

Adolescent risk taking behaviour:

*The experiences, motivations and coping styles of young people
with and without psychosis*

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Abstract

Introduction: Adolescence can be a challenging developmental period, often characterised by experimentation, impulsivity, curiosity and uncertainty, making it a heightened potential for risk taking behaviour. Particular concern has been levied at adolescents who have psychotic experiences, given that their adjustment and global functioning is often lower than that of other young people and they may be more prone to engaging in health compromising behaviours.

Aims: The primary objectives of the study were to explore the: (1) association between personality (telic & paratelic dominance), coping styles (productive, unproductive & reference to others) and health risk behaviours, and (2) perspectives of young people who experience psychosis in terms of their personal meanings and motivations for engaging in health risk behaviours.

Method: A multi-method study comprising of two stages was employed. The first stage was a large scale cross-sectional quantitative study of a school based population (n=407) employed to test the relations between personality, coping styles and health risk behaviours. The second stage comprised of an in-depth qualitative analysis of the perspectives of young people who experience psychosis (n=10) concerning their personal meaning and motives for risk taking. The standardised measures of the main variables were also administered to the clinical group.

Results: Analysis from the school based data indicated that adolescents who scored high in negativistic dominance and low in telic dominance were more likely to use the unproductive coping style and engage in health risk behaviours. Coping style was found to mediate the relationship between personality and health risk behaviours. Analysis from the accounts of young people who experience psychosis highlighted the importance of understanding the developmental and social context in which adolescent risk taking occurs. It also emphasised the importance of addressing the social and attitudinal barriers associated with the stigma surrounding psychosis, given that this presents a significant challenge to young people as they strive to rebuild their lives following a psychotic episode.

Conclusions: Clinical and health promotion interventions would benefit from tailoring messages to reflect the processes linking state dominance, coping styles and health risk behaviours among young people. Interventions that promote adaptive outlets for positive risk taking and emphasise the importance of maintaining health may be more likely to reduce adolescent engagement in health compromising behaviours. Understanding normative adolescent risk taking and how it relates to developmental processes is essential for those working with young people with and without mental health problems.

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Chapter 1: Introducing the research problem: *Definitions, prevalence and layout of the thesis*

1.1) Introduction

Why do young people take risks? Why do they take chances with their health and well being, and even their lives? One of the most fascinating aspects of human behaviour is the paradox between the actions young people choose versus the actions that would appear to be in their own best interests. Not only does it not prevent young people from acting in certain ways that may be deemed 'socially acceptable' but it can actually encourage behaviour that could lead to dangerous and/or fatal outcomes. Indeed, rising concern over the status of young people in the UK has generated substantial research and policy interest in adolescent development and in the social contexts in which they learn the social roles and responsibilities often assumed as they make the transition to adulthood (Castellanos & Conrod, 2006). This thesis focuses on an explanation of the appeal, type and function of the risk taking behaviours young people engage in. Attention will be directed towards a particularly vulnerable population of young people, those experiencing psychosis, to determine whether their risk taking behaviours differ from those of young people without such experiences. It will also consider the developmental importance of risk taking and factors which may play a role in young people engaging in unhealthy or dangerous risk taking behaviours.

Adolescence can be a challenging developmental period, often characterised by experimentation, impulsivity, curiosity and uncertainty, making it a heightened potential for risk taking behaviour (Smylie *et al.*, 2006). It is an important stage of life for establishing healthy behaviours, attitudes, and lifestyles that contribute to current and future health. Research has increasingly and consistently revealed that experiences early on in life, particularly at key developmental stages such as adolescence, influence health and well being in later life (Gumley & Schwannauer, 2006). The idea that adolescence is an inherently turbulent period, whereby young people are at risk of adversity is prevalent in the vast body of research literature. Indeed, psychopathology has been the most common focus of studies of adolescents given it affects social, emotional and educational development disproportionately, and may prevent the normal transitions and learning experiences inherent during this period (Steinberg & Morris, 2001). Particular concern has been levied at adolescents who have had psychotic experiences, given that their adjustment and global functioning is often lower than that of other young people (Castro-Fornieles *et al.*, 2007) and they may be more prone to engaging in risk taking behaviours (Stefanis *et al.*, 2004).

Studies have reported that adolescents who experience psychosis, may be more likely to have general medical problems (Feinstein & Ron, 1998), attentional and memory deficits (Seidman *et al.*, 2006), trauma (Jackson *et al.*, 2004), impoverished social networks (Thorup *et al.*, 2007), and social isolation (Drake *et*

al., 2000) than those without such experiences. Relative to other mental health problems, it is often described as one of the most disabling of conditions, and is associated with high rates of hospitalisations, suicidal behaviours, substance abuse, family problems and poor psychosocial functioning (Birmaher & Axelson, 2006). While risk taking may heighten the possibility of poor outcomes, particularly for vulnerable young people, this thesis aims to demonstrate how the disproportionate focus of previous work on the negative consequences rather than potential positive aspects, has tended to exaggerate the difficulties facing adolescents. In the forthcoming chapters, it is argued that understanding the developmental importance of risk taking behaviours during adolescence requires a shift in the conceptual and methodological underpinnings of conventional theorising in this field of investigation.

This introductory chapter aims to, firstly, define the key concepts of ‘adolescents’, ‘risk taking behaviours’ and ‘psychosis’ as they are used throughout this thesis and provide a brief overview of the key debates and discussions surrounding their use. In line with previous work (Beresford, 2002), there can be great disparity in terms of the labels, professionals’ descriptions and lay persons’ understandings of the terms used. While precise definitions that meet all circumstances are a challenging task, in order to establish some level of shared and mutual understanding between the writer and the reader of this thesis, definitional criteria are presented. In addition, the complexities in estimating the prevalence of adolescent risk taking and adolescent psychosis are discussed. It will be argued that although the extent of risk taking behaviour is widespread in terms of social and geographical distribution (Ponton, 1997), individuals living in areas of deprivation are more susceptible to engaging in such behaviours, as well as experiencing psychosis (Wilkinson, 2005), than those from more affluent backgrounds. Lastly, the layout of the thesis is outlined, explaining the rationale behind each of the chapters and summarising the key issues to be explored.

1.2.) Definitional criteria

This thesis aims to build upon previous work and contribute a new understanding of the risk taking behaviours, motivations and coping strategies of adolescents with and without psychosis. In doing so, it is envisaged that the findings will be relevant to academics, service providers and policy makers working within this field of investigation. Given the diversity of research literature exploring the key concepts of ‘adolescence’, ‘risk taking behaviour’ and ‘psychosis’, it was considered helpful to provide definitional criteria for how such concepts are used in the conduct of the current study.

Adolescence – towards a developmental perspective: There is little consensus concerning how researchers should define what constitutes being an ‘adolescent’. The terms ‘teenager’, ‘teen’, ‘youth’ and ‘young person’ are often considered synonyms. Adolescence is typically viewed as a transitional period between childhood and adulthood, a time when young people continue to develop the social and intellectual skills that will prepare them for adult roles and responsibilities (Harris *et al.*, 2002). During this period,

adolescents reach physical and sexual maturity, develop more sophisticated reasoning ability, and look to their future by developing lifestyle expectations and setting educational and occupational goals that will shape their adult lives. These biological, cognitive, social and psychosocial changes provide numerous developmental opportunities for adolescents to engage in behaviours that have important implications for health risks and the adoption of healthy lifestyles (Millstein *et al.*, 1993).

From a developmental perspective, adolescence can be understood as a period of multiple, and often rapid and profound changes and transitions (Graber *et al.*, 1996), when young people renegotiate relationships with adults, peers, and the community, and experiment with things symbolic of adult life (Patton *et al.*, 1998). The many complex developmental tasks of adolescence include separation and individuation (Collins & Laursen, 2004), developing a sense of self as distinct from others (Harrop & Trower, 2001), identity formation (McClellan & Pratt, 2006), learning how to develop close relationships (Berman *et al.*, 2006) and gaining control over one's impulses (Lerner & Steinberg, 2004).

However, one of the methodological difficulties of research in this area is identifying the beginning and end of adolescence. It is often defined as the onset of puberty and the end being marked by the completion of such developmental tasks. This is reflected in the use of broad age ranges which tend to vary by culture (McDonagh, 2000). The World Health Organisation (WHO) defines adolescence as the period of life between 10 and 19 years of age (Goodburn & Ross, 1995). Similarly, in the UK adolescence is generally considered to begin somewhere between ages 11 and 12 and end at 19 or 20 (Coleman *et al.*, 2007). As distinct from the varied interpretations of who is considered an 'adolescent', the word 'teenager' is more easily described as a person who is 13 to 19 years of age (Ponton, 1997).

For the purpose of this thesis, the terms 'young person' and 'adolescent' will be used interchangeably to refer to the participants who took part in the current study. These terms appear to best fit the age band of the young people who took part in the current study (aged 14-18 years) and are the preferred terms used within UK policy and practice (National Services Framework, 2004). In citing research from other authors, their preferred use of terminology will be used.

Risk taking behaviours: There have been a large number of terms which have been used to describe and refer to risk taking behaviour (Michaud, 2006). These include 'risky behaviours', 'health compromising behaviours', 'problem behaviour', 'health risk behaviours' and 'risky activities' (Ponton, 1997). In some instances, the wide use of these expressions is fraught with conceptual and ethical problems. In much of the current literature, young people who present identifiable risk factors are automatically referred to as risk behaviour participants. Conversely, it may incorrectly be assumed that young people who do not have these risk factors are not going to be involved with risky behaviours. Clearly this is not the case given that risk factors and risk behaviours are two distinct aspects of the general concept of risk (Michaud, 2006).

Risk factors refer to an aspect of personal behaviour or lifestyle, an environmental exposure, or an inborn or inherited characteristic that may be associated with an increased risk of a person developing a disease, difficulty or mental health problem (Rothstein, 2003). For example, risk factors for adolescents developing psychosis include early trauma experiences (Shevlin *et al.*, 2007), severe disruption in psychological maturational processes (Harrop & Trower, 2001), exposure to high expressed emotion (Kuipers *et al.*, 2007), and a possible genetic vulnerability (Hirvonen, 2005). Whereas risk taking behaviours can be understood as specific forms of behaviour which are proven to be associated with increased susceptibility to a specific injury, disease, illness or mental health problem. Such behaviours are often associated with 'deviant' or 'socially maladaptive' behaviours (Lipsitt, 1991), such as illegal drug use (Davey *et al.*, 2005), criminal or violent acts (Valadez-Meltzer, *et al.*, 2005) or unprotected sexual activity (Christianson *et al.*, 2007). While there is good reason why studies have tended to focus on the adverse consequences of risk taking behaviours, given that they may lead to fatal outcomes (Pompili *et al.*, 2003), there is increasing evidence to suggest that such behaviours may also have positive aspects.

Indeed, some theorists understand risk taking behaviours as referring to any action where the opportunity exists for success as well as some possibility for failure (Peterson, 2002). Researchers have acknowledged that risk taking may involve participation in potentially health compromising activities (Wyatt & Peterson, 2005) as well as a set of positive or healthy behaviours, which are more socially acceptable (He, 2004). In fact, some have posited that adolescents actively choose and seek out risks because of the potential for challenge and excitement (Dworkin, 2005). It has further been argued that risk taking serves developmentally appropriate functions such as facilitating peer interactions and identity achievement (Kashdan *et al.*, 2006). For example, although it is indisputable that unprotected sex can potentially lead to the transmission of sexually transmitted infections, sexual activity in general should not be considered a risk taking behaviour. Indeed, in many European countries sexual intercourse, at least from the age of 15 or 16 years, is considered acceptable and even part of normative adolescent behaviour (Santelli *et al.*, 2006). This perspective challenges the traditional assumption that adolescents are merely victims of antisocial peer influences (Chassin, 1984) and presents risk taking behaviour as experimentation that affords positive developmental opportunities.

The paradox of risk taking has also been acknowledged, in that an adolescent may experience both positive and negative consequences at one time (Maggs & Hurrelmann, 1998). Hence, the term 'risk taking behaviour' will be used throughout this thesis, to describe behaviours which allow for the possibility of both adverse outcomes and positive gains. That is, risk taking may refer to health compromising behaviours (e.g. unsafe sex, excessive alcohol and drug use) as well as exploratory or experimental behaviours that are common during adolescence but do not inherently have an adverse impact on health (e.g. safe sex, moderate consumption of alcohol or cannabis, extreme sports). When referring to studies in this field of investigation, their preferred terminology will be adopted.

The prevalence of adolescent risk taking: While it is difficult to estimate the prevalence of adolescent risk taking behaviour, it is clear that changes in the social environment of adolescents in the last 30 years have increased risk for health behaviour (Miller *et al.*, 2007). The huge influx of mothers into the labour market and the rise in single-parent families has meant that adolescents now spend less time with parents or adults, leaving greater time unsupervised and with peers (Harris *et al.*, 2002). Adolescents from single-parent families are more likely than their peers from two-parent families to engage in health compromising behaviours, including delinquency, violence and unprotected sex (Dornbusch & Gray, 1988). Poverty and low socioeconomic status especially places adolescents at risk (Bridgman & Phillips, 1998). Young people from low income families experience higher rates of poor physical and mental health, are more likely to engage in delinquent acts, have early and unprotected sexual intercourse, and to experience adolescent pregnancy, be arrested, and drop out of school (Duncan & Brooks-Gunn, 1997). There are cumulative disadvantages associated with poverty and living on state benefits. For example, economic stress reduces parents' abilities to be supportive and nurturing of children (Elder *et al.*, 1992), and family poverty is typically associated with other forms of deprivation in the social environment, including low quality schools and unsafe neighbourhoods (Wilkinson, 2005).

Taken together, these findings suggest that while risk taking may be considered to be a developmentally significant behaviour typical of most adolescents, it is possible that those from disadvantaged backgrounds are more likely to engage in dangerous risk taking activities than adolescents from more affluent backgrounds.

Defining and understanding psychosis – beyond diagnosis: The process of defining psychosis is not straightforward as a consequence of the lack of a common language or shared meaning. The terms 'schizophrenia', 'severe and enduring mental illness', 'psychotic disorder', 'madness' and 'psychiatric system survivor' are just some of the terms that have been used in studies of psychosis (Bracken & Thomas, 2005). The multitude of terms used to describe psychosis may reflect the theoretical orientation of the range of individuals involved in mental health service provision (Boyle, 2002). Different terms also highlight the more general debate about the nature and causes of psychosis. Although there is no one definition or theoretical model of what constitutes psychosis, it is traditionally used as an umbrella term referring to symptoms of 'mental illness' such as schizophrenia or manic depression (Harper *et al.*, 2007). Psychiatric diagnosis identifies mental disorders which create theoretical and practical divisions between 'normal' and 'abnormal' behaviour (May, 2007). Diagnostic categories, such as those generated from the Diagnostic and Statistical Manual of Mental Disorders (DSM 4th edn), are thought to arise from biological abnormalities, that can be distinguished according to different psychiatric diseases (APA, 2000).

However, some theorists have argued that there is no convincing evidence that people grouped according to psychiatric diagnoses have distinct underlying pathological profiles (Moncrieff, 2007). For example, structural brain abnormalities identified by neuroimaging, predominantly atrophy and corresponding

enlargement of the ventricular system, are often cited as evidence for the neuropathological basis of psychosis (Pagsberg *et al.*, 2007). Yet, the abnormalities that have been found are neither universal nor specific (Moncrieff & Cohen, 2006). Similar abnormalities have been identified in samples of patients with post traumatic stress disorder (Nemeroff *et al.*, 2005), personality disorder (Irle *et al.*, 2005) and depression (Lin *et al.*, 2005). Statistical studies of unselected clinical populations have showed that people's actual behaviour and emotions do not easily fit diagnostic categories and that they are poor predictors of outcomes, interventions or even of people's complaints (Bentall, 2003; BPS, 2000). Even within the profession of psychiatry, the Critical Psychiatry Network has criticised the medical-biological approach to understanding, managing and categorising 'madness'. Instead, different philosophical approaches which view 'madness' as a meaningful individual response to the world and 'treatment' as an individual journey of recovery are considered (Braken & Thomas, 2005).

Despite years of well founded criticism (e.g. Bentall, 2003), psychiatric diagnosis is still widely used; not only by psychiatrists, but psychologists too. Debates about psychologists and diagnosis have been well documented (e.g. Pilgrim, 2000). The standard defence is that, whilst problematic, diagnosis provides a useful 'shorthand' form of communication important for multi-disciplinary work and is helpful as a means of accessing services (Kutchins & Kirk, 1997). Others have argued that the use of diagnostic labels has hindered understandings of human behaviour and experience in general (May, 2004). Some researchers have gone as far as to say that abandoning diagnosis is an important step in creating a unified approach to understanding psychotic experiences (Boyle, 2007). Clinical psychology has already begun to adopt alternatives to diagnosis in theory and practice. The term is not mentioned in the Division of Clinical Psychology's statement of its core purpose (DCP, 2000). Instead emphasis is placed on a psychological formulation-based approach (Harper *et al.*, 2007) which involves developing an understanding of a person's presenting difficulties through an ongoing collaborative process of 'sense making' (Harper & Moss, 2003).

May (2007), a practising clinical psychologist who has also been a 'mental health system survivor', goes beyond this in urging clinicians to utilise the insights of community psychology (Nelson & Prilleltensky, 2005) and the user movement (Rose, 2001) to develop innovative interventions and facilitate social change. The importance of self-determination, independence, and self definitions of psychosis have been highlighted (e.g. Rose, 2001; Wallcraft *et al.*, 2003). Similarly, the Hearing Voices Network has noted the significance of respecting a variety of explanations for distressing experiences (Downs, 2000). Indeed, lay concepts of psychosis often differ fundamentally from traditional bio-medical explanations (Kirmayer, 1994) and they usually have multiple systems of knowledge depending on contextual factors (Kirmayer *et al.*, 2004). One of the implications of respecting a variety of explanations for an individual's experiences is to create opportunities where different beliefs about the nature of reality are accepted (Knight, 2005; Romme & Escher, 1993). Interestingly, the move to replace diagnostic categories with a more general

understanding of psychosis has been found to reduce the perception of dangerousness often associated with it (Kingdon *et al.*, 2007) and increase expectations of recovery (Repper & Perkins, 2003). Strong associations exist between ethnicity, gender, social class, sexual abuse and many forms of distress (Rogers & Pilgrim, 2003; Tew, 2005), suggesting that the brain–body is an open system that can only be understood within its social context (Harper *et al.*, 2007).

All in all, these findings indicate that for the purpose of this thesis, it is necessary to move beyond traditional diagnostic classification systems which offer short-hand explanations of psychosis (Cromby *et al.*, 2007). In an attempt to use terms which are as neutral as possible, reference is made to the ‘experiences’ of psychosis, rather than ‘symptoms’ of an ‘illness’. At the same time, it is acknowledged that a great deal of the literature cited throughout this thesis has used medical terminology (e.g. ‘schizophrenia’, ‘illness’, ‘patient’). When describing this work, quotation marks around these terms are used. The term ‘psychotic experiences’ is also used as a general term for unusual perceptions (e.g. hearing voices) or beliefs (e.g. delusions).

The prevalence of psychosis: There is little known about the prevalence of adolescent psychosis in the UK. Psychiatric morbidity among adults nationally in the UK has been estimated annually as affecting around 1 person in 200 (Singleton *et al.*, 2001), 8 persons in 1000 (Nazroo & King, 2002) and 8 person in 1000 in a community sample study (Nazroo, 1997). While rates for men and women are often found to be similar (Nazroo & King, 2002), the literature on ethnic differences in ‘psychotic illnesses’ suggests that rates of first contact with treatment services are 3 to 5 times higher for Black Caribbean people than the general population (Cochrane & Bal, 1989; Van Os *et al.*, 1996). Higher rates have also been reported for other ethnic minority groups in the UK, including white minorities (Cole *et al.*, 1995) though some have suggested that rates for South Asian people are similar to those for the general population (Bhugra *et al.*, 1997). Such studies have tended to be based on treatment rates, because of the difficulty with assessing psychosis and the assumption that the majority of people affected are thought to make contact at some stage with mental health services. To date, there is little data as to the potential number of adolescents who experience psychosis, and there are a number of reasons why there are difficulties in deriving a population estimate.

Firstly, knowledge about the number of adolescents who experience psychosis depends in part on the definition of psychosis used. Although a wide range of surveys has been conducted by government departments, academic institutions, statutory and voluntary agencies concerning the prevalence of psychotic experiences in the general population, the data are based on different understandings of psychosis which creates problems in terms of comparability. For example, some studies estimate the prevalence according to a diagnosis of psychosis, defined using the Research Diagnostic Criteria (Spitzer *et al.*, 1978)

of delusions, hallucinations or thought disorder. In contrast, others have included individuals with sub-clinical psychotic experiences and have showed higher prevalence and incidence rates (Rossler *et al.*, 2007). These values have been said to be less predictive in adolescents (Simon *et al.*, 2007). For example, the incidence of 'positive' psychotic experiences in the general population has been found to be around 100 times greater than traditional estimates of incidence of psychotic disorder such as 'schizophrenia' (Hanssen *et al.*, 2005).

Secondly, it has been argued that social work and health professionals often lack knowledge of psychosis resulting in late identification and significantly reduced outcomes for those who develop it (Foster *et al.*, 2006). Some have argued that there can be reluctance to use reliable and valid instruments for the detection of psychosis in children and adolescence, perhaps due to concerns about medical ideology and the potential pathologising effect of using such measures (Harrop & Trower, 2003). This is an issue that needs consideration given that psychosis usually first presents in adolescence to early adulthood, although it is known that it can also appear in childhood (Castro-Fornieles *et al.*, 2007). While recent research has attempted to improve the identification of individuals at-risk of developing psychosis to permit targeted early prevention, these studies tend to assess the presence or absence of the 'symptoms' of psychosis (Killackey, 2005). Considering that many people who experience psychosis may not meet diagnostic criteria according to psychiatric classification systems (e.g. ICD-10; DSM-4), early identification and intervention also need to explore the personal meanings and level of distress associated with such experiences (Cogan & Griffiths, 2007).

Thirdly, the main source of information for large populations are surveys which normally rely on what participants are prepared to say about their experience of psychosis, since it would be expensive and impractical to obtain convincing external checks. For example, the census can be used as a way of trying to determine the potential number of people experiencing psychosis (Van Os *et al.*, 1996). Such self reports may be inaccurate, since even in a confidential situation people may not be inclined to state their true state of mind or may misjudge how they are coping with daily life. Moreover, people with severe and enduring mental health problems, such as psychosis, are less likely to take part in surveys (DeRenzo, 1994). Some are homeless, others will refuse to co-operate or not bother to respond and in some instances may be too unwell to take part.

In a recent study, Boeing *et al.*, (2007) examined the prevalence of adolescent psychosis using routinely collected admission and discharge data from the Information and Statistics Division of the Scottish Executive; local hospital case registers; and information from clinicians in child and adolescent and adult mental health services. The 3-year prevalence of early-onset psychosis was 5.9 per 100 000 found in the general population and approximately 50 per 100 000 adolescents at risk, suggesting it is relatively rare in adolescence. While differences in methodology and inclusion criteria make comparison with other studies problematic, Gillberg *et al.*, (1986) found a mean yearly prevalence for 13 to 19 year olds hospitalised with

psychosis of 7.7 per 10 000. In a Scottish sample in the 1980s the annual incidence of 'schizophrenia' in the age group 15 to 19 years was found to be 1.0 in males and 0.5 in females per 10 000 (Takei *et al.*, 1996). Perhaps the study's higher prevalence rate reflects the fact that multiple sources were utilised to identify young people. It is also possible that increasing awareness of the difficulties associated with psychosis may have improved detection rates, albeit further work is needed to spread awareness among professionals and the general population (Etheridge *et al.*, 2004).

With these considerations in mind, general conclusions can be presented which make it clear that adolescent psychosis, albeit relatively rare, is most likely to be widespread both in terms of the proportion of the population affected and geographical distribution. Nevertheless, a great deal of research has also shown that inequalities in health exist (Wilkinson, 1997). In particular, studies have found that those individuals living in areas of deprivation are significantly more likely to experience psychosis and/or be given a psychiatric diagnosis than individuals from more affluent backgrounds (Wilkinson, 1997). One of the weaknesses of most work on estimating the prevalence of psychosis is a reliance on data based on contact with treatment services. Contact with services, as in the NHS, reflects 'health beliefs' (i.e. the way that symptoms are perceived, evaluated and acted upon), as well as the distress associated with psychotic experiences (Kuipers *et al.*, 2007). This makes interpreting differences in prevalence rates difficult, particularly as psychotic experiences are likely to be also influenced by a number of factors including ethnicity, socioeconomic position, expectations of the sick role and different referral systems (Blane *et al.*, 1996). Such factors need to be considered in the context of the current research and the implications for both identifying young people experiencing psychosis and the interpretation of the study's findings.

1.3) Layout of thesis

Having introduced the research problem, established the key definitional criteria used and discussed some of the difficulties in establishing the extent of adolescent risk taking and prevalence of psychosis, the structure of the thesis is now mapped out.

Chapter 2 begins with a critical appraisal of previous work examining the type and consequence of adolescent risk taking behaviours. Research stemming from what has been termed the 'problem orientated perspective' where the focus has been on the negative impact on adolescents is critically evaluated. Discussion also concerns those young people who may be more susceptible to engaging in 'dangerous' or 'unhealthy' risk taking behaviours.

In chapter 3, discussion shifts from a focus on the adversities associated with risk taking to a growing body of research literature that attempts to explore the underlying psychological factors influencing such behaviours. It is argued that further work exploring the potential mediators of personality and motivation

which may contribute towards adolescents' decisions regarding risk taking is needed in order to provide new insights into the research problem. In particular, it considers how risk taking may be a means of adolescent coping behaviour, whereby coping is seen as a function of the person, situation and their perception of problematic situations.

Chapter 4 introduces an alternative theoretical paradigm used to explore the risk taking behaviours of adolescents with and without psychotic experiences. It places emphasis on the role of young people as 'active agents' within their decision making processes. The key elements of reversal theory are introduced in order to gain insight into the complexity, changeability and inconsistency of adolescent risk taking. This is followed by a brief critique of previous work in this area. It is argued that further research examining the role of state dominance in association with coping behaviour may provide a more comprehensive understanding of the reasons why young people engage in potentially health compromising behaviours.

Chapter 5 links key theoretical and methodological ideas and illustrates how these are reflected in the current research design. The research hypotheses and questions to be addressed in the study are outlined. The research context and multi-method approach adopted are detailed, followed by a discussion of the difficulties experienced in gaining access to research participants, the strategies used to overcome such barriers and the characteristics of those recruited to take part. The methodological and ethical issues arising from the process of data collection, which are relevant to studies involving other hidden and vulnerable populations, are discussed. This chapter ends following a discussion concerning the coding, management and analysis of the quantitative and qualitative data-sets.

Chapter 6 introduces the quantitative data collected using standardised measures of state (telic & negativistic) dominance, coping styles (productive, unproductive & reference to others) and health risk behaviours of adolescents from the school based population ($n = 407$). The significant differences that emerged between young people in terms of the variables of interest are detailed and the findings stemming from the testing of a mediation model are presented.

In an attempt to gain a more in-depth understanding of the research problem, Chapter 7 provides a multi-method analysis of the perspectives of adolescents who experience psychosis in terms of their personal understandings of risk taking behaviours. The findings provide useful insight into the ways in which adolescents understand the experiential component of living with psychosis and how this relates to how they cope and their personal motives for risk taking.

Finally, chapter 8 brings together the main ideas developed throughout the thesis. In doing this, discussion returns to the key research questions and hypotheses, and the findings stemming from the analysis. The unique contribution the current study has made to the existing evidence base, the limitations of the work

and suggestions for future research are outlined. Finally, recommendations relevant to researchers, service providers and policy makers working within this field of investigation, are made. A key message stemming from this work is that unhealthy risk taking behaviours amongst adolescents need not be random, uncontrollable, or inevitable. Instead, many factors, both individual and social, that contribute to an adolescent's propensity to engage in such behaviours are modifiable. Importance is placed on allowing young people to develop the capacity for assessing the risks they take and for parents, teachers and health care professionals to develop a comfort level for talking about such issues with young people.

1.4) Summary

This chapter introduced the research problem, stated the definitional criteria used throughout the thesis, discussed the difficulties in establishing the prevalence of adolescent risk taking and psychosis, and provided an outline of the forthcoming chapters. It is clear that behaviours depicted as risky are often ill-defined and may not inherently present risks to health. There is much disparity in how the key terms are used, which has ramifications for how researchers quantify and devise population estimates of the potential number of young people engaging in unhealthy risk activities. The possibility that young people from disadvantaged backgrounds may be more prone to engaging in health compromising behaviours as well as experiencing psychosis, compared to young people from more affluent backgrounds, was also postulated. In detailing the rationale behind each of the forthcoming chapters, it is apparent that there are diverse theoretical and methodological approaches to draw upon in order to gain a fuller understanding of the research problem.

The following chapter aims to set the scene by critically evaluating previous work examining adolescent risk taking and its relationship with psychosis. It will be argued that the vast wealth of research has stemmed from an individual pathological model where attention has been focused on the negative consequences for young people. The advantages of also considering the possible positive aspects of risk taking are discussed.

Chapter 2: Type, consequence & susceptibility to adolescent risk taking behaviours: *A problem orientated perspective*

2.1) Introduction

This chapter aims to set the scene by reviewing existing research examining young people and risk taking behaviours. Discussion begins with a critical appraisal of studies examining the different types of risk taking behaviours young people engage in. Attention is drawn to research on adolescents and intentional and unintentional injuries (Miller, 2007), tobacco use (Peters *et al.*, 2005), alcohol and drug use (Feldstein & Miller, 2006), risky sexual behaviour (Sheild *et al.*, 2005), unhealthy dietary behaviour (Lowry *et al.*, 2002) and physical inactivity (Koezuka *et al.*, 2006). This is followed by a review of the potential outcomes resulting from engagement in such risk taking behaviours. As shall be seen, concern about the potentially chaotic and disruptive implications of adolescent risk taking has meant that much of the research and theory, to date, has been from a problem orientated perspective, whereby the focus has been on the adversities facing young people.

Discussion then turns to factors that may lead to young people being more susceptible to engaging in 'health compromising' risk behaviours. Particular attention is drawn to studies examining young people with mental health problems (DiClements *et al.*, 2005), family environment (Buchanan & Brinke, 1997), exposure to negative life events (Simantov *et al.*, 2000) and possible genetic vulnerabilities (Kreek *et al.*, 2005). Finally, it is postulated that while healthy experimentation in risk taking behaviours may be developmentally important in adolescence (Breton, 2004), further work is needed to determine the processes of risk taking that are central to adaptive and maladaptive paths of development.

2.2) Different types of risk taking behaviours

Positive risk taking and experimentation that occurs during adolescence, can be seen as a way of coping with normal developmental tasks such as exploration and achieving autonomy (Millstein & Igra, 1995), identity formation (Denscombe, 2001) and the difficulties adolescents face in making decisions (Furby & Beyth-Marom, 1992). Such behaviours act as indicators of health for young people that may serve as targets for health policies and service development (Springer *et al.*, 1987). Nonetheless, it is the nature and extent of adolescent risk taking, and the overall impact on personal health and development, that is of public health concern (Eaton *et al.*, 2006).

Although there has been increasing interest in the UK concerning the different types of risk taking behaviours young people engage in (Beinart *et al.*, 2002), the majority of studies in this field stem from the US. While young people engage in a wide range of risk taking behaviours, the leading causes of

morbidity and mortality among young people and adults are related to six categories of priority risk taking behaviours: behaviours that contribute to injuries and violence; tobacco use; alcohol and other drug use; sexual behaviours that contribute to unintended pregnancy and STDs, including HIV infection; unhealthy dietary behaviours; and physical inactivity (Olshen, 2007). These behaviours are frequently inter-related and often are established during childhood and adolescence and extend into adulthood (Busseri *et al.*, 2007). Adolescents who initiate risk behaviours at an early age frequently have poorer health later on in life, lower educational attainment, and less economic productivity than their peers (Warren *et al.*, 1997). Early initiation of such behaviours is associated with longer periods of risk taking in later adolescence (Zakrajsek *et al.*, 2006) and may also be a predictor for risk taking in adulthood (Dryfoos, 1998).

The following section critically evaluates studies conducted in this field of investigation, with particular focus on research utilising the Youth Risk Behaviour Survey (YRBS) given that it has been the longest standing, most widely used and well established measure of risk taking behaviour developed for young people (Meltzer *et al.*, 2005).

2.2.1) Intentional & unintentional injury

Acts of intentional and unintentional injury are reportedly on the increase among young people, are often preventable, yet remain the most common cause of death in those aged 1 to 19 years old (Joffe, 2007). Intentional injuries include deliberate self harm, factors that contribute towards violence and suicidal behaviour (Grunbaum *et al.*, 2004). Many of those who self-harm are of school age and it is to be expected that schools will be aware of the problem and will respond appropriately. However, a recent survey of personal-social education in schools, undertaken by Best (2006), found virtually no reference to deliberate self harm. While a variety of self-harming behaviours, from cutting to unnecessary risk-taking, were reported by teachers and other professionals interviewed in schools, their awareness of self harm was limited and their reactions were often those of shock, panic and anxiety. The need for raising awareness of intentional injury, and the importance of supervision for front-line workers in schools were amongst key issues highlighted by the study.

Indeed, extensive clinical research has emphasised the link between risk taking, self injury and suicidal behaviour. For example, Sofronoff *et al.*, (2004) argue that adolescents who attempt suicide are in many ways similar to adolescents who take serious risks, which often result in injury, and end up in the juvenile justice system. They postulate that both risk-takers and suicidal adolescents, have long-standing serious and similar cognitive deficiencies. The use of problem solving and interpersonal cognitive programmes, designed to help teach young people to cope and think in ways that will help them to resolve interpersonal problems successfully is advocated. While there has been support for the efficacy of such programmes being implemented in schools (Lezine, 2006), others have found them to be very simplistic solutions to complicated problems (Benedek, 2005). For example, such programmes do not take into account many of

the predisposing factors to mental health problems and suicide, such as life events, the loss or rejection by a significant other, family dysfunction, personality traits, genetic predisposition, experience of abuse and family history of mental health problems (Brezo *et al.*, 2006). In addition, studies designed to assess intentional and unintentional injuries among young people and the effectiveness of programmes implemented to address such issues are often cross-sectional.

