

# An Exploration of Barriers and Facilitators to Risk Assessment in Mental Health Professionals

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To admit or not to admit: The effect of framing on risk assessment decision making in psychiatrists (based on work in chapter five).

How do mental health professionals view risk assessments? An analysis of the attitudes, risk taking, anxiety and confidence (based on work in chapter three).

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## Abstract

The decisions made by Mental Health Professionals (MHPs) are of utmost significance for providing the highest quality care to service users. The assessment of risk is one of the pivotal processes that MHPs undertake frequently, as per government policy guidelines, and in order to safeguard patients and the public. Although Risk Assessment Proformas (RAPs) consume a proportion of MHP time and resources, very little research has been undertaken to address factors that might affect their most optimal utilisation in practice. Previous literature suggests that medical decisions, like decision making of other kinds, is fraught with difficulty including being susceptible to the influence of cognitive biases, pre-decisional affect, overconfidence, and subjectively held attitudes towards organisational policies and regulations. Specifically, the presentation of risk information can influence decisions. It has also been suggested that anxiety has the capacity to elicit risk aversive responses, and that overconfidence and negative attitude may lead to complacency in undertaking policy-led responsibilities and produce non-compliance for the same. However, much of what is known about medical decision making has been gleaned from outside of the context of mental health. As such, the current programme of research aimed to explore decision making in mental health settings and with a view to raise awareness of the complexity of decision making amongst MHPs.

The implementation of quantitative and qualitative techniques (studies 1 and 2) revealed negative attitudes from psychiatrists towards Risk Assessment Proformas

(RAPs), which are essentially structured decision making aids. Psychiatrists, compared to other MHPs, spent less time completing RAPs, which may reflect their differing attitudes towards their usefulness, something that was consistently emphasised during in-depth qualitative exploration. It was also found that experience was an additional differentiating factor between MHPs. Relationships between experience and other factors such as anxiety, confidence and complacency were found via conversations with MHPs, experienced members of staff being less inclined to provide comprehensive and detailed accounts of service user risk in RAPs. This is problematic since although there is, in the UK, a policy led requirement that RAPs are completed for each service user, it is clear that there are inter-professional variations in how RAPs are being used and this acts to inhibit the best information sharing between all those involved in patient care.

Following previous work in the area of cognitive bias and its influence upon general and medical decisions, a clinical vignette was also developed (study 3) to establish whether the presentation of risk information influences psychiatric admission decisions. The current findings supported previous work in that decisions were susceptible to the framing effect. The findings here, and previously in the literature, reveal a necessity for MHPs to be informed of bias in decision making in an attempt to improve objectivity in risk assessment practices. The unearthing of the framing effect also further signals the need for the proper use of RAPs, where many MHPs may not be using them to their full potential- i.e. an aid to the systematic consideration of a range of information about a service user.

The final part of the thesis (study 4) turned to the piloting of an educational module incorporating content around the factors affecting decision making in an attempt to raise awareness amongst MHPs. The rationale being better awareness of the complexity of decision making may act to enhance decision making processes. Pre and post intervention analyses revealed an improvement of baseline to follow-up knowledge of decision making bias and statistical concepts and this knowledge was maintained to a moderate level at four week follow-up. Although individuals maintained their susceptibility to the framing effect, the bias was less prevalent in those who knew of its presence before taking part in the study. Overall the findings give some support to the use of education as an approach to raising awareness about decision making processes in MHPs, although what remains to be seen is whether such education acts to bring about changes in behaviour- for example, different use of RAPs.

The PhD programme suggests that MHPs are just as susceptible to cognitive biases, such as the framing effect, as has been demonstrated in both general population and other groups of health practitioners. At the same time, attitudes to RAPs differ depending on exact job role, with psychiatrists being least likely to spend time on their completion and reporting them as a tool for noting decisions reached as opposed to an aid to the process. This acts to reduce the quality and quantity of reported information shared with colleagues about a service user. It is possible that MHP behaviour aligns with general attitude-behaviour models, such as the Theory of Planned Behaviour. As such, whilst the current work has demonstrated that educational interventions may act to improve awareness of decision making processes and their influences, further research would benefit from considering if these types of approaches affect actual behaviour. For

example, improved use of RAPs as decision-aids, reduced susceptibility to framing effects, consciousness around how information is represented in RAPs given knowledge of how the information may be used by others.



## **1. Risk Assessment in NHS Mental Health Settings: Why and how?**

### **1.1. Overview**

There are an estimated 450 million people worldwide with mental health problems (World Health Organisation, 2001) and one in four British adults will experience such issues in any one year (Singleton, Bumpstead, O'Brien, Lee, & Meltzer, 2003). It is suggested that by 2020, risk factors such as depression will be one of the leading contributors to the global burden of disease (World Health Organisation, 2001). Despite this, uptake to mental health services is low. Only around a quarter of individuals with mental health problems successfully access services, partly due to factors such as abstinence from reporting the problem, misdiagnosis by general practitioners or treatment refusal (Layard, 2005). While it is known that individuals with particular disorders, such as psychosis, receive treatment attention in mental health services (Singleton et al., 2003), just 3% of all people with mental illness are seen by a psychiatrist, only 2% have accessed psychologist services (Layard, 2005) and approximately 40% of drug users do not receive any treatment for mental health issues at all (Mental Health Social Exclusion Report, 2004).

While comparatively lower than the worldwide and European Union (15.1 and 17.5 people per 100,000 respectively (World Health Organisation, 2001) suicide rates in England are around 12 in 100,000, a prevalence of 0.01% (Stowcroft & Samaritans, 2015). One of the core objectives of any Mental Health Trust is to reduce the number of suicides by prevention and management of risk factors. Importantly, in approximately

one-quarter of suicide cases in England, Scotland and Wales (and almost a third in Northern Ireland), individuals died within three months of discharge, with most deaths occurring in the first two weeks of the discharge decision (Appleby et al., 1999; Busch, Fawcett, & Jacobs, 2003; Goldacre, Seagroatt, & Hawton, 1993; Meehan et al., 2006; Scottish Executive- Edinburgh Health Dept, 2001). Consequently, the decisions made by Mental Health Professionals (MHPs) and the recording and sharing of risk information for safeguarding the wellbeing of all service users become all the more pertinent.

According to government policy and guidelines, risk assessment forms an integral part of the role of a MHP. MHPs judge potential risk for service users on a daily basis.

Principal risk factors can include self-harm by a service user or harm from others, such as abuse or neglect. Furthermore, risk factors, such as violence and abuse, to third parties by the service user are also present (National Collaborating Centre for Mental Health & Royal College of Psychiatrists, 2011). A great deal of responsibility, and ultimately pressure, is placed upon the shoulders of those individuals working under the designation of MHP to safeguard service users and the public, particularly in the wake of increasing numbers of referrals to mental health services (Health and Social Care Information Group, 2014). The crucial judgments and decisions expected from MHPs are made based on service users' available past behaviour (clinical records, information from the service users and close relatives), present behaviour (current clinical presentation) and future behaviour based on the known risk factors available to the MHP. While the last of these can never be precisely forecast, and management plans can never eradicate risk completely (Hsu, Tseng, Chiang, & Chen, 2012), MHPs are still required to complete risk assessment proformas (RAPs) in an attempt to advise future

care plans for service users. This process is driven by policy and has been implemented for a number of years (see History of risk assessment- Page 20 of this thesis). Despite such aids to the task, judgments about risk have the potential to be negatively biased by a number of factors. These include attitudes to RAPs, the unconscious use of cognitive shortcuts (heuristics), and emotions and over-confidence at the time of decision making. These factors have the potential to bias the judgment of MHPs, affect how risk is perceived and subsequently how RAPs are completed.

The following chapter briefly outlines the role of MHPs in the modern day NHS and specifically their duty of care in the management of risk. It also highlights historical shifts in the way that risk has been contained in the mental health setting. Additionally it seeks to build a case that whilst there are aids or tools available, the aim to support risk based decision making, there is still potential for bias. This is primarily a function of general 'problems' that occur in human decision making and also attitudes towards RAPs that are essentially there to support systematic risk assessment and to some extent, overcome biases that may result in overlooking certain types of information.

## **1.2. What is a Mental Health Professional?**

The term MHP encompasses a variety of occupations, including doctors (psychiatrists), therapists and counsellors (including psychotherapists and occupational therapists), nurses, social workers and Approved Mental Health Professionals (AMHPs). A psychiatrist is a fully qualified doctor and specialist in mental health and their role involves overseeing the care provided to service users; this includes prescribing

medication when required. Part of the role of the psychiatrist is to conduct regular ward rounds to discuss, with a multidisciplinary team (MDT), any and all service users in their care.

A clinical psychologist, a mental health specialist trained to doctorate level in a number of non-medical psychological therapies, also attends MDT meetings. Unlike psychiatrists, clinical psychologists are not trained to prescribe medication but are involved in the therapeutic recovery and contribute to the assessment of risk for each service user. Therapists and counsellors span a wide range of areas, commonly specialising in a particular domain (e.g. Cognitive Behaviour Therapy or other psychotherapies for example) although some are trained in a variety of therapies.

Specifically trained occupational therapists also provide support and advice to service users to ensure that their quality of life is at the highest level throughout, and beyond, their contact with mental health services. They are routinely involved in ward rounds and contribute to providing assessments of service user risk.

Community Mental Health Nurses (CMHNs), fully qualified nurses who have pursued specialist undergraduate training in mental health, work in a variety of locations within the mental health system, from community mental health teams (CMHTs) neighbouring GP surgeries, to psychiatric wards. With a wide range of skills, from providing counselling and advice to administering medications, CMHNs also play a role in the assessment of risk by completing RAPs. Social workers provide a bridge between the mental health system and the wider social service provision. They are able to provide support in practical issues such as housing, day care and training.

