptoms (largely emotion-oriented strategies) were less effective than strategies used to cope with positive psychotic symptoms. Solano and Whitbourne (2001) reported that the coping strategies used by individuals aged 50–62 to cope with persistent positive psychotic symptoms were similar to those used by younger adults, but the perceived efficacy of the strategies employed had increased. The authors argued that this was associated with greater levels of acceptance of illness by the older cohort. Finally, a number of studies have reported that symptomatic coping in response to positive symptoms is less effective than non-symptomatic coping (Bak et al., 2001a, 2003; Johns et al., 2002; Lardinois et al., 2007; Middelboe & Mortensen, 1997).

A more objective way of assessing coping efficacy is to look at the relationship between coping strategies and symptom or functional outcome. In a longitudinal study Boschi et al. (2000) reported that, although, significant associations were not found between coping strategies at baseline and functioning or quality of life six months later, active coping at baseline was associated with better symptom outcome at 24 months. In contrast, Rudnick (2001) reported that perceived effectiveness of attempts to cope with psychotic symptoms was not correlated with quality of life and neither problem-oriented nor emotion-oriented coping moderated between symptoms and quality of life. The results of the study by Lee, Lieh-Mak, Yu, and Spinks (1993) were in-between; they reported that positive social functioning was associated with cognitive coping strategies, stress reduction, efforts at self-improvement, and hospital admission; good quality of life was associated with positive work performance, stress reduction, and self-improvement; and symptom improvement was associated with use of psychotropic medication and efforts at self-improvement. This study was cross-sectional and outcome was determined from an interview with participants and case note review. In a longitudinal study of 47 individuals in the general population who reported experiencing psychotic symptoms that met diagnosis for a psychotic disorder, Bak et al. (2003) reported that those respondents with a need for formal psychiatric care due to the experience of psychotic symptoms or distress were more likely to have utilized symptomatic coping and reported less control over their symptoms. These studies all suggest that the relationship between coping with symptoms and outcome is complex.

Limitations of previous research

In summary, the studies shown in the tables reveal that a wide range of strategies is employed by individuals with psychotic disorders to cope with their symptoms and

with independent stressful events. In general, this research concurs with the conclusion drawn by Carr (1988) that many individuals with psychosis do not see themselves as "passive victims" of their illness. However, there are a number of *limitations in the design* of many of the studies that have been reviewed which limit the reliability of the results, and the degree to which studies can be compared with one another.

Sample size

The number of participants in the studies shown in Table 1 varies considerably. Whilst the studies by Carr and Katsikitis (1987), Lee et al. (1993), and Strous et al. (2005) have a relatively large number of participants (200, 101, and 279, respectively), the studies by Bak et al. (2001a), Johns et al. (2002), and Böker et al. (1989) had only 21, 14, and 11 participants, respectively. The participants included in the various studies also differ in the recency and duration of the experience of psychosis. Wahass and Kent (1997) included individuals who had experienced persistent hallucinations for over four years whilst Lee et al. (2004) included individuals with schizophrenia who had experienced at least one command hallucination in the month prior to the assessment. As already indicated, the efficacy and range of coping symptoms that are used may vary with duration of illness and therefore comparing results between studies should take this into consideration.

Lack of comparison groups

Whilst a number of studies have included individuals with schizophrenia and other psychotic diagnoses, most have not compared the type or effectiveness of coping strategies between diagnostic groups. Evaluating the coping strategies used by individuals with different psychotic diagnoses is important because specific symptom profiles may respond to specific coping techniques and this might influence the development of more effective psychological treatments. Only two studies have compared coping strategies of individuals with different psychotic diagnoses. Jimeno Bulnes, Jimeno Valdes, Vargas Aragon, and Lopez Fernandez (1997) found no difference in the coping strategies used by individuals with schizophrenia, substance-induced psychosis or brief reactive psychosis/schizophreniform disorder, however, Meyer (2001) reported that individuals with schizophrenia were less likely to utilize "adaptive" coping approaches, such as acceptance, active planning, and emotional support seeking than members of an "other psychoses" comparison group. There were no differences between the groups in the use of "maladaptive" coping (denial, disengagement, self-blame, and so forth). Clearly, more studies are required to determine differences in coping between individuals with different psychotic diagnoses.