An exception is a case-control study conducted by Cheng *et al.*, (2003) which assessed risk and protective factors for 133 assault injured adolescents compared with control groups of young people with unintentional injuries (n = 133) and non-injured young people (n = 33) presenting to the emergency department. Face-to-face and phone interviews were completed with the young people (aged 12 to 19 years old). While fighting was common among all groups, assault-injured young people were more likely to have had previous weapon injuries and were high-risk for future injury. Past fights, past fight injuries, and seeing someone else shot were markers associated with assault injury. The implications of these findings are that health providers need to consider factors contributing towards exposure to violence and increased risk of injury in clinical assessment and intervention, rather than simply treating the outcome of intentional and unintentional injuries (Miller *et al.*, 2007).

Indeed, Spivak & Prothrow (2005) have pointed out that adhering with the medical model approach of identifying individual problems and treating them is an ineffective way of dealing with the issue of violence and physical injury among young people. Efforts to set up clinics in community health centres to treat adolescents who were referred with problems such as substance abuse, early sexual activity, mental health issues, violence and intentional injuries failed in that young people did not come to the health care centres. In addition, clinical staff burned out quickly and regularly trying to address this considerable range of issues with little success. Instead emphasis was placed on the importance of violence prevention and youth development programmes in schools as a means of addressing such issues. In addition, increasing research evidence suggests that psychological difficulties among young people may be associated with an elevated risk of unintentional and intentional injury (Rowe *et al.*, 2007). Mental health services, providing psychological therapies, may help reduce the risk of such injuries among adolescents (Chen *et al.*, 2005).

2.2.2) Tobacco use

Cigarette smoking represents a significant health problem and tobacco has been identified as causing more preventable diseases and premature deaths than any other drug. Although health outcomes from smoking have been documented (Jaraitis *et al.*, 2003), there has been a surprising lack of research into behavioural consequences. In a review of the limited data available, Mathers *et al.*, (2006) found that adolescent tobacco smoking may increase the likelihood of early adult tobacco use and the development of alcohol related problems. The review also highlighted a possible link between youth tobacco use and subsequent

behavioural and mental health problems, although further research is needed to establish the nature of this link (Indredavik, *et al.*, 2007).

Family related variables (Glanz *et al.*, 2007), peer relationship (Harakeh *et al.*, 2007), socio-economic disadvantage (Fergusson *et al.*, 2007) and habit formation (Menezes *et al.*, 2006) have been found to be strongly associated with smoking in early adolescence. It is also possible that smoking may be used as a coping strategy for dealing with stress (Peters *et al.*, 2005). For example, in a descriptive, correlational study undertaken with 105 young people (aged 11 to 13 years old) from two schools using the YRBS, Dowdell (2006) found that adolescent students reported increased incidence of risk taking behaviours, including smoking, to help them relax and combat their feeling unsafe in their neighbourhoods. In addition, children and young people may be more susceptible to smoking as a consequence of developmental factors, which promote or facilitate high risk behaviours. For example, tobacco use has been found to play a role in constructing a self identity (Denscombe, 2001), peer pressure (Jairath *et al.*, 2003) and sense of invulnerability whereby the harmful consequences of health risks are unlikely to be immediately experienced and the risks are regarded as remote (West, 1988). Clearly, there is a need to consider such issues in the development of intervention programmes designed to help prevent and assist young people quit smoking.

2.2.3) Alcohol & drug misuse

A great deal of research effort has been exerted into examining drug misuse in adolescence (Feldstein & Miller, 2006). Consumption of health compromising substances such as alcohol, and other recreational drugs are among the risk related activities taken by many young people (Smylie *et al.*, 2006). Binge drinking is the most common pattern of substance use (Albright, 1999). Studies have found that early experimentation with drugs is associated with increased risk for engaging in multiple health risk behaviours (DuRant *et al.*, 1999). Young people who participate in multiple risk-taking also increase the chance of damaging their health (Miller *et al.*, 2007). For example, in a recent study of young people (aged 14 to 15 year olds) and 'risky' drinking, Coleman & Carter (2006) found that those who get drunk when unsupervised are at particular risk of injuring themselves in accidents or fights, becoming severely intoxicated, or putting themselves in danger through daring and irrational behaviour. There are a wide range of reasons why young people misuse substances, such as a means of 'escape' from normal life (Duncan & Petosa, 1995), trying to forget their problems (Latimer *et al.*, 2003), for the 'buzz' it gives them (Coleman & Carter, 2006) or to alleviate boredom (Greene, 2000).

There is also evidence to suggest that young people with mental health problems may be more likely to misuse substances, including medicine misuse (Andersen *et al.*, 2006) compared to those without such difficulties (Verdurmen *et al.*, 2005). In an attempt to investigate the reasons why individuals with severe

and enduring mental illness use non-prescribed substances, Barrett (2005) interviewed service users using semi-structured interviews. Twenty-four service users were originally nominated to participate, however, 11 were subsequently interviewed due to 'drop out' rates. Grounded theory was applied to analyse data by exposing themes and meaning emerging from the interviews. Analysis revealed that the participants felt that they made objective, informed choices about the costs and benefits of their use of substances. However, their appraisals of risks, positive effects and harm minimisation strategies were often flawed and contradictory. While the study's results were generated from a small sample of adult service users, it is possible that such findings may be relevant to an adolescent population. Clearly, there is a need for further work incorporating young people's perspectives concerning their use of substances and engagement in other risk taking behaviours. This is particularly evident given recent research suggesting that substance misuse is higher among adolescents who experience psychosis compared to the general population (Kester *et al.*, 2006). Indeed, the aggravating effect of substances on psychosis and the frustration experienced by clinicians in their difficulties in motivating young people to modify their drug use have been well documented (Martinez *et al.*, 2006).

2.2.4) Risky sexual behaviour

Although sexual exploration is a healthy aspect of adolescent development, sexual risk taking behaviour (e.g. high frequency of intercourse, number of sexual partners, and poorer condom use) can increase young people's vulnerability towards contracting sexually transmitted diseases, unwanted pregnancies and abusive sexual experiences (Randolph, 2006). There is also evidence to suggest that early sexual activity is associated with risk taking in general (Moore & Rosenthal, 1993). In a study of first time pregnant adolescents using the YRBS, the frequency of prenatal 'health risk behaviours' (substance use, sexual risk taking) was assessed (Kaiser & Hays, 2006). While the prevalence of 'health risk behaviours' in the adolescents who engage in risk sexual behaviour is often greater than the most recent national trend data available, others have not found a clear association (Baskin-Sommers & Sommers, 2006). It is possible that clustering of health risk behaviours may be specific to certain social contexts or related to cultural determinants than to the adolescent status itself (Jessor, 1991). These findings necessitate the need for improved data gathering to enhance planning and evaluation of research concerning sexual risk taking in adolescence. Given that young people continue to show high HIV infection rates (Donenberg & Emerson, 2006), further work is needed in terms of the implementation of intervention programmes to help reduce such behaviours. The role of substance use, social and cultural determinants and negative peer pressure would need to be considered as processes through which poor self regulation and risk proneness may lead to risky sexual behaviour (Crockett *et al.*, 2006).

It may also be important to target young people with mental health problems given that they have been found to be more likely to engage in risky sexual behaviour and contract sexually transmitted infections than those without such difficulties (Ramrakha *et al.*, 2002). For example, in one of the few studies to examine sexual knowledge and behaviour of young people with a first episode of psychosis (Gray *et al.*, 2002), Sheild *et al.*, (2005) reported that sexual practice knowledge among such adolescents is often poor. Similar to previous work (DiClemente & Ponton, 1993), emphasis was placed on the need for sexual health education with adolescents who experience psychosis and for mental health professionals to have the skills and education to address harm minimisation issues. This is particularly pertinent in that sexuality is one area where parent and adolescent communication has been found to be less effective and where adolescents tend to turn to their peers. Yet information gained from peers about sex is often inaccurate. Naïve views about sex and the culture of silence surrounding sexuality serve to blind young people to the risks, making them vulnerable (Christianson *et al.*, 2007). Clearly, public health strategies should consider the mechanisms that contribute to vulnerability in the context of risky sexual behaviours for adolescence with and without mental health problems.

2.2.5) Unhealthy dietary behaviour

The extent to which unhealthy dietary behaviour in adolescents is related to other types of risk taking behaviours (e.g. smoking & alcohol intake) is an area that has been well researched. While a few studies have found unhealthy dietary behaviour to be only weakly related to other risk taking behaviours (van Kooten, 2006), others have reported a positive relationship with television viewing (Lowry *et al.*, 2002), obesity (Compton *et al.*, 2006), decreased physical activity (Hakko *et al.*, 2006) and smoking initiation (Gidwani *et al.*, 2002). An examination of studies that have explored these relationships may provide important information on possible underlying mechanisms that could be used for prevention interventions. Potter *et al.*, (2004) reviewed recent studies examining weight concerns among young people and found a positive relationship between disordered eating and other risk taking behaviours. Disordered eating demonstrates one of the most frequently seen risk taking behaviours in girls and young women (Schutz & Paxton, 2007). Poor body image, low self esteem and the limited opportunity for healthy risk taking available, particularly for females, may be some of the reasons for why young people engage in such behaviours (Ponton, 1997).

Furthermore, unhealthy diet appears to play a major role in the excess medical morbidity and mortality among persons with serious mental health problems (Compton *et al.*, 2006). For example, in a recent study examining factors that increase the risk of changing from under or normal weight in adolescence to overweight/obese in adulthood, Hakko *et al.*, (2006) found a 3.6 fold risk of weight gain in females with psychotic disorder. Other significant correlates of weight gain in males were physical inactivity, unhealthy diet, high alcohol consumption, and being single. For females, chronic diseases, physical inactivity and

high alcohol consumption increased likelihood of obesity. While these findings are important in terms of regular weight monitoring in clinical practice, the study failed to consider possible weight gain associated with the consumption of anti-psychotic medication (Green *et al.*, 2006). Further work examining the dietary behaviours of young people with and without mental health problems may shed light on the role of mediating variables that determine weight outcomes.

2.2.6) Physical inactivity

High levels of physical inactivity and sedentary lifestyles among young people is a growing concern that has received a great deal of research attention in recent years. The consequences of physical inactivity in young people threatens to reverse the decades long progress made in reducing death and suffering from cardiovascular diseases (Freedman *et al.*, 1999). A physically inactive population is at increased risk for many chronic diseases, including heart disease, stroke, colon cancer, diabetes, and osteoporosis (Bibbale *et al.*, 2004). It has also contributed to an unprecedented epidemic of childhood obesity (Yang *et al.*, 2007) which has also been linked to the appearance in the past two decades of a type 2 diabetes (Pi-Suycr & Xavier, 2007). Overlapping of family history of obesity and low rates of exercise among young people increases risk of obesity in both boys and girls (Baba *et al.*, 2006).

The apparent increase in physical inactivity among young people may also be attributed partly to high levels of television viewing, computers, video games, reading and other sedentary behaviours which increase during adolescence (Brodersen, 2007). The time spent on sedentary activities and physical inactivity was investigated in a sample of 7982 young people (aged 12-19 years) using self report surveys (Koezuka *et al.*, 2006). Physical inactivity was determined by respondents' daily energy expenditure assessed through a physical activity questionnaire. Multivariate logistic regression analysis examining the relationship between sedentary activities and physical inactivity respectively by gender revealed that a substantial proportion of young people were inactive (50.3% of males & 67.8% of females). Computer usage was associated with physical inactivity among males, and reading was associated with physical inactivity among females. The study showed that there is a complex inter-relationship between sedentary behaviours and physical inactivity, highlighting the need for targeted interventions addressing patterns of sedentary behaviour engagement. It was recommended that reducing time spent on television viewing may be one plausible strategy within such interventions in reducing physical inactivity among adolescents.

It is also important to note that socio-demographic and environmental factors are associated with physical inactivity in young people. For example, adolescents living in neighbourhoods where there is difficulty accessing community recreational facilities and concerns about personal safety are more likely to be inactive. Lack of extracurricular exercise and fewer sports meetings in schools are associated with increased levels of physical inactivity (Li *et al.*, 2006). It is also possible that stress and anxiety in adolescents may play a role in terms of sedentary lifestyles (Then, 2000). Interestingly, in a recent review

of the literature examining lifestyle factors underlying obesity among young people with severe mental health problems, Compton *et al.*, (2006) reported that compared to those without a 'mental illness', young people with such difficulties were more than twice as likely to smoke cigarettes and more than 50% more likely to be overweight (presumably the product of unhealthy diet & physical inactivity). While various biological, psychological and social factors place young people with mental health problems at risk for these and other adverse health risk behaviours (Galper, 2006), studies suggest that many of the same preventive approaches developed for general adolescent populations are likely to be effective for young people with mental health problems, though specialised approaches may also be needed (Strine *et al.*, 2004).

2.3) Consequences of risk taking behaviour

Having examined the major risk taking behaviours that young people reportedly engage in it is clear that the emphasis of the majority of the research has been on the negative consequences of such behaviours. Risk taking behaviour plays a role in the etiology of both physical health problems and injury (Pickett *et al.*, 2006). Unhealthy dietary behaviours, physical inactivity, and tobacco use contribute to chronic disease and other health conditions, including obesity, diabetes, and asthma. Adolescents who engage in high levels of risk taking have been found to be significantly more likely to report psychosomatic symptoms (Simpson *et al.*, 2006). These behaviours are often established during childhood and adolescence, extend into adulthood, and are interrelated (Brener *et al.*, 2007). Interestingly, gender differences in the ways in which male adolescents and females evaluate and make decisions about risk, which may result in physical health problems and/or injury, have been reported (d'Acremont, 2006). While it is difficult to establish why such differences exist, a recent study indicated that it may be partially due to socialisation processes. Hagan & Kuebi (2007) explored how parents influence their children's risk taking behaviours and found that fathers are more protective of their daughters during risky activities, compared to their sons. Mothers, on the other hand, treated their sons and daughters the same. Such differential treatment in risk taking situations may be a contributor to gender differences found in young people's risk taking behaviour (Hagan & Kuebli, 2007).

Developmental changes in social, emotional and cognitive processes in adolescence have been found to contribute to risk taking behaviours and psychopathology (Hardin *et al.*, 2007). Although there are a wide range of risk taking behaviours that may have an impact on mental health (Dembo *et al.*, 1992), a large body of research has focused on the relationship between cannabis use and the onset of severe mental health problems (Hall & Solowij, 1997). Both cohort and longitudinal studies (Addington & Addington, 2007; Andréasson *et al.*, 1987; 2002) have documented that heavy cannabis use in adolescence may increase the risk of later psychosis. Such findings have been augmented by a series of cross-sectional studies of high risk (Miller *et al.*, 2001) and large populations (Degenhardt *et al.*, 2003) which suggest a

link between cannabis use and the onset of psychosis (Ferguson *et al.*, 2006). However, it is important to note that the majority of individuals who develop psychosis are not drug users (Hambrecht & Hafner, 1996) and that the vast wealth of studies in this area use correlational analysis, therefore cannot claim that the link is causal. Substance use is only one possible factor that may contribute to an increased risk of developing psychosis. In addition, substance use in adolescence might be a consequence of an emerging psychosis or a means to self medicating to cope with psychotic experiences (Degenhardt & Hall, 2006) rather than be a causal factor (Linszen *et al.*, 1994).

Interestingly, there is some evidence to suggest that personality targeted cognitive behavioural interventions may be effective in helping prevent substance misuse and, concurrently reduce other relevant psychological problems in young people (Castellanos & Conrad, 2006). Furthermore, 'positive' risk taking behaviours, such as surfing, joining an athletic team or volunteering to perform community service, may help fulfill young people's needs for experience seeking and help improve mental health and well-being (Deihm & Armatas, 2004). In a study using quantitative surveys with 3754 young people recruited from 41 schools in the US, analysis revealed that young people who challenge themselves by taking 'positive' risks have also been found to be more likely than risk avoiders to not misuse alcohol and other substances (Greenberg & Henderson, 2004). Clearly, there is a need for further work examining both the potentially 'dangerous' and 'positive' risk activities young people engage in and to incorporate their perspectives surrounding how they understand such behaviours.

2.4) Factors increasing vulnerability to engaging in health compromising risk behaviour

A review of the factors which may increase an adolescents' susceptibility to engage in health compromising risk taking behaviours suggest that psychological functioning, home environment, familial and peer relationships, and stressful life events are of particular importance (Nation & Heflinger, 2006) as well as a possible biological vulnerability (Kreek *et al.*, 2005). The following section outlines literature exploring each of these vulnerability factors.

Psychological functioning: Adolescents with mental health problems have been found to engage in more risk taking behaviours than adolescents without such difficulties (Stefanis *et al.*, 2004). Indeed, the link between adolescent mental health problems and risk taking behaviours has been documented, both cross sectionally and prospectively (DiClements *et al.*, 2005; Glied & Pine, 2002; Goodman & Huang, 2002). While the vast wealth of studies have tended to focus on its connection with substance use, more recent work has also explored its function in the regulation of emotional experience. Thomas *et al.*, (2006) found that mental health problems are correlated with dysfunctional strategies (including increased risk taking behaviours) for regulating negative emotion. Interestingly, emotional regulation, adjustment and risk behaviours may be linked with attachment style differences among adolescents (Cooper *et al.*, 1998;

Fonagy *et al.*, 2002). Indeed, the development of detaching from parents is strongly associated to the levels of psychotic-like thinking and experiences which are endemic in adolescent populations. Risk taking, rebellion, conflicted family relationships, grandiosity, egocentrism and magical ideation are some of the characteristics typical of adolescence which are seen in psychosis (Harrop & Trower, 2001).

Late adolescent onset may provide important insight into the origins of psychosis, the role of risk taking and the possibility that it may be the consequence of blocked maturation during adolescence (Harrop & Trower, 2003). When regarded as a developmental phenomenon, risk taking may be thought to be the result of the 'personal fable' which yields a sense of invulnerability in adolescents (Alberts *et al.*, 2007). This is an intriguing area of research in need of further investigation.

Home environment: Studies have repeatedly shown that young people who are brought up in local authority care or in socially disadvantaged homes are at greater risk of being exposed to health compromising risk behaviours, such as drug and alcohol misuse (Buchanan & Brinke, 1997). Numerous studies have cited an association between engagement in health risk behaviours in adolescence and an upbringing in a foster environment (Garwood *et al.*, 2001; Meltzer *et al.*, 2005). However, it may be important to attribute causality to characteristics that are brought into the foster environment that may place an adolescent at increased risk (e.g. parental drug & alcohol misuse). Indeed, low socio-economic status (Goodman & Huang, 2002) and exposure to chaotic and disruptive home environments (Wardle *et al.*, 2002) are common factors related to higher risk of engagement in health compromising behaviours.

Familial & peer relationships: While both familial and peer relationships have been found to be negatively affected by adolescent engagement in health risk behaviours (Ponton, 1997), it is also important to note that a growing body of literature has reported that parental, sibling and peer relationships are often associated with adolescents taking such risks (Gould, 1996). Patterns of familial and peer association with adolescent risk taking have been found to increase vulnerability to health compromising risk behaviours (Viner *et al.*, 2006). In contrast, having confiding relationships with parents and peers has been found to serve a protective function from such behaviours, including self harm and suicidal behaviour (Groholt *et al.*, 2000). Interventions geared towards improving family and peer communication and parenting behaviour may reduce 'dangerous' risk behaviours in young people and improve family and peer relationships (Brody *et al.*, 2006).

Exposure to stressful life events: Risk behaviours may also be associated with other negative life experiences such as history of abuse, family violence, depressive symptoms, and stressful life events (Simantov *et al.*, 2000). Adolescents with sexual assault or abuse histories are at increased risk of engaging in risky sexual and other self-destructive behaviours. Risky sexual behaviour, suicidal ideation, and elevated perpetration of violence are most prominent among those with ongoing abuse exposure, although a

single exposure to interpersonal violence during adolescence may be sufficient for some risky behaviours (Brady, 2006). Young people who have been exposed to trauma, have been found to have higher levels of substance use, mental health, and physical health problems as well as greater HIV risk behaviours when compared to young people who have had little trauma experience (McKnight, 2003). These findings have specific implications for young people with severe mental health problems. For example, the association between childhood trauma and psychosis can be understood in a developmental framework of onset of at-risk mental states in early adolescence (Lataster *et al.*, 2006) which may increase susceptibility towards engagement in health risk behaviours.

Biological vulnerability: Genetic variation may partially underlie complex personality and physiological traits such as impulsivity and risk taking (Kreek *et al.*, 2005). Brain pathways that play a key role in emotional regulation, risk taking and cognitive function undergo distinct maturational changes during adolescence. It is clear that adolescents think and act differently from adults, yet relatively little is known about the precise mechanisms underlying risk taking during this period. Recent research examining the neural correlates of risk behaviour, using functional magnetic resonance imaging, reported that during adolescence, some individuals may be especially prone to engage in risky behaviours due to developmental changes in the brain. Maturing subcortical systems were found to become disproportionately activated relative to later maturing top-down control systems, biasing adolescents' action toward immediate over long term gains (Galvan, 2006). Neural systems that respond to thrills, novelty, and rewards develop well before the regulatory systems that rein in questionable actions (Monastersky, 2007). Some researchers argue that the adolescent brain may be hard wired to seek out exciting and potentially dangerous situations (Kelley *et al.*, 2004). In addition, studies examining how the developing brain deals with the neurotransmitter dopamine, have found that it is intimately connected with the way mammals respond to novelty, reward and risk (Chambers & Conroy, 2007). At present, researchers have gained most of their knowledge about the dopamine system from work on animals, because they need to use invasive techniques to monitor this molecule. There is a need for further studies to determine the extent to which the dramatic increases in dopamine activity and circulating steroid hormones at puberty modulate brain circuits that underlie changes in social behaviours, risk taking, and cognitive function (Cameron, 2004).

2.5) Summary

In critically evaluating this work, it is apparent that risk taking behaviour and experimentation may be developmental hallmarks of typical adolescent behaviour. Such exploration is part of young people's need to discover new sensations and conditions, and to master progressively those situations that are potentially detrimental to their health (Michaud, 2006). Risk behaviours can have adaptive benefits with regard to the development of independence, survival without parental protection and can serve as a positive tool in an adolescent's life for discovering (Ponton, 1997). It can help foster self confidence in adolescents and is a

means of identity formation (Breton, 2004). At the same time further research is needed in order to establish the processes of risk taking which are central to adaptive and maladaptive paths of development during adolescence.

While an array of studies utilising different theoretical perspectives have been conducted, the body of conventional theorising has come from a problem orientated perspective. This is understandable given that the risk of injury or death is higher during the adolescent period than in childhood or adulthood, and the incidence of mental health problems increases (Kelley *et al.*, 2004). Quantitative studies using standardised instruments to measure a wide range of adverse consequences and vulnerability factors have primarily featured in the existing evidence base, with little reference to potential mediating or protective factors. Furthermore, although the clustering of risk behaviours has been well established (Willoughby *et al.*, 2004), it is a concept that has to be applied with caution (Busseri *et al.*, 2007). For instance, while some studies have reported an association between sexual risky behaviour and substance misuse (Kaiser & Hays, 2006), others have failed to identify a clear correlation between such behaviours (Baskin-Sommers & Sommers, 2006). Emphasis has been placed on the role of psychological, social, familial and cultural determinants as well as a potential biological vulnerability that may increase the likelihood of engaging in health compromising risk behaviours.

While it is acknowledged that helpful results and ample statistical evidence of problematic outcomes exist, further work exploring potential mediating and protective factors is needed. Focusing on mediating factors and more broadly on adolescents' competencies reflects the growing interest in resiliency based research (Luthar *et al.*, 2000). The following chapter shifts the paradigm from a focus on adversity to an exploration of psychological factors that may contribute towards our understanding of the causal developmental pathways that may lead to adaptive and maladaptive adjustment in adolescence.

Chapter 3: Factors influencing adolescents' decisions to engage in risk taking behaviours: *the role of mediating & protective factors*

3.1) Introduction

In chapter 2 the extensive body of literature which has documented the type and consequence of adolescent risk taking was critically evaluated. In reviewing the research it became clear that adolescence is a developmental period that is often accompanied by the adoption of risk-taking behaviours that potentially compromise a young person's health and well being (Carr-Greg *et al.*, 2003). Although the majority of adolescents navigate this developmental period without encountering social, health or psychological problems, adolescence marks an increase in vulnerability to mental health problems and threats to physical health (Corsano *et al.*, 2006). At the same time, the reasons why adolescents take part in potentially harmful activities which impact negatively on their mental health and well being are often inadequately explained in the health literature. As discussed in chapter 2, social, familial, environmental and biological factors influence adolescent engagement in risk taking behaviours. While such research has provided useful insights into factors which may increase a young person's vulnerability, such work needs to be accompanied by studies exploring mediating and protective factors, in order to gain a fuller understanding.

This chapter explores the range of psychological factors that may mediate and/or protect young people from the adversities associated with risk taking behaviour. In particular, research examining coping strategies (Frydenberg, 2004), motivational theories (Fisher, 1999), locus of control (Crisp & Barber, 1995), sensation seeking (Caspi *et al.*, 1997) and decision making processes (Harris *et al.*, 2002) is critically evaluated.

3.2) Mediating & protective factors

In contrast to factors which may increase young people's susceptibility to negative outcomes associated with risk taking behaviours, some researchers have identified a range of mediating and/or protective factors that may increase young people's resilience towards adversity. The concept of resilience, which has been quite uniform across studies, was described by Masten *et al.*, (1990) as a process, capacity or outcome of successful adaptation despite challenging or threatening circumstances. Rutter (1985) viewed resilience similarly but emphasised more the individual's sense of self esteem, self confidence and the ability to deal with change and adaptation. The concept of the young person being 'vulnerable but invincible' has emerged where dysfunction and adaptation in the face of risk taking behaviours is dependent on the adolescents' ability to work within themselves and in their environments (Werner & Smoth, 2001). Emphasis is also placed on their methods or strategies of dealing with stress and adversity (Tebes *et al.*,

2001). Factors that have been identified as contributing towards resiliency include positive temperament, good peer relations, good achievement in school, positive self concept, assertiveness and independence (Gilligan & James, 2001). The following section examines how coping mechanisms, motivation, locus of control, sensation seeking and decision making processes may act as mediators determining how young people are affected by risk taking behaviours.

3.2.1) Coping behaviour

Over the last 30 years, researchers in many fields have theorised and researched the concept of coping (Frydenberg, 2004). This reflects attempts to move from a focus on pathology and the ways in which people mismanage their lives, to one that attempts to make sense of human ability and development. The concept of coping can be used as a convenient way to characterise a range of human activities, however, as a phenomenon it remains relatively elusive. This may be a consequence of the fact that there is some confusion in the terminology and definitions frequently adopted with regard to coping. It has a variety of conceptual meanings and is frequently used interchangeably with concepts such as mastery (Snyder & Ford, 1987), defence (Ryde-Brandt, 1990) and adaptation (Compas *et al.*, 2001).

Research utilising a phenomenological approach to understanding the coping process advocates that the concept of coping and its validity is best addressed through a methodology that is grounded in young people's everyday activities and concerns. Coping behaviour is seen as a function of the person, situation and most importantly, the personal perception of each problematic situation (Compass *et al.*, 2002). People are viewed as active agents, selectively perceiving problematic situations and developing coping strategies through past experiences, observing others, perceptions of one's own biological disposition, societal standards and so forth (Frydenberg, 2001). Thus, coping is conceived as a reciprocal dynamic and may be effective or ineffective in terms of the stressor (Frydenberg *et al.*, 2006).

Coping in adolescence is a particularly relevant concept in health risk behaviour (Steiner *et al.*, 2002). One of the major changes in psychological functioning that occurs in adolescence is the expansion and diversification of ways of coping with stressors (Mullis *et al.*, 2000). In a variety of studies, coping has been shown to make significant contributions to adolescent adjustment and engagement in health risk behaviours (Feldman *et al.*, 1994; Printz *et al.*, 1999; Seiffge-Drenke *et al.*, 2000). For example, alcohol and drug use has been identified as a coping response to psychological strain (Preston, 2006) as has coping with stress through escape behaviour induced by risk taking (Brady, 2006). Interestingly, in a study of homeless young people, findings indicated greater use of a disengaging coping style and high risk behaviours, past suicide attempts, and clinically elevated levels of depressive symptoms and behaviour problems (Votta & Manion, 2004).

Such research has indicated that coping mechanisms influence adolescent engagement in health risk behaviours (Steiner *et al.*, 2002) and highlights the importance of clinical interventions which promote adaptive coping strategies, maintaining healthy behaviours, effective problem solving and stress management techniques (Goodwin, 2006).

In addition, coping styles have been found to correlate with personality traits (Maltby *et al.*, 2004). For example, maladaptive shame and avoidant coping styles are associated with psychopathic and impulsive traits in a non-clinical adult population (Campbell & Elison, 2005). Similar findings were reported in a recent study examining whether coping correlates with personality traits to predict adolescent engagement in health risk behaviours (Pirkle & Richter, 2006). Analysis stemming from self report measures and telephone interviews with young females (n = 929) indicated that those who engage in specific health risk behaviours, such as smoking and binge drinking, share certain characteristics. For example, using alcohol or drugs to cope with a serious problem was characteristic of smokers, binge drinkers and those who both smoked and binge drank. This type of maladaptive coping has been linked to substance abuse in numerous studies (Bradizza *et al.*, 1999; Stewart *et al.*, 2001). Further work exploring the relationship between coping styles and dispositional attributes (in both males & females) in association with a wider range of health risk behaviours would provide new insights into this fascinating area of research.

3.2.2) Motivational factors

Adolescent risk taking constitutes one of the intriguing problems in motivation theory. If confrontation with danger is related to fear and fear is considered to be motivation for avoidance behaviour, the question remains why certain adolescents engage in risk activities (Trimpop, 1994). Studies have been conducted examining the motivation of adolescents who pursue risk behaviours, in which there is a high probability of negative outcome. The application of motivational theories to examine the psychological determinants of risk behaviours has suggested that young people engage in risk activities when the rewards outweigh the punishment of danger (Fisher *et al.*, 1999). Research suggests adolescents minimise perceptions of risk of health compromising behaviours compared to adults, and that adults perceive young people's risk-taking as much more pervasive and disconcerting than young people themselves (Irwin, 1993). It is possible that risk activities withhold intrinsically rewarding features that are significant to adolescents. Since presumably not everyone is willing to take the same risks for the same rewards, trait theories may compliment this point of view.

3.2.3) Locus of control

Locus of control is considered to be an important aspect of personality (Rotter, 1966), referring to an individual's perception about the underlying main causes of events in his/her life. There is an

internal/external dimension to this trait. Internal control refers to 'the perception of positive and/or negative events as being a consequence of one's own actions and thereby under personal control'. External control refers to 'the perception of positive and/or negative events as being unrelated to one's own behaviours in certain situations and therefore beyond personal control' (Rotter *et al.*, 1962). While it is a construct that has been studied very little in terms of adolescent risk taking behaviour, research has shown that young people with an internal locus of control know when they are taking risks in the decisions they make, while those with an external locus of control believe they are invulnerable to risk (Crisp & Barber, 1995). In addition, a significant correlation between risk-taking and the variables of gender, critical thinking, and locus of control in adolescents has been reported (Kohler, 1996). It appears that males participate more frequently in risk behaviours compared to females and perceive more benefits and fewer risks (Rolison *et al.*, 2003).

It is also important to consider the role of locus of control in term of the health beliefs of young people with mental health problems, given that they may be more prone to engaging in unhealthy risk taking. Given that health beliefs influence actions such as help seeking and undertaking health promoting behaviours, they are worth investigating in relation to risk behaviours. This line of research has particular relevance for young people who experience psychosis, given they have been shown to have poor compliance and limited awareness of the disabling aspects of their condition (Drake *et al.*, 2003). For example, such beliefs have been found to influence health related attitudes and risk behaviours in early psychosis (Haley *et al.*, 2003) and it is possible that it may serve as a legitimate focus in treatment outcome research.

3.2.4) Sensation seeking

The role of the 'risk personality' type in health behaviours has been extensively examined in the research literature (Caspi *et al.*, 1997). Individual differences in preference for and participation in risk activities has involved examining personality predispositions. This approach is based on the assumption that there are two polar personality types (high & low sensation seekers), those who value and seek risk activities and those who avoid such encounters (Zuckerman, 1974). Sensation seeking refers to a common underlying and stable trait, defined as 'The need for varied, novel and complex sensations and experiences and the willingness to take physical and social risks for the sake of such an experience' (Zuckerman, 1979). Typically, the literature shows that higher sensation-seeking tendencies are associated with more risk taking (Donohew *et al.*, 1998; Horvath & Zuckerman, 1992; Thuen, 1994). While there is limited data available regarding the relationship between sensation seeking and adolescent risk behaviour, it has been found to be a useful predictor of several risky behaviours, especially alcohol consumption and delinquency (Greene *et al.*, 2000).

Similar findings were reported in a study conducted by Brady *et al.*, (2006) examining the role of sensation seeking along with coping with stress among adolescents in psychiatric care. Consistent with the literature on non-psychiatric populations, sensation seeking was related to dangerous risk activities such as substance use and sexual risk taking as a means of escape behaviour. It would be intriguing to consider how high sensation seeking, which has been found to correlate with deviant and unconventional beliefs and behaviours (Corte & Sommers, 2005) might also predict participation in unhealthy risk taking for adolescents who experience psychosis. This is particularly true, given that such young people display increased developmental deviance suggesting the possibility that they represent different manifestations of ongoing abnormalities in developmental processes (Vourdas *et al.*, 2003).