Also integral to the multidisciplinary team are Approved Mental Health Professionals (AMHPs). A variety of MHPs such as CMHNs, occupational therapists, social workers and psychologists, can train to achieve AMHP status. Part of their involvement in risk assessment concerns determining if individuals require compulsory detention ('sectioning') under the mental health act (Department of Health, 2015) and if so, that the human and civil rights of the service user are upheld throughout the process (Bailey & Ryan, 2013). The role of all MHPs extends to both safeguarding service users and their families, and also the general public whilst trying to aid recovery or relief of symptom burden. This requires MHPs to be aware of, and to actively try to minimise, risk. The latter inherently incorporates the ability to assess risk and to make decisions about it. Current NHS policy is geared towards the use of RAPs as a tool to facilitate risk based decision making, underpinned by a systematic approach towards the task. This represents a significant shift in practice; emphasising how mental health care and its aims have changed over time.

### **1.3. Risk, risk assessment and risk assessment proformas**

In the broadest sense, risk can be defined as "the likelihood of an event happening with potentially beneficial or harmful outcomes for self and others" (Morgan, 2000). Risk can be described in terms of two separate dimensions: probabilities and effects. While these two dimensions of risk are distinct, they are commonly used interchangeably. For example, the sentence 'There is a risk of rain today' could refer to both the likelihood of rain and the negative consequences of rain, such as major flooding (Breakwell, 2007).

While these two dimensions should be considered to be distinct from one another, they will usually be investigated together as we wish to explore both how likely a scenario is, and the severity of the consequences should the event occur.

The estimation of event likelihoods concerns the calculation of relevant probabilities, likelihoods and values of a number of possible outcomes. It is concerned with the chances of something happening and the consequences of the event (Carson & Bain, 2008). Risk is never at a fixed level and fluctuates for each person based on time, context and intervention. Thus, for the reporting of risks in RAPs, the process should be a constant, dynamic and continuing process between practitioner and service user rather than a one off process only engaged in at the first consultation (Morgan, 2007).

The importance of mental health risk assessment is in safeguarding individuals against the possibility of harm due to pertinent risk factors. Within safeguarding, NHS Trusts within the UK endeavour to identify abuse and act where harm is occurring (Boland, Burnage, & Chowhan, 2013; Boland, Burnage, & Scott, 2014). Level of clinical risk can be reduced by a number of actions. In the main, a clinician's recognition and acknowledgment of pertinent risks, unique to each case, and the way those risks are addressed (using risk management plans) are the most important factors and biggest challenges in risk assessment (Reed, 1997). As an additional and supportive measure, a structured RAP can be completed to aid the assessment of risk for service users and third parties. Comprising several questions pertaining to varying areas of risk, including clinical and actuarial information from past and current risk presentation, RAPs should be carried out on every service user upon entering the mental health system (Department of Health, 2007) and at particular specified therapeutic time points

thereafter. Research has advised against overreliance on clinical risk assessment tools solely during guided clinical assessment (Hanson, 1998). In his review of sexual offender risk assessment, Hanson suggests that actuarial clinical assessment, assessing an offender on a limited number of risk predictors and weighing up those risks, should be more accurate than clinical judgment by itself. Additional alternative processes for assessing risk, as outlined by Undrill (2011), also include clinical risk assessment (CRA). CRA involves experts making clinical judgments based on heuristics, which allow individuals to take mental shortcuts for reaching quick decisions (sometimes by reducing the amount of information used to make a decision- see chapter two for full review of the area). While actuarial risk assessment (the use of numbers to assign and measure risk) is likely to be most accurate, and research does support its methods (Grove & Meehl, 1996), a lack of conclusive evidence supporting the exclusive use of actuarial tools indicates that their use should be in conjunction with, rather than in place of, clinical risk assessment (Department of Health, 2007).

Decisions for service users are made by evaluating the chances of risk for their welfare, and the welfare of those around them. It is likely that any MHP is continuously assessing risk at each moment of the clinical encounter, however, the act of risk assessment is officially formalised by the completion of a RAP. Thus the act of risk *assessment* should be noted as distinct from the completion of risk *reporting* (via RAPs). RAPs were originally completed on paper, but have more recently migrated, in many NHS mental health Trusts, to electronic mediums. The implementation of governmental standards such as the National Service Framework for Mental Health (Department of Health,

1999) means that each mental health Trust in the UK decides upon its own RAP content. As a direct result of this, RAP items have been found to vary greatly in content and quality (Higgins, Watts, Bindman, Slade, & Thornicroft, 2005), to the extent that meaningful comparisons are unachievable (Hawley et al., 2006). RAPs comprise a number of items relating to possible risks posed to the service user, and also risks that they may pose to others. MHPs are required to tick boxes to indicate potential risks and may add text to further clarify the circumstantial details of the risks. In this way, by focusing the attention of MHPs on core features of what risk may 'look like', RAPs attempt to support its systematic exploration- and indeed management.

#### **1.4. The history of risk assessment**

While RAPs in their current form are a rather contemporary notion, the assessment and management of risk can be traced back to the 19<sup>th</sup> century when asylums commonly housed the mentally ill. Prior to this, communities responded to the mentally ill as deviant or 'criminal' in law. Small towns resorted to expelling their 'disordered' neighbours to 'lunatic colonies', which led to the development of asylums. At this time, there was no controlling authority, and medical, legal and administrative areas were in conflict over who should govern the asylums. Not until the end of the 18<sup>th</sup> century was there an organised systematic care process for the mentally disordered, in which psychiatrists were tasked with managing and assessing the risk associated with the wellbeing of its inpatients (Porter, 2002; Rogers & Pilgrim, 2001). From this point onward, mentally disordered individuals were treated as though they were physically



sick and drugs for sedation became commonplace (Boyle, 2002). Medication was principally administered to return the individual to a state where they would adhere to social norms, i.e. restrict disordered behaviour, and reduce social risk (Riessman, 1992). The principal role for a psychiatrist was to protect public safety and any failure to do so would be deemed an assault, by the clinician, on the same. Indeed, it remains true that the blame is still often placed upon the shoulders of the practicing clinician if they are suggested to have been negligent (Douglas, 1994), creating a 'culture of blame' within mental health settings (Morgan, 2007).

During the latter part of the 20<sup>th</sup> century a more humanitarian view of mentally disordered individuals developed, leading to asylums being closed and an increased focus on care in the community. This also led to an increased perceived risk to the community, and subsequent focus on risk assessment. The focus on psychiatrist negligence was intensified by cases in the media and as a result, risk assessment and risk management became high on the agenda for NHS mental health trusts, particularly driven by politics and policy (Department of Health, 1999, 2007). By 1991, the Care Programme Approach (Department of Health, 2008) was introduced in the UK and hailed as the cornerstone of their 1995 policy *Building Bridges: A guide to arrangements for inter-agency working for the care and protection of severely mentally ill people*, (DoH 1995a: p. 45). The CPA is a framework that was initially developed to facilitate mental health care organisations in coordinating good quality care for service users. Later, risk assessment was incorporated into its processes and supported the provision of community mental health supervision for high risk cases. CPA has encouraged a drive

for continuous monitoring in order to ensure the safety of service users and those around them and, as such, risk assessment has become a fundamental part of this process. In the meantime, advances in psychiatric knowledge have also led to an increase in interest around risk assessment in clinical practice with some studies indicating a lack of validity and reliability of RAPs (Hawley et al., 2006; Higgins et al., 2005; Monahan, 1984).

In England, the use of RAPs is mandated in key governmental documents such as the National Service Framework (NSF) for Mental Health (Department of Health, 1999). The requirements of the NSF state the importance of risk assessment completion as a core skill for all MHPs, and the additional necessity for periodic re-training. Furthermore, the National Institute of Clinical Excellence publishes guidelines for a variety of clinical disorders in mental health (National Collaborating Centre for Mental Health & Royal College of Psychiatrists, 2011) and has provided information on appropriate risk assessment for both self-harm and violence, just two of the issues that can arise around patient risk. Owing to research suggesting mental health assessment is below standard (Rizzo & Smith, 2012) and rates of mental health reporting are low (Lion, Synder, & Merrill, 1981), in recent years, steps have been taken to improve in these areas. Nevertheless, the scientific basis for using RAPs still remains imprecise and there is a lack of evidence to support current practice (Gale, Hawley & Sivakumaran, 2011). With regard to reliability and validity of RAPs, research is scarce, and the small amount of literature available suggests inconsistencies in validity (Hawley et al., 2006), inter-rater

reliability (Gale et al., 2002) and questionable levels of probabilistic knowledge in mental health professionals (Gale, Hawley & Sivakumaran, 2003).

### **1.5. Attitudes to risk and RAPs**

The attitudes held by MHPs may be influential for their effective implementation of RAPs. In research unrelated to mental health settings, negative attitude has been found to directly correlate with poor compliance (Stein, Makarawo, & Ahmad, 2003; Webley & Ashby, 2010). In a psychiatric setting, Hawley et al (2010) explored attitudes towards RAPs and found that although nurses reported spending twice as long completing RAPs, they exhibited a more favourable attitude compared with doctors. At the heart of these findings is that decision making by MHPs could be influenced by their attitudes toward the process of risk assessment. The negative attitude to RAPs suggested by research may contribute to a delayed or poor quality completion of RAPs. This could in turn lead to poor risk communication between staff members affecting staff and service user safety. Whilst this is not to say that failing to utilise RAPs to the highest standard equates to poor risk assessment, it remains true that RAP completion is at the core of NHS policy and is an aid to information sharing between practitioners. From an organisational perspective, therefore, RAPs fulfil two pertinent functions: (1) aiding systematic exploration of risk and (2) providing documented evidence of attempts at managing risk (i.e. governance function). In relation to the former, this may help address fundamental flaws in human decision making by alerting or reminding MHPs of prominent factors that should be considered when making risk based

decisions. This considered, a wealth of research has demonstrated that decision making is open to biases (Kahneman & Tversky, 1973; Kahneman & Tversky, 1974; Tversky, Kahneman, & Moser, 1990) and therefore these errors should be considered.