It is also noted that a number of studies have included individuals with non-psychotic diagnoses. For example, Johns and colleagues (2002) assessed the strategies used to cope with auditory hallucinations by individuals with schizophrenia and by individuals with tinnitus, Breier and Strauss (1983), Carter et al. (1996), Nayani and David (1996) all included individuals with Major Depressive Disorder who also reported experience of psychotic symptoms (hallucinations or delusions), and Romme et al. (1992) used a television advertisement to recruit individuals who

experienced chronic auditory hallucinations, but did not determine whether diagnostic criteria for schizophrenia or another psychotic disorder was met in all cases. Obviously, results of these studies need to be considered separately from studies with individuals who meet diagnostic criteria. Nevertheless, information from these studies may be important in informing preventive interventions.

Lack of longitudinal research

Most of the studies in Tables 1 and 2 have a *retrospective or cross-sectional design*. In those with a retrospective design participants are asked to reflect on strategies they have used to cope with their psychotic experiences in the past. This task could be affected by problems with recall – particularly pertinent in this context as the experience of psychosis has been consistently associated with memory deficits (Aleman, Hijman, de Haan, & Kahn, 1999) and other cognitive deficits (Gold & Harvey, 1993) which can also independently influence the outcome and course of illness (reviewed by Green, 1996). Wilder-Willis, Shear, Steffen, and Borkin (2002) reported that executive deficits and mnemonic impairments were both related to decreased use of active coping strategies and suggested that individuals with schizophrenia might be less flexible in their use of coping strategies. These conclusions have implications for psychological treatment aimed at assisting individuals to cope better with psychotic symptoms.

The over reliance on cross-sectional research in this area of research reflects a problem with the wider field of coping research and reflects the "abyss" that has developed between theory and research in the study of stress and coping (Tennen, Affleck, Armeli, & Carney, 2000). As outlined by Lazarus (2000), longitudinal research enables identification of stable personality traits that contribute to coping as well as enabling identification of coping processes that change over time (by controlling for coping at baseline) or under a range of conditions. This area of research would benefit from within-subject studies that examine coping over time perhaps, utilizing experience sampling methodology that has already been extensively used to assess emotional reactivity to stressors in psychotic populations by Myin-Germeys and colleagues (2001).

Limitations of measurement of coping

Another major criticism of the research outlined in this paper and the wider coping literature in general concerns the *assessment of coping* (Coyne and Racioppo, 2000). A wide range of coping checklists are shown in Tables 1 and 2. Whilst some of these measures are well validated and are used in a number of studies (such as the Maastricht Assessment of Coping Strategies which was developed by Bak et al. (2001a), or the Coping Inventory of Stressful Situations (Endler & Parker, 1990)), others have been relatively unsophisticated and only included in one study, with no reported indication of validity or reliability. This is particularly the case in studies listed in studies of coping with symptoms of psychosis (Table 3). For example, Jimeno Bulnes et al. (1997) assessed coping strategies using a six-item questionnaire that focused on non-active or avoidance strategies only, but did not assess other types of coping. Coyne and Racioppo (2000) suggested that measures of coping that are developed using general population samples lack validity when used with individuals experiencing specific

health conditions. One reason for this is the multifaceted nature of psychotic symptoms and the many targets of coping strategies – reducing the frequency and intensity of the experience itself (such as a commanding voice), reducing the unwanted emotion or thought elicited by the psychotic experience (fear, anger, and poor self-worth) and so forth. Strategies used to cope with psychotic symptoms do not fall neatly into classifications of problem-centered and avoidance coping. Withdrawal from social activities by someone who is experiencing command hallucinations instructing them to hurt others can be considered in both categories. Similarly, there is an overlap between symptoms and coping in some cases. The example of withdrawal from social activity by someone experiencing command hallucinations can be considered a symptom that impacts on social functioning as well as a coping technique. Given this complexity, the proliferation of coping measures evident in Tables 1 and 2 and lack of shared content and focus can be understood. However, the wide range of measures does not facilitate comparison between studies. Lysaker and colleagues (2004b) have attempted to overcome this problem somewhat by adapting a previously validated scale for assessing generalized coping – the Ways of Coping Checklist (Folkman & Lazarus, 1988) – to assess coping with psychotic symptoms. Despite reasonable reliability of the adapted scale, it has not yet been adopted by other researchers.