3.2.5) Decision making processes

The capacity for independent decision making increases during adolescence (Feldman & Elliott 1990). It involves gaining autonomy, assuming responsibility, and making decisions about health, family, career, peers, and schooling (Furstenberg 2000). However, the ability to comprehend health risks, weigh options, reflect on one's own behaviour, and consider the long-term consequences also increases during adolescence (Greene 1986). A decision process therefore underlies the behavioural choices adolescents make with varying risks to their health and well-being (Harris *et al.*, 2002). Studies have found that adolescents who are impulsive decision makers are more likely to engage in risk behaviours (Longer *et al.*, 1993). Interestingly, the combination of sensation seeking and impulsive decision making has been found to place young people at substantially greater health risks (Noar *et al.*, 2006) and have a role in the formation and maintenance of delusions in psychosis (Young & Mason, 2007). Similarly, Kester *et al.*, (2006) in comparing the decision-making processes in adolescents with early onset psychosis reported that such young people demonstrated a hypersensitivity to rewards and relative insensitivity to future consequences. These findings have potential implications for understanding the increased vulnerability for the development of unhealthy risk behaviours in adolescents who experience psychosis (Kester *et al.*, 2006).

3.3) Summary

Building upon discussion from chapter 2, which drew attention to both the possible adversities and developmental significance adolescent risk taking behaviour, this chapter considered the role of possible mediators and/or protective factors. Attention was drawn to the concept of coping, demonstrating how interest in this area mirrors attempts to move from a focus on pathology and the ways in which young people experience difficulties in their lives, to one that attempts to make sense of their abilities and development. The phenomenological approach to understanding the coping process was outlined, where coping is seen as a reciprocal dynamic process, in which adolescents are active agents selectively perceiving problematic situations and developing coping strategies and styles (Frydenberg, 1993). It was

argued that further work is needed to explore the nature and extent to which different coping styles influence adolescents' decisions to engage in potentially health compromising risk behaviours.

The role of other possible mediating factors, including the psychological constructs of sensation seeking, locus of control and decision making processes were discussed. While such constructs contribute towards our understanding of the psychological factors and predispositions which may underlie young people's decisions to engage in risk behaviours, they do not explain why young people may respond differently to the same event on different occasions. The following chapter introduces the theoretical framework of reversal theory (Apter, 1982) as a means to address the apparent inconsistencies and paradoxical ways in which adolescents engage in risk behaviours.

Chapter 4: A new approach to understanding the research problem: *Reversal theory, paradoxical behaviour & risk taking*

4.1) Introduction

This chapter presents an alternative theoretical framework and methodological paradigm which may contribute new understandings of the underlying psychological factors involved in adolescent risk taking behaviour. Discussion begins by outlining the utility of drawing upon the theoretical framework of reversal theory (Apter, 1982) in understanding the consistent biases young people have to engage in a diverse range of risk behaviours. A brief critique of research exploring the role of state dominance in this field of investigation is presented. It is argued that further work using the constructs of reversal theory, as well as the role of coping behaviour is needed, in understanding why young people engage in potentially health compromising risk taking.

4.2) Key elements of reversal theory

Since its inception in the early 1980s, reversal theory (Apter, 1982) has attracted a great deal of professional attention and scholarly interest has seen rapid growth in recent years. Reversal theory is a general theory of motivation, emotion, personality, psychopathology and stress which challenges previous ideas in these fields (Apter, 2006). It sets up an unusually broad and integrative conceptual framework for understanding why adolescents engage in potentially dangerous activities (Apter, 2007). The theory highlights the complexity, changeability and even inconsistency of much of behaviour and experience. In this it differs from most theories of personality since on the whole these tend to emphasise consistency and stability. Personality is not viewed as a conglomeration of static traits, but rather a dynamic, interactive matrix of change (Apter, 1992). This is not to deny that there may be important types of personality stability. Indeed, reversal theory is concerned with consistent biases and predispositions underlying inconsistencies that are helpful when it comes to explaining many of the seeming paradoxes of adolescent risk taking (Apter, 1997). Reversal theory is appealing to behaviour change interventionists because of its adherence to the notion that innate patterns of thinking and functioning have the potential to be empirically identified, influenced and modified (Finfgeld *et al.*, 2003).

4.2.1) Paradoxical behaviour

Adolescents partake in a variety of risky activities that are counterproductive to the maintenance of their health and welfare. For example, it has been well documented that adolescents partake in potentially health compromising behaviours such as drug and alcohol misuse (Miller *et al.*, 2007), unprotected sex (Siebenbruner, 2007), gang violence (Cepeda, & Valdez, 2003), joyriding (Sugden, 2007), dangerous

dieting (Rafiroiu *et al.*, 2003), running away (Thrane *et al.*, 2006), delinquent acts (Hewitt *et al.*, 2006) and self harm (Best, 2006). Such activities have been termed paradoxical behaviours (Apter, 1982) given that they are opposite to that which might be expected if the maintenance of good health and survival is considered to be of paramount importance. At the same time, the majority of adolescents also participate in positive behaviours such as earning good grades, participating in extracurricular activities or spending time with parents. While adolescents who engage in multiple risk taking may also be involved in positive behaviours, participation declines with increased risk taking (Lindberg *et al.*, 2000). Analysing the logic of paradoxical behaviours overlooks the motivational factors and personalities of young people who decide to take such risks, as well as the social context in which they occur (O'Connell, 1991). The idea of dual and opposite phenomenological possibilities for the interpretation of paradoxical behaviours is central to the theory of psychological reversals (Apter, 2006).

4.2.2) Metamotivational states

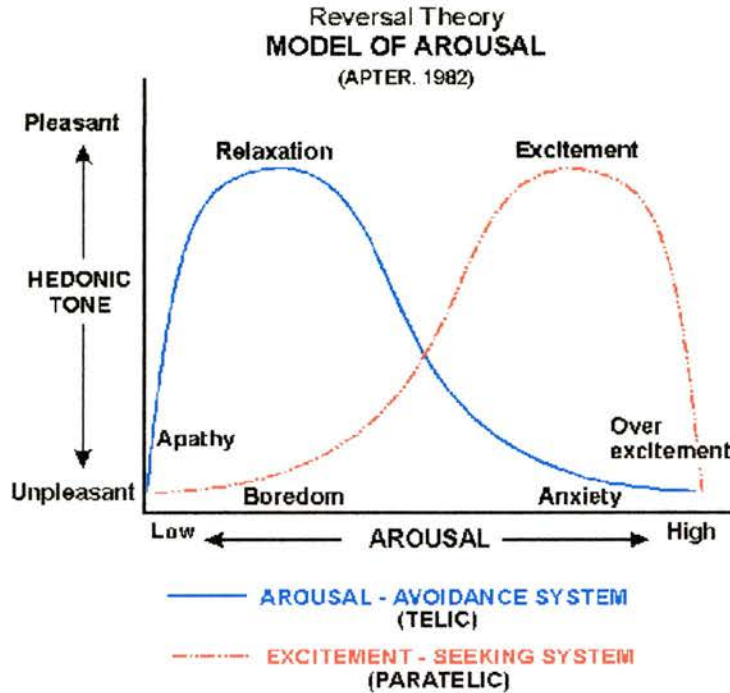
In an attempt to explain why young people engage in risk taking behaviours, it is assumed that there are a number of pairs of metamotivational states which are 'frames of mind' to do with the way a person interprets his or her motives at any given time (Apter, 1989). From this perspective, individuals alternate between opposite psychological states which are operative and entail distinctive motives, perceptions, and emotions. For example, in a particular state a young person wants to feel very aroused (stimulated or excited), while in another state wants to feel quite unaroused (calm or relaxed). However, if a young person desires to experience high arousal and does not, this will result in them feeling bored. Alternatively, if a young person desires to experience low arousal and does not, this results in them feeling anxious. The two members of each state are said to relate to alternative preferred levels of some metamotivational variable or another. Thus, different states represent opposite ways of experiencing the same level of a particular psychological variable, such as arousal (Frey, 1999). A switch or reversal from one state to the other may be brought about under a variety of circumstances with the result that people tend to switch back and forth between these states during the course of everyday life. Apter (1982) identified two pairs of metamotivational states referred to as somatic states as they pertain primarily to how an individual experiences their own bodily arousal.

4.2.2.1) Telic & paratelic dominance

The first pair of states comprises the telic and paratelic states, each of which has a set of characteristics. The former refers to a serious goal oriented state of mind and the latter a more playful state in which the individual is concerned with the immediate enjoyment of experience. It is also argued that in the telic state high arousal is experienced as unpleasant and is therefore avoided, while low arousal is felt to be pleasant (Apter, 1989). In contrast, in the paratelic state, high arousal is experienced as pleasant and is therefore

sought, while low arousal is unpleasant. These relationships are shown graphically in [figure 4.1](#), the telic curve being represented by the continuous line and the paratelic by the broken line.

Figure 4.1: Telic & Paratelic States



Each of these curves relates to a different system, one of which may be thought of as an arousal seeking system. At any given level of actual experienced arousal it is possible, according to the theory, to switch from the curve representing one of these systems to the curve representing the other, that is, a reversal may occur (Walters *et al.*, 1982). One of the results of such a reversal may be a sudden change of hedonic tone in relation to the level of arousal experienced at the moment. Since the two systems are characterised by different ways of interpreting a motivational phenomenon (arousal) they are described in reversal theory as metamotivational rather than motivational.

This approach differs fundamentally from that of optimal arousal theory which implies homeostatis (Hebb & Thompson, 1954). Optimal arousal theorists appear to assume that there is only one arousal system and that this system has a single optimal point on the arousal dimension. Thus, arousal is seen as essentially homestatic and the resulting curve relating arousal and hedonic tone takes the form of an inverted U. Unlike reversal theory this relationship cannot account for the fact that on some occasions even very high arousal can be pleasant (e.g. sexual behaviour) and on other occasions even very low arousal can be pleasant (e.g. relaxing after a hard day at work). Young people taking part in risky activities tend to experience anxiety immediately before, and excitement immediately after, the danger is confronted and

overcome (Apter & Batler, 1997). Since arousal is unlikely to have changed to any substantial extent in the short time involved, this is difficult to explain in homeostatic terms. Another advantage that reversal theory has over optimal arousal theory is that it allows the possibility of certain rapid changes in the way in which arousal is felt. For example, it explains how anxiety can be converted almost instantaneously into excitement and vice versa (Apter, 2007). It helps to explain such psychological phenomena as the enjoyment of engaging in risk behaviours by suggesting that residual arousal is enjoyed as excitement after the danger which produced the arousal has been overcome (Cogan & Brown, 1999).

As previously discussed, a major way in which people differ from each other is in terms of the innate bias they have to be in one state or other (Apter, 2005). So the telic state dominant individual will, other things being equal, be more likely to be in the telic state at a given time than a paratelic state dominant individual and the converse is the case for the latter. Thus, the telic dominant individual is the person who is more likely at a given time, to be doing something which he or she conceives to be serious and important, attempting to avoid anxiety. They are also more likely to be seeing their current activities in a long term perspective than the paratelic dominant individual. The latter is more likely, other things being equal to be feeling and acting in a light hearted, playful and here and now oriented way, looking for excitement (Martin *et al.*, 1987). This framework provides an understanding for why adolescents engage in health compromising behaviours in that when in a paratelic dominant state they are more likely, for example, to lapse from quitting cigarette smoking (Burriss *et al.*, 2003), be delinquent (Jones & Heskin, 1988), seek thrills (Legrand, & Apter, 2004), engage in dangerous sports (Cogan & Brown, 1998), and football hooliganism (Ireland, 2002).

4.2.2.2) Conformist & negativistic dominance

A second pair of somatic states comprises the conformist and negativistic states. The conformist and negativistic states refer to an individual's predisposition to want to or feel compelled to act against some requirement (e.g. rules, social norms, expectations). An individual in the conformist state wants to abide by rules and will refuse to take unnecessary risks or otherwise go outside the normal way of doing things. The negativistic individual tends to behave as if they are free of such constraints, wanting to break rules, mock norms, overthrow traditions and defy others expectations (Apter, 1993). In contrast, the conformist individual aims to abide by rules, comply with others' wishes. Negativism may involve breaches of convention or law, such as taking drugs (Turner & Heskin, 1998), streaking in public (Apter, 2007), listening to deviant music (Carpentier *et al.*, 2003) and vandalism (Bowers, 1988), however, it is not necessarily harmful. In fact, much that is creative and original in human behaviour appears to have its origins in this arousal seeking strategy (Apter, 2007). It represents young people's refusal to be less than they could be, their commitment to freedom, self determination, openness to experience and their resistance to convention (Griffin & McDermott, 1998). Recognising that young people in this metamotivational state

may search for challenges because of the increased arousal that attempting to overcome them can produce, goes a long way toward explaining many kinds of human behaviour and attitudes which otherwise seem paradoxical (McDermott, 2001).

4.2.3) State dominance

A major way in which people differ from each other is in terms of the innate bias they have to be in one state or the other, the degree of bias being referred to as state dominance. Dominance implies that individuals will contingently reverse more easily into their dominant state, and will satiate more slowly and become less easily frustrated in that state (Apter, 2001). The concept of dominance differs from that of trait, in that it suggests that one spends more time in a particular state yet can often be in a non-dominant state and experiences that non-dominant state as fully as someone for whom it is dominant (Apter, 1993). The concept of dominance allows for the self contradictions individuals often display.

Previous work has suggested that there may be objective psychophysiological differences between metamotivational states. State dominance has been shown to have certain identifiable physiological characteristics, demonstrating that they are not just phenomenological constructs but are grounded in a physiological basis (Svebak, 1986). A range of such differences has been uncovered including steeper tonic muscle tension gradients and higher heart rate acceleration under conditions of threat in the telic state (Svebak & Murgatrovd, 1985). In addition, different cortical information-processing styles and cardiovascular changes between the telic and paratelic states have been reported (Svebak, 1988). Interestingly, Svebak (1983; 1991) has proposed that attempts to induce a particular metamotivational state may help individuals cope with different stressors.

4.2.4) The protective frames

Reversal theory attempts to explain how it is possible to recognise risk and yet still experience it as an enhancement of a positive rather than a negative emotion by proposing the concept of protective frames (Apter, 1992). A protective frame is a psychological structure which refers to the way in which an individual interprets their experience of risk taking. The frame is protective because it allows risk or danger to be viewed as controllable and within the person's ability to deal with it. When the protective frame is intact, a high arousal situation is experienced in the paratelic state as excitement. If something occurs that violates the protective frame, a reversal to the arousal avoiding telic state occurs, and the high arousal situation is experienced as anxiety. Within the parameters of the protective frame, increasing risk results in increasing arousal that enhances the pleasant hedonic tone experienced in the paratelic state.

4.2.5) Empirical evidence for reversal theory constructs

Reversal theory has been applied to a wide range of risk taking behaviours including gambling (Anderson & Brown, 1987), sexual risk behaviour (Bishop, 1994), tobacco and alcohol use (O'Connell, 2004) risk sports participation (Cogan & Brown, 1999), substance use (Turner & Heskin, 1998) and antisocial behaviour (Jones, 1981). Such studies have demonstrated that there is a relationship between risk taking, increased arousal, negativism and the paratelic state (Apter, 2006). For example, in a study of Scottish gamblers using the TDS, Anderson & Brown (1987) reported that regular gamblers were more paratelic dominant than were the population norm. They also found a negative correlation between scores on the TDS and bet size. That is, paratelic dominant gamblers made larger bets. A negative correlation between scores on the TDS and increased heart rate was also found, suggesting that the paratelic dominant gamblers who are in the paratelic state at the time of play will place larger bets to increase arousal, which increases enjoyment of the paratelic state.

The role of negativism has been investigated extensively in relation to health risk behaviour. For example, Turner & Heskin (1998) examined cigarette and alcohol use in a sample of adolescents (14-17 years old) as a function of differences in motivational dominance. In particular, they investigated differences among 'heavy', 'moderate' and 'nonsmoker/drinker' on paratelic and negativism dominance, the latter being measures by the NDS. They found significant differences amongst the three smoking categories, with heavy users being more negativistic and paratelic dominant than either moderate smokers or non-smokers. However, differences in the negativism means among the three drinking categories were not statistically significant, although in the direction as hypothesised (i.e. heavy drinking being associated with higher negativism). This study did not report subscale scores from the NDS and so did not look at the differences among the groups in terms of reactive and proactive rebelliousness for either cigarette or alcohol use.

However, McDermott (1989) did find that scores on reactive rebelliousness correlated more substantially with the number of cigarettes smoked per day than did scores on items measuring proactive rebelliousness, although the difference between strength of these correlations was not large. Thus it may be that the smoking of cigarettes is more associated with coping with feelings produced by responding to what are perceived to be unjust or unreasonable interpersonal requirements than with feelings associated with the need to engage in oppositional behaviour for the sake of heightening arousal and gaining excitement. Further work has also reported that young people who are paratelic and negativistic dominant are more likely to smoke than those who are telic or conformist dominant (O'Connell *et al.*, 1990). These findings have been replicated longitudinally in smoking cessation research (Potocky *et al.*, 1991) whereby maintaining abstinence during a crisis has been associated consistently with being in telic and conformist states, whereas smoking in crises covaried with being in paratelic and negativistic states. Thus, negativism state represents a psychological vulnerability in so far as smoking relapse is concerned (Cook *et al.*, 1995).

In combination with the paratelic state and cigarette availability, negativistic dominance is a powerful predictor of relapse and thereby suggestive of how to evolve preventative coping strategies for those who wish to quit (McDermott, 2001). Certainly the study of state dominance in combination with coping behaviour is relevant to the prediction of other health risk behaviours and outcomes (O'Connell *et al.*, 2004).

It is important to note that negativism can be harmless and enjoyable in its effects, and indeed productive in the formation of whistle blowing protect groups and youth countercultures (Apter, 2006). Negativism has been found to correlate with the taking of risks in socially sanctioned settings such as those associated with the practice of various risk sports (Cogan & Brown, 1999) and elite athletic performance (Kerr, 2006). Nonetheless, it has also been found to covary with provocative, antagonistic, and potentially confrontational behaviour (McDermott, 1991). Negativism has also been identified as a marker of disaffection in school settings and as an antecedent of school truancy (McDermott, 1987). It can also be involved in aggressive acts of civil disobedience such as rioting and has been reported to be a sensation seeking form of hedonistic oppositional behaviour (Apter, 2006). For example, Jones & Heskin (1988) pointed to the connection between delinquency and negativism. They argued that for many young people, especially those from socially disadvantaged backgrounds, conformist options such as a success at school or employment are denied them. Consequently, such adolescents are directed towards negativism rather than such experience and behaviour being the product of an active choice.

Indeed, Doherty & McDermott (1997) have empirically examined the role of negativism in acts of delinquency. Fifty one young women and 50 young men (aged 15 to 17 years) in a high school completed a self report based juvenile offences checklist, the NDS, the TDS, and two subscales measuring psychopathic withdrawal and belligerence (constructs that have been cited as covariates of antisocial law breaking). It was found, from a multiple regression analysis, that negativism was the pre-eminent statistically significant predictor of self reported delinquent acts. Negativism, in particular reactive rebelliousness, involves interpersonal disaffection and a cognitive readiness to misinterpret ambiguous interpersonal situations in a way that assumes malign intent (Dodge & Cole, 1987). While the conceptual rationale underpinning the empirical association between offending and negativism is evident, the roots of such disaffection and cognitive bias may be more socially learned than individual in origin (Eley *et al.*, 1999).

Taken together, these findings suggest that it is not necessarily the properties of just one of the metamotivational states in a pair that inevitably lead to dangerous risk taking or social pathology. The capacity to alternate between negativistic and conformist states is more functional than being exclusively committed to either, such diversity being highly adaptive (Apter, 2006). Rather it is when dominance becomes extreme and individuals spend highly disproportionate amounts of time in one state or the other,

being unable to reverse from one to the other, that maladaptive coping occurs (Apter, 1996). This may contribute to the development of offending behaviour or engagement in health compromising risk behaviours. Further work exploring the explanatory range and power of these metamotivational states in relation to young people and health risk behaviours may shed light on their importance.

4.3) Summary

This chapter sought to present a new approach to understanding why young people engage in potentially health compromising risk taking behaviours. The utility of drawing upon the theoretical framework of reversal theory in order to explore the complexity, changeability and even inconsistency of risk behaviour was emphasised. It is envisaged that the biases and predispositions underlying such inconsistencies may be helpful in explaining many of the seeming paradoxes of adolescent risk taking. This may help explain why young people respond differently to the same event on different occasions as well as the tendency for some young people to be more inclined to engage in dangerous risk taking compared to others. It was argued that risk behaviour plays an important role in the normal experience of the paratelic state. Risk serves the purpose of increasing arousal which, in turn, increases the pleasant hedonic tone experienced while paratelic, whether this is within the context of sports, gambling, sexual activity or other risk behaviour. What is important is to allow risk to be experienced while still preventing long term negative consequences such as serious injury, loss of savings, pregnancy or infection with an STD (Apter, 2006). Evidence has also been presented that demonstrates that felt negativism and the negativistic state can be an additional source of arousal that leads to a further enhancement of the paratelic state. Further work examining the role of state dominance, and its relationship with coping behaviour (as discussed in [chapter 3](#)), may shed light on the underlying psychological factors that are of importance in understanding adolescent engagement in health risk behaviours.

The next chapter details the methodology used for the current study. Discussion centres around the decisions that were made concerning the process of accessing and identifying participants, data collection and the measures used, as well as the analytical framework adhered to. The ethical issues stemming from the conduct of the work are also considered in the context of lessons to be learned for future research, service provision and policy development in this area.

Chapter 5: Methodological issues: *Gaining access, the research process & analytical framework*

5.1) Introduction

One of the most challenging aspects of this thesis concerned developing a methodology to explore the research problem. Decisions had to be made about how to access participants, what to measure, the methods to be used and how the textual information were to be transcribed, coded and analysed. In order to build upon previous work, which has generally drawn upon quantitative research methodologies, qualitative and new paradigms had to be considered. As a psychologist trained predominantly in quantitative methods, effort had to be exerted into gaining further training and experience of using more open ended and less structured approaches to research. Insights into the application of exploratory methods which deal with meaningful verbal data rather than exact measurement and statistical summaries was needed in order to address the apparent gaps in the existing evidence base. This was also necessary considering the increased emphasis placed on the perspectives of young people in both policy and legislative frameworks underpinning their right to be heard and included in decision making processes (Cree *et al.*, 2002).

The design of this multi-method study comprised of two stages. The first stage was a large scale cross-sectional quantitative study of a school based population (n=407) employed to test the relations between state dominance, coping style and health risk behaviour. The second stage comprised of an in-depth qualitative analysis of the variables of interest with a clinical population of young people with psychosis (n=10) recruited through an early intervention service at a psychiatric hospital in Edinburgh. In addition, a quantitative analysis of the standardised measures employed was also performed.

5.2) Aims of the study

The primary objectives of the study were to: (1) build upon previous work and contribute a new approach to explore the risk behaviours, metamotivational states and coping strategies of adolescents with and without psychosis, and (2) draw conclusions and recommendations which were relevant to researchers, service providers and policy makers working within this field of investigation (as stated in [chapter 2](#)). In examining the relations between such variables, tentative hypotheses were drawn based on previous research findings. Hypotheses are different from research questions in that they are predictions derived from existing theory, which can be tested against empirical evidence (Willig, 2001).

(H1) State dominance and health risk behaviour: The first hypothesis of this study was that adolescents with high scores on telic dominance and low scores on negativistic dominance would score lower on health risk behaviour than those with low scores on telic dominance and high scores on negativistic dominance.

H2) State dominance and coping styles: The second hypothesis was that adolescents with high scores on telic dominance and low scores on negativistic dominance would be more likely to use productive and reference to others coping style and be less likely to use the unproductive coping style.

H3) Coping style and health risk behaviour: The third hypothesis was that adolescents with high scores on productive and reference to others coping styles and low scores on unproductive coping style would be less likely to engage in health risk behaviour.

H4) Main hypothesis – mediating analysis: The main hypothesis was that the association between state dominance and health risk behaviour would be partly mediated by coping styles.

The current study also has an exploratory dimension to both its methodology and analytical process. In order to gain an in-depth qualitative understanding of adolescents' perspectives of living with psychosis and their state dominance, coping styles and health risk taking behaviours, the following questions were addressed:

Q1) What are adolescents' personal meanings and experiences of living with psychosis?

Q2) How do young people with psychosis cope with stress?

Q3) How do adolescents with psychosis perceive their risk taking behaviours?

These research questions are open-ended and call for answers which provide detailed descriptions and explanations based on young people's accounts.

5.3) The research context

The study was conducted in Edinburgh which is a unique city having benefited from an unprecedented period of economic growth in recent years. The population of Edinburgh is approximately 787,700 and has been growing in contrast to a downward trend in the rest of Scotland. It has a younger population profile than the Scottish average with a particularly high concentration in the student and young adult group (15-29). Its population is relatively cosmopolitan, with non-white ethnic representation significantly above the Scottish average and a very high proportion born outside Scotland (22%). Unemployment currently stands

at 2.4% and has been consistently and significantly below the Scottish average for several years. Crime rates are lower than for Scotland as a whole and violent crime has fallen over the last 3 years and is now lower than any time since 1997. Problems of vandalism and fire raising continue to rise and are higher than any year since 1997. The proportion of the population identified as being deprived stands at over 50,000 (lower than the national average). In terms of health, 62% of Edinburgh's population report being in 'good health' compared to the national average of 55% (NHS, 2001 census, Scottish Household Survey). However, substantial health inequalities are reflected in the excess burden of ill health experienced by disadvantaged populations (Wood *et al.*, 2006).

5.4) The research participants

The analysis of power and sample size required the construction, and careful evaluation, of graphs relating power, sample size, the amount by which the null hypothesis could be rejected (i.e., the experimental effect), and other factors such as type one errors. In order to estimate a sample size prior to doing the research, the postulation of an effect size based on previous research utilising the measures to be used, had to be computed. A decision was made to recruit approximately 400 school based young people for the study based on evidence extracted from previous studies conducted in this field of investigation. Power analysis was performed (Bond, 1999) using a one sample, unequal variances model to determine the power for the proposed sample size. The power calculation determined that the power was .818, therefore, the power of the study was sufficient to answer the hypotheses being tested. Meaningful statistical analysis could be conducted with the school based participants, while allowing for sufficient time for a more in-depth exploratory analysis of the qualitative data. A sample of 10 young people with psychosis was sought in order to perform the qualitative analysis as this was in line with previous research in this field of investigation (Smith, 2006) and was an achievable sample size given the time constraints placed on the conduct of this work.

5.4.1) Inclusion/exclusion criteria

A purposive sample was obtained, whereby participants were selected using inclusion/exclusion criteria relevant to the research hypotheses and questions to be answered. Adolescents from the school-based population were considered suitable for the study if they: (1) were aged between 14 and 18 years old, (2) provided consent to their participation in the study, and (3) granted parental consent for their participation. Adolescents from the early intervention service were recruited in accordance with the same criteria.

5.4.2) Gaining access & ethical approval

The process of gaining access to research participants consisted of a number of stages. Firstly, ethical approval for the conduct of the research was sought from the research ethics committee in the Department

of Clinical Psychology, University of Edinburgh. The outcome of the submission was that ethical approval to the research plan would be granted on the basis of its academic merit. However, as the study involved working with both school based and clinical populations, permission to conduct the research was conditional, in that ethical approval had to be sought from both the City of Edinburgh Children and Families Department and the Central Office of Research Ethics Committee (COREC). In addition, approval was sought from the Research and Development Department for Primary Care NHS Trust. Formal applications were completed and approval was granted. The study followed ethical codes of conduct and good practice guidelines published by the British Psychological Society (BPS).

5.4.3) Identifying & recruiting participants

Despite extensive planning of the research, one of the most significant challenges in the conduct of the work concerned identifying and recruiting young people. As has been reported by other researchers working with vulnerable populations (Renzetti & Lee, 1993), intensive and proactive networking with gatekeepers was needed in order to commence with the work. The process of initially identifying and recruiting the school based participants involved writing to the head teacher of state schools in the Lothian area (n=20) asking if they would be interested in taking part. The first three schools to express their willingness to engage in the study were selected as discussions with senior staff indicated that they would be able to recruit the requisite number of respondents. The schools that took part along with the number and gender of those recruited are displayed in [table 5.1](#).

Table 5.1: Participants recruited for the school based sample

Schools that took part	Gender of participant		Total
	male	female	Count (%)
School 1	86 (21.1%)	93 (22.9%)	179(44.0%)
School 2	85 (20.9%)	82 (20.1%)	167(41.0%)
School 3	31 (7.6%)	30 (7.4%)	61 (15.0%)
Total	202(49.6%)	205(50.4%)	407 (100%)

Participants were approached and recruited via senior members of teaching staff who were informed of the purpose and plan for the research. Senior school staff sent information leaflets summarising the aims of the study and what participation in the study would entail along with a consent form to all parents of potential participants. Written consent was also sought from the young people themselves.

For the identification and recruitment of young people for the clinical based sample, senior clinical staff in an early intervention service for psychosis in the Lothian area were initially provided with information about the study. Young people with psychosis were difficult to access due to the extent and severe nature of their mental health difficulties. Clinical staff's concerns about the sensitivity of the research topic, and the

personal and social circumstances of the young people were also significant considerations. Reassurances as to how such issues would be addressed and information about ethical codes of conduct to be followed were offered. Clinical staff initially approached young people regarding their possible participation in the study and those who expressed an interest were contacted by the chief investigator. Ethical consent was sought and granted from the young people and their GPs were notified regarding their participation in the study.

5.5) Procedure

Adolescents who were interested in taking part, and met the inclusion/exclusion criteria, were contacted by the chief investigator within two weeks of having received the information leaflet about the project. Further information about the study (see [appendix 1](#)) was offered to participants at this time as well as opportunity for further questions. Prior to taking part in the study all participants were asked to sign a consent form (see [appendices 2 & 3](#)) to authorise their participation.

Adolescents from the school based population were asked to complete the survey packs during Personal and Social Development Education classes. The chief investigator met with senior staff and completed two dissemination events at each of the schools whereby an introduction to the study, information about completing the survey packs and distribution took place. Further dissemination events were held by senior staff at each of the schools. Such staff had been present during the initial dissemination events held by the chief investigator and were provided with written guidelines regarding completing and distributing the survey packs.

The young people recruited via the early intervention service were sent a copy of the information leaflet along with a covering letter inviting them to take part. This was followed by a phone call a week later asking if they were interested in participating in the study. Consent had previously been granted by the young people and they had previously indicated that they were willing to participate in the study. In the event, all of the young people recruited at this stage in the research process agreed to take part and were offered a suitable time and date to complete the survey packs and semi-structured interview. Participants' consent for audio-recording the qualitative interviews was also sought. Letters confirming the details of the agreed arrangements were then sent to the young people and individual interviews were held in an interview room at the hospital.

Conducting the qualitative interviews with young people with psychosis required a great deal of thought and consideration concerning the subject matter. In undertaking this work, great sensitivity was needed, with attention to ethical considerations, the developmental stage of the young person concerned and appropriate forms of communication. It was anticipated that young people might have fears about

disclosing information concerning risk behaviours and their experience of psychosis. They were informed that they were free to withdraw from the study at any time and issues regarding confidentiality and the protection of their anonymity were discussed. In line with the concept of 'participant validation' (Henwood & Pidgeon, 1992) interviewees were offered the opportunity to read the initial thematic analysis of their own interview, to discuss it with the researcher, and to make any comments they wished. The purpose of this was to involve the interviewees more closely in the research process and to offer a further credibility check.

Both the school based and clinical group of young people were invited to ask further questions about the outcomes of the study. All participants were offered the opportunity to receive feedback concerning the overall research findings upon completion of the final report. They were assured that all information would remain anonymous and confidential. In following the British Psychological Society's guidelines for conducting research with human participants (clause 8.3) participants were informed of procedures for contacting the investigator within a reasonable time period following participation should stress, potential harm, or related questions or concern arise despite the precautions required by the Principles offered by the BPS for protecting participants from harm. In accordance with recommendation of COREC, all participants were provided with an information sheet on how to access mental health services and support regarding mental health issues. All data collected from the study was locked in a filing cabinet in the early intervention service at the hospital.

5.6) Measures used

Participants were asked to complete a demographic questionnaire in order to obtain participant characteristics (see [appendix 4](#)), Eaton's (2005) Youth Risk Behaviour Scale (YRBS) (see [appendix 5](#)), Murgatroyd's (1978) Telic Dominance Scale (TDS) (see [appendix 6](#)), McDermott's (1988) Negativism Dominance Scale (NDS) (see [appendix 7](#)), Calhoun's (1996) Telic/Paratelic State Instrument (T/PSI) (see [appendix 8](#)), and Frydenberg's (1993) Adolescent Coping Scale (ACS) (see [appendix 9](#)). A summary of all the measures appears in [table 5.2](#).

Demographical questionnaire: A demographical questionnaire was designed to collect information concerning participants' characteristics. Data concerning age, ethnicity, educational background, physical and mental health were obtained to ensure information could be used to reduce the influence of confounding variables.

Youth Risk Behaviour Survey (YRBS- modified): The YRBS (Eaton *et al.*, 2005) targets those health behaviours that are considered risky, in that they result in the most significant impacts on health, well being, and longevity. These include behaviours that result in: (1) unintentional and intentional injuries; (2)

tobacco use; (3) alcohol and other drug use; (4) sexual behaviours that contribute to HIV infection, other sexually transmitted diseases (STDs), and unintended pregnancies; (5) unhealthy dietary behaviours; and (6) physical inactivity. Given that the YRBS was originally developed with a US population, in order to improve the ecological validity of some of the survey items, minor modifications were made to some of the language used (i.e. replaced the word ‘behavior’ with ‘behaviour’). The reliability of the YRBS has been found to be high over time, with good criterion related validity and have been shown to have reasonable levels of internal reliability (Meltzer *et al.*, 2007).