### **1.6. Cognitive Biases and Heuristics**

***What are biases and heuristics?*** A cognitive bias is a deviation of human judgment in which situations are interpreted illogically and perceptions are distorted (Haselton, Nettle, & Andrews, 2005). To compensate for cognitive bias, humans have developed simple intuitive 'heuristics' (strategies or rules of thumb). Heuristics provide a fast response to decisions based on available information (Gigerenzer, 1991; Gigerenzer & Todd, 1999; Goldstein & Gigerenzer, 1999), that can, however, lead to systematic errors in judgment (Kahneman & Tversky, 1973; Kahneman & Tversky, 1974; Tversky & Kahneman, 1974). For example, errors can appear in the diagnosis of patients. A patient may be given a diagnosis if they exhibit the disease's typical features because a doctor has routinely seen these symptoms before and uses *fast and frugal* heuristics to come to a conclusion (Wegwarth, Gaissmaier, & Gigerenzer, 2009). Thus, atypically presenting patients may be less likely to receive a timely diagnosis (Custers, Regehr, & Norman, 1996). If a recent event or news report involving a particular disease was seen by that doctor, they may be more likely to judge the likelihood of a patient having that disease as higher (regardless of its prevalence in the population). This describes the Availability Heuristic, in which humans judge the perception of risk for a future event based on recent past experiences (Tversky & Kahneman, 1973). Research suggests that cognitive

biases and associated heuristics affect the general population (Kahneman & Tversky, 1973; Kruglanski & Ajzen, 1983; Tversky & Kahneman, 1973, 1974) and more specifically, that they can influence medical decision making (Bornstein & Emler, 2001). One explanation is that medical doctors, and by extension MHPs, could make better and more informed decisions with a better understanding of probability and its relation to risks for service users.

***Understanding of Probability.*** By relying on heuristics to make judgments, humans are susceptible to miscalculation of probabilities (Kahneman & Tversky, 1973). Early research suggests that humans systematically violate rational judgment when assessing probabilities (Barclay, Beach, & Braithwaite, 1971). More recent research confirms this and adds that, specific to mental health, MHPs do not have superior understanding of probability to the general public (Gale et al, 2003). Without the necessary risk computations for a certain population of service users (e.g. those at risk of suicide) MHPs cannot, arguably, fully appreciate the risk factors for a specific service user from that population. Consequently, the subsequent case management and treatment plan for that service user would be misguided. It should be highlighted that whilst influences in decision making have been explored in the general medical literature there is a dearth of research in the mental health setting specifically related to risk based decisions and the impact of heuristics. Simply being aware of heuristics and biases in judgment may be enough to reduce their influence (Chapman, Kaatz, & Carnes, 2013). If this is the case, this could have implications for improving judgments of risk in MHPs.

***Affect and confidence.*** There is evidence to suggest that the emotions, or affect, experienced at the moment of a decision are highly influential on final choice. The risk-as-feelings hypothesis (Loewenstein, Weber, Hsee, & Welch, 2001) emphasises that emotional appraisals of risky situations often differ from concurrent cognitive assessments. When this occurs, the emotional reaction is often the one that drives the behaviour. Evidence suggests that specifically negative affect can lead to more risk avoidant appraisals of situations (Maner et al., 2007; Maner & Schmidt, 2006). If this extends to mental health settings, there could be negative consequences for both the Mental Health Trusts and service users involved. For example, implementation of 'positive risk' taking (an important facet in providing service users with the liberty to which they are entitled) could be reduced and admissions to inpatient services could increase, to the financial detriment of the NHS. Additional to affective bias, overconfidence may have detrimental effects upon decisions made by MHPs. In general, humans are overconfident about their performance on tasks of skill (Howell, 1972) and these successes are over-remembered (Fischhoff & Beyth, 1975; Langer & Roth, 1975; Slovic, Fischhoff & Lichtenstein, 1976). Slovic et al. (1976) suggested that when individuals were asked to estimate the odds of their answers to general knowledge questions being correct, incorrect answers were often given with certainty (Slovic et al., 1976). Studies have found that medical clinicians are 'error prone' in a number of case reports (Friedman et al., 2001) and were likely to miss diagnoses when overconfident (Berner & Graber, 2008; Croskerry, 2009; Meyer, Payne, Meeks, Rao, & Singh, 2013). Strategies have been suggested to correct failures in decision making (Arkes, 1981; Berner & Graber, 2008; Croskerry & McKinnon, 2007; Ely, Graber, & Croskerry, 2011;

Koriat, Lichtenstein, & Fischhoff, 1980) but what the outcome of these strategies would be in clinical practice is, as yet, unclear.

### **1.7. Research questions**

Investigation of risk perception and decision making in MHPs is vital for the safety of service users and those around them. RAPs are designed to aid practitioners with decision making, although despite their use being mandatory, existing research suggests that there are inter-professional differences in attitudes towards their use. Such a finding is important since RAPs serve a function of supporting systematic assessment of risk, where decision making is otherwise known to be prone to a number of biases. This thesis seeks to investigate an array of factors that may influence decisions made by MHPs in mental health settings. The understanding of probability, heuristics and biases, affect and overconfidence could compromise risk assessment. Several heuristics may be used in clinical decision making and while studies have investigated medical decision making biases, few have focused on mental health contexts. These potential biases in mental health decision making will be investigated to ascertain how this may impact safeguarding of service users. Specifically, the following primary research questions will be explored:

1. What are the attitudes of MHPs towards the use of RAPs as an aid to decision making? What can be gleaned about such attitudes from both quantitative and qualitative exploration?

2. Are there inter-professional differences amongst diverse groups of MHPs in risk perception, anxiety and confidence in decision making?
3. Are MHPs subject to experiencing biases in decision making as a function of the way in which information about risk is presented, namely the framing effect?
4. What is the feasibility of engaging MHPs in training to strengthen knowledge of decision making processes and factors that influence the same?

The programme of research will utilise mixed quantitative and qualitative methodologies in order to explore its core research aims. This is appropriate since there is a dearth of research in the context of mental health in relation to decision making, particularly in relation to risk. At the same time, risk assessment and management is a fundamental component of patient safety and at the heart of NHS policy and agenda.



## **2. Factors impacting decision making: The role of understanding of probability, affect, confidence and personal attitudes towards decision aids**

### **2.1. Introduction**

Risk based decision making in mental health settings is pertinent to safeguard patients and the public. At the same time, we know that decision making itself is susceptible to a number of influences. In the context of mental health, this may include, but is not limited to, biases and the use of heuristics that both help and hinder decision making, understanding of probability and statistics, emotions experienced at the time of decision making, level of confidence associated with decision making and personal attitudes towards Risk Assessment Proformas (RAPs).

The literature of decision theory is vast. Authors have sought to examine the many variables in the process of decision making. Research has also sought to elucidate how such factors operate within specific contexts such as medical decision making (e.g. in general doctors and nurses). This said, it is fair to say that exploration of decision making in the psychiatric field is lacking- despite the decisions of Mental Health Professionals (MHPs), especially those concerning risk, having potentially negative consequences for patients, their families, and the public.

The current chapter provides a narrative review of selected influences on decision making in general and also attempts to build a case for their operation in mental health settings, thus providing a rationale for focusing efforts on trying to understand and enhance knowledge of the decision making process and its influences in MHPs. It first

describes the distinction between the terms *judgement* and *decision making*, and then turns to a description of the operation of selected biases and heuristics that humans apply in order to make decisions. Additionally, the specific role of probability in healthcare decision making is considered, alongside the impact of emotion and confidence in individual decision making. Finally, the key components of attitudes are described in the context of how they are constructed and may further impact how MHPs engage with aids to the decision making process.

***Human judgment and decision making.*** The subjective judgments that MHPs make regarding risk can highly influence service user care but there is little evidence to suggest how these judgments are made. Judgment is the evaluation of one or more choices based on prior evidence and associated goals while decision making is the process by which those choices are made from a variety of alternatives with the intention of achieving a particular outcome (Baron, 2000). These decisions may be rational or irrational and can be formed based on explicit (objectively known/accepted by all) or tacit assumptions (unvoiced personal experience, i.e. religious beliefs). Logical decision making is an integral part of any medical or scientific occupation (Orme & Maggs, 1993). Medical professionals are required to assess patients, make diagnoses and select appropriate treatments, and the decision making process influences these actions. The safety of service users is paramount in making assessments of risk, and a focus on judgment and decision making when performing RAPs should be at the forefront of NHS departments.

Taylor (1997) suggested that nurses working in clinical practice use a problem-solving strategy called 'diagnostic-reasoning'. This model suggests that individuals pick up cues from the environment, make hypotheses from these cues, obtain further information to validate or invalidate the information and finally evaluate each hypothesis. The general notion of the model is that individuals use cues from the environment to make assumptions about the world and use heuristics when information is not available.

There is also evidence to suggest that intuition is present in decision making. Intuition is, broadly, the way humans make judgments or decisions without the need for conscious thought or reasoning and describes processes that, once rehearsed, become automatic.

The relative efficiency of human decision making develops by the reinforcement of previously experienced information. There is suggestion that human cognitive decision making is underpinned by two separate systems: system 1, which processes fast and intuitive decisions; and system 2, for slower and more effortful processing (Kahneman., 2011). System 2 is used for processing things that require effort, such as calculating the following sum:  $389 \times 164$ . During this kind of calculation, a lot of mental effort is required to work out the answer and system 2 will be utilised until you have solved the problem. System 1 on the other hand processes those decisions that do not require any conscious effort; just as experienced fire-fighters use recognition of previous experiences to guide their decisions about entering a burning building (Klein, Calderwood, & Clinton-Cirocco, 1986) or experienced drivers automatically operate a vehicle without conscious effort.