Similarly, *efficacy of coping strategies* has been measured in a range of ways: simply asking participants to indicate on a visual analog or simple Likert scale how satisfied they were with their coping efforts (Hayashi, Igarashi, Suda, & Nakagawa, 2007; Mueser et al., 1997; Wiedl, 1992); asking which strategy or strategies they find the most useful or successful or helpful or otherwise (Bak et al., 2008; Boschi et al., 2000; Carter et al., 1996; Dittmann & Schlutter, 1990; Freeman et al., 2001; Lee et al., 1993); whether they were associated with a decrease or cessation in symptoms (Middelboe & Mortensen, 1997), or whether they have a wider impact, for example, on quality of life (Boschi et al., 2000). The lack of a consistent way of assessing efficacy of coping restricts comparison of results between studies as well as limiting the capacity results of these studies can be translated into practice. Once again this is an issue that confronts the coping literature in general (Somerfield & McCrae, 2000), not only this specific area of research.

Lack of focus on appraisals

Also concerning, is the lack of sophistication evident in many of the coping measures that have been developed. As indicated, many of the studies simply catalog the coping strategies that participants use. Whilst this information is useful, contemporary transactional models of coping emphasize the role of *appraisal* in determining coping strategies that an individual employs (Lazarus & Folkman, 1984) and coping checklists have been criticized for their inability to tap into the richness of the coping process (Coyne & Racioppo, 2000). It has been proposed that appraisal might be crucial to the potential for recovery from illness (Yanos & Moos, 2007) or relapse (Lobban, Barrowclough & Jones, 2004) and is seen an important target in cognitive therapy for people with psychosis (Campbell & Morrison, 2007; Kuipers et al., 2006). Whilst most of the studies shown in Tables 1 and 2 do not assess or measure the appraisal process, there are a number of recent exceptions. Horan et al. (2005) did not specifically focus on coping strategies, but suggested that whilst individuals with recent onset schizophrenia experience fewer life events than healthy comparison

groups, they rate both positive and negative experiences as less controllable and positive events as less desirable. Two studies have reported that individuals with psychosis who appraise their symptoms as problematic or distressing are more likely to use positive (active) and non-symptomatic coping strategies than avoidance (Lardinois et al., 2007; Lobban et al., 2004). At the symptom level, Hacker, Birchwood, Tudway, Meaden, and Amphlett (2008) reported that the use of safety behaviors and distress related to the experience of auditory hallucinations were associated with perceptions of the omnipotence of the voices and that beliefs of omnipotence actually mediated between safety behavior use and distress. Similarly, Freeman and colleagues (2007) recently reported that higher levels of distress associated with paranoid delusions was associated with increased use of safety behaviors in response. Appraisal is obviously a complex construct that deserves further assessment in relation to coping by individuals with psychosis. One model which has been investigated in work by Lobban, Barrowclough, and Jones (2003), Lobban et al. (2004) and which may be important to investigate further is the health belief model which examines coping responses within the framework of appraisals about the causes and consequences of illness.

Neglect of intervening factors

Factors that may play a role in determining the coping strategies that are enacted by psychotic individuals have largely been neglected in research to date. The relationship between cognitive functioning and coping has been explored to a limited extent (Bak et al., 2008; Lysaker et al., 2004a; van den Bosch, & Rombouts, 1997; van den Bosch et al., 1992; Wilder-Willis et al., 2002) with mixed outcomes. Other factors are known to influence coping in the general population. This includes optimism, psychological mastery, self-esteem (Taylor & Stanton, 2007) age, and gender (Aldwin & Revenson, 1987; Tamres, Janicki, & Helgeson, 2002). The experience of traumatic events during early childhood is thought to increase the risk of dysfunctional or maladaptive coping in response to psychotic symptoms (Bak et al., 2005; Garety, Kuipers, Fowler, Freeman, & Bebbington, 2001), yet the experience of childhood trauma has not been assessed in many studies to date.