Table 5.2: Summary of measures used in the conduct of the research

Construct	Measure	Number of items	Subscales/domains
Demographical characteristics	The Demographical Questionnaire	8	-age -sex -educational qualifications -ethnicity -living arrangements - physical health -mental health - use of mental health services
Telic dominance	The Telic Dominance Scale (TDS)	42	-planning orientation -serious-mindedness - arousal avoidance
Negativistic dominance	The Negativistic Dominance Scale (NDS)	18	-proactive negativism -reactive negativism
Telic/Paratelic State	Telic/Paratelic State Inventory (T/PSI)	12	-arousal avoidance -serious-mindedness
Coping styles	The Adolescent Coping Scale (ACS) (Short version, general form)	19	-productive coping -reference to others -unproductive coping
Health Risk Behaviour	The Youth Risk Behaviour Survey (YRBS)	78	- intentional & unintentional injury - tobacco use - alcohol use & other drug use - risky sexual behaviour - unhealthy dietary behaviour - physical inactivity
Experience of psychosis & risk taking behaviour	Semi-structured interview schedule	10	- understandings of psychosis - personal history - impacts of diverse life domains - coping styles - risk behaviours - support needs

Telic Dominance Questionnaire (TDQ): The TDQ (Murgatroyd *et al.*, 1978) consists of three subscales (arousal avoidance, planning orientation and serious-mindedness), each with fourteen items, making forty two items in total. The serious-mindedness (SM) subscale measures the frequency with which a participant sees himself or herself to be engaged in activities whose primary purpose is to achieve a goal beyond these activities, rather than activities which are indulged in for their own sake. In other words, it is about how

frequently the participant is in a state of mind that is oriented to what he or she sees as serious ends, rather than a state of mind oriented towards the more playful enjoyment of ongoing sensations or skills. The planning orientation (PO) subscale measures the frequency with which a participant sees himself or herself to be involved in activities that require planning ahead and an orientation to the future, rather than activities that are more unplanned, spontaneous or oriented to the 'here and now'. Finally, the arousal avoidance (AA) subscale measures the frequency with which a participant sees himself or herself to be engaged in activities that might be expected to reduce arousal, rather than activities that might be expected to increase it.

Each item consists of telic and paratelic alternatives and participants are asked to choose the alternative they would normally prefer. A 'not sure' response is also included on each item. A total score on telic dominance is also obtained. Previous work has substantiated that the subscales are significantly related and that the scale satisfies reliability and validity requirements. All test-retest reliabilities over different periods of elapsed time have been found to be significant (Apter, 1989). The alpha coefficient for the total score is .837 (Murgatroyd *et al.*, 1978).

Negativistic Dominance Scale (NDS): The NDS (McDermott, 1988), also known as the Social Reactivity Scale is an eighteen item measure consisting of two seven item subscales which relate to different types of negativism dominance (proactive negativism & reactive negativism) and four 'filler' items (introduced to reduce the chance of response sets occurring). The proactive negativism (PN) subscale measures the frequency with which a participant indulges in negativistic or rebellious behaviour in order to provoke situations that are exciting and fun. It is labelled 'proactive' because it is about how frequently the participant sets out to cause gratuitous trouble. The reactive negativism (RM) subscale measures the frequency with which a participant reacts to disappointments and frustrations with feelings of resentment, and/or with vindictive or vengeful behaviour. It is labelled 'reactive' because it is about the way in which the participant reacts to certain kinds of situations.

Each item consists of rebelliousness and conformist alternatives and participants are asked to choose the alternative they would normally prefer. A 'not sure' response is also included on each item. A total negativism score can also be obtained. Both dimensions of rebelliousness have been found to be predictive of different sets of psychological constructs. The NDS has also been cross culturally replicated and has proved to be valid and reliable measures (McDermott, 1988). The subscales have good criterion related validity and have been shown to have reasonable levels of internal reliability, cronbach's alpha ranging from .61 to .78, and ecological validity (Apter, 2001).

Telic/Paratelic State Scale (T/PSI): The T/PSI (Calhoun, 1996) was developed in an attempt to improve the measurement of reversal theory states. It consists of a five item arousal avoidance/arousal seeking subscale

which has an alpha coefficient of .826 and a seven item serious-minded/playful subscale which has an alpha of .932. Each item consists of telic and paratelic alternatives and participants are asked to indicate on a six point scale the number which is located between each pair of words that best verifies how they were feeling in the last few minutes. Previous work has demonstrated its reliability and validity (Cogan & Brown, 1999).

Adolescent Coping Scale (ACS): Frydenberg *et al.*, (1993) developed a measure of adolescent coping which measures a wide range of coping strategies used by adolescents. The short version of the ACS – general form (Frydenberg, 1993) was used to measure eighteen coping strategies commonly used by adolescents. The coping strategies are as follows: (1) social support, (2) solve the problem, (3) work, (4) worry, (5) friends, (6) seek to belong, (7) wishful thinking, (8) not coping, (9) tension reduction, (10) social activity, (11) ignore the problem, (12) self blame, (13) keep to self, (14) seek spirituality, (15) focus on the positive, (16) seek professional help, (17) relaxation, and (18) physical recreation. Each of the eighteen items of the ACS asks participants to respond to a specific coping behaviour. The final item asks participants to write down anything they do to cope other than those things described in the preceding eighteen items. The stability of responses to the ACS as measured by test-retest reliability co-efficient range from .44 to .81 and are generally moderate, but nevertheless considered satisfactory given the dynamic nature of coping (Frydenberg & Lewis, 1996). The mean magnitude of consistency and reliability indicators for the scale is .70 and .68 respectively (Frydenberg, 2001).

In addition, the ACS identifies three different coping styles (productive, unproductive and reference to others) which encapsulate the different strategies adolescents adopt. The first of these, reference to others, is characterised by turning to peers, professionals or deities in a bid to cope with the concern. Reference to others coping style is comprised of the coping strategies: seeking social support, seeking spiritual support, seeking professional help and social action. The second of these, non-productive coping style, otherwise referred to as avoidance strategies, is empirically associated with an inability to cope. Non-productive coping style consists of: worry, investing in close friends, wishful thinking, seek to belong, ignore the problem, tension reduction, keep to self, not coping and self blame. The final coping style is productive coping and is characterised by strategies relating to solving the problem while remaining optimistic, fit, relaxed and socially connected. Productive coping is made up from the strategies: solving the problem, focus on the positive, seek to belong, physical recreation, seek relaxing diversions and work hard and achieve. The three scales measuring coping styles each provide high internally consistent and stable responses, with all reliability coefficients ranging between 0.76 and 0.89 (Frydenberg, 1993).

Semi-structured interview schedule: The interview schedule (see [appendix 10](#)) was constructed for the qualitative component of the research design. The schedule aims to let participants tell their own story and allows them to express their experiences of living with psychosis and risk taking behaviours. The schedule

explores the following themes: (1) understandings of psychosis, (2) personal history, (3) impacts on diverse life domains (4) coping styles, (5) risk behaviours, and (6) support needs. The schedule was developed from a review of relevant research literature and designed for the specific purposes of this study.

5.7) Statistical analysis

Data management: The quantitative data collected using the standardised measures was analysed using both descriptive and inferential statistics and were managed using the SPSS for Windows (12 version) and EQS computer programmes. The significance level was set at 0.05. All data were rounded off to the nearest decimal point.

Screening the data: Prior to analysis, all of the main variables were examined through SPSS for accuracy of data entry, missing values and fit between their distributions and the assumptions of multivariate analysis.

Missing data: While 407 young people from the school based sample were included in the final analysis, an original sample of 416 had been obtained. Nine respondents completed less than half of the standardised measures in their survey packs and their data was excluded. Due to the sensitive nature of some of the items in the survey pack (e.g. have you ever had sexual intercourse?), respondents occasionally left items blank. Consequently the total frequency varied across items. Screening of the data revealed that total n scores remained sufficiently high for meaningful descriptive and inferential statistical analysis to be performed.

Coding of risk variables: In accordance with previous work using the YRBS (Olshen et al, 2007; Meltzer et al., 2005), the health risk behaviours examined in the study stemmed from questions that were coded as dichotomous variables (Hinkle et al, 1994). For example, question 25 of the YRBS asks, "During the past 12 months, how many times did you actually attempt suicide?". Participants who indicated 0 times were coded as 'no', and participants who answered 1, 2, 3, 4, 5, 6 or more times were coded as 'yes'. The questions of the YRBS have been used since 1991 and a study of test-retest reliability (Brenner et al., 2002) showed the items to have substantial reliability.

Preliminary analysis: The differences and associations between the main variables (state dominance, coping styles & health risk behaviours) and demographic variables (age & gender) were examined to determine the need to include control variables in the main analysis testing mediation. The prevalence of adolescent engagement in different health risk behaviours was analysed using descriptive statistics (%) and chi-square analysis to explore differences between young people in terms of demographical characteristics.

Main analysis: Both descriptive and inferential statistical analyses were performed. Univariate and multivariate associations between state dominance, coping styles and health risk behaviours were performed. Factor analysis was used as a data reduction technique to account for the high level of found between different health risk behaviours. Factorial between-subjects ANOVAs were conducted to examine main effects and interaction effects between the variables of interest. Results were corroborated using independent t-tests and post hoc analysis using scheffe test to determine the direction and magnitude of difference. Both pearson's correlations and partial correlations were conducted to examine relationships between the main variables, whilst controlling for possible confounding variables. Multiple regression analyses were then used to assess the relative and incremental contribution of independent predictor variables to explaining the variance in the outcome variables (health risk behaviours). Finally, the 'goodness of fit' of the proposed mediation model was tested using structural equation modelling.

5.8) Qualitative analysis

Transcribing the interviews: In order to carry out a full analysis of the qualitative data, it was necessary to transcribe the audio recorded interviews. The qualitative data collected using the semi-structures interview schedule was transcribed verbatim to ensure no data was lost that may have become significant in the wider analysis of the research findings. The primary interest was in the content of the interviews, therefore it was sufficient to transcribe what was being said (the words), although selective transcription notation was found to be useful (Potter & Wetherell, 1987). That is, occasions where reference to non-linguistic features of speech were considered to be of significance in the interpretation of what was being said by the participants, notations were made during the transcription process. Field-notes taken after each interview were also included in the transcripts. This allowed inclusion of other issues relating to the setting in which the interviews took place, non-verbal communication and behaviour of the participants (Silverman, 2000). Rich data stemmed from these notes as participants often introduced new and meaningful information after the audio recorder had been switched off. All types of transcription constitute a form of translation of the spoken word into something else, therefore can never be the mirror image of the interview (Willig, 2001). In an attempt to try and authenticate young people's accounts, young people's local dialect and natural language was captured in the transcripts.

Although the data derived from the semi-structured interview protocols were primarily qualitative, it was possible to quantify certain data from standard questions (e.g. how many years have you been involved with the service?). Effort was also made to try and quantify the number of respondents sharing a particular perspective on the issues addressed using the interview schedule. For example, young people were asked if there were any positive aspect of living with psychosis. Analysis revealed that 7 out of the 10 young people identified positive aspects.

The qualitative data stemming from the transcripts were managed with the software programme NVIVO, which facilitates the on line storage, analysis and retrieval of textual information (Richards & Richards, 1994). Each data file stemming from individual interviews with young people (n=10) were imported into NVIVO and coded with a brief descriptor of the information contained in each file (i.e. adolescent with psychosis, aged 18 years, male).

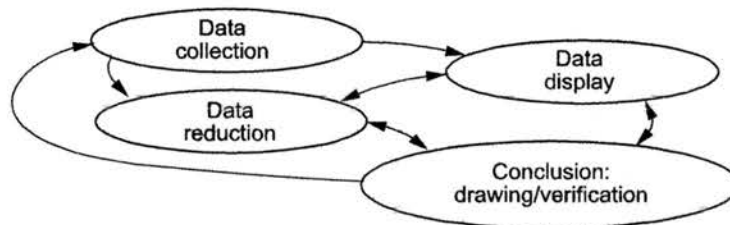
The programme's hierarchial organisation was useful for the building of 'tree' and 'free' nodes in the dataset. Nodes provided a way of cataloguing the themes, ideas, people and places which were relevant to the interpretation of the research findings. Nodes coded text units in the data set and could be organised as a 'tree' node hierarchy, where nodes immediately 'below' a given node (its immediate sub-categories) were sub-themes, and conversely the node immediately 'above' a given node were major themes. 'Tree' nodes had been developed from the thematic priorities of the semi-structured interview schedule. These themes were established initially as a basis for comparison between young people's perspectives. However, the coding frame needed to reflect the emerging 'free' nodes which evolved throughout the conduct of the research process. 'Free' nodes were nodes that could be created at any time for any purpose. They were 'free' because they were not organised in a hierarchial order like the 'tree' nodes.

The pros and cons of NVIVO: The speed and comprehensiveness of 'text' and 'node' searches were benefits of the NVIVO programme, in that these functions searched the data files beyond the first example that 'fitted' to illustrate a major theme. It could also cope with multiple and overlapping codes, conducting multiple searches, using more than one code word simultaneously. This allowed for a more systematic and comprehensive approach to the management of the data than could have been achieved using manual processes. Also, the use of 'tree indexing' provided a clear framework for identifying commonalities and discrepancies among multiple perspectives as each individual participant file was transported into the wider NVIVO dataset and coding framework.

While NVIVO provided a useful data management tool, it is important to note that there has been opposition towards the use of NVIVO and similar data management tools for qualitative research (Coffey *et al.*, 2001). Various evaluations of the methodological and practical value of such tools have stressed that there is an increasing danger of seeing coding data segments as an analytical strategy in its own right (Stanley & Temple, 1995). It is argued that there is an over-emphasis on coding, given that a large part of qualitative work consists of interpretation and a fine grained hermeneutic analysis (Lonkila, 1995). While it is recognised that computer data management tools offer a variety of useful ways of organising and searching data, coding data is not an analytical strategy. NVIVO is no more than a tool in the service of the researcher. As Flick (1998) describes 'it is of course not the programmes which develop the theory, just as it is not the word processor that writes an article'.

The interactive model: The qualitative data was analysed in accordance with Huberman & Miles (1994) interactive model. The sub-processes of this model are: (1) data reduction, (2) data display and (3) conclusion drawing and verification. Data reduction consisted of a cycle of deductive verification and inductive identification. For example, numerical data derived from the deductive analysis of the quantitative data taken from the standardized measures served as a guidepost to direct a more in-depth and focused approach to analysing the qualitative data (see [figure 5.1](#)). In addition, inductive identification of emergent themes (or 'free' nodes) was performed to create order in the raw, unstructured data derived from open-ended questions in the semi-structured interview schedule. The process of identifying 'free' nodes contained within the open narrative data required each transcript to be read several times. To focus conclusions from that process, 'text' and 'node' searches were performed in order to pool, group and record major themes. The characteristics of each theme were examined to determine whether they were mutually exclusive of each other.

Figure 5.1: Components of the interactive model (Huberman & Miles, 1994)

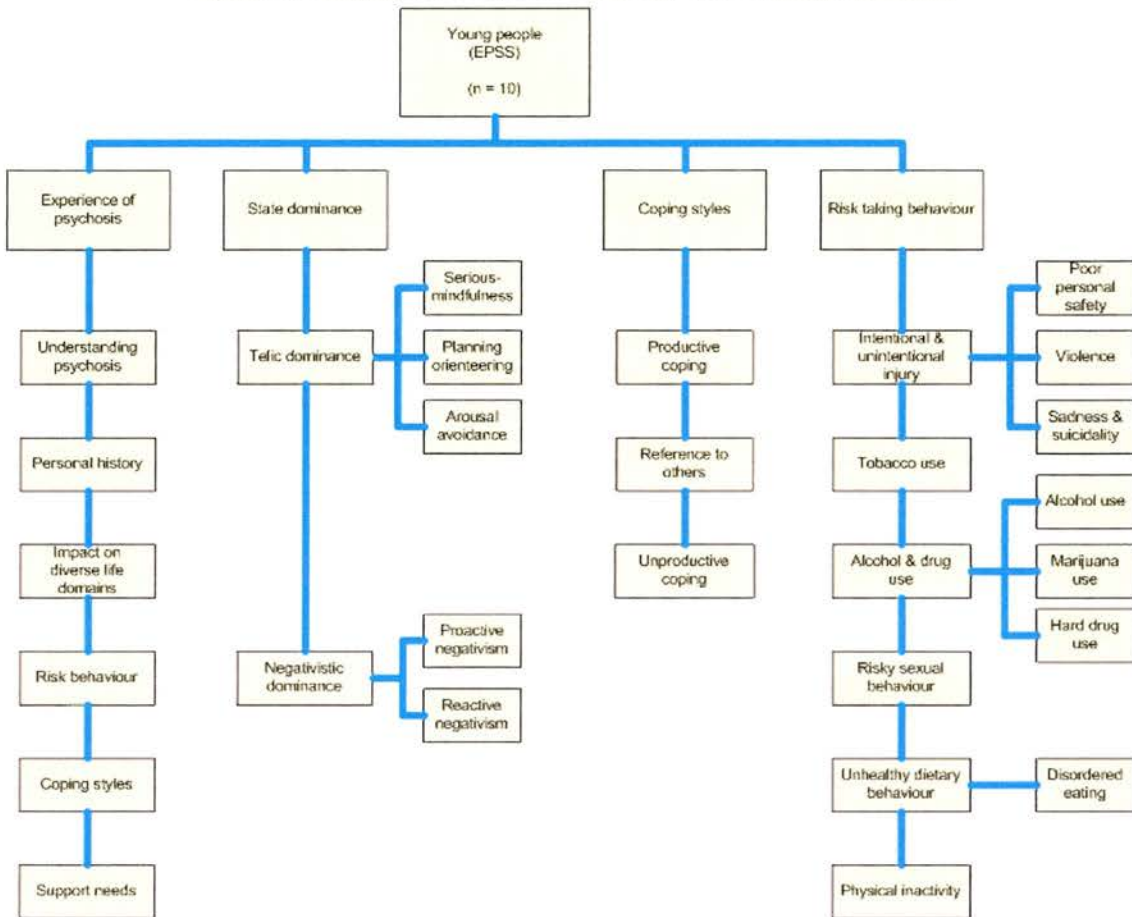


The second sub-process of data display was then performed in order to organise and summarise the information to clarify its meaning. Whereas other researchers have used structured summaries (Fischer & Wertz, 1975), vignettes (Erickson, 1986) or matrices of text rather than numbers in cells (Eisenhardt, 1989), a diagrammatic representation of the reduced data-set was formulated. The decision to develop a diagram to represent the data set, rather than vignettes or matrices of text, was made for a couple of reasons. Firstly, diagrams provided a useful visual illustration of the complex data-set which could be used to reduce and condense information and show what the data implied (Coffey, 1996). Secondly, diagrams showed the qualitative and quantitative data in parallel as well as the thematic priorities to have emerged from the analytical process (see [figure 5.2](#) for diagrammatic representation of full data-set).

Piecing together an overall picture of the data-set was not simply a matter of aggregating patterns and associations but of weighing up the salience and richness of the data rather than simply the multiplicity of evidence presented. This process also assisted with the third sub process of the interactive model, that is, the interpretation, verification and generation of conclusions. Many accounts of this approach to data analysis demonstrate that there are multiple tactics at work (Chesler, 1878; Fischer & Wertz, 1975) rather than one central aim. That is, as well as the verification of predetermined research questions, the inductive

identification of emergent themes was performed. In this sense data transformation took place as information was condensed, coded and ranked over time (Gherardi & Turner, 1987).

Figure 5.2: Diagrammatic representation of NVIVO coding framework



Tree nodes – deductive thematic priorities (coding hierachy)



Free nodes – emergent themes stemming from inductive analysis

As has been found in other multi-method studies using this approach (Cogan, 2004; Purcell, 1999), the interactive model was useful for bringing together the qualitative and quantitative research findings as well as highlighting interesting differences between the data-sets. The criterion of persuasiveness by 'grounding in examples' which were applied through inspection of interpretations of the data was used (Elliot, 1999).

5.9) Summary

There is theoretical and methodological progression to the current work through the incorporation of a multi-method (quantitative and qualitative) approach. The advantages of the current research design are that it provides a more comprehensive picture of the specific factors associated with risk taking behaviour which are significant for a large scale school based sample of participants (n=407) and a small clinical group of young people with psychosis (n=10). In conducting this work, awareness of the ethical issues concerning researching a sensitive topic area involving a vulnerable and difficult to access research population was needed. Ethical guidelines and codes of conduct had to be followed when implementing and managing the research strategies. Such processes are not only relevant to the interpretation of the current study's findings but also to researchers and service providers working with young people with and without mental health problems.

The chapters that follow present the quantitative school based data (chapter 6) and the qualitative data (chapter 7) collected from young people who experience psychosis. This is followed by the final chapter (chapter 8) which outlines the recommendations stemming from the findings, which have implications for academics, service providers and policy makers working within this area of investigation.

Chapter 6: State dominance, coping and health risk behaviours: *exploration of a school based population*

6.1) Introduction

This chapter details the findings from the quantitative results stemming from the school based participants using standardised measures of state dominance, coping styles and health risk behaviours. An overview of participants' characteristics is followed by the outcomes from preliminary analysis conducted in order to establish variables to be controlled for in the testing of the hypotheses. The results of univariate and multivariate analysis conducted to explore the relations between the main variables of interest are presented¹. The goodness of fit of a mediation model is also tested using structural equation modeling. Finally, a summary of the current research findings in the context of the existing evidence base is outlined.

6.2) Participant characteristics

A total of 416 young people took part in the study, however, 9 respondents were excluded ($n = 407$) as their survey packs were incomplete (female $n = 205$; male $n = 202$). The age range² of participants was 14-17 years old ($m = 15.02$, $sd = .90$). The distribution of gender across age group was not found to be significantly different when analysed using chi-square test ($\chi^2(1) = 6.72$, $P = .23$). Over three quarter of participants were of white Scottish origin (76.9%), followed by Pakistani (7.9%), other white (6.1%), other (3.2%), Indian (2.2%), other Asian (2.2%) and Bangaladeshi (1.5%). All of the young people resided in an urban area in the City of Edinburgh, of which the majority had lived there all their lives (88.6%). Almost three quarter of participants had yet to obtain educational qualifications (71.4%), whilst almost a quarter had standard grades (22.9%) and a few had highers (5.7%).

While the majority of participants did not have any form of paid employment (87%), of those that did it was part-time (i.e. work on a paper round or in retail). The distribution of those in paid employment across age and sex was not found to be significantly different.

In terms of how young people described their health in general, the majority stated 'good' (32.5%), 'very good' (37.9%) and 'excellent' (15.3%), whilst others stated 'fair' (12.3%) and 'poor' (2%). A significant difference was found in terms of gender and general health ($\chi^2(1) = 5.24$, $P = .02$) with males being more likely to report being in 'excellent' health compared to females. Over a tenth of the participants (11.1%) reported that they experienced mental health problems (i.e. anxiety & depression), of which almost two thirds (64.4%) had sought help from mental health services. The distribution of age across those reporting having mental health problems and having sought help from mental health

¹ Only statistically significant outcomes are highlighted in the context of the results discussed.

² For the purpose of the analysis, age was dichotomised into 14/15 yrs (younger adolescent) & 16-17 yrs (older adolescent).

services were not found to be significantly different when analysed using chi-square test. A significant difference was found for gender and those having sought help from mental health services ($\chi^2(1) = 6.64, P = .01$) indicating that females were more likely than males to seek help. However, no significant gender difference was found for those reporting having mental health problems. For the 8.6% of participants reporting that they experienced physical health problems (i.e. asthma & diabetes), no significant difference was found for age or gender.

6.3) Preliminary analysis

Detecting outliers & collinearity: Box plots and scatter plots were used to check for outliers and collinearity. No extreme outliers or collinearity were detected.

Assumptions & transformations: Before testing the hypotheses of the study, basic descriptive statistics to examine the curve distributions were conducted. The Kolmogorov-Smirnov test indicated that the data were sufficiently normally distributed to justify using parametric tests for state dominance and coping styles. Exploratory data analysis and histograms also revealed this to be the case. The kurtosis number was less than two times as large as the standard error number, hence the data was acceptably kurtic. As the skewedness number was not more than two times as large as the standard error of skewedness number, the data was acceptably skewed in order to conduct parametric testing (Molloy & Newfields, 2005).

Multiple testing & bonferroni correction: In order to reduce the likelihood of making a Type 1 error through multiple testing, Bonferroni corrections were calculated when multiple tests or comparisons were conducted. While this procedure incurred a reduction in power, it also reduced the likelihood of reporting falsely significant results in the analyses.

State dominance: Factorial between-subjects ANOVA were performed to examine main effects for sex, age and sex \times age interaction for state dominance. Results for sex were corroborated using independent samples t-tests and age using post hoc analysis using scheffe test to determine the direction and magnitude of difference. The main effects for sex, age and sex \times age interaction were examined with telic and negativistic dominance total scores and subscale scores. A significant age effect ($F_{3, 407} = 3.96, P = 0.01, ES = .029$) was found for total telic score, indicating that older adolescents scored significantly higher on telic dominance than younger adolescents. A significant age ($F_{3, 407} = 3.65, P = 0.01, ES = .027$) and sex \times age interaction effect ($F_{3, 407} = 2.61, P = 0.05, ES = .019$) was found for arousal avoidance subscale score. Older adolescents scored higher on arousal avoidance compared to young adolescents. In addition, the interaction effect indicated that older females were more likely to score high on arousal avoidance compared to older males. A significant age effect ($F_{3, 407} = 3.09, P = 0.02, ES = .023$) was also found for planning orientation subscale score indicating that older adolescents scored higher on this subscale compared to younger adolescents. No significant sex, age, or sex \times age interaction effects were found for serious-mindedness subscale score.

A significant sex effect was found for proactive negativism ($F_{1, 407} = 4.14, P = 0.04, ES = .010$) subscale score and total negativism ($F_{3, 403} = 4.04, P = 0.05, ES = .010$) score, showing that males scored significantly higher than females on proactive negativism and total negativism. No significant sex, age, or sex \times age interaction effect ($P_s > .05$) was found for reactive negativism.

In order to determine the relation between telic and negativistic dominance and its subscales a partial correlation controlling for sex and age was performed (see [table 6.1](#)).

Table 6.1: Partial correlation controlling for sex & age for state dominance total scores & subscale scores

State dominance	Total negativism	Reactive negativism	Proactive negativism	Planning orientation	Arousal avoidance	Serious-mindedness	Total telic
Total negativism	1.000	-	-	-	-	-	-
Reactive negativism	.881(**)	1.000	-	-	-	-	-
Proactive negativism	.861(**)	.518(**)	1.000	-	-	-	-
Planning orientation	-.198(**)	-.141(**)	-.206(**)	1.000	-	-	-
Arousal avoidance	-.057	-.010	-.092	.399(**)	1.000	-	-
Serious-mindedness	-.093	-.054	-.111(*)	.549(**)	.397(**)	1.000	-
Total telic score	-.149(**)	-.088	-.174(**)	.830(**)	.743(**)	.811(**)	1.000

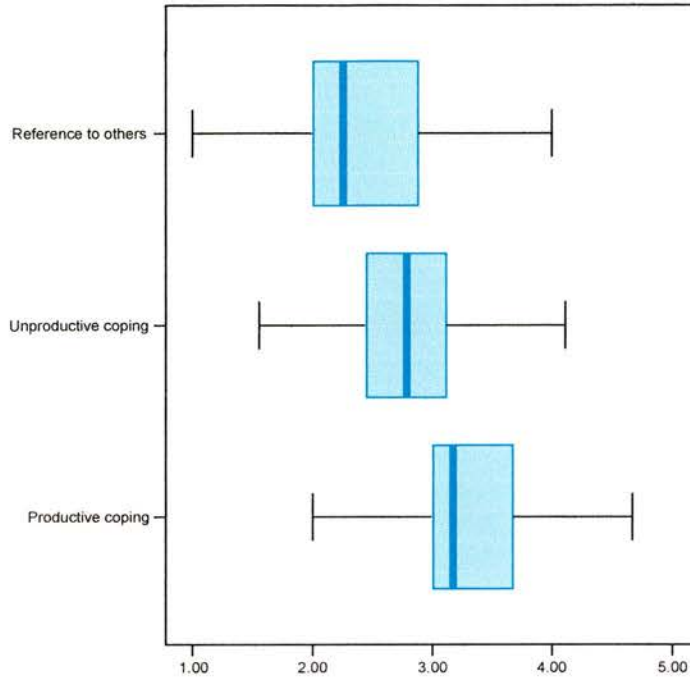
* $p < .05$, ** $p < .01$, *** $p < .001$

Analysis revealed total telic dominance score was significantly negatively correlated with total negativistic dominance score ($r = -.149, P = .003$) and its subscale of proactive negativism ($r = -.174, P = .001$). In terms of the subscales of telic dominance, significant negative correlations were found for planning orientation and total negativism score and ($r = -.198, P = .001$), reactive ($r = -.141, P = .005$) and proactive negativism ($r = -.206, P = .001$) subscale scores. A significant negative correlation was found for serious-mindedness and proactive negativism ($r = -.111, P = .02$) subscale score.

These findings indicate that adolescents with high scores on total telic dominance and its subscales are more likely to score lower on total negativistic dominance and its subscales. Given the high significant positive correlations between state (telic & negativistic) dominance total scores and their subscales ($P_s > .001$) further hypothesis testing utilised total scores only.

Coping styles: Factorial between-subjects ANOVA were performed to examine main effects for sex, age and sex \times age interaction for the coping styles (productive, non-productive & reference to others). Results for sex were corroborated using independent samples t-tests and age using post hoc analysis using scheffe test to determine the direction and magnitude of difference. Analysis revealed no significant sex, age, or sex \times age interaction effects ($P_s > .05$) for any of the coping styles. Inspection of adolescents' mean scores revealed that they were most likely to use productive coping style ($m = 3.28, sd = .57$), followed by unproductive coping style ($m = 2.85, sd = .59$) and reference to others ($m = 2.36, sd = .61$) (see [figure 6.1](#)).

Figure 6.1: Adolescents' mean & SD scores for coping styles



Pearson's correlation was performed as a measure of association between coping styles (see [table 6.2](#)). As would be expected, a significant positive correlation was found between productive coping and reference to others coping style ($r = .132, P = .008$), indicating that adolescents who were more likely to use productive coping were also more likely to refer to others as a means of coping with stress.

A significant negative correlation was found between unproductive coping and reference to others ($r = .247, P = .001$) suggesting that adolescents who were more likely to use unproductive coping style were less likely to refer to others in coping with stress.

Table 6.2: Pearson's correlation matrix for coping styles

Coping styles	Productive coping	Unproductive coping	Reference to others
Productive coping	1	-	-
Unproductive coping	.028	1	-
Reference to others	.132(**)	.247(**)	1

* $p < .05$, ** $p < .01$, *** $p < .001$

Health risk behaviours: Descriptive statistics (%) were conducted to examine the prevalence of health risk behaviours and chi-square analyses were performed to determine whether differences existed in terms of the sex and age of adolescents.

In terms of regular tobacco use (during past 30 days smoked > 9 days), 8.8% of the young people regularly used tobacco. No significant differences were found for sex or age and regular tobacco use. Almost a quarter of the young people (22.3%) had used marijuana. While no significant difference was

found in terms of sex, older adolescents were found to be significantly more likely to use marijuana compared to younger adolescents ($\chi^2(1) = 11.64, P = .001$). Over a third of the young people (38.6%) had engaged in binge drinking (during past 30 days drank 5 or more drinks in a row in 2 hour period). While no significant difference was found in terms of gender, younger adolescents were significantly more likely to binge drink compared with older adolescents ($\chi^2(1) = 10.98, P = .001$). Almost a fifth of the adolescents had used some form of hard drugs (18.7%), with males being significantly more likely to have tried hard drugs compared to females ($\chi^2(1) = 4.43, P = .035$). No significant difference was found for age and hard drug use.

In terms of unsafe sex, 12.3% of the young people had engaged in sex without a condom. While no significant difference was found for the sex of adolescents, younger adolescents were significantly more likely to practice unsafe sex compared to older adolescents ($\chi^2(1) = 5.34, P = .021$). Of the 8% of the young people (8.1%) who reported that they had been in a physical fight that required medical attention in the last 12 months, males were significantly more likely to have been in a physical fight compared to females ($\chi^2(1) = 3.12, P = .05$). No significant difference was found for age and being in a physical fight.

Almost a quarter of the young people (23.8%) stated that, in the past 12 months, they had felt sad or hopeless for a period of at least 2 weeks that stopped them from doing usual activities. Females were significant more likely to report feeling sad or hopeless compared to males ($\chi^2(1) = 9.35, P = .002$). No significant difference was found for age. In terms of suicidality, 16% of the young people stated that they had seriously considered attempting suicide in the past 12 months, with females being significantly more likely to have considered suicide compared to males ($\chi^2(1) = 6.28, P = .012$). Eleven percent (11.1%) of adolescents reported that they had made a suicide plan and 10.1% stated that they had attempted suicide in the past year. Furthermore, 4.4% of adolescents had attempted suicide during the past 12 months that resulted in injury, poisoning or overdose that had to be treated by a doctor or nurse. No significant differences were found for sex or age and having made a suicide plan or attempted suicide.

Of 8.1% of adolescents who were physically inactive (i.e. in last week had not engaged in exercise for at least 20 minutes that made them sweat or breathe hard), females were significantly more likely to be physically inactive compared to males ($\chi^2(1) = 7.18, P = .007$), however no significant difference was found for age. Over a third of the adolescents (34.4%) reportedly had unhealthy dietary intake (did not eat recommended 5 fruit & vegetables a day). No significant difference was found in terms of sex or age of adolescents. Over the course of the past week, almost a third (31.2%) had not eaten any green salad, 12.3% had not eaten any fruit and 11.3% had not eaten any vegetables.

For the purposes of further analysis testing the research hypotheses, factor analysis using maximum likelihood extraction method and varimax rotation was performed to analyse interrelationships among the individual health risk behaviour variables to determine whether these variables could be explained by a smaller set of common underlying factors (Hair et al., 1992).

Three factors emerged explaining 38.68% of the total variance. The first factor, explaining 11.29% of variance in scores with item loadings ranging .43 and .92 consisted of regular tobacco use, binge drinking, marijuana use and lifetime hard drug use (*substance misuse risk factor*). The second factor, explaining 18.82% of variance in scores with item loadings ranging .35 to .84 consisted of violence, sadness and hopelessness and suicide attempt (*violence & mental health risk factor*). The third factor, explaining 8.56% of variance was physical inactivity (*physical inactivity risk factor*). The other individual risk behaviour variables were excluded from the factor analysis (see [table 6.3](#)).