Medical professionals might also use this method of recognition to make decisions; however, the type of role may predict reliability of the intuition. For example, when

anaesthetists make a mistake in practice, the consequences of this are immediate (a patient dies) but if a radiologist makes a mistake about the presence of cancer on a scan, there is no immediate feedback about the outcome for that patient. Without this feedback, recognition decision accuracy may be difficult to achieve. This recognition is principally derived from the feedback that we gain via experience however there may be additional factors affecting such as the opinions of colleagues. It is possible that learning from mistakes in practice improves pattern recognition, a factor that could underpin intuition (Kahneman & Klein, 2009), but that additional factors may influence feedback for future decisions.

There is some suggestion of intuitive decision making in mental health settings.

Psychiatric nurses assessing risk of violence in crisis situations utilise intuition when making decisions about risk (Trenoweth, 2003) in that they used previously acquired information about their patients to 'tune in' to potential violent incidents by observing the situation as a whole, rather than by its constituent parts. When specifically making clinical risk assessments, nurses were found to make rapid and intuitive judgments based on the likelihood of violent behaviour. In often busy and demanding clinical settings MHPs may use an intuitive decision making process rather than a structured approach of weighing the available options (Klein et al., 1986). As the current mental health knowledge base stands, there is insufficient evidence to support a definite statement of fact in this area; however further qualitative exploration may elucidate the mechanisms involved in MHP judgment and decision making.

***Heuristics and biases in judgment.*** While judgment and particular strategies have been considered, there are more significant processes in human decisions that have the potential to systematically produce bias without our conscious knowledge. These processes, called 'heuristics', are fast and frugal methods of making decisions, which sometimes lead to errors in judgement (Kahneman & Tversky, 1974). The word 'heuristics' refers to a cognitive process used in problem solving when logic or probability theory does not suffice. In the 1970s, psychologists developed a less optimistic use of the word, describing them as overused cognitive processes often misapplied to situations where logic should have been used. As a result of the use of heuristics, systematic errors, or biases, in judgment are produced. Thus, a great volume of work was undertaken and indeed Kahneman and Tversky were later awarded a Nobel Prize in Economic Sciences. They referred to these processes as '*heuristics and biases*', of which a number are documented (Kahneman & Tversky, 1972; Kahneman & Tversky, 1973; Kahneman & Tversky, 1974; Tversky & Kahneman, 1974). Toward the latter part of the 20<sup>th</sup> century, Gigerenzer & Todd (1999) advocated for a more positive interpretation of the word, where the term 'heuristic' referred to a 'rule of thumb' or 'approximation' for positively guiding decisions- the concept for which derives from research into the strategies of chess players (Simon & Newell, 1972). This more recent, positive view implies a prudent use of time to search alternative choices and make fast, yet informed, decisions using a heuristic as a conduit to do so (Gigerenzer & Todd, 1999).

A number of studies investigated 'boundedly rational' heuristics (Kahneman, 2002, 2003) (as opposed to unbounded where we have infinite time to make decisions) by designing computational models to investigate real-life situations where heuristics may be successfully utilised. The most simple of these heuristics is the recognition heuristic (Goldstein & Gigerenzer, 1999, 2002) which posits that we use our ability of recognition (for example whether we recognise the name of a city or country) to infer about unknown aspects of the world (such as the population of that city or country). Indeed, this heuristic is so frugal that a lack of knowledge can actually be beneficial (Goldstein & Gigerenzer, 1999). The recognition heuristic suggests that if two items are presented, the recognised item will be judged as having a higher value. We divide the world into the previously experienced, and the novel (never experienced) and therefore we base judgments about the truth or validity of things on the previously experienced. For example, if participants are asked which has the larger population, Dortmund or Munich, the most well known city will usually be judged to have a larger population. If Dortmund is not recognised as a place, Munich will be judged to have the larger population (Gigerenzer & Todd, 1999; Mellors, Schwartz & Cooke, 1998). The recognition heuristic can only be utilised in situations of partial ignorance, i.e. if Munich was recognised as a city but Dortmund was not. This rule of thumb, or heuristic, is suggested as a method of fast and frugal decision making that assists the process by making them quicker and easier to compute. One strategy that is suggested to assist the decision making processes of medical practitioners is a heuristic called 'Take the Best' in which the many choices available to us are ranked in order of the most to the least optimal and choices are based upon considering the most optimal first- in essence the

model is designed to 'take the best, ignore the rest' (Gigerenzer & Goldstein, 1996). This heuristic differs from traditional weighted additive linear models where all options are considered, assigned value weights and the most optimal is the choice with the largest sum (of all weights added together (Schoemaker & Waid, 1982). Within TTB, the less optimal choices are only considered if the most important piece of information does not lead to a decision.

TTB can be exemplified by expert methods of burglars choosing between which two properties to break into. In a study by Garcia-Retamero & Dhimi (2009), expert burglars were found to base their decision on one main factor (or cue)- whether or not a property had an alarm. If one had an alarm and the other did not, the burglar would break into the property that did not have an alarm. If both had an alarm, or neither had one, the next cue would be considered. The next cue might be whether there was access at the ground floor; if one property had ground floor access and the other did not, the burglar would choose to break in to the one with access. If both have access, or both do not, only then will the next cue be considered, and so on. In this way, fast and frugal decisions can be made based on extremely limited information.

TTB can be applied to medical decision making, where doctors and nurses need to decide upon the most important cues of a medical presentation in order to follow the best course of action. Based on a few 'yes' or 'no' answers, the most optimal decisions can be made. Green & Mehr (Green & Mehr, 1997) found that decisions to admit to a coronary care unit could be quickly made using a 'decision tree'. Decision trees are a graphical method of presenting the most optimal decision choices. At the top of the tree is the most important cue (as decided by the expert after ordering the choices from

most to least vital to the decision). In Green & Mehr's study, doctors made decisions about whether a patient should be admitted to a coronary care unit. At the top of the list for consideration was whether an anomaly was revealed on an electrocardiogram. If the answer was yes, no further factors were considered and the patient would be sent to the coronary care unit. If the answer was no, only then was the next cue- chest pain- considered. If chest pain was not the principal complaint, a regular nursing bed was allocated. If it was the principal complaint, doctors were to see if there was any other symptom or sign of coronary dysfunction and if yes, the patient was admitted to the coronary care unit. It is this basic system of yes and no questions that allows doctors to quickly and frugally assess the needs of patients, and ensure money is being spent on truly warranted cases, rather than admitting patients without the consideration of necessity (Green & Mehr, 1997).

TTB could be applied to decisions made in mental health settings. At their most risky, service user cases can involve the potential suicide, self harm or harm toward others. While occurrences are rare, especially in cases of suicide, MHPs consider the possibility of these factors when deciding upon whether to admit, section or discharge so that the safety of both the service user and those around them can be ensured. A decision tree, as used in Green & Mehr's study, can be applied in a service user case when assessing the decisions around admission. This is illustrated in Figure 1.



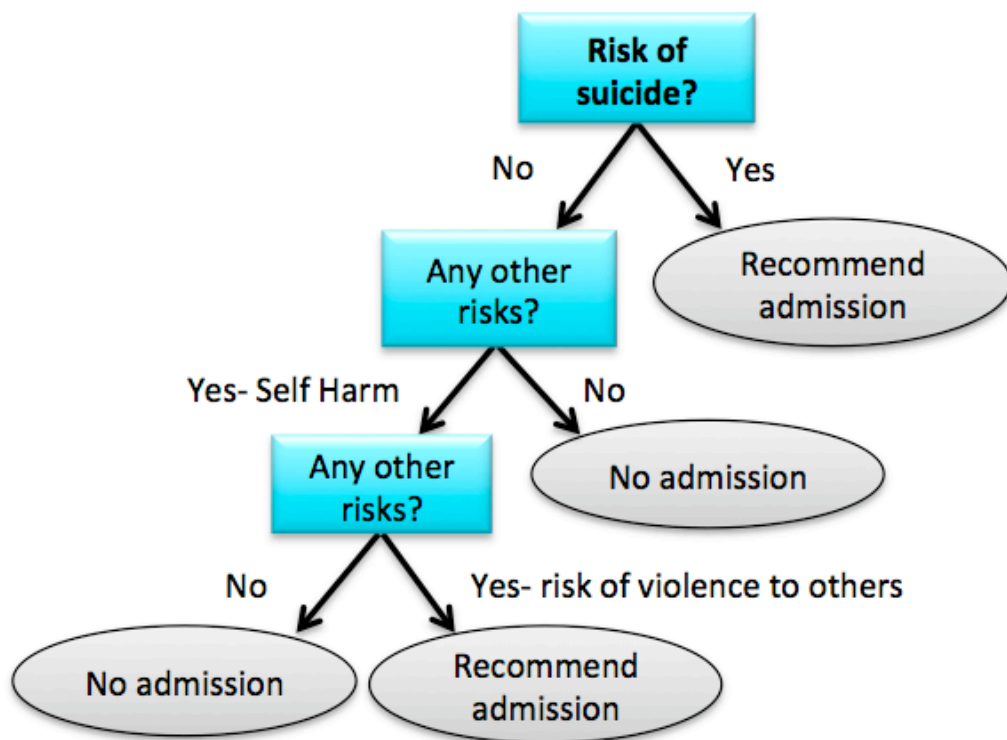


Figure 1. Example decision tree for admission decision based on service user risks

Figure 1 shows a very simple illustrative example of how TTB might be used in mental health settings. It outlines the process of decision making, basing the initial decision upon the rare possibility that the service user may attempt suicide. If the answer to that is yes, admission may be recommended and no further evidence would be needed to make the decision at that point. If no, *only then* would other risks be considered. In the diagram, we can see that if there are no other risks, it may not be necessary to recommend admission at that time. If there are other risks, these would now be considered until enough information was gathered to make the final decision. It would be useful to ascertain whether this method is being used within mental health practice, and if it is the most beneficial for service user care. In this way, decision trees can be

utilised to make fast and frugal decisions based on minimal information, possibly with applications to reducing time and cost of decisions in mental health settings.