General conclusions

Although the research described in this paper spans over 25 years, very few firm conclusions can be made about the coping strategies utilized by individuals with psychosis in response to stressors directly associated with their illness or with more general, independent, and stressful events. These conclusions are that most individuals experiencing psychosis implement at least one strategy to cope with symptoms and life events and most implement more than one strategy. It appears that having a repertoire of strategies to employ leads to greater effectiveness than simply relying on one strategy. It also seems that there is no one coping strategy that is universally effective and situational or other factors may influence both the choice of coping strategy implemented and its efficacy. A number of studies have indicated that non-symptomatic coping is more effective in response to positive psychotic symptoms, but specific conclusions about how best to cope with negative symptoms cannot yet be made. It can also be tentatively concluded that task-oriented coping

and social avoidance in response to life stressors has a positive impact on quality of life whilst emotion-oriented coping impacts negatively on quality of life.

Implications for treatment

This review has been limited to studies of "self-initiated" coping and has not paid reference to the large amount of literature that has addressed psychological treatment studies that have incorporated coping strategies (e.g., Gleeson et al., 2003; Haddock et al., 1998; Tarrier, Harwood, Yusopoff, Beckett, & Baker, 1990). It is anticipated that information derived from studies of coping by individuals with psychosis can influence these interventions. Of course, the reverse is also true. Intervention studies that incorporate coping techniques demonstrate that these techniques can be learnt and provides further indication of what techniques result in symptom reduction. For example, Bick and Kinsbourne (1987) reported that when individuals with schizophrenia who experienced hearing voices performed a technique that prevented subvocalization (holding their mouth open), the voices stopped. Intervention studies that incorporate coping strategies can also provide valuable information about mechanisms of change.

The general conclusions drawn from the studies that have been reviewed imply that treatment strategies that aim to enhance the coping of individuals with psychosis should emphasize the development of a range of coping strategies that can be enacted depending on circumstances. For example, an individual may find that speaking with someone else helps them to cope with distressing symptoms, whilst in situations where no one else is available, an alternative strategy needs to be found. More specific conclusions and recommendations for treatment require more research to be undertaken as outlined below.

Future research directions

Above all, this review indicates that further research is required to better understand the determinant of specific strategies that are used. This research needs to be longitudinal in nature, to incorporate valid and reliable measures of coping that are not mere checklists and investigates the role of appraisal and other factors in influencing the types of strategies utilized and their efficacy. Future research in this area needs to consider broader models of coping and to move away from considering coping in isolation. A model such as that developed by Yanos and Moos (2007) which incorporates coping, coping appraisal, and personal and environmental conditions that influence these constructs within a broader framework of episodic illness-related experiences, and a broad range of outcomes may prove useful for furthering knowledge in this area.

An additional area of future research is the investigation of coping strategies utilized during the onset phase of a psychotic disorder, or by people who are at heightened risk of psychosis. Information gained from studies that have been conducted with individuals who have met diagnostic threshold for a psychotic disorder cannot be reliably extrapolated to earlier phases of illness, but investigation during this phase may contribute to the development of effective preventive interventions. Three studies have been conducted to date investigating coping strategies utilized by people who are thought to be experiencing an emerging

psychotic disorder (Dangelmaier, Docherty, & Akamatsu, 2006; Schuldberg, Karwacki, & Burns, 1996; Woodside, Krupa, & Pocock, 2008). The criteria used to define the high-risk cohort differ between these studies and coping has been measured in different ways. Broad conclusions drawn from the three studies to date are that individuals at high risk of psychosis utilize less "adaptive" (i.e., problem focused) and more avoidance and have fewer social supports than those participants with either first episode psychosis, chronic schizophrenia, or healthy comparison groups. All of these studies are cross-sectional and prospective studies are required to determine if the type of coping strategies that are used by people who are identified as being at heightened risk reduces the likelihood of psychosis developing. As this area of research is still emerging it is hoped that future studies can take heed of limitations of research conducted with individuals with established psychosis.

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