Table 6.3: Items loading for each factor & abbreviations used in testing of hypotheses.

Factors extracted	Items included	% of variance	Abbreviated terms
Factor 1	Regular tobacco use; Binge drinking; Marijuana use & Hard drug use (substance misuse)	11.29	SUB.MISUSE
Factor 2	Violence (VIO); Hopelessness & sadness (SAD); Suicide attempt (SUI).	18.82	VIO.SAD.SUI
Factor 3	Physical inactivity.	8.55	PHY.INACT

In sum, the preliminary analysis demonstrated that the influence of sex and age would need to be controlled for in the testing of hypotheses concerning state dominance, coping styles and health risk behaviours. It also revealed that the individual health risk behaviour variables were inter-related and could be further tested using three underlying factors (SUB.MISUSE; VIO.SAD.SUI & PHY.INACT).

6.4) Results

(H1) State dominance and health risk behaviour: The first hypothesis of this study was that adolescents with high scores on telic dominance and low scores on negativistic dominance would score lower on health risk behaviours.

Hierarchical linear regression analysis was used to test the hypothesis as preliminary analysis had demonstrated that the main variables (telic & negativistic dominance) were correlated and that demographical characteristics (age & sex) would also need to be computed as predictor variables. Results for sex and age were corroborated using chi-square analysis to determine the direction and magnitude of difference.

The first regression model included only age and sex as predictor variables and SUB.MISUSE as the criterion variable ($F_{2, 399} = 6.45, p = .002$). The second regression model which included state dominance did significantly better than chance at predicting SUB.MISUSE ($F_{4, 399} = 22.18, p = .001$). The F in the ANOVA table tests the null hypothesis that the multiple correlation coefficient, R , is zero in the population (see table 6.4). If that null hypothesis were true, then using the second regression model would be no better than just using age and sex as the predictor variables.

Table 6.4: ANOVA table for the regression models (SUB.MISUSE) for state dominance

Model	Sum of square	df	Mean square	F	Sig.
1 Regression	14.437	2	7.219	6.458	.002**
Residual	443.781	397	1.118		
Total	458.218	399			
2 Regression	84.046	4	21.012	22.181	.000***
Residual	374.172	395	.947		
Total	458.218	399			

1 = predictors (constant), age & sex

2 = predictors (constant) age, sex, total telic score, total negativism score.

* $p < .05$, ** $p < .01$, *** $p < .001$

In order to determine whether the second model was significantly better than the first model, inspection of the coefficients provided a measure of the effect of each of the predictors (see table 6.5). Total negativism score was found to be the strongest predictor variable ($\beta = .380, p < .001$) followed by age ($\beta = .191, p < .001$). Thus, a one standard deviation increase in total negativism score leads to a .380 standard deviation increase in predicted SUB.MISUSE. Older adolescents were significantly more likely to engage in SUB.MISUSE compared to younger adolescents. Sex and total telic score did not significantly improve the second model.

Table 6.5: Coefficients (SUB.MISUSE) for state dominance

Model	Unstandardised coefficients		Standardised coefficients	t	Sig	% confidence intervals for B	
	B	Std.Error	Beta			Lower bound	Upper bound
1(constant)	-.242	.253		-.955	.340	-.740	.256
Sex	-.194	.106	-.091	-1.828	.068	-.402	.015
Age	.174	.059	.146	2.953	.003	.058	.290
2(constant)	-1.174	.311		-3.780	.000	-1.784	-.563
Sex	-.065	.099	-.030	-.651	.516	-.260	.131
Age	.227	.055	.191	4.125	.000***	.119	.336
Total telic	-.557	.381	-.069	-1.463	.144	-1.305	.191
Total neg.	.945	.116	.380	8.118	.000***	.716	1.174

* $p < .05$, ** $p < .01$, *** $p < .001$

Hence, SUB.MISUSE can be predicted significantly better with the second model rather than without it, albeit total telic score did not significantly improve it.

Table 6.6 details the regression models for state dominance and VIO.SAD.SUI. While the first regression model, including only age and sex as predictor variables, did not significantly predict VIO.SAD.SUI ($F_{2, 399} = 1.097, p = .335$), the second regression model which included state dominance did significantly predict VIO.SAD.SUI ($F_{4, 399} = 5.580, p = .001$).

Table 6.6: ANOVA table for the regression models (VIO.SAD.SUI) for state dominance

Model	Sum of square	df	Mean square	F	Sig.
1 Regression	3.013	2	1.507	1.097	.335
Residual	545.388	397	1.374		
Total	548.402	399			
2 Regression	29.333	4	7.333	5.580	.0001***
Residual	519.069	395	1.314		
Total	548.402	399			

1 = predictors (constant), age & sex

2 = predictors (constant) age, sex, total telic score, total negativism score.

* $p < .05$, ** $p < .01$, *** $p < .001$

Inspection of the coefficients (see table 6.7) revealed that total negativism score ($\beta = .198$, $p < .001$) was the best predictor of VIO.SAD.SUI, followed by total telic score ($\beta = .137$, $p = .007$) and sex ($\beta = .098$, $p = .050$). Thus, a one standard deviation increase in total negativism score leads to a .198 standard deviation increase in predicted VIO.SAD.SUI and a one standard deviation increase in total telic score leads to a .137 standard deviation increase in predicted VIO.SAD.SUI. Females were significantly more likely to engage in VIO.SAD.SUI compared to males. Age did not significantly improve the second model.

Table 6.7: Coefficients (VIO.SAD.SUI) for state dominance

Model	Unstandardised coefficients		Standardised coefficients	t	Sig	% confidence intervals for B	
	B	Std.Error	Beta			Lower bound	Upper bound
1(constant)	-.007	.281		-.025	.980	-.559	.545
Sex	.128	.118	.055	1.093	.275	-.103	.359
Age	-.060	.065	-.046	-.917	.359	-.188	.068
2(constant)	-1.069	.366		-2.924	.004	-1.788	-.350
Sex	.229	.117	.098	1.956	.050*	-.001	.460
Age	-.067	.065	-.052	-1.035	.301	-.195	.060
Total telic	1.220	.448	.137	2.723	.007**	.339	2.102
Total neg.	.539	.137	.198	3.930	.000***	.269	.809

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 6.8 reveals that the first model including age and sex as predictors and PHY.INACT as the criterion variable was found to be significant ($F_{2, 399} = 3.353$, $p = .032$). The second regression model did, however, significantly better than chance at predicting PHY.INACT ($F_{4, 399} = 3.223$, $p = .013$).

Table 6.8: ANOVA table for the regression models (PHY.INACT) for state dominance

Model	Sum of square	df	Mean square	F	Sig.
1 Regression	6.742	2	3.371	3.353	.032*
Residual	399.122	397	1.005		
Total	405.863	399			
2 Regression	12.827	4	3.207	3.223	.013*
Residual	393.037	395	.995		
Total	405.863	399			

1 = predictors (constant), age & sex

2 = predictors (constant) age, sex, total telic score, total negativism score.

* $p < .05$, ** $p < .01$, *** $p < .001$

Inspection of the coefficients (see table 6.9) revealed that sex ($\beta = .137$, $p = .007$) was the best predictor of PHY.INACT, followed by total negativism score ($\beta = .105$, $p = .041$). Age and total telic

score did not significantly improve the second model. Females were significantly more likely to engage in PHY.INACT compared to males. Furthermore, a one standard deviation increase in total negativism score leads to a .105 standard deviation increase in predicted PHY.INACT.

Table 6.9: coefficients (PHY.INACT) for state dominance

Model	Unstandardised coefficients		Standardised coefficients	t	Sig	% confidence intervals for B	
	B	Std.Error	Beta			Lower bound	Upper bound
1(constant)	-.534	.240		-2.222	.027 *	-1.006	-.062
Sex	.248	.101	.123	2.468	.014	.051	.446
Age	.054	.056	.048	.960	.338	-.056	.163
2(constant)	-.683	.318		-2.146	.032 *	-1.309	-.057
Sex	.277	.102	.137	2.715	.007 **	.076	.477
Age	.074	.056	.066	1.309	.191	-.037	.185
Total telic	-.410	.390	-.054	-1.051	.294	-1.177	.357
Total neg.	.244	.119	.105	2.049	.041 *	.010	.479

* $p < .05$, ** $p < .01$, *** $p < .001$

These findings provide partial support for the hypothesis (H1) that adolescents with high scores on telic dominance and low scores on negativistic dominance would score lower on health risk behaviours. Analysis revealed that the sex and age of adolescents were also predictor variables that significantly contributed towards improving the regression models.

H2) State dominance & coping styles: The second hypothesis was that adolescents with high scores on telic dominance and low scores on negativistic dominance would be more likely to use productive and reference to others coping style and be less likely to use the unproductive coping style.

The main effects for negativistic dominance, telic dominance and telic \times negativistic dominance interaction were examined with coping styles. Sex and age were computed as covariates. Analysis revealed that there was a significant main effect for total negativism score ($F_{37, 391} = 2.097, P < 0.004, ES = .537$) and unproductive coping style indicating that adolescents who scored higher on negativistic dominance were more likely to use unproductive coping strategies. A significant main effect was also found between telic dominance and reference to others ($F_{73, 391} = 1.878, P < 0.005, ES = .672$) suggesting that adolescents who scored higher on telic dominance were more likely to use reference to others coping style. No significant main effects for negativistic dominance, telic dominance and telic \times negativistic dominance interaction were found for productive coping style.

These findings provide partial support for the hypothesis (H2) in that adolescents with low scores on negativistic dominance were less likely to use the unproductive coping style. Furthermore, higher scores on telic dominance were associated with greater use of reference to others coping style.

H3) Coping styles & health risk behaviours: The third hypothesis was that adolescents with high scores on productive and reference to others coping styles and low scores on unproductive coping style would be less likely to engage in health risk behaviours.

Hierarchical linear regression was used to examine the relationship between coping styles and health risk behaviours. Results for sex and age were corroborated using chi-square analysis to determine the direction and magnitude of difference. In examining the relationship between state dominance and SUB.MISUSE (see table 6.10), the first regression model, which included only age and sex, significantly predicted SUB.MISUSE ($F_{2, 391} = 6.077, p = .003$). However, the second regression model did significantly better than chance at predicting SUB.MISUSE ($F_{5, 391} = 5.347, p = .001$).

Table 6.10: ANOVA table for the regression models (SUB.MISUSE) for coping styles

Model	Sum of square	df	Mean square	F	Sig.
1 Regression	13.771	2	6.886	6.077	.003**
Residual	440.784	389	1.133		
Total	454.555	391			
2 Regression	29.446	5	5.889	5.347	.000***
Residual	425.109	386	1.101		
Total	454.555	391			

1 = predictors (constant), age & sex

2 = predictors (constant) age, sex, productive coping, unproductive coping, reference to others

* $p < .05$, ** $p < .01$, *** $p < .001$

Inspection of the coefficients (see table 6.11) revealed that unproductive coping style ($\beta = .176, p = .001$) was the best predictor of SUB.MISUSE, with age ($\beta = .138, p = .006$) and sex ($\beta = -.096, p = .050$) also significantly improving the model. Thus, a one standard deviation increase in unproductive coping style score leads to a .176 standard deviation increase in predicted SUB.MISUSE. Furthermore, univariate analysis revealed that older adolescents were significantly more likely to engage in SUB.MISUSE. In addition, males were significantly more likely to engage in SUB.MISUSE compared to females. Productive coping and reference to others did not significantly improve the second model.

Table 6.11: Coefficients (SUB.MISUSE) for coping styles

Model	Unstandardised coefficients		Standardised coefficients	t	Sig	% confidence intervals for B	
	B	Std.Error	Beta			Lower bound	Upper bound
1(constant)	-.293	.255		-1.147	.252	-.795	.209
Sex	-.168	.108	-.078	-1.562	.119	-.380	.044
Age	.180	.059	.151	3.022	.003**	.063	.297
2(constant)	-.508	.476		-1.068	.286	-1.444	.427
Sex	-.207	.107	-.096	-1.941	.050*	-.417	.003
Age	.164	.059	.138	2.786	.006**	.048	.280
Productive	-.143	.093	-.076	-1.532	.126	-.326	.040
unproductive	.323	.094	.176	3.444	.001**	.138	.507
Ref. to other	-.054	.090	-.031	-.601	.548	-.232	.123

* $p < .05$, ** $p < .01$, *** $p < .001$

In examining the relationship between state dominance and VIO.SAD.SUI, the first regression model which included only age and sex did not significantly predict VIO.SAD.SUI ($F_{2, 391} = 1.040, p = .354$). Table 6.12 reveals that the second regression model, did significantly better than chance at predicting VIO.SAD.SUI ($F_{5, 391} = 12.04, p = .001$).

Table 6.12: ANOVA table for the regression models (VIO.SAD.SUI) for coping styles

Model	Sum of square	df	Mean square	F	Sig.
1 Regression	2.900	2	1.450	1.040	.354
Residual	542.290	389	1.394		
Total	545.190	391			
2 Regression	73.557	5	14.711	12.040	.000***
Residual	471.633	386	1.222		
Total	545.190	391			

1 = predictors (constant), age & sex

2 = predictors (constant) age, sex, productive coping, unproductive coping, reference to others

* $p < .05$, ** $p < .01$, *** $p < .001$

Inspection of the coefficients (see table 6.13) revealed that unproductive coping ($\beta = .366, p = .001$) and reference to others ($\beta = -.129, p = .009$) were the best predictors of VIO.SAD.SUI, while sex, age and productive coping did not significantly improve the second model. Hence, a one standard deviation increase in unproductive coping score leads to a .366 standard deviation increase in predicted VIO.SAD.SUI and a one standard deviation increase in reference to others score leads to a .129 decrease in predicted VIO.SAD.SUI.

Table 6.13: Coefficients (VIO.SAD.SUI) for coping styles

Model	Unstandardised coefficients		Standardised coefficients	t	Sig	% confidence intervals for B	
	B	Std.Error	Beta			Lower bound	Upper bound
1(constant)	.011	.283		.039	.969	-.546	.568
Sex	.125	.119	.053	1.046	.296	-.110	.360
Age	-.061	.066	-.047	-.932	.352	-.191	.068
2(constant)	-.899	.501		-1.794	.074	-1.884	.086
Sex	.036	.113	.015	.317	.751	-.186	.257
Age	-.081	.062	-.062	-1.308	.192	-.203	.041
Productive	-.120	.098	-.059	-1.221	.223	-.313	.073
unproductive	.734	.099	.366	7.438	.000***	.540	.928
Ref. to other	-.250	.095	-.129	-2.623	.009**	-.437	-.063

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 6.14 reveals that the first regression model which included only age and sex did not significantly predict PHY.INACT ($F_{2, 391} = 2.167, p = .057$) while the second regression model which included coping styles did ($F_{5, 391} = 3.604, p = .028$).

Table 6.14: ANOVA table for the regression models (PHY.INACT) for coping styles

Model	Sum of square	df	Mean square	F	Sig.
1 Regression	6.733	2	3.366	2.167	.057*
Residual	363.375	389	.934		
Total	370.107	391			
2 Regression	10.104	5	2.021	3.604	.028*
Residual	360.003	386	.933		
Total	370.107	391			

1 = predictors (constant), age & sex

2 = predictors (constant) age, sex, productive coping, unproductive coping, reference to others

* $p < .05$, ** $p < .01$, *** $p < .001$

Inspection of the coefficients (see table 6.15) revealed that sex was the best predictor ($\beta = .111, p = .028$) followed by unproductive coping ($\beta = .094, p = .05$), while age, productive coping and reference

to others did not significantly improve the second model. Females were significantly more likely to engage in PHY.INACT compared to males. Furthermore, a one standard deviation increase in unproductive coping score leads to a .094 standard deviation increase in predicted PHY.INACT.

Table 6.15: Coefficients (PHY.INACT) for coping styles

Model	Unstandardised coefficients		Standardised coefficients	t	Sig	% confidence intervals for B	
	B	Std.Error				Beta	Lower bound
1(constant)	-.592	.232		-2.555	.011*	-1.048	-.137
Sex	.235	.098	.121	2.407	.017**	.043	.428
Age	.072	.054	.067	1.324	.186	-.035	.178
2(constant)	-.719	.438		-1.641	.102	-1.579	.142
Sex	.217	.098	.111	2.203	.028*	.023	.410
Age	.066	.054	.061	1.208	.228	-.041	.172
Productive	-.051	.086	-.030	-1.589	.556	-.219	.118
unproductive	.155	.086	.094	1.799	.050*	-.014	.325
Ref. to other	-.044	.083	-.027	-.524	.601	-.207	.120

* $p < .05$, ** $p < .01$, *** $p < .001$

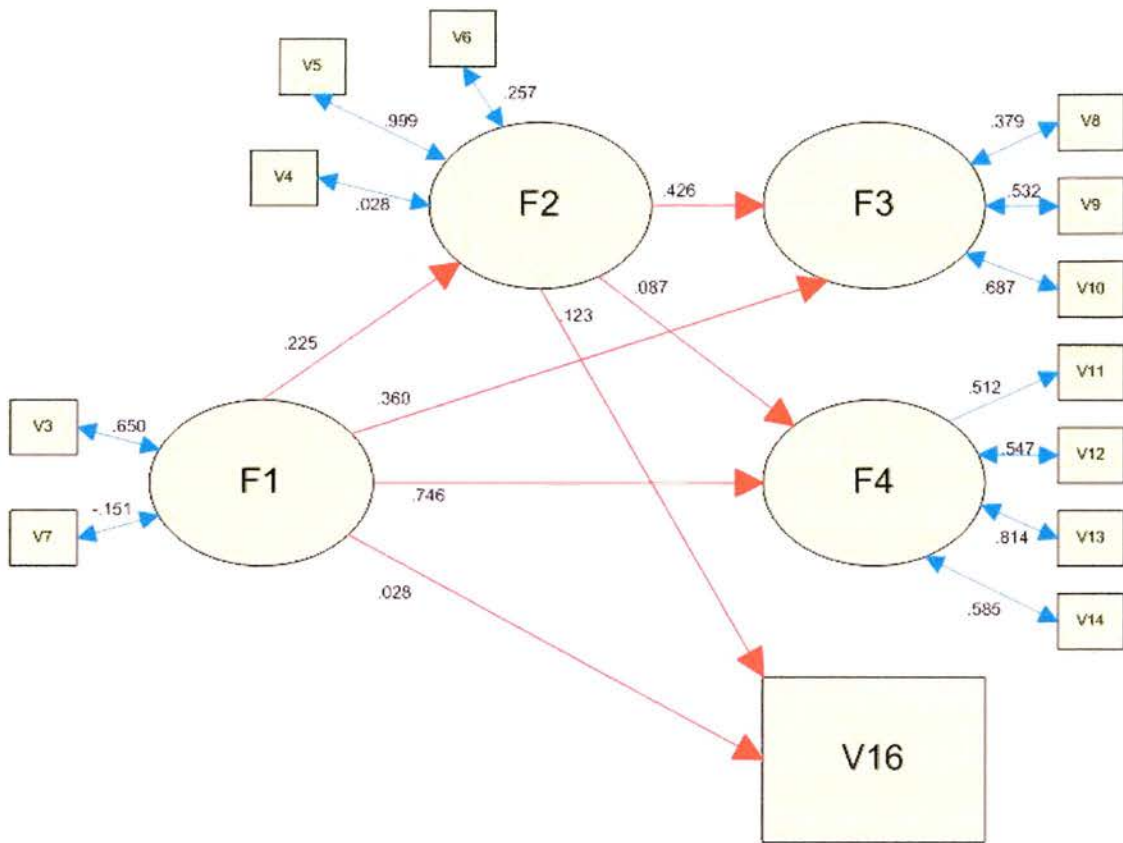
Partial support for the hypothesis (H3) that adolescents with high scores on productive and reference to others coping styles and low scores on unproductive coping style would be less likely to engage in health risk behaviour was found. Analysis revealed that unproductive coping appears to be the most significant predictor of engagement in health risk behaviours.

H4) Main hypothesis – mediating analysis: The main hypothesis was that the association between state dominance and health risk behaviours would be partly mediated by coping styles.

In order to test the main hypothesis, structural equation modelling was used to determine whether coping styles mediated the relationship between state dominance and health risk behaviours. The relationship between the main variables were examined using EQS structural equation modelling (SEM) programme (Bentler, 2000). SEM allows complete and simultaneous tests of all the relationships, an assessment of the overall model and the examination of mediating variables within the model. Although this technique cannot confirm causality, it verifies if the specified model is the best fit for the data (Ullma, 2001).

Building the path diagram: A model was built by testing a series of linear equations to represent the hypothesised relationship between the main variables. A path diagram was used to pictorially represent the hypothesised set of relationships in the model. In accordance with conventions for diagrammatically presenting a path model (Bollen, 1989), the independent variables (state dominance) occupy the left side of the diagram, the dependent variables (health risk behaviours) on the right, and the mediating variables in the centre (see [figure 6.2](#)).

Figure 6.2: Path diagram of mediation model



Key

Factors

- F1 = State dominance
- F2 = Coping styles
- F3 = SUB.MISUSE
- F4 = VIO.SAD.SUI

Variables

- V3 = Total negativism score
- V4 = Productive coping
- V5 = Unproductive coping
- V6 = Reference to others
- V7 = Total telic score
- V8 = Violence
- V9 = Sadness & hopelessness

Variables

- V10 = Suicidality
- V11 = Tobacco use
- V12 = Binge drinking
- V13 = Marijuana use
- V14 = Hard drug use
- V16 = Physical inactivity

Table 6.16: SEM Goodness of fit indices

Bentler-Bonett normed fit index	.809
Bentler-Bonett non-normed fit index	.854
Comparative fit index (CFI)	.896
BOLLEN'S (IFI) fit index	.900
McDonald's mean (MFI) fit index	.938
Root mean-square error of approximation (RMSEA)	.048*
90% confidence interval of RMSEA	.033, .062

The measured variable (PHY.INACT) is presented by a rectangle, the factors (state dominance, coping styles, SUB.MISUSE, VIO.SAD.SUI) which each have two or more indicators are represented by circles and relationships between variables are indicated by lines. The direction of arrows shown in the diagram give the predicted direction of the relationship between two variables. Lines which have one arrow represent the hypothesised direct relationship between two variables, and the variable with the arrow pointing to it is the dependent variable. A line with an arrow at both ends indicates an unanalysed relationship, simply a covariance between the two variables with no implied direction of effect.

Testing the model: In order to test the strength of association between variables, parameter estimates were calculated. Standardised parameters when squared, give the percentage of variance specific to the variable. The first method of model fit checks that the residual covariances left after relationships expressed in the model have been taken into account are low. While chi-square test can be used to assess whether the unexplained covariance is significantly greater than zero, a non-significant chi-square is rarely obtained with a large sample size (Bentler & Bonnett, 1980) as relatively trivial discrepancies between observed and hypothesised parameters may lead to significant chi-square values (Dunn et al, 1993). Hence, the Bentler-Bonnett indices were used to assess goodness of fit. Indices range from 0-1, with values above 0.9 indicating the data to be a good fit for the model. The Root Mean Square of Approximation (RMSEA: Browne & Cudeck, 1993) is a measure of fit that takes into account a model's complexity where a RMSEA of 0.05 or less indicates a good model fit.

Three indices are given: (1) the normed fit index, (2) the non-normed fit index, and (3) the comparative fit index. Inspection of [table 6.16](#) indicates that the indices reflecting the model fit accord with one another, which serves as an indication of the robustness of the model. The comparative fit index (CFI) score was .896 and the root mean-square error of approximation (RMSEA) was .048 indicating that the model was a good fit. Interestingly, coping style was found to mediate the relationship between state dominance and VIO.SAD.SUI, however, no mediation effect was found for SUB.MISUSE or PHY.INACT. Partial support for the main hypothesis (H4) was found given that the association between state dominance and violence, sadness and suicidality was mediated by coping styles, while a mediation effect was not found for substance misuse or physical inactivity.

6.5) Summary

In support of previous work (Lowry *et al.*, 2002; Miller *et al.*, 2007; Peters *et al.*, 2005; Siebenbruner, 2007), adolescents engaged in a wide range of risky activities that were potentially counterproductive to the maintenance of their health and welfare. Exploration of the motivational factors and personalities of young people using the theoretical framework of reversal theory (Apter, 2006) allowed for an explanation of the individual differences underlying the nature and extent to which young people take risks.

State dominance & health risk behaviours: Adolescents with high scores on telic dominance and low scores on negativistic dominance were less likely to engage in health risk behaviours. In particular, high scores on negativistic dominance strongly predicted those young people who were most likely to partake in health compromising risk taking, including substance misuse, violence, suicidality and physical inactivity. These findings provide supportive evidence to previous work reporting that negativistic dominance may increase a young person's propensity to partake in dangerous risk taking (Doherty & McDermott, 1997; O'Connell *et al.*, 2004).

Analysis also revealed that the sex and age of adolescents were also significant predictor variables in determining whether the young people engaged in health risk behaviours. That is, males were significantly more likely than females to be negativistic dominant and to score low on telic dominance. Although this has often been attributed to cultural or sex role differences (Apter, 2001), others have proposed that it might actually be due to gender differences in the actual experience of risk activities (Kerr & Vlaminkx, 1997). This study found that there was a significant interaction between gender and state dominance. This may indicate that for females who were more likely to be conformist, and be in the telic state, they experienced risk activities as anxiety (rather than excitement associated with the paratelic state), therefore, were deterred for pursuing such activities. Indeed, this explanation would be in line with earlier work conducted with teenage risk takers (Braathen & Svebak, 1992). Although contradicting the findings of Chirivella & Martinez (1994), the data also supported research confirming the popular belief that younger adolescents take more risks than older adolescents (Trimpop *et al.*, 1999).

State dominance & coping styles: Adolescents with low scores on negativistic dominance were less likely to use the unproductive coping style. This finding confirms earlier studies suggesting that when negativistic dominance becomes extreme, maladaptive coping occurs (Apter, 1996 O'Connell *et al.*, 2004). Thus, it may be that negativistic dominance is more associated with difficulties coping with feelings produced by responding to what are perceived to be unjust or unreasonable interpersonal requirements (Turner & Heskin, 1998), as well as feelings associated with the need to engage in oppositional behaviour for the sake of heightened arousal and gaining excitement (McDermott, 2001). Furthermore, higher scores on telic dominance were associated with greater use of reference to others coping style. It appears logical that those young people who were more likely to be serious-minded and plan their activities were also more inclined to seek help from others in dealing with stress. Similar findings were reported by Oliver *et al.*, (1999), however, it is important to note that this outcome may also be indicative of gender differences in telic dominance and help seeking behaviour. In support of a large body of research (Brannigan, 2007; Chang, 2007; Good & Wood, 1995), the current study found that females were more likely to seek help in dealing with stress, as well as being more telic dominant, compared to males.

Coping style & health risk behaviours: Adolescents with high scores on productive coping and reference to others and low scores on unproductive coping style were less likely to engage in health

risk behaviours. These findings provide supportive evidence for research demonstrating that adaptive coping strategies contribute towards the maintenance of healthy behaviours (Staempfli, 2007; Steiner *et al.*, 2002) and highlight the importance of therapeutic interventions which aim to broaden young people's coping repertoire (Frydenberg & Lewis, 2004; Goodwin, 2006). Analysis also revealed that unproductive coping was a significant predictor of engagement in health risk behaviours. Greater use of much maladaptive strategies (e.g. self blame, avoidance, keep problem to the self) has been consistently shown to be associated with increased levels of dangerous risk taking (Brady & Donenberg, 2006; Steiner *et al.*, 2002; Romero & Ruiz, 2007), past suicide attempts (Groholt *et al.*, 2000; Meltzer *et al.*, 2005) and problem behaviours (Hallfors *et al.*, 2006; Votta & Manion, 2004).

Coping styles mediating the relationship between state dominance & health risk behaviours:

The association between state dominance and health risk behaviours (violence, sadness & suicidality) was found to be mediated by coping styles. This finding makes a significant contribution to the existing evidence base, given that the vast majority of studies have examined the association between coping, personality and health risk behaviour independently (Frydenberg & Lewis, 2004). A variety of cross-sectional and longitudinal studies have found that personality (Goodwin, 2006) and coping behaviour make a significant contribution to adolescent adjustment and engagement in health risk behaviours (Feldman *et al.*, 1994; Printz *et al.*, 1999; Seiffge-Drenke *et al.*, 2000). While attempts have been made to explore mediation (Brady & Donenberg, 2006; Campbell, 2005) an effect was not demonstrated. This may have been due to the limited range of coping strategies explored in such research (coping to escape, shame coping), in contrast to the current study (productive, unproductive & reference to others coping styles).

It is interesting to note that a mediation effect was not found for substance misuse or physical inactivity. It could be argued that such risk activities may be more strongly associated with other possible mediators. For example, studies indicate a high level of social disadvantage among young substance users (Crome *et al.*, 2000, Ellickson *et al.*, 2001), including poverty and lack of community support structures (Brook & Brook, 1990). Furthermore, early onset of alcohol and tobacco use, the major predictors of further substance use (Best *et al.*, 2000), are greatly influenced by family behaviour (Crome *et al.*, 2004). Similarly, physical inactivity and sedentary lifestyles have been found to be heavily influenced by social (Brodersen, 2007), environmental (Li *et al.*, 2006) and familial (Baba *et al.*, 2006) factors. Further work should incorporate such factors in exploring mediation models.

A more in-depth discussion of the results, limitations and recommendations from the school based population will be presented in [chapter 8](#). Most notably, the relatively modest explanatory power of the results reported and the implications of this in terms of the clinical interpretation of the findings will be considered. The following chapter outlines the qualitative findings stemming from the accounts of young people who experience psychosis (see [chapter 7](#)). Given that both commonalities and discrepancies were found in the results from the school based and clinical populations it was considered important to discuss them together in the context of the existing evidence base.

Chapter 7: Adolescents who experience psychosis: *their experiences, motivations, coping styles & risk taking behaviours*

7.1) Introduction

As discussed in [chapter 2](#), studies examining adolescent risk taking behaviour have largely used experimental paradigms, where quantitative comparisons between clinical and non-clinical samples are assessed using standardised measures of health, social, cognitive and psychological functioning. Little research has explored young people's perspectives and the ways in which they attempt to understand their experiences of risk taking and identify their efforts to cope. Accounts of why young people engage in risk taking behaviours have tended to focus on young people as 'victims' (Stead *et al.*, 1996). Very little has been written on the voluntaristic aspects of risk taking. Of the few studies that have been conducted, they have explored the meanings of risk and pleasure around drug use (Hunt *et al.*, 2007), risky sexual behaviours (Dancy *et al.*, 2006), running away (Martinez, 2006), youth violence (Kulig *et al.*, 2005) and experimentation (Dworkin, 2005). Taken together, these studies report that young people described a deliberate and functional process of experimenting with a variety of risk behaviours. This included articulating the ways in which youth culture promotes participation in risk taking as developmentally appropriate experimentation. The extent to which young people engage in a variety of risky activities was also found to be influenced by social settings and peer groupings. These findings are similar to previous work putting forward the notion that risk taking can act as a means of creating a shared cultural identity (Denscombe, 2001), as a method of individuation from their parents (Harrop & Trower, 2001) and engaging with a cohort group (Lightfoot, 1997).

To date, no studies have explored the personal meanings, motivations and risk taking behaviours of adolescents who experience psychosis. This is in the context of a growing body of research that has indicated that such young people may be more at risk of engaging in health compromising behaviours (Stefanis *et al.*, 2004). People who experience psychosis have a mortality rate three times higher than people in the general population, with most of this excess attributable to heavy tobacco and alcohol use (Brown *et al.*, 2000) and high rates of suicidality (De Hert *et al.*, 2000). Of the few studies that have incorporated the perspectives of young people with psychosis, they have examined stigma (Knight *et al.*, 2003), experiences of employment (Marwaha, 2005), evolution of symptoms (Corcoran *et al.*, 2003), the experience of being in a hearing voices group (Coupland, 2002), and treating first episode psychosis (O'Toole *et al.*, 2004). Such research has provided insight into the experience of psychosis using first person accounts and has informed therapeutic interventions and clinical guidelines (e.g. SIGN, 1998; NICE, 2002). The clinical relevance of service users' perspectives for both psychological and pharmacological treatments may improve possibilities in individualising treatment to better meet their needs (Naber, 2005).

Nevertheless, the need for further research on the biographies of adolescents living with psychosis and the narratives shaping their experiences of risk taking is recognised (Sollberger, 2002). Such work may extend current conceptualisations in this field of investigation and provide useful information in terms of future service development.

This chapter introduces data gathered using a multi-method approach incorporating the perspectives of young people who experience psychosis (n = 10). It aims to build upon the findings stemming from the quantitative findings from the school based population (see [chapter 6](#)) through administering both the standardised measures as well as obtaining qualitative data to provide a deeper understanding of the experiences and personal meanings associated with risk taking for adolescents who experience psychosis.

To recap from [chapter 5](#), the specific research questions to be addressed are:

- Q1) What are adolescents' personal meanings and experiences of living with psychosis?
- Q2) How do young people who experience psychosis cope with stress?
- Q3) How do adolescents who experience psychosis perceive their risk taking behaviours?

The process of gaining access, the measures used and analysis performed were discussed, in full, in [chapter 5](#). In summary, the young people with psychosis were recruited via senior staff at an early intervention service in a psychiatric hospital. A multi-method research design, consisting of a semi-structured interview schedule and standardised measures of state dominance, coping styles and health risk behaviours were administered. Each interview lasted between 29 and 55 minutes. Individual interviews were transcribed for analysis using the interactive model (Huberman & Miles, 1994) and the data was managed using the NVIVO software package. Transcription of the interviews resulted in 28,371 words in text to be coded and analysed. The process of analysis entailed using 'tree' nodes and emergent 'free' nodes to code the data. These were then analysed further to establish patterns and associations across 'tree' and 'free' nodes. However, piecing together an overall picture involved weighing up the salience of what the participants had to say, as well as examining the multiplicity of evidence presented in support of the emergent themes that were identified.