Rather than heuristics as solely beneficial aids to decision making, Kahneman & Tversky, in their large body of work in the area of judgement and decision making, suggested that the use of heuristics often hinders our decisions (Kahneman & Tversky, 1973; Kahneman & Tversky, 1974). The principal heuristics introduced by the authors were representativeness (Kahneman & Frederick, 2002; Kahneman & Tversky, 1974), availability (Tversky & Kahneman, 1973) and anchoring/adjustment (Slovic, Fischhoff & Lichtenstein, 1977; Tversky & Kahneman, 1974).

*Representativeness.* The representativeness heuristic suggests that when faced with a decision of whether two things are related, individuals tend to evaluate them based on how much one is representative of the other. An illustration of judgement by representativeness can be considered using the following example. A description of a fictional person ('Steve') was given to a cohort of participants that suggested the individual was '*...shy and withdrawn, invariably helpful, but with little interest in people or in the world or reality. A meek and tidy soul, he has a need for structure and a passion for detail*' (Tversky et al., 1990). Participants were asked to judge whether 'Steve' was a farmer, salesman, airline pilot or librarian. Basing their decision on the degree to which 'Steve' was similar to, or represented group membership of each occupation, participants rated 'librarian' as the most probable of the options. Tversky and Kahneman suggest that if individuals assess probability based on representativeness, prior probabilities will be neglected (Kahneman & Tversky, 1974). Indeed, in this case

representativeness lead to the bias of 'base rate neglect', in which individuals fail to consider the base rate information when making decisions about probability. For example, if the participants deciding upon Steve's most likely profession had considered how many potential farmers, salesmen and other professions there are in a country, it should be clear that (regardless of character) it is far more likely that Steve is, say, a farmer rather than a librarian (based on the number of possible libraries per town or city vs. the larger number of farms for example) (Tversky & Kahneman, 1974; Tversky et al., 1990). In further research, Kahneman & Tversky (1973) manipulated prior probabilities to ascertain the level of influence this had upon estimates of likelihood. Participants in two experimental conditions were shown personal descriptions of people allegedly drawn from a pool of one hundred engineers and lawyers. Individuals in one condition were informed that of the sample, 70 were engineers and 30 were lawyers and in condition 2 participants were told that 30 were engineers and 70 were lawyers. Thus, for example, the assumption that the probability of any person in the sample being an engineer would be higher in condition 1 than in condition 2. Participants showed, initially, that they understood the probability that within the sample of 100 people, how many would be engineers how many would be lawyers. However, when apportioning probability in individual case descriptions (a short description of a person's characteristics was presented), results suggest that participants used the representativeness heuristic to judge the probability of the person being an engineer or a lawyer based on how far the description represented each occupation, rather than taking into account the previously given probabilities. When given no information to make a decision, prior probabilities were observed, however when given evidence with

little or no relevance, prior probabilities are ignored and errors in judgment are made (Kahneman & Tversky, 1973).

*Availability.* The availability heuristic posits that an easily recalled, or believable event will be identified as much more likely to occur than one that may be less believable or harder to recall. For example, if one had recently heard of a friend of a similar age having a heart attack, the perception of this risk and judgment of its probability would be elevated (Tversky & Kahneman, 1973). The salience of memories also leads to easier recall, thus aiding the availability heuristic. The salience bias has been seen in medical studies, where errors were seen in radiographers diagnosing tumours as malignant, rather than non-malignant (Wallsten, 1980). While this false positive may not be harmful in the diagnosis of cancer (i.e. diagnoses are not being missed in this case), the availability heuristic could cause biases leading to the non-diagnosis of disorders or medical conditions.

*Anchoring and Adjustment.* Somewhat less extensively researched is the *anchoring and adjustment* heuristic. This describes the cognitive error that leads humans to rely too heavily on the first piece of information presented in a situation involving judgment of the same; thus, they anchor upon this original value. Any information presented subsequently is regarded as of less importance and, while small adjustments may be made from the original value, those adjustments will usually be smaller than is expected based on the available information (Tversky & Kahneman, 1973). The availability bias can be exemplified in the following situation: if you asked two different people to

estimate the population of London, but asked person one whether the population of London is 'more or less than 500,000' and ask person two if the population is 'more or less than 5 million'. The person who was asked the question with the anchor (initial information source) of 500,000 will likely come to a much lower final estimate of population than the person who was asked the same question but with the anchor of 5 million. In this way, estimates are systematically biased by the initial informational anchoring (Jacowitz & Kahneman, 1995). This error in judgment is robustly demonstrated in a number of studies (Epley & Gilovich, 2006; Mussweiler, Englich, & Strack, 2004; Plous, 1989). Anchoring also biases judgment in the domain of probabilities as providing even arbitrary numerical anchors to participants causes systematic bias toward the presented anchor value (McGlone & Reed, 1998).

A body of research confirms the existence of general error in medical decision making (Berner & Graber, 2008; Bornstein & Emler, 2001; Chapman & Sonnenberg, 2003; Croskerry, 2005a, 2005b; Friedman et al., 2001; Norman & Eva, 2010; Patel, Kaufman, & Arocha, 2002; Redelmeier, 2005) including limited work in mental health decisions (Garb, 2013; Harvey, 1997; Harvey, Koehler, & Ayton, 1997). Research that has been undertaken in the mental health setting suggests cognitive bias does exist (Garb, 2013), and that MHPs often collect insufficient information before making decisions (Gladwell, 2005; Segal, Bola, & Watson, 1996). In their review of decision making with regard to child and adolescent psychology, Galanter & Patel (2005) highlight the limited progression of decision research in psychiatry as being due to the subjectivity of psychiatric diagnosis. A similar level of subjectivity could be suggested in mental health risk assessment, which could explain the lack of research into error and biases in this

area. Nonetheless, as humans use a number of strategies to aid decision making (with potentially negative consequences) it is imperative to explore this across diverse healthcare settings.

***The framing effect.*** One particular bias-inducing factor is the way in which information is presented (Payne, Bettman & Johnson, 1992). These alterations in information presentation can produce what we refer to as 'Framing Effects'. Manipulation of information can be based on, but is not limited to, losses or gains, high or low risks, or the type of information can be manipulated (e.g. numerical or percentage). The important factor in framing is that decisions can be altered when the same information is presented in different formats. Kahneman & Tversky (1981) examined framing and whether alternative phrasing of a health related scenario would lead to different decisions regarding disease prevention. In their experiment, participants were required to make a hypothetical life-or-death choice for 600 people who are about to contract a deadly disease.

Participants were informed that option A would save 200 people's lives, while option B gave a 33% chance of saving all 600 people but a 66% chance of saving no one. Both of these options have the same expected value (saving the lives of 200 people), and both were framed as 'lives saved'- the positively framed account. Another group of participants were given the same scenario with options framed as 'lives lost'. The choices were: option C- 400 people will die or option D where there is a 33% chance that no one will die, and a 66% chance that all 600 people will die. Again, these options had the same expected value. In the first group of individuals, the option perceived to

be less of a risk was chosen in over 70% of participants, however, when the phrasing of the options changed, almost 80% of participants chose the risk-framed option (D), a complete reversal of decision making. A possible explanation for the framing effect is that individuals have a stronger negative reaction to a loss than they do to an equivalent positive gain. Thus, in general decision making, when a question is framed in terms of loss, individuals are risk inclined, but when framed in terms of gain, they become risk averse. It is as though when faced with certain loss, individuals will take a risk for an opportunity to save more but when informed of a sure gain (saving 200 people), they do not wish to take a gamble on making a loss of life.

Manipulation of base rate information and anchoring points has also been found to influence rankings of 'risk of death'. Results found, over two experiments, that participants judged the probability 1,286 out of 10,000 (12.86% chance) **more** risky than 24.14 in 100 (24.14% chance) suggesting evidence of base rate neglect and that decisions were influenced by altered anchoring points (number of deaths) rather than the rates of death (Yamagishi, 1997). Numerically-presented, negatively-framed information was found to elicit more risk aversion in another study (Inglis & Farnill, 1993), suggesting individuals will be more aware of the risks when information is given numerically rather than in word form. This finding may support the information processing framework of decision making (Lipkus & Peters, 2009) which posits that better numeracy leads to an improved understanding of risk-related numbers and a deeper focus on the meaning of risk information. Potentially, this idea has implications for clinical risk decision making. MHPs who possess a better understanding of numbers

may have an increased awareness of risk, increased inclination to seek further information and, in turn, less impulsive decision making.

A number of studies suggest that the framing effect can also be reliably produced in medical professionals (Almashat, Ayotte, Edelstein, & Margrett, 2008; Kim, Goldstein, Hasher, & Zacks, 2005; Malloy, Wigton, Meeske, & Tape, 1992; McKee, 2001; McNeil, Pauker, Sox Jr, & Tversky, 1982; O'Connor et al., 1985; Tengs, 1987), which is concerning due to the importance of rational and unbiased based decision making for good patient outcomes (Evidence-Based Medicine Working Group, 1992). McNeil et al (1982) asked a number of participants to imagine that they had lung cancer and to choose between two therapies (surgery or radiation) based on probabilities and life expectancy data. With resemblance to previous framing study findings, (Tversky & Kahneman, 1981), participants were more likely to choose surgery (the more risky option) over radiation (the safer option) when the odds were framed as probability of living, rather than the probability of dying. Additionally, participants chose surgery if outcomes were framed in life expectancy rather than probability—even though the former proved to be a poorer probabilistic choice. The importance of structure and format of clinical information dissemination was also highlighted by Gigerenzer (1996) where physicians were presented with one of two medical diagnoses in two different formats: frequency (absolute numbers) and probability (using percentages). An example scenario (used originally in a study by Eddy, 1982) presented participants with base rates for breast cancer in the population and false positive rates for a breast cancer scan (mammography) and were asked to calculate the likelihood of a person having cancer



following a positive scan. It was established that clinicians found it much easier to predict the likelihoods based on frequency, rather than probability, data (Gigerenzer, 1996).

***Statistical Numeracy: an additional biasing factor for mental health decisions?*** In

addition to cognitive bias, other factors such as numeracy may also be contributory to risk based decision making. Numeracy can be broadly described as the ability to comprehend and apply arithmetic operations such as calculating a percentage discount when making a purchase (e.g. 30% off) or the ability to budget one's monthly expenditure. It is known that even well educated individuals have difficulty processing basic arithmetic problems (Lipkus, Samsa, & Rimer, 2001), as do undergraduate students (Yamagishi, 1997), medical students (Sheridan & Pignone, 2001) and medical doctors (Forrow, Taylor, & Arnold, 1992). A specific type of numeracy, Statistical numeracy—the ability to understand numbers in the form of probabilistic concepts, ratio odds and base rate information—may be pivotal in assessing and comprehending information about risks for, and subsequent health and wellbeing of, service users. This area is of significance to mental health practitioners, owing to the requirement for them to assess risk and probability of harm, however, there is a dearth of research in the area. MHPs are tasked with assessing risk on a daily basis and the misunderstanding of statistics and probability could lead to a number of biases, such as the framing effect (Edwards & Elwyn, 2001; Edwards, Elwyn, Covey, Matthews, & Pill, 2001; Fuller, Dudley, & Blacktop, 2001; Marteau, 1989) or base rate neglect (Yamagishi, 1997).

Misunderstanding the base rates of information surrounding service user risk may also

bias clinical decisions. For example, in a case where risks are extremely rare, misunderstanding the clinical context in which the service user is placed [e.g. how many people in 10,000 are likely to be susceptible to this risk]) could lead to base rate neglect (Yamagishi, 1997), and as such is an area in need of further exploration. Of particular concern is that those with lower statistical numeracy have been found to be more susceptible to the framing effect (Edwards et al., 2001; Malenka, Baron, Johansen, Wahrenberger, & Ross, 1993; Okamoto et al., 2012; Sarfati, Howden-Chapman, Woodward, & Salmond, 1998), base rate neglect (Reyna & Brainerd, 2008) and their treatment preferences are more likely to be influenced (Bucher, Weinbacher, & Gyr, 1994; Chao et al., 2003; Forrow et al., 1992; Hux & Naylor, 1995; Naylor, Chen, & Strauss, 1992). Justification for the necessity of additional investigation into MHP numeracy and subsequent education to improve the same, is further motivated by previous work indicating no better statistical numeracy in MHPs than non-MHPs (Gale et al., 2003).

***The framing effect: A way around the bias?*** The framing effect may be circumvented by debiasing methods such as asking participants to provide reasons for their decisions in an attempt to avoid the use of heuristics (Miller & Fagley, 1991; Sieck & Yates, 1997; Takemura, 1994). Asking individuals to justify their decisions should, in theory, reduce the reliance on past experience and focus on the real-life evidence base available to them (Yates, 1990) — however there is a dearth of research unequivocally confirming this. Additional studies suggest that training in the use of statistics improves the incidence and quality of their use (Fong, Krantz, & Nisbett, 1986; Krantz, 1981; Lehman,

Lempert, & Nisbett, 1988; Nisbett, 1993; Nisbett, Krantz, Jepson, & Kunda, 1983). While some believe that training to avoid such biases has proved '*absolutely worthless*' (Arkes, (1981), p. 326), demonstrable success was seen when Reid & Borkowski (1987) assisted children with hyperactivity disorders to better 'self-control' using attributional retraining in an attempt to understand spontaneity. A number of reviews have suggested that the traditional passive dissemination programmes (such as posters or leaflets) for educating health professionals are largely ineffective in improving knowledge or changing behaviour (Bero et al., 1998; Davis, Thomson, Oxman, & Haynes, 1995; Freemantle et al., 2000; Oxman, Thomson, Davis, & Haynes, 1995). Grimshaw et al., (2002), Grol (1997) and Eccles et al. (2005) (2005) all advocate the use of behaviour change theory in advising education for clinicians.

Whilst it appears possible to somewhat reduce the effects of natural biases, humans also must process information about the world and about risk using numerical information, and as previous research advocates, we may not be natural statisticians (Kahneman & Tversky, 1973). The following section discusses the implications of misunderstanding numerical risk information.

***Probability and the Implications of misunderstanding the concept.***

*What is probability?* Probability is the calculation of the likelihood of a particular event's occurrence and is denoted by a number between 0 and 1. A probability of 1 suggests certainty of an event occurring, and a probability of zero suggests an impossible outcome. The calculation of probability is simply described as the number of favourable outcomes divided by the number of possible (equally likely) outcomes. If one wanted to

know the probability of tossing a heads on a fair coin, the number of favourable outcomes is 1 (heads) and this is divided by the number of possible outcomes (two outcomes: 1. heads or 2. tails). One divided by two is .5 and therefore the probability of tossing a heads is 50%, thus both heads and tails are equally likely.

$$\text{Probability} = \frac{\text{Number of favourable outcomes (1)}}{\text{Number of possible outcomes (2)}}$$

$$1 \text{ divided by } 2 = .5 \text{ (50\%)}$$

Equally, the likelihood of tossing a coin and it not landing flat on a head or a tails is an impossibility and holds a probability of zero and the likelihood of tossing a coin and it landing on *either heads or tails* is 1 as there are no alternate possibilities.

***Evidence for probabilistic knowledge in medical & mental health professionals.***

Limited understanding of probabilistic concepts may have implications for risk assessment completion in mental health practice. Gale et al (2003) asked mental health professionals (MHPs) and controls to answer 10 multiple-choice probability questions, e.g. *‘Two dice are thrown simultaneously. What is the probability that both will show the same number when they land? (a) 1 in 6 (b) 1 in 36 (c) 1 in 12 (d) None of these.* Results revealed no differences (in percentage of questions answered correctly) between MHPs and controls suggesting that although no worse than the general population in their knowledge of probability, MHPs are no better in this area as one would predict them to

be (Gale et al., 2003). Wulff et al. (1987) also found low rates of statistical knowledge when they sent a 9 item questionnaire to 148 qualified medical doctors and 97 individuals on post graduate research methods courses (the majority of whom were junior doctors). The mean number of questions answered correctly by the medical doctors was 2.4, while the control postgraduate student group demonstrated a higher mean score of 4.0 (out of a possible 9) clearly demonstrating the lack of statistical knowledge in all health professionals, but particularly in senior clinicians. This, along with evidence from MHP samples, necessitates the requirement for further study owing to its implications for the assessment of risk in service users. As an extension of this, questions could be raised as to the usefulness of RAPs. If MHPs completing them do not have sufficient expertise in estimating probability, are RAPs being completed with sufficient prior knowledge of the magnitude of particular risks for that service user population? The lack of knowledge in the area will likely result in judgmental errors such as base rate neglect (Yamagishi, 1997) or the framing effect (Gong et al., 2013; Jefferies-Sewell et al., 2014; Malenka et al., 1993; McNeil et al., 1982; Meyerowitz & Chaiken, 1987; Tengs, 1987), both of which can bias medical decision making. It also raises questions about the decision making process that MHPs utilise and whether it differs from the general population, and additionally whether training may be able to make improvements to decision making in mental health clinical practice.

With regards to medical diagnosis, great importance is placed on base rates of particular diseases in specific populations. These base rates can be particularly useful for applying a wider, evidence based population-prevalence (of a disease or disorder) to a specific patient. In this instance, a more complex formula, Bayes Theorem can be

utilised. Bayes Theorem (Bayes & Price, 1763) suggested a formula to calculate probability based on the odds of an event (A) based on the odds of another event (B) and the unconditional probabilities of events A and B. The following formula to ascertain the probabilities is as follows:

$$P(A|B) = [P(B|A)] [P(A)] / P(B)$$

Bayes Theorem can be used to ascertain probability of diagnosis in a medical situation. Take for example a case in which you wish to find out if a patient has kidney cancer based on symptoms of blood in their urine. To ascertain the probability that the patient has cancer, we must take prior probabilities into account, such as the fact that 10% (probability .10) of people experience this symptom of blood in their urine, kidney failure occurs in .000002% of the population and that 100% of those with kidney cancer experience blood in their urine. This is enough information to apply to Bayes Theorem and would be presented as follows:

$$P(A|B) = [1.0] [.000002] / [.01] = .00002$$

Using Bayes' formula, we now know that the likelihood of someone having kidney cancer is .000002. We also know that 100% of those with kidney cancer have blood traces in their urine but this does not mean that you have a high chance of cancer based on the discovery of blood in your urine. In fact, the chances of you having kidney cancer are still extremely low (.00002%). Having this information is vital to making accurate and

evidence based decisions. The use of Bayes Theorem was examined in a group of doctors with an average of 14 years clinical experience (Hoffrage & Gigerenzer, 1998) where participants were asked to estimate the probability that a patient had colorectal cancer based on a test showing the presence of the same. Participants were given the prior probability information needed to make this calculation. While the correct probability for having the disease was around 5%, Hoffrage and Gigerenzer saw answers ranging from 1% to 99%. This variability in estimation of probabilities suggests an unacceptable level of statistical innumeracy in doctors. The authors did suggest that diagnostic inference could be improved by presenting information in the form of frequencies (Hoffrage & Gigerenzer, 1998).