Despite the fact that young people were interviewed separately and on different occasions, the themes to emerge from the qualitative and quantitative data were similar. They have therefore been reported together in this chapter. Differences between the young people's accounts are highlighted. As recommended when using the interactive model (Millward, 2000), given the small sample size (n=10) the statistical outcomes stemming from the quantitative measures were examined on an individual case by case basis in association with the qualitative findings. Consequently, numerical data for each individual participant or the total sample are not detailed. In illustrating the themes from the data, any names used in the interviews have

been changed to pseudonyms. Words or phrases inserted to make meanings clearer are enclosed in brackets (). Sections of quotations that have been edited are indicated (...). Finally, a summary of the results in the context of the existing evidence base is presented. A full discussion of the findings, the limitations of the study and recommendations will be provided in [chapter 8](#).

7.2) Results

The major themes that emerged from the data were (7.2.1) Uncertain identities, (7.2.2) Disruption to life experiences, (7.2.3) Difficulties in coping and (7.2.4) Personal meanings and motives for risk taking. In line with the analytical process of the interactive model (Huberman & Miles, 1994), a ‘data display’ procedure detailing the main themes and their subordinate themes was adopted. Each of the data display models reveals different, although overlapping, themes relating to young people’s experiences of living with psychosis and their risk taking behaviours. No causal paths are assumed in the models. How themes are presented pertains to the attributions made by the young people in the process of making sense of their experiences. While the themes are presented here in an organised fashion, it is important to remember they were often interconnected.

A participant identification code [PIC] was given to each young person who took part in the qualitative interviews. Direct quotations have been included in the data display models and in the context of discussion surrounding the research findings in brackets (). In addition, short quotations have been included in speech marks ‘ ’ and more in-depth quotations have been included followed by PICs which are presented in square brackets []. Information concerning the participants’ demographical background is detailed in [table 7.1](#).

Table 7.1: Background information relating to young people who experience psychosis

PIC	Age in years	gender	Presenting problems (accompanying psychosis as primary diagnosis)	Contact with mental health services in years	Number of hospitalisations
A1	18	Female	Anxiety & interpersonal difficulties	4	2
A2	18	Female	Anxiety	2	1
A3	17	Female	Depression & anxiety	1	0
A4	18	Female	Mania & low mood	3	1
A5	18	Female	Anxiety	2	1
A6	18	Male	Substance misuse	2	1
A7	17	Male	Aggression & attention difficulties	1	0
A8	16	Male	depression	2	0
A9	18	Male	Mania & low mood	5	1
A10	18	Male	Social anxiety	1	0

7.2.1) Uncertain identities

[Figure 7.1](#) displays the subordinate themes and data extracted to illustrate the main theme of uncertain identities. This relates to the young people’s personal meanings and experiences of living with psychosis, and how their sense of self had become a matter of uncertainty. Quite apart from the problems of status ambiguity associated with being diagnosed with psychosis (as sick person, ill patient) and the difficulties

this created for them in terms of developing a coherent sense of self, there were other factors which exacerbated the uncertainty. Adolescence itself was viewed by the young people as being a time when the certainties of the past (being cared for by parents, child status, having decisions made for you) gave way to a situation characterised by a greater level of uncertainty, skepticism and irreverence. There was one specific aspect of this context of uncertainty which had particular significant bearing on the issues raised by the young people. Factors that served as referent points for identity in the past (peer group, school, parents) no longer operated with the same force or clarity.

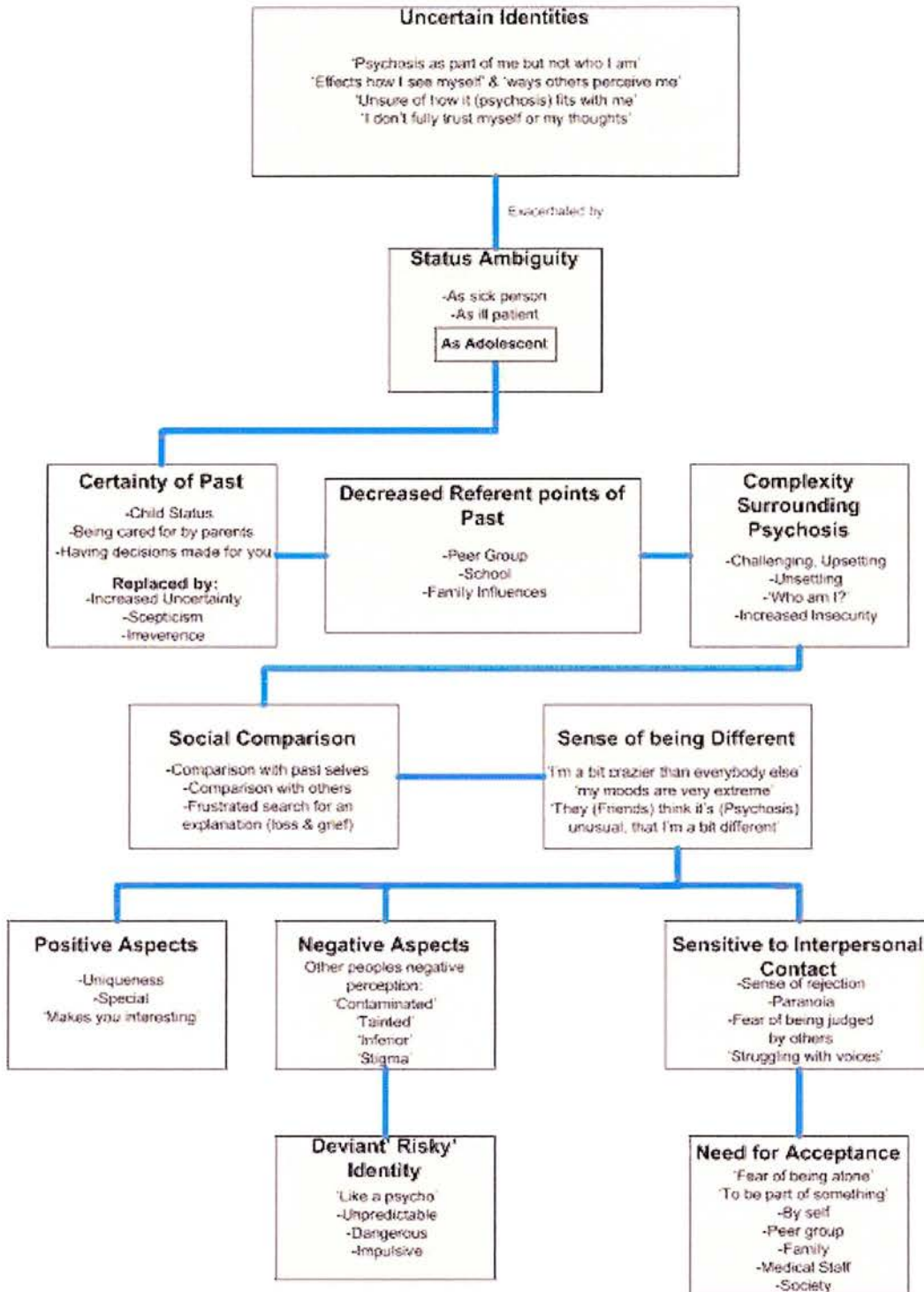
Uncertainty surrounding self identity also stemmed from the sheer complexity surrounding the concept of psychosis. Young people described how having a diagnosis of psychosis was 'challenging' and 'unsettling' in terms of establishing a coherent and consistent vision of 'who I am'. It had direct implications for the everyday experienced lives of young people who faced increased levels of insecurity associated with other people's negative perceptions of psychosis (dangerousness, fear, unpredictability). The stigma surrounding psychosis was something that the young people were aware of and it was something they perceived as 'problematic'.

Social comparison captures young people's tendency to compare themselves with past selves. They talked about their difficulties (of social life, going to college) by invoking what they used to be able to do (comparison with past selves) and by highlighting what other people are capable of doing (comparison with others). They also compared themselves with those less fortunate than themselves (terminally ill, homeless people) to emphasise their existing strengths. However, these comparisons were often experienced as counterproductive as they made them worry about their own futures. The uncertainty and ambiguity associated with psychosis and the young people's frustrated search for an explanation meant that social comparisons tended to emphasise loss and grief. This point was illustrated by one young person who drew reference to the onset of his psychosis:

I didn't trust anyone, I felt I couldn't even trust myself or my own thoughts...I suppose its kind of a good thing that I don't fully trust myself and believe all the delusions I have cos if I did I'd get ill...it was difficult to go back to school or to be around my friends. So I felt alone and like I had lost everything [A10].

Living with psychosis said something about the young people's sense of identity. It was not just a matter of what it symbolised to others, but of what it symbolised in terms of their construction of the self. How other people perceive psychosis and what it says about 'the person you are' was weighted against other factors that contributed towards how they perceived themselves. They had different opinions in terms of what it said about self identity. For some of the young people 'being psychotic' set them aside from others and made them 'kind of special'. It allowed them to adopt a symbol of 'the outsider' as being a positive aspect of self identity which made them feel 'unique' and 'different'.

Figure 7.1: Data display model 1



At the same time, all of the young people acknowledged that psychosis is often portrayed in a negative way. They recognised that in telling other people about their psychosis they ran the risk of embracing an

identity which, whatever it meant to themselves, was often seen as ‘mad’, ‘crazy’, ‘bad’, ‘scary’, ‘dangerous’, ‘weird’ and ‘unpredictable’ by others.

In accordance with young people who felt that accepting their diagnosis invited the possibility of being ‘tainted’ or ‘contaminated by illness’, one young person drew upon how she felt ‘inferior’ in comparison to others:

Stuff that’s classed as psychosis is stuff that I have dealt with all my life so it’s pretty normal to me...its voices (pauses), I see things ... it’s hard for me to discern what is and what isn’t psychosis...I didn’t like telling any of my friends about it. I think if I say the word psychosis to someone it sounds really big and scary. It’s quite a big part of me, em, it affects a lot of the ways in which people perceive me, I mean it’s always quite nice to be a bit different, but there’s lots of bad bits. The whole topic is a bit dangerous. If you expose too much they (friends) tend to read into it and decide that because you’ve got this (psychosis) you are not allowed in public with them because you’re weird...it’s like being damaged in some way [A3].

The young people were concerned with the uncertainty surrounding their sense of self and were motivated to make sense of it. In order to achieve this they drew upon the responses of others for confirmation yet expressed their sensitivity to interpersonal contact. Their vulnerability towards misinterpreting other people’s responses and interactions and how they struggled with ‘the voices’ were recurrent concerns raised by the young people. In adopting a referent group who were also ‘psychotic’ and perceived as ‘not normal’ the young people were susceptible to adopting a ‘deviant’ or ‘risky’ identity. One young person drew upon her experience of attending therapeutic groups to illustrate this point:

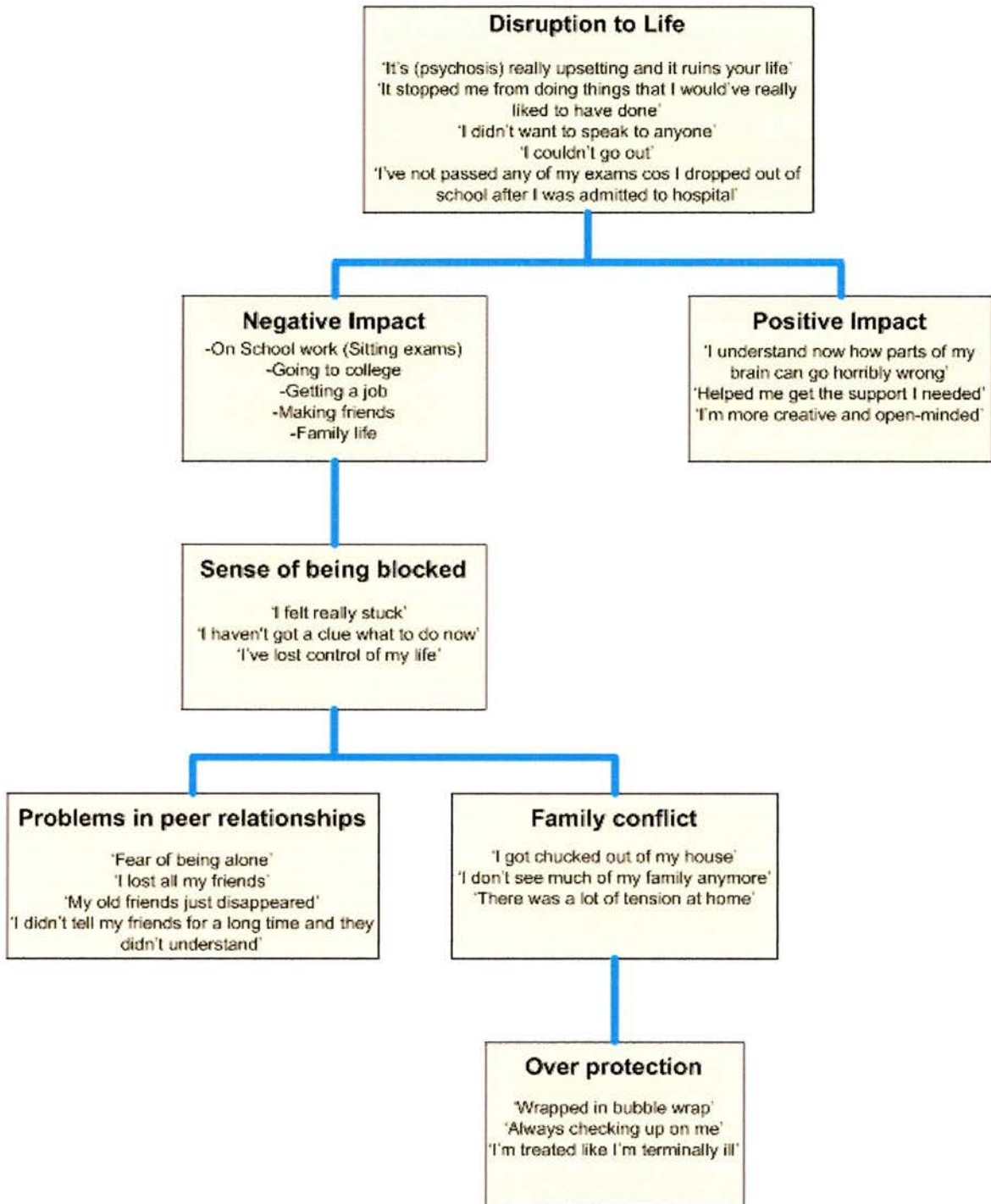
Its kind of weird, like going to (therapeutic) groups and knowing that there are other people that have similar problems to me (pause), that can be quite nice, you know to feel part of a community of people cos it can be quite isolating when you hear voices or you realise that your moods are uncontrollable. Suddenly you don’t want other people to know so you don’t want to be around them...but its also scary to be around people that can be struggling more than you are, like to think ‘am I really like them?’, ‘is that how other people see me?’...you know, getting locked away into that (identity) with no way out [A4].

The uncertainty surrounding psychosis and the impact this had on young people’s sense of self led to them expressing their need to be accepted (by self, peer group, family, medical staff, society) and their fear of being judged and/or rejected by others.

7.2.2) Disruption to life

Figure 7.2 encompasses relevant data extracts and subordinate themes to illustrate the main theme of disruption to life. While many of the young people described positive aspects of living with psychosis (more creative, better understanding of own difficulties, helped get support needed), all of them emphasised the negative impact on their lives (on school work, sitting exams, getting a job, making friends, family life).

Figure 7.2: Data display model 2



They described a sense of 'being blocked' and that they had subsequently 'lost control' over the course of events in their lives. This point is illustrated by one young person's account of how both she and other young people felt 'stuck' following the onset of their psychosis:

For a long time I just felt really stuck. I mean when I chat to some of the other young people like me (with psychosis) and when I ask them 'what are you planning on doing' they often just go 'oh nothing' and I will question this and they will say 'oh well I can't get a job' and no matter how much they are told, or how much they believe that they could, they and society with them seem to think that 'oh well you've got mental health problems, you can't get a job' which isn't good [A5].

One particularly problematic consequence of such disruption related to problems in peer relationships. Young people drew attention to how 'symptoms' of their illness (acting on my delusions, talking to the voices) had contributed towards 'screwing up' friendships.

They described how friends had been 'scared off' by such behaviours which they found 'bizarre', 'scary' and 'annoying'. While they placed importance on peer relationships (they help pick me up when I'm down, I can talk to them), they expressed their difficulties in developing and maintaining friendships. The experience of 'losing friends' and 'being alone' was captured by one young person:

I feared being alone and that I would lose all my friends and stuff like that eh, and it was becoming a bit of a reality and with getting chucked out of my house and stuff like that ... well my old friends just disappeared, I mean I told some of them (about psychosis) and they were alright about it (pauses) but they just started going about with other people so, I just left them, I lost some of my friends [A6].

Another major issue raised by the young people concerned family conflict and how 'being ill' had contributed towards 'tensions' and 'arguments' within familial relationships. They worried about conflict yet sought to be more independent regarding their families. A couple of the young people had been 'chucked out' of the family home and had little contact with their parents or siblings. Others spoke of how they felt their family had become overprotective towards them following the onset of their psychosis (I'm like their sick child that needs to be looked after, its like I'm terminally ill). This caused great frustration, as one young person pointed out:

Like with my parents, they've been really helpful but they have also wrapped me in bloody tons of bubble wrap, I'm in a bubble basically and I can't get out of it, I'm very overprotected...it's as if I'm fragile and I could break at any minute, it drives me mad [A1].

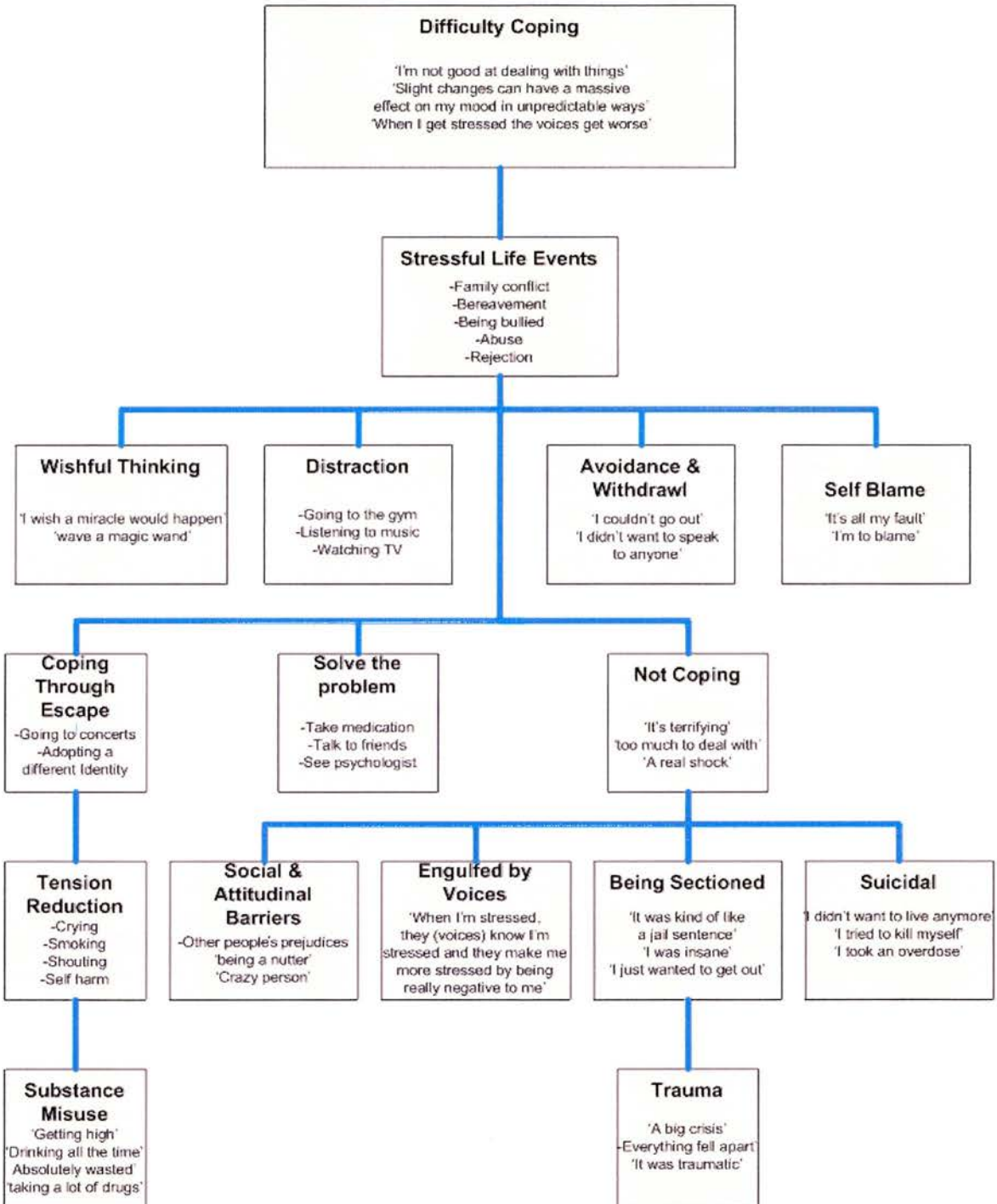
Consequently, such young people found it difficult to 'move on' with their lives and described the experience of 'walking on egg shells' as a means of trying to avoid conflict or confrontations. At other times they 'rebelled' against their parents as a means of asserting their independence.

7.2.3) Difficulties in coping

Diagram 7.3 details the extracts and subordinate themes relating to the main theme of difficulties in coping. As was found with the data collected using the ACS (Frydenberg & Lewis, 1993), young people struggled

to deal with their experiences of psychosis. They attributed the onset of their psychosis as stemming from a wide range of stressful life events (family dysfunction, bereavement, being bullied at school, abuse) and recognised that such stressors had exceeded their personal resources for coping.

Figure 7.3: Data display model 3



In their efforts to cope, young people used a broad range of strategies, some of which were effective in alleviating the distress they experienced (talk to friends, go to the gym, see psychologist, take medication, distraction techniques). All of the young people made reference to unproductive mechanisms (self blame, avoidance, withdrawal, wishful thinking, dangerous risk taking) which often exacerbated their difficulties.

The most frequently used methods of coping involved tension reduction strategies (crying, shouting, self harm, smoking) and escape behaviours (adopting a different identity in writing short stories, going to concerts). Young people who expressed their motivation to cope through escape were also more inclined to misuse substances (binge drinking, taking drugs, getting high). For those young people who expressed their inability to cope this was often in the context of the problems associated with the 'symptoms' of psychosis (hearing voices, delusions, paranoid thinking). At the same time, they also described their struggle in coping with the social and attitudinal barriers they faced as a consequence of other people's prejudices towards being a 'psycho', 'crazy person' or 'nutter'. The challenge of coping with the ongoing stigma of psychosis, profoundly impacted on how they perceived themselves. They were at risk of becoming engulfed by psychosis, such that all aspects of self become defined by 'the illness'. One young person illustrated this point whilst describing his experience of being sectioned:

I started being delusional and thinking really paranoid ...like that contributed towards me becoming sick... getting really unwell and being sectioned. To begin with I was really scared, I thought I was insane, like when I'm stressed they (voices) know I'm stressed and they can make me feel more stressed by being really negative. I mean it can be overwhelming, like I ask myself 'is that how it's gonna be for the rest of my life?' [A9].

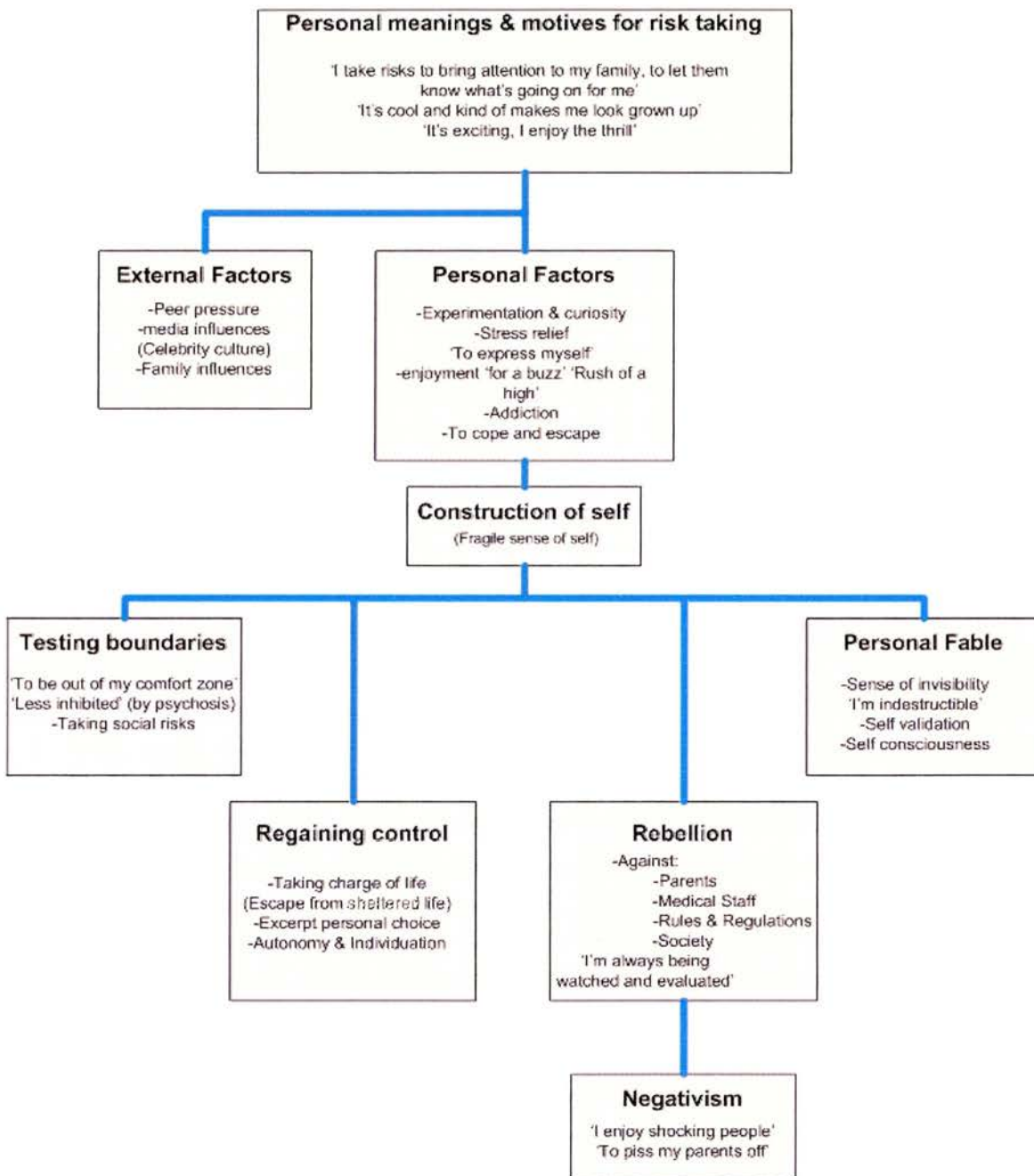
For those young people who drew reference to being sectioned and hospitalised, they spoke of the 'trauma' and 'distress' associated with such experiences. It was often equated with their inability to cope (big crisis, everything falling apart) and suicidal thoughts (I didn't want to live anymore) and attempts (I took an overdose).

7.2.4) Personal meanings & motives for risk taking

Diagram 7.4 displays data extracts and sub-themes to illustrate the final main theme concerning the personal meaning and motives of risk taking. Young people identified a wide range of factors which contributed towards the relatively high level of health risk behaviours (smoking, binge drinking, marijuana use, hard drug use, physical inactivity, delinquent acts) found amongst the young people using the YRBS (Eaton *et al*, 2005). They placed emphasis on external influences (peer pressure, family influences, susceptibility to media advertising) as well as personal factors (experimentation, sense of invincibility, stress relief, addiction, enjoyment, coping through escape).

Whilst acknowledging the contribution of such factors, they also described separate and distinct aspects of their motivations for risk taking that linked with the notion of ‘uncertain identities’. Some of the crucial symbolic significances of risk taking for young people related to the images of being ‘grown up’ and ‘looking cool’. Such factors were often regarded as fundamental in determining whether or not to take risks.

Figure 7.4: Data display model 4



However, young people also drew attention to the role of risk taking for the self, as opposed to its significance for others. Taking risks appeared to say something to the young people about themselves. It seemed to indicate, for example, that they were 'in control' of themselves and their lives. In the following extract there is a clear line of reasoning by one young person that you should be in charge of your own life and that by taking risks, you are taking and asserting that responsibility:

I think part of the reason I came unwell before... I wasn't challenging myself, I just had to do what my parents told me to do...so I'd take risks...like I was trying to find challenges in life, getting into trouble with the police and taking drugs and trying to work out stuff in life and I think that's how my delusional beliefs started, so I guess it has been really important to have something to like really focus my attention and to take charge of my life and be responsible for myself [A9].

Risk taking was not done in ignorance of the health dangers involved. It was done despite such dangers (if you don't have risk you don't have happiness). In the face of that acknowledgement, some of the young people felt prepared to take the risks whilst others did not. For those who took potentially health compromising risks (binge drinking, hard drug use), there was a tendency to stress-point that the risks were just one amongst a great many confronting them in their lives (crossing the road can be risky, it just depends how you look at it). The risk taking, in a sense, justified by an appeal to a vision of the world in which they lived as one that was inherently uncertain and risky (terrorism, wars, natural disasters).

Inspection of young people's individual scores of the TDS (Murgatroyd *et al.*, 1978) and NDS (McDermott, 1988) indicated that those who scored low on telic dominance and high on negativistic dominance were more likely to take dangerous risks. They were also more likely to attribute 'rebellion' (against parents, medical staff, society) as their primary motive for risk taking. At the same time, they seemed to share the sentiment that such risks were a matter of 'personal choice' as one young person commented:

I take risks to reap the benefits and to test the boundaries. I like to shock people and it can be fun to break the rules ... It's good to take risks cos otherwise you live too sheltered a life and you wont have any experience of life but its important not to go too far. It's important to only do it if that's what you want to do, not for someone else. You need to be your own person, it has to be your choice [A4].

Some of the young people drew a direct link between their experience of psychosis and risk taking in that aspects of their 'illness' sometimes led to them being 'less inhibited' and more inclined to take risks (when I'm delusional, I sometimes think I'm invincible). A personal fable appeared to underlie a couple of the young people's motivations for taking risks, given that they expressed their sense of being 'unique' and 'indestructible', so much so that they would not be affected by the risks they took. Nonetheless, many of the young people were aware that their risk taking behaviours had the potential to have an adverse impact on their physical and mental health and they sought to reduce the dangers associated with the risks they took.

7.5) Summary

Personal meanings & experiences of living with psychosis: As a consequence of the complexity associated with living with psychosis, how the young people perceived themselves had become a matter of uncertainty. This finding is similar to studies reporting on the ‘fragile self’ that often seems to characterise the psychotic episode (Gergen, 1994; Mollon, 1993), whereby the core of the self is displaced by the multiplicity of ‘selves’ established in relation to different referent groups (peers, family members, other service users). At the same time, the uncertainty surrounding adolescence is a normative phenomenon, typically experienced by many young people as they negotiate the many transitions and roles leading them towards adulthood (Denscombe, 2001). A wide range of factors exacerbate such uncertainty, given that the certainties of the past (child status, being told what to do) give way to greater levels of ambiguity, skepticism and irreverence (McClellan & Pratt, 2006; Rhodes *et al.*, 2005).

As has been found in earlier work (Tarrier *et al.*, 2007; Trower & Harrop, 2001), the young people described the disruption to their lives following the onset of their psychosis and how this led to them feeling ‘blocked’ and as if they had ‘lost control’ over the course of life events. A particular issue of concern raised by young people related to problems in peer relationships. While only limited work has investigated peer relationships and psychosis (Mackrell & Lavender, 2004), of the research that exists emphasis has been placed on the uncertainty surrounding the nature of such relationships before and during the course of psychosis. There is evidence, from longitudinal data, that those who develop psychosis experience pre-morbid difficulties in peer functioning in childhood compared to controls (Dworkin *et al.*, 1994). Others have presented evidence to suggest that social functioning and relationship deficits occur primarily during the pre-onset phase (McGorry, 2000). There is, however, agreement that supportive peer and familial relationships are associated with adaptive functioning in psychosis (Erickson *et al.*, 1998; Mackrell & Lavender, 2004; Meeks & Murrell, 1994). Indeed, the young people in the current study emphasised the importance of friendships despite the evident problems they experienced in developing and maintaining such networks. This finding is in support of research demonstrating a bias towards more negative relationships amongst adolescents experiencing psychosis (Mackrell & Lavender, 2004).

The young people also expressed their concern about increased levels of family conflict. Although such conflict in adolescence is usually over rule breaking and parental authority (Montemayor & Hansom, 1985), for young people who experience psychosis conflict between family members is often about who is ‘to blame’ for the illness (Barrowclough *et al.*, 2003; Fortune *et al.*, 2005; Gumley *et al.*, 2004). Much of the psychosis literature resembles the current study’s findings in that young people were often worried about arguments and tried to avoid conflict (Barham, 1993; Harrop, 2000). Paradoxically, they also sought to be more independent regarding their families, and rebellion in the form of risk taking behaviours may be one way in which some of the young people exerted their autonomy.

Coping with psychosis: The young people struggled to deal with their experiences of psychosis. They utilised a broad range of coping strategies (some of which were productive), many of which were unproductive (self blame, avoidance, wishful thinking dangerous risk taking) and often exacerbated their difficulties. In line with previous work (Brady, 2006; Escher *et al.*, 2003), the most frequently used methods of coping were tension reduction strategies and coping through escape behaviours. For those young people who expressed their inability to cope this was associated with the ‘symptoms’ of their psychosis as well as the social and attitudinal barriers they faced as a consequence of other people’s negative perceptions (psycho, nutter, crazy person) of people with mental health problems. A growing body of research has emphasised the persistent and disabling consequences of stigmatising attitudes directed towards people who experience psychosis (Birchwood *et al.*, 2007; Kinderman *et al.*, 2006; Knight *et al.*, 2003; Tarrrier *et al.*, 2007). Loss of social status and shame associated with psychosis (Birchwood *et al.*, 2007) may also partly explain the problems in peer and family relationships experienced by the young people in the current study.