As humans are susceptible to resorting to fast and frugal heuristics for decision making (Gigerenzer & Todd, 1999), and this commonly leads to errors in judgment (Tversky & Kahneman, 1973, 1974, 1981), basic understanding of probability and likelihoods may aid decision making. Early work in judgment found that actuarial (statistically driven) predictions were equally as accurate, or superior to, clinical judgment (Meehl, 1957). This suggests that even expert clinician judgment is no better than statistical predictions and this may be because humans are not innately programmed to undertake such calculations. Indeed, Kahneman & Tversky suggested that *"In his evaluation of evidence, Man is apparently not a conservative Bayesian: he is not Bayesian at all"* (Kahneman & Tversky, 1972). Without at least a basic knowledge of statistics and probability, the ability to make good inferences about the likelihood of events is greatly

reduced. The implications of this to mental health practice are considered in the following sections.

Meehl (1973) highlighted the importance of understanding statistics specifically in psychiatric settings. As a clinical psychologist, Meehl discussed the errors that MHPs (including, among others, psychiatrists, psychologists and social workers) make within case conferences, and highlighted the lack of elementary understanding of statistical concepts, such as Bayes Theorem and base rates (also in Meehl & Rosen, (1955). He also emphasized the inability of staff to understand individual cases as part of a larger population and the relative rarity of events. Gigerenzer and Edwards (2003) suggested that by using natural frequency data rather than percentages and presenting both absolute (overall probability of, for example, developing cancer) and relative risk (probability of a person developing cancer based on their lifestyle choices, such as smoking) errors in judgment about probability can be reduced. If medical doctors do not understand the basics of these statistics, they could overestimate risks for particular diagnoses and order more diagnostic tests, putting more stress on an already anxious patient. Likewise, in mental health settings, misunderstanding of prior probabilities may result in an overestimation or underestimation of the likelihood that a service user has a particular disorder. The ramifications of overestimating risk are more service users admitted to hospitals and fewer beds for those most in need, and underestimation may encourage non-admission of acute cases, thus increasing the risk of that individual to themselves and the wider community.



***Negative Emotion and Anxiety in decision making.*** We have already seen that decision making is subject to errors resulting from misunderstanding of probabilities and this is a particular problem in healthcare contexts where prevalence rates, and understanding of relative risk is essential, alongside the impact of using heuristics and various decision making strategies. Affective cognitions, including positive and negative emotion, may also have an influential role in decision making (Loewenstein et al., 2001). It is therefore vital that the topic of emotion, and its potential effects upon decision making, is addressed in order to build a comprehensive picture of the way MHPs may navigate the process of risk assessment and decision making to elicit the best care for service users. Although our understanding of statistics and the associated biases form part of the decision making process, there are immediate, visceral factors affecting the choices we make. The Risk as Feelings hypothesis (RaF) posits that the emotions felt at the time of decision making may be highly influential upon final choice (Loewenstein et al., 2001). The benchmark theory in the field of 'decision making under uncertainty' is the Expected Utility hypothesis- a theory suggesting that our subjective value of a gamble equates to the subjective statistical expectation of that gamble- however, RaF is a departure from this cognitive account of decision making and takes into consideration the impact that emotion has on decisions.

Loewenstein and colleagues (2001) distinguish between anticipatory emotions, those subconscious and visceral *reactions* to decision making (such as fear or anxiety) and anticipated emotions, or *expected feelings*. Previous judgment and decision making (JDM) research has focused on anticipated emotions such as regret and disappointment (Bernoulli, 1954) suggesting that decision makers focus more on anticipating how they

will feel as a *result* of making the decision rather than the emotions at the exact moment of the decision. *Anticipatory* emotions have been investigated more extensively in the neuroscience and social psychology domains with research suggesting a positive role for certain, previously-assumed unhelpful, emotions (Bell, 1982, 1985; Loomes & Sugden, 1982; Mellers, Schwartz, & Ritov, 1999). Indeed, Damasio's work into the somatic marker hypothesis, a stance suggesting that decision making is guided by emotions, found that some neurological anomalies that cause emotional reactions to be suppressed, detrimentally affect risky decision making (Damasio, Everett & Bishop, 1996). There is evidence to suggest that state (situation specific) or trait (inherent) anxiety could have an influence on the perceptions of MHPs toward risk and RAPs. Specifically, anxiety has a marked effect on our decision making abilities (Bechara, Damasio, Tranel, & Damasio, 1997; A. Damasio, 2008) and has been associated with altering judgments of risk (Butler & Mathews, 1983; Luu, Tucker, & Derryberry, 1998; Mitte, 2007; Miu, Heilman, & Houser, 2008; Raghunathan & Pham, 1999; Raghunathan, Pham, & Corfman, 2006). There is specific suggestion that individuals who are anxious have a propensity for risk aversion; the avoidance of taking risks (Maner et al., 2007; Maner & Schmidt, 2006). One suggestion for this, given by Maner et al. (2007), is that anxiety is a signal of present threat and it promotes psychological responses that help reduce the person's perceived vulnerability to that threat. Studies using self report measures of risk perception and decision making tasks also found trait anxiety correlated with increased avoidance of risky decisions and pessimistic risk appraisals (Maner & Schmidt, 2006; Mitte, 2007). The presence of risk aversion means that individuals with high anxiety may be more likely to judge the risk of an event higher than non-anxious people, a

suggestion also acknowledged in other studies (Butler & Mathews, 1983, 1987; Stöber, 1997). Additionally, affect is addressed in a number of non-medical studies suggesting that those in good mood states make more optimistic decisions (Butler & Mathews, 1987; Maner et al., 2007; Maner & Schmidt, 2006; Mitte, 2007; Stöber, 1997). Early studies into affect and decision making found that participants who read negative newspaper reports gave higher estimates of risk of death than those who read positive articles (Bower, 1981; Schwarz & Clore, 1983; Wright & Bower, 1992) and that the result of fear and anxiety is a more risk averse and cautious decision maker (Johnson & Tversky, 1983).

The inherent uncertainty in risk management and risk assessment is, in itself, likely to cause anxiety in MHPs (Lerner & Keltner, 2000) as is the knowledge that an ill advised decision about risk may have consequences for a service user or those proximate to them (including the MHP themselves or colleagues). It has been suggested that the act of risk management (including the process of risk assessment) has become a vehicle to reduce anxiety about risk within organisations (Undrill, 2007). If this is the case, there may be reason to suggest that a cycle of anxiety and risk assessment result; anxiety about risks is experienced and results in an increase in risk assessment to abate anxiety. Subsequent anxiety about completing the risk assessment under such uncertainty completes the cycle. The presence of anxiety in MHPs could be influenced by a number of factors including number of years in post (i.e. experience), seniority of post (responsibility for decisions), type of job role and other demographic factors such as age and sex- although research is not currently in the public domain to directly support this. Previous research in the health domain indicates high levels of anxiety in general health

professionals (Power, 2004) and high levels of anxiety in shift working nurses (Erlen & Sereika, 1997; Oehler, Davidson, Starr, & Lee, 1991), general nurses (Ardekani, Kakooei, Ayattollahi, Choobineh, & Seraji, 2008; Zamanian Ardakani, Kakooei, Ayattollahi, Karimian, & Nasle Seraji, 2008) and a higher General Health Questionnaire (GHQ) score than the general population (Gao et al., 2012).

There is also evidence to suggest anxiety in MHPs (Bogaert, Clarke, Willems, & Mondelaers, 2013; Fagin, Brown, Leary, & Carson, 1995; Fagin et al., 1996; Poster, 1996; Prosser et al., 1996; Prosser et al., 1997). Affective (and physical) consequences of psychiatric work are seen in psychiatrists, with 'burnout' (the resulting emotional and physical exhaustion resulting from prolonged exposure to emotionally demanding situations) being an occupational hazard to which they are susceptible (Mori & Kageyama, 1995): a finding also well documented in general health professionals (Kumar, 2007). While existing research supports the notion that affective emotions can be experienced by MHPs, it does not address how anxiety might influence subsequent risk-related judgments. If, based on previous evidence (Edwards, Burnard, Coyle, Fothergill, & Hannigan, 2000; Jenkins & Elliott, 2004; Kottler, 2010; Leiter & Harvie, 1996; Pines & Maslach, 1978; Prosser et al., 1997; Snibbe, Radcliffe, Weisberger, Richards, & Kelly, 1989; Edwards et al., 1978), MHPs experiencing anxiety are more likely to judge risk as high, there is a possibility that risk avoidance will result. Specific to the mental health setting, this may cause reduced levels of positive risk taking, thus impeding the opportunities that could be taken by service users in their journey towards recovery. As it stands, there is no specific research investigating the effect of

MHP anxiety on risk taking or decision making and as a result, this is an area in need of exploration in order to establish if emotion does negatively influence MHP decisions.

***Overconfidence in decision making.*** In general, humans are overconfident about their performance on tasks of skill. Howell (1972) found that individuals consistently overestimate their predicted performance on a dart throwing task, believing they would be better than chance. Langer (1975) called this the 'illusion of control' whereby individuals feel that they have influence over chance situations. Slovic et al. (1976) suggested that when individuals had to estimate the odds they selected the correct answer to general knowledge questions, incorrect answers were often given with certainty. Furthermore, participants had such faith in these odds that they were willing to take part in a game that punished them for this overconfidence. Langer and Roth (1975) found that individuals who had experienced initial successes in a task over-remembered these successes, i.e. neglected instances of failure, and Fischhoff and Beyth (1975) showed that people have a biased recollection of their predictions of future events. Not only do humans overestimate their ability to predict past events, they also exaggerated the extent to which others should have been able to predict them.