Perception of risk taking behaviour: There was diversity in the young people’s personal meanings and motives for engaging in health risk behaviours. They drew attention to both external influences (peer pressure, family influences, media) and personal factors (experimentation, stress relief, coping through escape, sense of invincibility) which contributed towards their motivations to take risks. Some of the crucial symbolic significances of risk taking for young people related to the images of being ‘grown up’ and ‘looking cool’. Some of the young people sought to take charge of their own lives and taking risks was a means of asserting that responsibility. It seems that many young people search for issues on which they are able to oppose authority (Harrop & Trower, 2003) and this is also true for young people who experience psychosis. In contrast to previous work indicating that young people’s appraisals of risks and harm minimisation strategies are often flawed and contradictory (Barrett, 2005), the young people in the current study were largely aware of the dangers associated with the risks they took. Furthermore, some of the young people sought to find ways to reduce the potential negative consequences of their risk taking behaviours. Clearly, these findings have implications for therapeutic and clinical interventions which aim to improve young people’s abilities to self assess the risks they take (Ponton, 1997).

A full discussion of the findings in relation to the existing evidence base and in the context of the findings stemming from the school based population is provided in the following, final chapter.

Chapter 8: Discussion, recommendations & conclusion: *Ways forward for academics, service providers & policy makers*

8.1) Introduction

This chapter aims to bring together the main strands of this thesis, highlighting the unique contribution the research has made in the context of current conceptualisations of young people and risk taking behaviours. This study builds upon the extensive research and ample statistical evidence which suggests that young people engage in a wide range of risky activities which have the potential to negatively impact on their general health and well being (Carr-Greg *et al.*, 2003; Feldstein & Miller, 2006; Koezuka *et al.*, 2006; Lowry *et al.*, 2002; Miller, 2007; Peters *et al.*, 2005; Sheild *et al.*, 2005). It contributes towards the growing body of literature which explores mediators which may influence the impact and increase young people's resiliency (Apter, 2006; Caspi *et al.*, 1997; Fisher, 1999; Frydenberg, 2004, Harris *et al.*, 2002). The shift in emphasis from a problem orientated approach to understanding the research problem to a focus on more adaptive mechanisms and recognising the potential positive aspects of risk taking, represents a significant development in the conventional body of research literature (Michaud, 2006). It has also given a voice to young people who experience psychosis, given that they have received little focused attention in previous work (Harrop & Trower, 2003), despite evidence to suggest that they may be more susceptible to engaging in health compromising behaviours (Stefanis *et al.*, 2004).

In adopting a multi-method (quantitative & qualitative) approach and gathering data from multiple perspectives (school based & clinical population) it was possible to identify both shared themes and points of divergence in terms of the research hypotheses and questions explored. While debate over the merits of quantitative versus qualitative methods is ongoing in the academic community (Sciarra, 1999), increasing support for integrating the two approaches building on their complementary strengths has emerged (King *et al.*, 1994; Stanley & Temple, 1995). It is also increasingly recognised that all data collection, quantitative and qualitative, operates within a cultural context and is affected to some extent by the perceptions and beliefs of the investigators (Willig, 2001). That is, analytical synthesis can be systematic and scientific and that merging different approaches and research findings is both possible and desirable (Ponterotto & Grieger, 1999). Although, a higher order analytical synthesis of the data-sets (Gough, 2007) was out with the scope of the current research, it was possible to identify the thematic priorities for young people. The following themes of particular significance for adolescent involvement in health risk behaviours were identified: (8.2) The importance of mediation models, (8.3) Understanding the developmental context, and (8.4) Special considerations for young people who experience psychosis. While it is recognised that there are limitations to the current study and areas in need of further investigation, recommendations for future research, service provision and policy and legislative frameworks are made. This final chapter ends with a summary of the conclusions arising from the work.

8.2) The importance of mediation models

A large volume of research has investigated adolescent involvement in health risk behaviours such as substance use, violence, suicidality, physical inactivity, risky sexual activity and unhealthy dietary intake (Olshen, 2007). Broad areas of inquiry within the literature examine the negative consequences for young people and the inter-relations among various adolescent risk behaviours (Barnes *et al.*, 2002; Farrell *et al.*, 2000). Typically, involvement in one behaviour is found to be positively associated with involvement in other risk behaviours (Willoughby *et al.*, 2004). Indeed, the current study found a high level of co-variance between different risk behaviours using factor analytical technique.

Although extensive work has focused on understanding and identifying the extent to which young people engage in individual risk behaviours, few studies have tested whether a given set of variables predicts a wide range of risk behaviours in the same study sample (Busseri *et al.*, 2006). Furthermore, little work has explored mediation models in order to determine the inter-relationships between predictor and outcome variables (Baron & Kenny, 1986). As a result, collective knowledge concerning common predictive factors for a wide range of risk behaviours comes primarily from studies in which correlates of individual risk behaviours are explored (Cooper *et al.*, 2003; Fleming *et al.*, 2004; Hawkins *et al.*, 1992; Petraitis *et al.*, 1995). In contrast, the current study examined correlates (state dominance & coping styles) of multiple health risk behaviours as well as testing whether coping styles (productive, unproductive & reference to others) mediate the relationship between state (negativistic & telic) dominance and health risk behaviours. As discussed in [chapter 6](#), analysis revealed that coping style mediate the influenced of state dominance and violence, sadness and suicidality. This finding provides supportive evidence for extensive research which has emphasised the importance of coping as a mediator for influencing psychological well-being and future adaptation in adolescence (Herman-Stahl & Stemmler, 1995). Coping has been found to mediate the relationship between a wide range of factors relevant to adolescent development, including interpersonal conflict and romantic attachment (Rodrigues & Kitzmann, 2007), self esteem and depressive symptoms (Prelow *et al.*, 2006) and family conflict and economic strain (Wadsworth *et al.*, 2002).

While the current study did not find a mediation effect for substance misuse or physical inactivity it is possible that other mediators may be of more importance. That is, certain risk behaviours may be specific to some contexts, thus more related to social or cultural determinants than to adolescent status itself (Jessor, 1991). For example, for young people who live in poverty, behaviours that are usually considered deviant may represent a solution for survival (Costello *et al.*, 2007). Furthermore, familial factors such as attachment style (Armitage & Harris, 2006) and parental health status (Bentov, 2001) have been found to be mediators influencing adolescent engagement in health risk behaviours. Clearly, such research demonstrates the importance of further work in this field testing diverse mediation models in order to strengthen the current evidence base concerning adolescent risk taking.

8.3) Understanding the developmental context

When interpreting the current study's findings from both the school based and clinical population, it is important to consider the developmental factors associated with adolescence. Adolescence is a transitional period during which there are profound transformations in emotional, cognitive, and behavioural systems (Everall *et al.*, 2005). Examining developmental processes such as identity formation, cognitive development, and autonomy-seeking may be helpful in determining why the prevalence of risk taking behaviours are so high during adolescence (Michaud, 2006). In addition to the biological events of puberty, enormous social, emotional, and cognitive transitions take place (Kingery *et al.*, 2006). Although the importance of developmental factors in adolescent emotional distress has been well recognised (Borst *et al.*, 1991; Nimwegen *et al.*, 2005), research into the influence of such processes on risk taking has been limited.

Adolescence is a period of self-discovery when internal and external factors impact on young people's increasing awareness of who they are, what they believe in, where life is taking them, and how they fit into a complex society (Turner-Henson & Habermann, 2005). According to Erikson (1968), the central task of this developmental period is to resolve the issue of identity versus identity confusion. The healthy resolution of young people's exploration of the world and their relationships with others results in the establishment of a clear sense of personal identity that joins the past, present, and future into a strong and meaningful sense of self (Arnett, 1999). Those who have difficulty achieving an identity often struggle to discover their role in life, have difficulty coping with challenges and responsibilities, and are vulnerable to identity confusion (Rose, 2006). Research has shown that young people with uncertain identities show greater levels of inner confusion, agitation, dissatisfaction, unhappiness, and depression implying a reduced capacity for coping with stress (Kidwell & Dunham, 1995; Meeus, 1996; Meeus *et al.*, 1999, O'Connor, 1995). Furthermore, identity difficulties, as well as being associated with maladaptive coping, may be a significant risk factor for engagement in dangerous risk taking activities (Stillion & McDowell, 1991).

While the issue of identity formation was not directly tested in the current study, it is possible that such issues may have influenced state dominance, coping styles and involvement in health risk behaviours. Indeed, Apter & Smith (1976) proposed that negativism can serve a variety of functions including gaining independence, performing attention seeking behaviour, experiencing excitement and breaking up the status quo. Negativism is often activated in the service of identity development (Apter, 1983) and serves to enhance a sense of personal distinctiveness from others and a sense of personal autonomy and control (Apter, 2001). At the same time, Braman (1995) postulates that such self exploration is often associated with anxiety, frustration and conflict (both internal & external). While the developmental significance of negativism has not been examined extensively in reversal theory research, the current study's findings may

offer some empirical support to this idea, given the high correlation found between high scores on negativistic dominance, unproductive coping style and engagement in health risk behaviours.

It has also been suggested that egocentrism and self-consciousness during adolescence exists because of strong pressures to live up to social and behavioural standards that have real social and personal consequences (Bell & Brommick, 2003; Peterson & Roscoe, 1991; Rycek, *et al.*, 1998). Real or imagined, adolescents' self-conscious focus can result in the development of negative feelings, criticisms, and low self-worth often associated with health compromising risk behaviours (Stillion & McDowell, 1996). The development of a personal fable, whereby young people exaggerate their importance in the world and view themselves and their feelings as unique and different may explain why many young people become disillusioned, alienated, and lonely (Elkind, 1981). The lack of life experience to see that others have survived similar problems with positive outcomes results in stressful situations being viewed as unique and inescapable. Additionally, young people are vulnerable to feelings of hopelessness because of the perception that future situations will produce continual negative outcomes (Scheier, 1996). This may partly explain the relatively high levels of hopelessness and suicidality found for young people in the current study, as well as previous work (Brezo *et al.*, 2006; Cho *et al.*, 2007; Meltzer *et al.*, 2005).

In consideration of the developmental framework and social context in which young people function, it is important to question some of the ideas and perceptions that underlie the concept of health risk behaviour. A great many articles in the existing evidence base have tended to pathologise risk taking in adolescence (Michaud, 2006). It is important to remember that much adolescent risk taking is time-limited, and many so-called risky activities are essentially exploratory or experimental and of developmental significance (Ponton, 1997). Adopting a 'static view' of risk taking ignores the importance of change and development as central processes of adolescence. Such processes are part of young people's need to discover new sensations and to master new situations that have the potential to be detrimental to their health (Apter, 2006).

It is important to not dismiss the fact that taking risks is a normative behaviour associated with adolescence and is essential for positive growth and maturation (Ponton, 1997). Further, risk avoidance has been found to be associated with underachievement, anxiety, poor self perception and reduction in aspirations (Neihart, 2006). Concentrating exclusively on the potential dangers associated with risk activities may also have a negative impact on the way the adult population perceive young people (Irwin, 2003). Instead of focusing purely on the adversities, attempts should be made to understand the role, the meaning, the motives and the potential (positive & negative) consequences of risk taking. Indeed, it would be interesting to consider promoting the concept of 'positive' risk taking as an essential tool in the life of an adolescent in that it potentially allows for discovery and establishment of self-identity (Finn, 2003). Positive risk-taking includes activities that fulfill the need for thrill seeking that are healthy and legal. For example, outdoor physical activities such as wilderness hiking and camping, skiing, snowboarding, mountain biking, or rock

climbing (Cogan & Brown, 1999). Such activities may offer an attractive alternative to other risk activities which may be of detriment to a young person's health and well-being.

8.4) Special considerations for young people who experience psychosis

A central tenet of this thesis was to explore the personal meanings and motives for risk taking amongst young people who experience psychosis. This was driven by the increased concern which has been levied at such young people given that their adjustment and global functioning is often lower than that of other young people (Castro-Fornieles *et al.*, 2007) and that they may be more prone to engage in health compromising risk behaviours (Stefanis *et al.*, 2004). Analysis from the current study revealed that while young people who experienced psychosis struggled with identity formation and the disruption to their lives associated with the onset of psychosis, many of the themes to emerge from their perspectives were comparable to those found in studies examining typical adolescent development (Smylie *et al.*, 2006). Uncomfortable turbulent experiences such as struggling to develop a sense of self, striving for greater autonomy, problems in peer relationships and family conflict are issues that were raised by the young people which appear to be extensions of 'normal' adolescent phenomena (Harrop & Trower, 2003).

At the same time, it is important to remember that there are special considerations facing young people who experience psychosis that warrant further discussion. For most young people, the turbulence associated with developmental changes is transient. In contrast, according to Harrop & Trower's (2001) theory of blocked maturation, young people who develop psychosis get trapped in this period of their lives. This may be a consequence of difficulties in gaining independence from parents, coupled with problems in peer relationships and difficulties in understanding others. When such blocks in development are severe and long lasting, they have the potential to lead to mental health problems (Griffith & Graham, 2004), of which the most severe is psychosis. In addition, such blocks can cause a profound breakdown in the development of the self. This theory appears to offer a suitable explanatory framework for the current study's findings and has been applied to other psychological issues including reactive attachment disorder (Minnis *et al.*, 2006), trauma and abuse (Bovensiepen, 2002) and adolescent violent behaviour (Vowell & May, 2000).

It is also important to recognise the difficulties facing young people as a consequence of the social and attitudinal barriers associated with the stigma surrounding psychosis (Birchwood *et al.*, 2007; Knight *et al.*, 2003; Mackrell & Lavender, 2004; Sieff, 2003). High levels of disability and difficulties in social relationships pose a substantial problem with the majority of people who experience psychosis (Lloyd *et al.*, 2005). A significant decrease in the internal and external control of one's life as well as negative changes in self perception have been partly attributed to the stigma surrounding mental health problems (Lawrie, 1999). Clearly, such findings indicate that there is a need for societal changes in how people

perceive and respond to adolescents who experience psychosis in order to assist the processes of rehabilitation and recovery from such difficulties.

However, it is undoubtedly the case that young people's abilities to cope with stress can be undermined by the symptomatic outcomes and behaviours associated with severe psychotic episodes, especially when compounded by a lack of formal or informal support networks (Escher *et al.*, 2003). This is more likely to occur when young people are inadequately or ineffectively treated or supported, largely due to the fear, stigma and isolation surrounding psychosis (Couture & Penn, 2003). Also, during times when the continuity of peer and family relationships is compromised, for example, by psychiatric hospitalisation and family separation and/or breakdown (Harris *et al.*, 1992). These issues may have particular relevance for adolescent engagement in health risk behaviours, given that during severe psychotic episodes young people are more inclined to adopt unproductive coping strategies (Bak *et al.*, 2003) and to take dangerous risks with their health (e.g. suicide attempts). All in all, young people and their families may benefit greatly from knowing more about normal adolescent development, especially given their high levels of social isolation and limited access to normalising peer groups.

8.5) Limitations of the current study

In [chapter 5](#), reference was made to the methodological and ethical issues which each stage of the research had to address. At this point it is worth re-addressing some of the key issues with the aim of providing new insights into future work in this field of investigation.

The starting point concerns the complex and demanding process of recruiting young people (school based & clinical) to the study. As has been found in previous work (Heath *et al.*, 2007), it was difficult to gain access to young people which presented a significant challenge given the limited time span to complete the work. Working in a field where the research participants were constructed as vulnerable within the research process, their potential involvement was mediated by institutional gatekeepers (senior teaching staff, health professionals). This may have influenced those who were actually recruited to take part given that, for the school based population, only those young people who actually attended school would have been approached by gatekeepers in the first instance. Those young people who were truant or off school due to illness were not included. This is an important consideration given that there is research to suggest that school non-attenders may be more likely to engage in health compromising risk behaviours (White *et al.*, 2001).

As for the young people who experienced psychosis, there were particular challenges in terms of recruitment, partly due to the severity of their mental health difficulties. The participation of young people in research involves ethical dilemmas, such as voluntary consent, legal capacity to consent, freedom of

choice, and sufficient knowledge and comprehension (Koivisto et al, 2001). According to some studies (Amador *et al.*, 1994; Saks, 1999), as many as half of patients who are ‘acutely psychotic’ may have substantially impaired decision-making abilities, including problems with understanding, appreciation and reasoning. Many of these impairments appear to be related to active symptoms of psychosis. Consequently, those young people who were most severely affected by psychosis were not included in the study. Again, it is those young people who may be more inclined to engage in dangerous risk taking (Stefanis *et al.*, 2004). Indeed, anecdotal evidence stemming from preliminary discussions with clinical staff who assisted with recruitment confirmed this to be the case. Given this to be true, the findings stemming from the small sample ($n = 10$) of young people who experienced psychosis do not represent a comprehensive picture or generalisable results. Perhaps a more holistic account could have been achieved if their perspectives had been corroborated with data stemming from other key informants (e.g. key workers; family members). Furthermore, it would have been useful to have conducted a formal assessment of the young people’s capacity to provide informed consent in addition to key worker’s recommendations to their participation. It is also important to note that participants may have withheld information about their risk taking behaviours, provided information that they felt the researcher wanted to hear and/or said what they thought were the right answers to the questions asked. Indeed, the fear, secrecy and stigma surrounding psychosis may have prevented the young people from discussing issues which they felt could further exacerbate other people’s negative perceptions of themselves. Nevertheless, their views represent a useful starting point in understanding some of the difficulties they face.

Secondly, as the data collected from the school based population was cross sectional, it was not possible to assess the temporal relationships between state dominance, coping styles and health risk behaviours. While the YRBS (Eaton *et al.*, 2005) measures a specific limited time span pertaining to engagement in health risk behaviours (e.g. measure of suicide attempt in last 12 months), it is possible that some or all of the health risk behaviours examined preceded the episodes reported. Furthermore, components of the YRBS used for the analysis were based on single item responses. While these variables have been shown to have high test-retest reliability (Brenner *et al.*, 2002), young people may have had varying interpretations of the questions asked. The accuracy would have been improved with explicit definitions or multiple questions assessing each of the main variables.

Thirdly, it is also important to note the relatively modest explanatory power of the findings stemming from the school based data. Perhaps if a larger sample of participants had been recruited, as in previous work examining health risk behaviours in a school based population (Meltzer *et al.*, 2005), the power could have been strengthened. In addition, given that partial support for the hypotheses was obtained rather than full support, caution has to be taken in making clinical interpretations of the data. While conventional null hypotheses testing abides by the notion of falsification (Popper, 1968), there have long been psychologists who are critical of the use of this approach in psychology (Cohen, 1994) given the stringency of the criteria

for rejecting the null hypotheses. Model building and model testing, as used in structural equation modeling, addresses such concerns in a manner that adding confidence intervals and effect size estimates to the common test of nulls cannot (Granaas, 2002). It provides a framework within which the nulls, even if partially rejected, are expected to be theoretically meaningful.

A further limitation of this study was that it was not possible to assess the seriousness or lethality of the health risk behaviours young people reportedly engaged in (e.g. reported suicide attempt). For example, while the YRBS does evaluate whether young people were injured and received medical intervention from a suicide attempt in the past year, it was not possible to verify the nature of this contact or the extent to which the suicide attempt was life threatening. In addition, formal screening for drug and/or alcohol use was not conducted. The data were obtained through self report and were not corroborated through other means (e.g. drug testing or screening for sexually transmitted diseases). Most studies assessing self report against objective measures of health risk behaviours have concluded that confidential self report in adolescence provides accurate and reliable data (Goddard et al, 1999), closely approximating actual behaviour (Harrison, 1995), including among different ethnicities (Wills *et al.*, 1997). Finally, although rich and informative data has been presented, it is difficult to make generalisations from the current study's findings in terms of young people from diverse social and economical backgrounds and ethnic and racial origins. The study population were predominantly of white, middle class origin. Responding to demographical differences is essential, in that research and interventions must be varied to allow for diversity in race, culture and ethnicity.

8.6) Recommendations

Ways forward for future research: While additional research on the mechanisms linking state dominance, coping styles and health risk behaviours will be critical to uniquely tailoring interventions to reduce the possible adversities associated with health risk behaviours, exploration of other mediation models may also prove useful. For example, it would be interesting to consider the role of developmental processes in which attachment with caregivers from birth shape young people's engagement in health risk behaviours in ways that are adaptive or maladaptive (Allen & Land, 1999). Interactions in families of insecure adolescents are often particularly problematic when young people strive for autonomy, creating tensions and conflict in family relationships (Allen *et al.*, 1997). Adolescents who experience their parents as insensitive and unavailable are at increased likelihood of depressed mood, poor self-regard, and aggression and hostility toward others (Scharf *et al.*, 2004). Therefore, it would be intriguing to pursue research to explore whether attachment style mediates the relationship between state dominance and health risk behaviours.

In addition, the perspectives of young people with a wide range of mental health problems (i.e. depression, eating disorders) should be explored to determine whether their risk taking behaviours parallel those of the

young people in the current study. It may be that specific health risk behaviours are associated with particular mental health difficulties. Examining this issue would provide useful information relevant to clinical interventions which aim to reduce engagement in unhealthy behaviours and increase young people's capacity to cope with stress. Finally, more representation of young people from different ethnic origins and socio-economical backgrounds is needed, in order to extend current conceptualisations of the personal meanings and motives of health risk behaviour and illuminate possible diversity.

Ways forward for service development: Any intervention or service development designed to prevent or change adolescent involvement in health risk behaviours should be founded on a clear idea of what is normative risk taking behaviour (Reyna & Farley, 2006). The findings from the current study suggest that clinical and health promotion interventions would benefit from tailoring messages to reflect the processes linking state dominance, coping styles and health risk behaviours among young people. Such programmes may be most effective by addressing the broader social and developmental context in which risk taking occurs (Sullivan *et al.*, 2004). Interventions that promote adaptive outlets for positive risk taking and emphasise the importance of maintaining health may be more likely to reduce health compromising behaviours. Young people should also be encouraged to develop productive coping strategies given that the greater use of unproductive coping was found to be associated with higher levels of involvement in health risk behaviours.

Stickley & Felton (2006) emphasised the benefits of therapeutic risk taking for promoting recovery from mental health problems. They argue that mental health workers have a responsibility to promote young people's right to freedom while at the same time protecting them from harm. The implications for mental health service providers are that they must also be aware of the normative risk taking behaviours found in adolescence and place emphasis on the importance of assisting young people to make calculated and informed decisions about their risk taking behaviours (Weingarten, 2005). In addition, the promotion of adaptive coping that emphasises maintaining healthy behaviours, effective problem solving skills, and stress management techniques is important in therapeutic interventions geared towards helping vulnerable young people.

Ways forward for policy development: In recent years, both national and international law have given increased priority to children and young people's rights, perspectives and service needs (Cree *et al.*, 2002). The adoption of the UN Convention on the Rights of the Child, by the United Nation's General Assembly, was signed in 1989 and subsequently ratified by the majority of governments world-wide, including the UK in 1991. This set out 54 Articles of the rights for children about which it was possible to achieve a broad consensus amongst nearly all nations. The Convention stated that responsibilities of national and local governments to promote and implement these rights, which are defined under the three main categories of: (1) participation, (2) protection, and (3) provision.

The rights of young people also figure prominently in British legislation, where increased priority has been placed on children's views being heard and being taken into account in social work and legal decision making processes. This is demonstrated in England and Wales under the Children Act 1989 and in more recent legislation in the Children (Scotland) Act 1995. Parallel developments are also evident in the fields of health and education, where codes of practice for consulting children and young people have been developed. For example, 'HeadsUpScotland' is the national project for children and young people's mental health, established by the Scottish Executive in 2004. Research has shown that the meaningful involvement of children and young people in decision-making about their own care, and in the planning and design of services that they use, contributes to well-being and good mental health (Children in Scotland, 2004). In addition, the introduction of the Mental Health (Care and Treatment) (Scotland) Act 2003 places a statutory duty on health boards to ensure that adequate services be put in place for young people, specifically acknowledging the difficulties faced by young people with mental health problems. The principles of the UN Convention on the Rights of the Child are incorporated into the new Act and duties are placed on local authorities to provide services for 'children in need' in relation to the Children (Scotland) Act 1995. Before making any decisions regarding service provision, local authorities are to ascertain the views of children and young people regarding matters to be decided.

The Scottish Executive (2000) also commissioned the Scottish Needs Assessment Programme (SNAP) which emphasised that all agencies and organisations have a role in supporting the mental health of children and young people. It highlighted the need for early intervention, supporting, treating and caring for those children and young people experiencing mental health difficulties of all ranges of complexity and severity. It also suggested that mental health promotion should underpin all work with children and young people, even when accessing specialist mental health services. Clearly, there is a need for policy and legislative frameworks to incorporate information on risk taking in adolescence as well as the promotion of positive risk taking as an alternative to health compromising behaviours. With these points in consideration, including what young people (with & without mental health problems) see as significant and enabling them to gain more control in shaping services in an operational policy may improve the acceptability of services provided.

8.7) Conclusion

Ongoing research has documented the growing prevalence of adolescent health risk behaviours, such as tobacco use, alcohol and other substance use, risky sexual activity, unhealthy dietary intake, physical inactivity, and intentional and unintentional injury. Behavioural and lifestyle factors, typically involving risk taking, constitute the major determinants of morbidity and mortality among adolescents. Particular concern has been directed at young people who experience psychosis given that they have been found to be more likely to engage in dangerous risk taking behaviours. While a large body of research has explored

correlates of health risk behaviours, few studies have examined mediation models. A key strength of this study was the incorporation of multiple perspectives (school based & clinical population) and a multi-method (quantitative & qualitative) approach. The study tested a conceptual model explaining how health risk behaviour may be linked to state dominance through coping style behaviour. It also included the perspectives of young people who experience psychosis, in order to explore their personal meanings and motives for engaging in health risk behaviours.

Coping style was found to mediate the relationship between state (negativistic & telic) dominance and violence, hopelessness and suicidality. Although the data cannot determine a causal relationship between such variables of interest, it is proposed that at the very least, state dominance and coping style should be considered as predictors for engagement in health risk behaviours. Further work should consider the role of other mediators, such as social or familial factors, to extend current conceptualisations in this field of investigation. Examination of the findings stemming from the perspectives of young people who experience psychosis highlighted the developmental significance of health risk behaviours. It also drew attention to issues associated with the 'symptoms' of psychosis which present further challenges to such young people in moving on with their lives. In particular, the social and attitudinal barriers associated with the stigma surrounding psychosis. Such issues need to be considered in interventions which aim to assist young people in rehabilitation and recovery following a psychotic episode.

Furthermore, clinicians, educators and other professionals working with young people should be fully aware of the developmental and social context in which adolescent risk taking takes place. Risk, risk taking, and risk behaviour are important and relevant topics for exploring in health education classes. Rather than researchers, service providers and policy makers actively 'degrading' the potential positive aspects of risk taking behaviours, by excessively focusing on negative outcomes, increased effort should be exerted into supporting and encouraging young people to make calculated and safe decisions about such behaviours. The challenge is to channel adolescent risk taking into positive, health-enhancing experiences and to provide realistic alternative options to destructive behaviours. Risk taking is essential for positive growth and maturation and it allows for discovery and establishment of personal identity. Young people's future trajectories, their health and well being, as well as their educational, vocational and social achievements are likely to be affected by their level and nature of engagement in health risk behaviours. Young people need to be presented with the opportunity to engage in positive risk taking activities and to be given information to help them make informed decisions about risk activities if their resiliency towards the potential adverse aspects is to be increased and their life opportunities maximised. Unhealthy risk taking behaviours amongst adolescents need not be random, uncontrollable, or inevitable. Instead, many factors that contribute to an adolescent's propensity to engage in such behaviours are modifiable. Importance should be placed on allowing young people to develop the capacity for assessing the risks they take and for parents, teachers and professionals to develop a comfort level for talking about such issues.

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Appendices

Appendix 1: Participant information sheet

Participant Information Sheet

Study title: Young People and Risk Taking Behaviour

Researcher: Nicola Cogan, Trainee Clinical Psychologist

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Talk to others about the study if you wish. Ask us if there is anything that is not clear or if you would like more information.

Take time to decide whether or not you wish to take part.

What is the purpose of the study?

The study aims to ask young people their views on their risk taking behaviours and coping styles and to find out how this might impact on their health. The study is a research project.

Why have I been chosen?

You are being approached to take part in the study in order to gain your perspective on how risk taking behaviours might impact on your health. We are interested in hearing young people's views on issues that impact on them.

Do I have to take part?

No. It is up to you to decide whether or not to take part. If you do, you will be given this information sheet to keep and be asked to sign a consent form. You are still free to withdraw at any time and without giving a reason. A decision to withdraw at any time, or a decision not to take part, will not effect you in any way.

What will happen to me if I take part?

If you decide to take part you will be asked to complete some questionnaires about risk taking behaviour and health. This should take about 30-40 minutes of your time.

What are the other possible risks or benefits of taking part?

It is not anticipated that there will be any risks from you taking part in the study and you will be free to withdraw from the study at any time. We cannot promise the study will help you but the information we get might help improve the health services for young people.

Will my taking part in the study be kept confidential?

Yes. All the information about your participation in this study will be kept confidential. Any information about you will have your name and address removed so that you cannot be recognised from it. With your agreement, your parent will be notified of your participation.

What will happen to the results of the study?

The results will be used to prepare a report which will be used to inform the development of health services. The report is likely to be published in August 2007. You will be able to obtain a copy of the report from Nicola Cogan on the contact details below. You will not be identified in any report/publication.

Contact for further information:

Please contact Nicola Cogan at the Hospital (address and contact details).

Thank you for considering taking part and taking time to read this sheet.

Appendix 2: Consent form (school based)



CONSENT FORM

Title of Project: Young People and Risk Taking Behaviour

Name of Researcher: Nicola Cogan, Trainee Clinical Psychologist

Please initial box

1. I confirm that I have read and understand the information sheet dated (version) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected.

3. I understand that my participation in the study will involve completing questionnaires on risk taking, personality and coping behaviour.

4. I agree to my parent being informed of my participation in the study.

5. I agree to take part in the above study.

Name of Young Person

Date

Appendix 3: Consent form (clinical group)



CONSENT FORM

Title of Project: Young People and Risk Taking Behaviour
Name of Researcher: Nicola Cogan, Trainee Clinical Psychologist

Please initial box

1. I confirm that I have read and understand the information sheet dated (version) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected.

3. I understand that all information will be confidential and my identity will be protected.

4. I understand that taking part in the study will involve completing questionnaires as well as taking part in a short audio-recorded interview

5. I give permission for my G.P. to be notified about my involvement in the study

6. I agree to take part in the above study.

Name of young person

Date

Signature

Name of Person taking consent
(if different from researcher)

Date

Signature

Researcher

Date

Signature

Appendix 4: Demographics questionnaire

DEMOGRAPHICS QUESTIONNAIRE

First some questions about you

Sex Male
Female

Age

Q1) How would you describe your ethnicity? White Scottish
Other white
Indian
Pakistan
Bangaladeshi
Other Asian
Other

Q2) where do you live? With parents
With flatmate
On own
Other

Q3) what area do you live in?

Q4) How long have you lived there?

Q5) What educational qualifications do you have?

Q6) Do you currently have a job?

Q7) Do you have any health concerns? Mental health problems
Physical health problems

Q8) Have you ever sought help from mental health services or sought help from your G.P. due to mental health difficulties (e.g. depression or anxiety)? Yes
No

Thank you for completing this questionnaire

All information will remain confidential

Appendix 5: Youth Risk Behaviour Survey

Youth Risk Behaviour Survey

This survey is about health behaviour. It has been developed so you can tell us what you do that may affect your health. The information you give will be used to develop better health education for young people like yourself.

PLEASE DO NOT write your name on this survey. The answers you give will be kept private. No one will know what you write. Answer the questions based on what you really do.

Completing the survey is voluntary. If you are not comfortable answering a question, just leave it blank.

The questions that ask about your background will be used only to describe the types of students completing this survey. The information will not be used to find out your name. No names will ever be reported.

Make sure to read every question. When you are finished, follow the instructions of the person giving you the survey.

Thank you very much for your help.

Directions

- Use a pencil only.
- Make dark marks on one response only.
- To change your answer, erase completely.

1. How old are you?

- A. 15 years old
- B. 16 years old
- C. 17 years old
- D. 18 years old
- E. 19 years old or older

2. What is your sex?

- A. Female
- B. Male

3. What year are you in at school?

- A. 1st year
- B. 2nd year
- C. 3rd year
- D. 4th year
- E. 5th year
- F. Other

4. How do you describe yourself?
(Select one or more responses.)

- A. White British
- B. Other white
- C. Indian
- D. Pakistan
- E. Bangladeshi
- F. Other Asian

5. How do you describe your health in general?

- A. Excellent
- B. Very good
- C. Good
- D. Fair
- E. Poor

6. How tall are you without your shoes on?

Write your height in the blank space

-----feet ----- inches

7. How much do you weigh without your shoes on? Write your weight in the blank space.

Weight-----Pounds

The next 4 questions ask about personal safety.

8. **When you rode a bike** during the past 12 months, how often did you wear a helmet?

- A. I didn't ride a bike during the past 12 months
- B. Never wore a helmet
- C. Rarely wore a helmet
- D. Sometimes wore a helmet
- E. Most of the time wore a helmet
- F. Always wore a helmet

9. How often do you wear a seat belt when **riding in** a car driven by someone else?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

10. During the past 30 days, how many times did you **ride** in a car or other vehicle **driven by someone who had been drinking alcohol**?

- A. 0 times
- B. 1 time
- C. 2 or 3 times
- D. 4 or 5 times
- E. 6 or more times

11. During the past 30 days, how many times did you **drive** a car or other vehicle **when you had been drinking alcohol**?

- A. 0 times
- B. 1 time
- C. 2 or 3 times
- D. 4 or 5 times
- E. 6 or more times

The next 10 questions ask about violence related behaviours.

12. During the past 30 days, on how many days did you carry **a weapon** such as a gun, knife, or club?

- A. 0 days
- B. 1 day
- C. 2 or 3 days
- D. 4 or 5 days
- E. 6 or more days

13. During the past 30 days, on how many days did you carry **a gun**?

- A. 0 days
- B. 1 day
- C. 2 or 3 days
- D. 4 or 5 days
- E. 6 or more days

14. During the past 30 days, on how many days did you carry a weapon such as a gun, knife, or club **on school property/college**?

- A. 0 days
- B. 1 day
- C. 2 or 3 days
- D. 4 or 5 days
- E. 6 or more days

15. During the past 30 days, on how many days did you **not** go to school/college/university because you felt you would be unsafe?

- A. 0 days
- B. 1 day
- C. 2 or 3 days
- D. 4 or 5 days
- E. 6 or more days

16. During the past 12 months, how many times has someone threatened or injured you with a weapon such as a gun, knife, or club **on school property/college or university**?

- A. 0 times
- B. 1 time
- C. 2 or 3 times
- D. 4 or 5 times
- E. 6 or 7 times
- F. 8 or 9 times
- G. 10 or 11 times
- H. 12 or more times

17. During the past 12 months, how many times has someone stolen or deliberately damaged your property such as your clothing, or books **on school property or college/uni**?

- A. 0 times
- B. 1 time
- C. 2 or 3 times
- D. 4 or 5 times
- E. 6 or 7 times
- F. 8 or 9 times
- G. 10 or 11 times
- H. 12 or more times

18. During the past 12 months, how many times were you in a physical fight?

- A. 0 times
- B. 1 time
- C. 2 or 3 times
- D. 4 or 5 times
- E. 6 or 7 times
- F. 8 or 9 times
- G. 10 or 11 times
- H. 12 or more times

19. During the past 12 months, how many times were you in a physical fight in which you were injured and had to be treated by a doctor or nurse?

- A. 0 times
- B. 1 time
- C. 2 or 3 times
- D. 4 or 5 times
- E. 6 or more times

20. During the past 12 months, how many times were you in a physical fight **on school property or at college/uni**?

- A. 0 times
- B. 1 time
- C. 2 or 3 times
- D. 4 or 5 times
- E. 6 or 7 times
- F. 8 or 9 times
- G. 10 or 11 times
- H. 12 or more times

21. During the past 12 months, did your boyfriend or girlfriend ever hit, slap, or physically hurt you on purpose?

- A. Yes
- B. No

The next 5 questions ask about sad feelings and attempted suicide. Sometimes people feel so depressed about the future that they may consider attempting suicide, that is, taking some action to end their own life.

22. During the past 12 months, did you ever feel so sad or hopeless almost every day for **two weeks or more in a row** that you stopped doing some usual activities?

- A. Yes
- B. No

23. During the past 12 months, did you ever **seriously** consider attempting suicide?

- A. Yes
- B. No

24. During the past 12 months, did you make a plan about how you would attempt suicide?

- A. Yes
- B. No

25. During the past 12 months, how many times did you actually attempt suicide?

- A. 0 times
- B. 1 time
- C. 2 or 3 times
- D. 4 or 5 times
- E. 6 or more times

26. **If you attempted suicide** during the past 12 months, did any attempt result in an injury, poisoning, or overdose that had to be treated by a doctor or nurse?

- A. **I didn't attempt suicide** during the past 12 months
- B. Yes
- C. No

The next 11 questions ask about tobacco use.

27. Have you ever tried cigarette smoking, even one or two puffs?

- A. Yes
- B. No

28. How old were you when you smoked a whole cigarette for the first time?

- A. I have never smoked a whole cigarette
- B. 8 years old or younger
- C. 9 or 10 years old
- D. 11 or 12 years old
- E. 13 or 14 years old
- F. 15 or 16 years old
- G. 17 years old or older

29. During the past 30 days, on how many days did you smoke cigarettes?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 to 19 days
- F. 20 to 29 days
- G. All 30 days

30. During the past 30 days, on the days you smoked, how many cigarettes did you smoke **per day**?

- A. I did not smoke cigarettes during the past 30 days
- B. Less than 1 cigarette per day
- C. 1 cigarette per day
- D. 2 to 5 cigarettes per day
- E. 6 to 10 cigarettes per day
- F. 11 to 20 cigarettes per day
- G. More than 20 cigarettes per day

31. During the past 30 days, how did you **usually** get your own cigarettes?
(Select only **one** response.)

- A. I did not smoke cigarettes during the past 30 days
- B. I bought them in a store such as a convenience store, supermarket, discount store, or gas station
- C. I bought them from a vending machine
- D. I gave someone else money to buy them for me
- E. I borrowed (or bummed) them from someone else
- F. A person 18 years old or older gave them to me
- G. I took them from a store or family member
- H. I got them some other way

32. During the past 30 days, on how many days did you smoke cigarettes **on school property or at college/university**?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 to 19 days
- F. 20 to 29 days
- G. All 30 days

33. Have you ever smoked cigarettes daily, that is, at least one cigarette every day for 30 days?

- A. Yes
- B. No

34. During the past 12 months, did you ever try **to quit** smoking cigarettes?

- A. I did not smoke during the past 12 months
- B. Yes
- C. No

35. During the past 30 days, on how many days did you use chewing tobacco, snuff, or dip, such as Redman, Levi Garrett, Beechnut, Skoal or Copenhagen?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 to 19 days
- F. 20 to 29 days
- G. All 30 days

36. During the past 30 days, on how many days did you use chewing tobacco, snuff, or dip on school property or at college?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 to 19 days
- F. 20 to 29 days
- G. All 30 days

37. During the past 30 days, on how many days did you smoke **cigars, cigarillos, or little cigars**?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 to 19 days
- F. 20 to 29 days
- G. All 30 days

The next 5 questions ask about drinking alcohol. This includes drinking beer, wine, wine coolers, and liquor such as rum, gin, vodka, or whisky. For these questions, drinking alcohol does not include drinking a few sips of wine for religious purposes.

38. During your life, on how many days have you had at least one drink of alcohol?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 9 days
- D. 10 to 19 days
- E. 20 to 39 days
- F. 40 to 99 days
- G. 100 or more days

39. How old were you when you had your first drink of alcohol other than a few sips?

- A. I have never had a drink of alcohol other than a few sips
- B. 8 years old or younger
- C. 9 or 10 years old
- D. 11 or 12 years old
- E. 13 or 14 years old
- F. 15 or 16 years old
- G. 17 years old or older

40. During the past 30 days, on how many days did you have at least one drink of alcohol?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 to 19 days
- F. 20 to 29 days
- G. All 30 days

41. During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 to 5 days
- E. 6 to 9 days
- F. 10 to 19 days
- G. 20 or more days

42. During the past 30 days, on how many days did you have at least one drink of alcohol **on school property or at college/university**?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 to 19 days
- F. 20 to 29 days
- G. All 30 days

The next 4 questions ask about marijuana use. Marijuana also is called grass or pot.

43. During your life, how many times have you used marijuana?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 to 99 times
- G. 100 or more times

44. How old were you when you tried marijuana for the first time?

- A. I have never tried marijuana
- B. 8 years old or younger
- C. 9 or 10 years old
- D. 11 or 12 years old
- E. 13 or 14 years old
- F. 15 or 16 years old
- G. 17 years old or older

45. During the past 30 days, how many times did you use marijuana?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 or more times

46. During the past 30 days, how many times did you use marijuana **on school property or at college**?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 or more times

The next 9 questions ask about other drugs.

47. During your life, how many times have you used **any** form of cocaine, including powder, crack, or freebase?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 or more times

48. During the past 30 days, how many times did you use **any** form of cocaine, including powder, crack, or freebase?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 or more times

49. During your life, how many times have you sniffed glue, breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 or more times

50. During your life, how many times have you used **heroin** (also called smack, junk, or China White)?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 or more times

51. During your life, how many times have you used **methamphetamines** (also called speed, crystal, crank, or ice)?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 or more times

52. During your life, how many times have you used **ecstasy** (also called MDMA)?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 or more times

53. During your life, how many times have you taken **steroid pills or shots** without a doctor's prescription?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 or more times

54. During your life, how many times have you used a needle to inject any **illegal** drug into your body?

- A. 0 times
- B. 1 time
- C. 2 or more times

55. During the past 12 months, has anyone offered, sold, or given you an illegal drug **on school property or at college/university**?

- A. Yes
- B. No

The next 3 questions ask about sexual behaviour.

56. Have you ever had sexual intercourse?

- A. Yes
- B. No

57. During the past 3 months, with how many people did you have sexual intercourse?

- A. I have never had sexual intercourse
- B. I have had sexual intercourse, but not during the past 3 months
- C. 1 person
- D. 2 people
- E. 3 people
- F. 4 people
- G. 5 people
- H. 6 or more people

58. The **last time** you had sexual intercourse, did you or your partner use a condom?

- A. I have never had sexual intercourse
- B. Yes
- C. No

The next 7 questions ask about body weight.

59. How do **you** describe your weight?

- A. Very underweight
- B. Slightly underweight
- C. About the right weight
- D. Slightly overweight
- E. Very overweight

60. Which of the following are you trying to do about your weight?

- A. **Lose** weight
- B. **Gain** weight
- C. **Stay** the same weight
- D. I am **not trying to do anything** about my weight

61. During the past 30 days, did you **exercise** to lose weight or to keep from gaining weight?

- A. Yes
- B. No

62. During the past 30 days, did you **eat less food, fewer calories, or foods low in fat** to lose weight or to keep from gaining weight?

- A. Yes
- B. No

63. During the past 30 days, did you **go without eating for 24 hours or more** (also called fasting) to lose weight or to keep from gaining weight?

- A. Yes
- B. No

64. During the past 30 days, did you **take any diet pills, powders, or liquids** without a doctor's advice to lose weight or to keep from gaining weight? (Do **not** include meal replacement products such as Slim Fast.)

- A. Yes
- B. No

65. During the past 30 days, did you **vomit or take laxatives** to lose weight or to keep from gaining weight?

- A. Yes
- B. No

The next 7 questions ask about food you ate or drank during the past 7 days. Think about all the meals and snacks you had from the time you got up until you went to bed. Be sure to include food you ate at home, at school, at restaurants, or anywhere else.

66. During the past 7 days, how many times did you drink **100% fruit juices** such as orange juice, apple juice, or grape juice? (Do **not** count sports drinks, or other fruit-flavoured drinks.)

- A. I did not drink 100% fruit juice during the past 7 days
- B. 1 to 3 times during the past 7 days
- C. 4 to 6 times during the past 7 days
- D. 1 time per day
- E. 2 times per day
- F. 3 times per day
- G. 4 or more times per day

67. During the past 7 days, how many times did you eat **fruit**? (Do **not** count fruit juice.)

- A. I did not eat fruit during the past 7 days
- B. 1 to 3 times during the past 7 days
- C. 4 to 6 times during the past 7 days
- D. 1 time per day
- E. 2 times per day
- F. 3 times per day
- G. 4 or more times per day

68. During the past 7 days, how many times did you eat **green salad**?

- A. I didn't eat salad during the past 7 days
- B. 1 to 3 times during the past 7 days
- C. 4 to 6 times during the past 7 days
- D. 1 time per day
- E. 2 times per day
- F. 3 times per day
- G. 4 or more times per day

69. During the past 7 days, how many times did you eat **potatoes**? (Do **not** count fried potatoes, or potato chips.)

- A. I did not eat potatoes during the past 7 days
- B. 1 to 3 times during the past 7 days
- C. 4 to 6 times during the past 7 days
- D. 1 time per day
- E. 2 times per day
- F. 3 times per day
- G. 4 or more times per day

70. During the past 7 days, how many times did you eat **carrots**?

- A. I did not eat carrots during the past 7 days
- B. 1 to 3 times during the past 7 days
- C. 4 to 6 times during the past 7 days
- D. 1 time per day
- E. 2 times per day
- F. 3 times per day
- G. 4 or more times per day

71. During the past 7 days, how many times did you eat **other vegetables**?

(Do **not** count green salad, potatoes, or carrots.)

- A. I did not eat other vegetables during the past 7 days
- B. 1 to 3 times during the past 7 days
- C. 4 to 6 times during the past 7 days
- D. 1 time per day
- E. 2 times per day
- F. 3 times per day
- G. 4 or more times per day

72. During the past 7 days, how many **glasses of milk** did you drink?

(Include the milk you drank in a glass or cup, from a carton, or with cereal. Count the half pint of milk served at school as equal to one glass.)

- A. I did not drink milk during the past 7 days
- B. 1 to 3 glasses during the past 7 days
- C. 4 to 6 glasses during the past 7 days
- D. 1 glass per day
- E. 2 glasses per day
- F. 3 glasses per day
- G. 4 or more glasses per day

The next 7 questions ask about physical activity.

73. On how many of the past 7 days did you exercise or participate in physical activity for **at least 20 minutes that made you sweat and breathe hard**, such as basketball, football, running, swimming laps, fast bicycling, fast dancing, or similar aerobic activities?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days
- G. 6 days
- H. 7 days

74. On how many of the past 7 days did you participate in physical activity for **at least 30 minutes** that did **not** make you sweat or breathe hard, such as fast walking, slow bicycling, skating, pushing a lawn mower, or mopping floors?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days
- G. 6 days
- H. 7 days

75. During the past 7 days, on how many days were you physically active for a total of **at least 60 minutes per day**?

(Add up all the time you spend in any kind of physical activity that increases your heart rate and makes you breathe hard some of the time.)

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days
- G. 6 days
- H. 7 days

76. On an average school day, how many hours do you watch TV?

- A. I do not watch TV on an average school day
- B. Less than 1 hour per day
- C. 1 hour per day
- D. 2 hours per day
- E. 3 hours per day
- F. 4 hours per day
- G. 5 or more hours per day

77. In an average week when you are in school, on how many days do you go to physical education (PE) classes?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days

78. During an average physical education (PE) class, how many minutes do you spend actually exercising or playing sports?

- A. I do not take PE
- B. Less than 10 minutes
- C. 10 to 20 minutes
- D. 21 to 30 minutes
- E. 31 to 40 minutes
- F. 41 to 50 minutes
- G. 51 to 60 minutes
- H. More than 60 minutes

79. During the past 12 months, on how many sports teams did you play? (Include any teams run by your school or community groups.)

- A. 0 teams
- B. 1 team
- C. 2 teams
- D. 3 or more teams

The next 3 questions ask about other health-related topics.

80. Have you ever been taught about AIDS or HIV infection in school?

- A. Yes
- B. No
- C. Not sure

81. Has a doctor or nurse ever told you that you have asthma?

- A. Yes
- B. No
- C. Not sure

82. During the past 12 months, have you had an episode of asthma or an asthma attack?

- A. I do not have asthma
- B. No, I have asthma, but I have not had an episode of asthma or an asthma attack during the past 12 months
- C. Yes, I have had an episode of asthma or an asthma attack during the past 12 months
- D. Not sure

This is the end of the survey. All information will remain confidential.

Thank you very much for your help.

Appendix 6: Telic Dominance Scale

INSTRUCTIONS FOR THE TELIC DOMINANCE SCALE

Here are some alternative choices. If you have an open choice, which of the following alternatives would you prefer. Please complete all the items by putting a cross in the space corresponding to your choice, making one choice should you put a cross in the circle corresponding to 'not sure'. Try to answer all the items by putting a cross in one of the spaces for each item, using the 'not sure' choice as little as you can.

Work quickly and do not spend too much time on any one item: it is your first reaction we want.

This is not a test of intelligence or ability and there are no right or wrong answers.

Thank you for your help.

TELIC DOMINANCE QUESTIONNAIRE

- | | | |
|-----------|----------------------------------------------------------------|--------------------------|
| 1 | <i>Compile a short dictionary for financial reward</i> | <input type="checkbox"/> |
| | <i>Write a short story for fun</i> | <input type="checkbox"/> |
| | <i>Not sure</i> | <input type="checkbox"/> |
| 2 | <i>Going to evening class to improve your qualifications</i> | <input type="checkbox"/> |
| | <i>Going to evening class for fun</i> | <input type="checkbox"/> |
| | <i>Not sure</i> | <input type="checkbox"/> |
| 3 | <i>Leisure activities which are just exciting</i> | <input type="checkbox"/> |
| | <i>Leisure activities that have a purpose</i> | <input type="checkbox"/> |
| | <i>Not sure</i> | <input type="checkbox"/> |
| 4 | <i>Improve a sporting skill by playing a game</i> | <input type="checkbox"/> |
| | <i>Improving it through systematic practice</i> | <input type="checkbox"/> |
| | <i>Not sure</i> | <input type="checkbox"/> |
| 5 | <i>Spending one's life in many different places</i> | <input type="checkbox"/> |
| | <i>Spending one's life in one place</i> | <input type="checkbox"/> |
| | <i>Not sure</i> | <input type="checkbox"/> |
| 6 | <i>Work that earns promotion</i> | <input type="checkbox"/> |
| | <i>Work that you enjoy doing</i> | <input type="checkbox"/> |
| | <i>Not sure</i> | <input type="checkbox"/> |
| 7 | <i>Planning your leisure</i> | <input type="checkbox"/> |
| | <i>Doing things on the spur of the moment</i> | <input type="checkbox"/> |
| | <i>Not sure</i> | <input type="checkbox"/> |
| 8 | <i>Going to formal evening meetings</i> | <input type="checkbox"/> |
| | <i>Watching television for entertainment</i> | <input type="checkbox"/> |
| | <i>Not sure</i> | <input type="checkbox"/> |
| 9 | <i>Having your tasks set for you</i> | <input type="checkbox"/> |
| | <i>Choosing your own activities</i> | <input type="checkbox"/> |
| | <i>Not sure</i> | <input type="checkbox"/> |
| 10 | <i>Investing money in a long term insurance/pension scheme</i> | <input type="checkbox"/> |
| | <i>Buying an expensive car</i> | <input type="checkbox"/> |
| | <i>Not sure</i> | <input type="checkbox"/> |
| 11 | <i>Staying in one job</i> | <input type="checkbox"/> |
| | <i>Having many changes of job</i> | <input type="checkbox"/> |
| | <i>Not sure</i> | <input type="checkbox"/> |

- 12 *Seldom doing things 'for kicks'*
Often doing things 'for kicks'
Not sure
- 13 *Going to a party*
Going to a meeting
Not sure
- 14 *Leisure activities*
Work activities
Not sure
- 15 *Taking holidays in many different places*
Taking holidays always in the same place
Not sure
- 16 *Going away on holiday for two weeks*
Given two weeks of free time finishing a needed improvement at home
Not sure
- 17 *Taking life seriously*
Treating life light-heartedly
Not sure
- 18 *Frequently trying strange foods*
Always eating familiar foods
Not sure
- 19 *Recounting an incident accurately*
Exaggerating for effect
Not sure
- 20 *Spending £100 having an enjoyable weekend*
Spending £100 on repaying a loan
Not sure
- 21 *Having continuity in the place where you live*
Having frequent moves of house
Not sure
- 22 *Going to an art gallery to enjoy the exhibits*
To learn about the exhibits
Not sure
- 23 *Watching a game*
Refereeing a game
Not sure

- 24 *Eating special things because they are good for you*
Eating special things because you enjoy them
Not sure
- 25 *Fixing long term ambitions*
Living life as it comes
Not sure
- 26 *Always trying to finish your work before you enjoy yourself*
Frequently going out for enjoyment before all your work is finished
Not sure
- 27 *Not needing to explain your behaviour*
Having purposes for your behaviour
Not sure
- 28 *Climbing a mountain to try to save someone*
Climbing a mountain for pleasure
Not sure
- 29 *Happy to waste time*
Having purpose for your behaviour
Not sure
- 30 *Taking risks*
Going through life safely
Not sure
- 31 *Watching a crucial match between two ordinary sides*
Watching an exhibition game with star performers
Not sure
- 32 *Playing a game*
Organising a game
Not sure
- 33 *Glancing at pictures in a book*
Reading a biography
Not sure
- 34 *Winning a game easily*
Playing a game with the scores very close
Not sure
- 35 *Steady routine in life*
Continual unexpectedness
Not sure

- | | |
|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| <p>36 <i>Working in the garden</i>
 <i>Picking wild fruit</i>
 <i>Not sure</i></p> | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |
| <p>37 <i>Reading for information</i>
 <i>Reading for fun</i>
 <i>Not sure</i></p> | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |
| <p>38 <i>Arguing for fun</i>
 <i>Arguing with others seriously to change their opinions</i>
 <i>Not sure</i></p> | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |
| <p>39 <i>Winning a game</i>
 <i>Playing a game for fun</i>
 <i>Not sure</i></p> | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |
| <p>40 <i>Travelling a great deal in one's job</i>
 <i>Working in one office or workshop</i>
 <i>Not sure</i></p> | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |
| <p>41 <i>Planning ahead</i>
 <i>Taking each day as it comes</i>
 <i>Not sure</i></p> | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |
| <p>42 <i>Planning a holiday</i>
 <i>Being on holiday</i>
 <i>Not sure</i></p> | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |

THANK YOU FOR YOUR HELP

Appendix 7: Negativistic Dominance Scale

INSTRUCTIONS FOR THE NEGATIVISTIC DOMINANCE SCALE

This is a measure of the way in which you react in certain social situations. For each of the following eighteen items three responses are given. For each item choose the response which is most true of you. These responses do not represent all possible ones but please accept this and make your choice from those which happen to be given.

Try to use the 'not sure' response as little as possible. Do not think too long about your answer.

It is your first reaction that is important. Please tick the box which is most true of you.

This is not a test of intelligence or ability and there are no right or wrong answers.

Thank you for your help.

NEGATIVISM DOMINANCE QUESTIONNAIRE

- 1 When you are told that you are breaking a rule it is your reaction to:
stop breaking the rule
go ahead and still break the rule
not sure
- 2 You have been treated badly by someone. Do you:
try to get back at the person
hope that things will improve
not sure
- 3 In trying to complete an exercise routine, you go through some pain. Do you:
continue
give up
not sure
- 4 I enjoy the thrill I get from being difficult and awkward. Do you:
agree
disagree
not sure
- 5 If people are unkind to you, do you feel you should be:
unkind back
understand
not sure
- 6 Do you find it exciting to do something shocking?
yes, often
no, hardly ever
not sure
- 7 If you are asked particularly NOT to do something, do you feel an urge to do it?
no, hardly ever
yes, often
not sure
- 8 You are in a group of people who are drinking, but you do not like alcohol and are offered a drink. Would you:
refuse the drink
accept the drink
not sure
- 9 Do you tease people unnecessarily just so to have some fun at their expense?
yes, often
No, hardly ever
not sure

- 10** A parking attendant tells you that you cannot park where you have just put the car. Would you:
apologise and move on
argue with the attendant
not sure
- 11** How often do you do something you shouldn't just to get some excitement:
not often at all
often
not sure
- 12** You are asked to take part in an activity which secretly you dislike. Would you:
say you have something else planned
try hard to avoid an argument
not sure
- 13** If you get yelled at by someone in authority, would you:
get angry and argue back
try hard to avoid an argument
not sure
- 14** If a person your age was mean to you, would you:
try to forget it
try to get revenge
not sure
- 15** Can you think of anything you oppose strongly?
no
yes
not sure
- 16** A charity will not accept you as a volunteer. Is your first reaction to:
thank them for considering you
tell them 'to go to hell'
not sure
- 17** How often do others say that you are a difficult person?
rarely
often
not sure
- 18** If you ask a person at a party to dance with you who says 'no' without offering any explanation, would you:
get annoyed
accept it
not sure

THANK YOU FOR YOUR HELP

Appendix 8: Telic/Paratelic State Instrument

TELIC/PARATELIC STATE INSTRUMENT

Below are 12 pairs of words that are opposites. Please circle the number that is located BETWEEN each pair of words that best indicates how you were feeling in the LAST FEW MINUTES, just before you started filling out this questionnaire. For example, if the pair were:

Happy 1 2 3 4 5 6 Sad

And you were definitely feeling happy, you would circle the '1'. If you were definitely feeling sad, you would circle the '6'. If you were just a little sad, you would circle the '4'.

1	Feeling playful	1	2	3	4	5	6	Feeling serious-minded
2	Wanting peace and quiet	1	2	3	4	5	6	Wanting adventure
3	Trying to accomplish something	1	2	3	4	5	6	Just having fun
4	Doing activity just for the fun of it	1	2	3	4	5	6	Doing activity because it may affect my future
5	Wanting to feel excitement	1	2	3	4	5	6	Wanting to feel calm
6	Wanting to be serious	1	2	3	4	5	6	Wanting to be playful
7	Concerned about the future effects of current activity	1	2	3	4	5	6	Not concerned about the future effects of my current activities
8	Wanting to just have fun	1	2	3	4	5	6	Wanting to accomplish something
9	Wanting to feel less aroused	1	2	3	4	5	6	Wanting to feel more aroused
10	Living for the moment	1	2	3	4	5	6	Focusing on the future
11	Feeling serious	1	2	3	4	5	6	Feeling playful
12	Feeling adventurous	1	2	3	4	5	6	Not feeling adventurous

Thanks for completing this questionnaire

Appendix 9: Adolescent Coping Scale

CONFIDENTIAL

	Doesn't apply or don't do it	Used very little	Used some- times	Used often	Used a great deal
1. Talk to other people about my concern to help me sort it out	1	2	3	4	5
2. Work at solving the problem to the best of my ability	1	2	3	4	5
3. Work hard	1	2	3	4	5
4. Worry about what will happen to me	1	2	3	4	5
5. Spend more time with boy/girl friend	1	2	3	4	5
6. Improve my relationship with others	1	2	3	4	5
7. Wish a miracle would happen	1	2	3	4	5
8. I have no way of dealing with the situation	1	2	3	4	5
9. Find a way to let off steam; for example cry, scream, drink, take drugs etc.	1	2	3	4	5
10. Join with people who have the same concern	1	2	3	4	5
11. Shut myself off from the problem so that I can avoid it	1	2	3	4	5
12. See myself as being at fault	1	2	3	4	5
13. Don't let others know how I am feeling	1	2	3	4	5
14. Pray for help and guidance so that everything will be all right	1	2	3	4	5
15. Look on the bright side of things and think of all that is good	1	2	3	4	5
16. Ask a professional person for help	1	2	3	4	5
17. Make time for leisure activities	1	2	3	4	5
18. Keep fit and healthy	1	2	3	4	5
19. List any <i>other</i> things you do to cope with your concern/s	1	2	3	4	5
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Appendix 10: Interview Schedule

Semi-structures interview schedule

1) Personal history

- Can you tell me about what happened prior to your referral to mental health services?
- How did you feel at this time?
- Can you tell me about your referral to mental health services?

2) Understanding of psychosis (identify participant's use of terminology)

- How do you understand your experience of (issue)?
- How would you describe (issues) to another person (e.g. friend or family)?
- How do you think other people understand (issue)?
- If you had a choice, would you rather not have had these experiences?
 - Separate from treatment experiences?
 - What do you think are the causes of your experiences of (issue)?

3) Impact of psychosis on different life domains

- How has your experience of (issue) impacted on your life?
 - Family life
 - Friendships
 - Experience of education
 - Getting a job
- Does your experience of (issue) influence how you feel about yourself?

4) Experience of support seeking (formal/informal)

- How would you describe your experience of mental health services?
 - Positive experience
 - Negative experience
- How would you describe the support you have received?
 - Family
 - Friends
 - Other support networks

5) Coping strategies

- How do you cope with your experience of (issue)?
 - Productive
 - Non-productive
 - Reference to others

6) Risk taking behaviours

- Why do you think young people take risks with their health?
 - Smoking
 - Drugs
 - Alcohol
 - Unsafe sex
 - Other activities
- Do you think risk taking has an impact on your health?
 - Positive
 - negative

Appendix 11: Coding framework for YRBS

Question Number	Content of question	Health risk behaviour
Q18	During the past 12 months had been in a physical fight in which young person had been injured and had to be treated by a doctor or nurse	Violence
Q22	During the past 12 months, young person had felt sad or hopeless almost every day for two weeks or more in a row that stopped them from doing some usual activity	Sadness & Hopelessness
Q26	Had attempted suicide during the past 12 months that resulted in injury, poisoning or overdose that had to be treated by a doctor or nurse	Suicidality
Q29	During the past 30 days had smoked on more than 9 days	Regular tobacco use
Q41	During the past 30 days had drunk 5 or more drinks of alcohol in a row, within a couple of hours	Binge drinking
Q43	Had tried marijuana	Marijuana use
Q47-54	Had tried any hard drug	Hard drug use
Q58	Did not use a condom last time had sex	Unsafe sex
Q66-72	Did not eat recommended 5 portions of fruit & vegetables per day	Unhealthy dietary intake
Q73- 74	In past 7 days did not exercise or participate in physical activity for at least 20 minutes that made young person sweat and breathe hard (e.g. football) and/or did not exercise for at least 30 minutes that did not make young person sweat (e.g. bicycling).	Physical inactivity

Appendix 12: COREC ethical approval letter

December 2006

Facsimile:

Trainee Clinical Psychologist

Dear

Full title of study: The experiences, risk taking behaviours, personality and motivation of adolescents with psychosis: a comparative multimethod study

REC reference number:

Thank you for your email of December 2006, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information was considered at the meeting of the Sub-Committee of the REC held on December 2006.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

Ethical review of research sites

The favourable opinion applies to the research sites listed on the attached form.

Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
Application		September 2006
Application	Updated	September 2006
Investigator CV		
Protocol	1	September 2006
Covering Letter		September 2006
Interview Schedules/Interview Guides	Semi-	September 2006

EXAMINATIONS DEPARTMENT



	structures 1	
Questionnaire: Demographics		
Questionnaire: Telic/Paratelic State Instrument		
Questionnaire: Negativistic Dominance Scale	2	November 2006
Questionnaire: Telic Dominance Scale	2	November 2006
Questionnaire: Youth Behaviour Survey	2	November 2006
Participant Information Sheet: PIS School Sample	4 School Sample	December 2006
Participant Information Sheet: PIS Clinical Sample	4 Clinical Sample	December 2006
Participant Consent Form: PCF School	4 School	December 2006
Participant Consent Form: PCF Clinical	4 Clinical	December 2006
Response to Request for Further Information		November 2006
Response to Request for Further Information		December 2006
Response to Request for Further Information		December 2006
Diagrammatic Representation of Research Methodology		
Insurance Details		July 2006
Support Services Contact Sheet	1	November 2006
Instructions for the Telic Dominance Scale		
Instructions for the Negativistic Dominance Scale		
2005 Youth Risk Behaviour Survey		

Research governance approval

The study should not commence at any NHS site until the local Principal Investigator has obtained final research governance approval from the R&D Department for the relevant NHS care organisation.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

Please quote this number on all correspondence

With the Committee's best wishes for the success of this project

Yours sincerely

**Dr
Chair**

Email:

@lhb.scot.nhs.uk

Enclosures:

*Standard approval conditions [SL-AC1 for CTIMPs, SL-AC2 for other studies]
Site approval form*

Copy to:

R & D

Appendix 13: Authorisation to access schools letter

Date Feb 2007

Your ref

Our ref

Dear Nicola

**The Experiences, Risk taking Behaviours Personality and Motivation of Adolescents with
Psychosis: A Comparative Study**

I am writing in response to your application requesting permission to undertake research in schools in The City of Edinburgh.

Your request has been considered, and I am pleased to inform you that you have been given permission in principle to undertake your research. I must stress that it is the policy of this Authority to leave the final decision about participation in research projects of this kind to Head Teachers and their staff, so that approval in principle does not oblige any particular establishment to take part.

I request that you forward a copy of your completed findings to me when they become available. In this case an electronic summary of your thesis would be preferred. Your work may be of interest to a number of staff in the Children and Families Department.

I would like to thank you for contacting the Children and Families Department about your work, and wish you every success in the completion of your project.

Yours sincerely

Business Support Manager

HEAD OF QUALITY DEVELOPMENT



Appendix 14: One page summary of study



Background: Adolescence is an important stage of life for establishing healthy behaviours, attitudes, and lifestyles that contribute to current and future health. Research has increasingly and consistently revealed that experiences early on in life, particularly at key developmental stages, influences health and well being in later life (Gumley et al, 2006). Adolescence is a time of great change, when young people take on new roles and responsibilities, renegotiate relationships with adults, peers, and the community, and experiment with things symbolic of adult life (Patton et al, 1998). These developmental tasks are often accompanied by the adoption of risk-taking behaviours that potentially compromise health (Carr-Greg et al, 2003). Health risk behaviour is one indicator of health of young people that may serve as a measure of health over time as well as a target for health policies and service development (Springer et al, 2006).

Healthy risk-taking is a positive tool in an adolescent's life for discovering, developing, and consolidating his or her identity (Ponton, 1997). It is the extent to which an adolescent engages in health-risk behaviours, and the overall impact of these behaviours on personal health and development, that are of increasing public health concern. Studies have found that young people who participate in multiple risk-taking behaviours increase the chance of damaging their health.

Adolescents with mental health problems have been found to engage in more risk taking behaviours than adolescents without such difficulties (DiClemente & Ponton, 1993) and are associated with increased risk of psychosis (Ponton, 1993). However, the reasons why adolescents take part in potentially harmful activities which impact negatively on their mental health and well being are often ignored or inadequately explained in the health literature.

Aims: The aims of the study are to examine the:

- (1) experiences, risk behaviours, personality and motivation of adolescents with and without mental health problems.
- (2) relationship between motivation and participation in health risk behaviours.

Method: To investigate the experiences and risk behaviours of young people, questions and interviews will be conducted with young people. Huberman & Miles (1994) interactive model is to be used in order to generate themes from the data. The study will be based on first person accounts, yet the data will be summarised and analysed from the researcher's third person external viewpoint. A specific strength of the study will be to explore the perspectives of young people using a multi-method design, thus allowing a multi-case comparison to be conducted.

Incorporating adolescents' perspectives concerning their personal meanings, experiences and health risk taking behaviours is an important area of investigation in that the conclusions and recommendations are relevant to researchers, service providers and policy makers

Contacts:

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Clinical supervisor
Consultant Clinical Psychologist
Contact details provided