Considering that evidence suggests medical errors by doctors are one of the leading causes of morbidity and mortality in patients (Kohn, Corrigan, & Donaldson, 2000) due attention must be paid to how confidence may bias decisions. A number of studies indicate error in medical settings due to confidence (Berner & Graber, 2008; Haiyan & Min, 2011; Mann, 1993; McNeil, Sandberg, & Binder, 1998). Medical clinicians have

been found to be unaware that their confidence does not align with their diagnostic accuracy (Friedman et al., 2001; Friedman et al., 2005). In a study of 216 doctors (including 72 senior medical students, 72 medical residents and 72 faculty interns), senior medical residents were overconfident. Overconfidence was seen in 41% of instances where there was misalignment of confidence and accuracy. Faculty interns and students were also overconfident but to a lesser extent than residents, with confidence in 36% and 25% of cases, respectively (Friedman et al., 2005). By extension, the same level of attention should be given to decisions made in mental health settings owing to the importance of accurate decision making for service users. A number of studies indicate the limited ability of psychiatrists to predict violence (Lidz, Mulvey, & Gardner, 1993; Monahan, 1984) and misalignment of accuracy and confidence has been observed in mental health settings for judgments of violence risk in psychiatric service users (Desmarais, Nicholls, Read, & Brink, 2010). Twenty-three MHPs within a specific short-term risk treatment team completed 331 assessments of over 100 patients in their care and confidence in each assessment was recorded. High levels of subjective confidence in the accuracy of participants' judgments were recorded, however accuracy did not increase in line with confidence (Desmarais et al., 2010). The problem with overconfidence in risk assessment, particularly for risk of violence, is that inaccurate decisions made with great confidence could result in an elevated threat to the well being of service users and the public. The greater the confidence is in one's own judgment, the more that clinical judgments and decisions will be based upon it (Garb, 1987). Trust placed in the accuracy of experienced clinicians may be misplaced owing to evidence suggesting that confidence grows with experience, but that accuracy of clinical

decisions does not increase in accordance (Dawson, 1993). In fact, high confidence has even been associated with reduced clinical judgment and lower predictive accuracy (Arkes, 1981; Desmarais et al., 2010; Faust, 1986; Faust et al., 1988; Ruscio, 2000).

Overconfidence may be dependent on the confirmation bias; the tendency for people to search for information that confirms their own existing beliefs or ideas. This has been suggested to be present in clinical judgments (Elstein, 1999) as most decisions within clinical settings are made under some uncertainty. The confirmation bias influences clinicians to base judgments upon their pre-existing ideas of a patient's problem. By doing so, the confirmation bias can lead to clinicians neglecting potentially important information that could alter diagnoses (Croskerry, 2002). Confidence may also underpin 'hindsight bias', the notion that we have predictive abilities over past events based on subsequent occurrences (the idea that we 'knew it all along'). This bias also has the ability to bias clinicians' diagnoses of patients in medical settings (Arkes, 1981; Arkes, Wortmann, Saville, & Harkness, 1981). There are various strategies that have been suggested to reduce the level of confidence in judgment. Studies have found that decisions are less influenced by overconfidence when individuals are forced to contemplate disconfirming information (Koriat et al., 1980) or when individuals are forced to consider other diagnoses (Arkes, Faust, Guilmette, & Hart, 1988). Overconfidence could also be reduced by training clinicians to understand their natural biases in decision making (Croskerry & Norman, 2008).

The inevitable human overconfidence experienced by MHPs could have negative effects upon clinical decisions. Those given the responsibility of completing risk assessments, conducting care plan assessment meetings and managing the outcome of patient care strive to ensure the safety of their patients and have a duty to make advised and evidence based decisions that are as unbiased as possible. Overconfidence may be beneficial in a situation where positive decision making is required. For example, if a MHP is overconfident that a service user will attempt self-harm, overconfidence could be beneficial, as preventative action will be taken to protect the safety of the service user. However, it may also cause MHPs to take unnecessary risks (Krueger & Dickson, 1994) and make misdiagnoses (Meyer et al., 2013; Yazbek et al., 2010).

***The role of personal attitudes in the decision making process.*** RAPs are essentially a tool to support systematic exploration of risk and to ultimately result in good risk based decision making (Department of Health, 2007). Negative attitude to RAP completion appears to be a recurring theme in the limited associated literature (Godin, 2004; Hawley, Gale, Sivakumaran, & Littlechild, 2010; Maden, 2003), and thus the implications of this upon risk behaviour in the process of risk assessment must be considered.

Research from broader healthcare settings suggests that negative attitudes can be the cause for non-compliance (Webley & Ashby, 2010) and in a medical field, the presence of a more favourable attitude towards infection control precautions, for example, wearing gloves for routine blood testing of patients, appeared to be accompanied by a higher rate of compliance .



This considered, a supportive attitude towards RAP completion might be required for compliance with government policy (Department of Health, 1999). Despite the potential significance of attitudes toward RAPs, research in the area is limited and while the aforementioned studies take a small step towards understanding general attitudes in relation to RAP completion, it does not unequivocally support their influence specifically in MHPs. Although an attitude toward a RAP can be established and recognised, this is not the end of the story. Of particular importance is how those established attitudes might affect, or predict, behaviour, i.e. does the way MHPs feel about RAPs affect the clinical decisions they make? The understanding of this must begin with recognition of how attitude can alter information processing. That is, how we process the information we receive during our every day experiences; and there are individual differences in these processes (Sheeran, Trafimow, Finlay, & Norman, 2002). In a mental health setting, the way two different nurses decide to estimate risk and report in a RAP may differ depending on both the attitude to the RAP itself and the attitude toward the process of risk assessment as a whole. These differences can be deconstructed by referring to particular attitude-behaviour theories, as described in the following section.

***Theories of the Attitude-Behaviour relationship.*** The most prominent general theory describing the attitude-behaviour relationship is the Theory of Planned Behaviour (Ajzen, 1991). The theory is built upon Ajzen's previous 'Theory of Reasoned Action' (TRA- Ajzen, 1963; 1967; 1980). The principal component of TRA was that intention to perform an action or behaviour is the greatest predictor of that behaviour, and this is

supported by a number of studies (Abraham, Sheeran, & Johnston, 1998; Ajzen, 1985; Ajzen, 1991; Ajzen & Madden, 1986; Austin & Vancouver, 1996; Conner & Armitage, 1998; Fishbein & Ajzen, 2005; Godin & Kok, 1996). In most situations, we are unlikely to perform an action we do not intend to execute. Intention to perform a behaviour is suggested to be determined by two components. The first is our attitudes, which involves weighing up the advantages and disadvantages of carrying out the behaviour in question. Secondly 'subjective norms' are associated with completing the behaviour and is broken down into two components: normative beliefs (subjective perception of whether others will think behaviour is 'normal' or acceptable) and motivation (degree to which the person is driven to comply with conducting a behaviour). Ajzen specifically suggested that behaviour can be predicted by knowing the attitudes toward that behaviour (Fishbein & Ajzen, 1975). A caveat to TRA is that it could only predict voluntary behaviour. It cannot predict non-completion of behaviour for reasons such as lack of ability or perceived ability. In light of this, Ajzen suggested the concept of 'Perceived Behavioural Control' (PBC) as a substitute for the inability to objectively measure the voluntariness of an action. PBC is the feeling of personal control over a situation or action and may be influential upon the final behaviour (Ajzen, 1988; Ajzen, 1991). Underlying PBC are two separate, yet related, components; 'perceived difficulty' and 'perceived control' (Ajzen, 1985, 1991, 1996). Perceived control describes the extent to which we feel voluntary control over our behaviours, and perceived difficulty refers to whether we feel a particular behaviour is easy or difficult to perform. In a series of four experiments, Trafimow and his colleagues showed supportive evidence for the distinction between the two components; adding that perceived difficulty was a

better predictor than perceived control of individuals' intentions to perform behaviours (Trafimow, Sheeran, Conner, & Finlay, 2002). The prediction of behaviour was found to be improved when PBC was added to the original theory of reasoned action in a number of meta-analyses (Ajzen, 1988; Ajzen, 1991; Armitage & Conner, 1999; Conner & Armitage, 1998; Godin & Kok, 1996; Sheeran & Orbell, 1999; Sheeran & Taylor, 1999). The addition of PBC to TRA subsequently forms Theory of Planned Behaviour as it stands today (Ajzen, 1991).

Behaviours that are perceived as easily performed are deemed 'advantageous' and a positive attitude is ascribed to them, and behaviours perceived as difficult are deemed 'disadvantageous' and perceived negatively (Trafimow et al., 2002). In the context of the completion of mental health RAPs, TPB may be an important factor in explaining interprofessional differences in attitude. Those who feel that completing a RAP is difficult may deem them disadvantageous and therefore become disinclined to complete them to an appropriate, policy led standard (Department of Health, 1999). Indeed, there is some evidence (from a primary care, rather than mental health, perspective) to suggest that the intention to conduct risk factor management processes is partly dependent upon the perceived difficulty (PBC) to conduct the behaviour (Laws et al., 2009). It might follow that, due to their expertise and extended training, psychiatrists would have a lower level of perceived difficulty for RAP completion than other MHPs and that this would result in a greater intention (and subsequent behaviour) to complete them. On the contrary, Hawley et al., (2010) who suggested that as well as negativity toward RAPs, psychiatrists completed less of the forms overall,

and spent less time on each RAP than did nurses. The study did not, however, directly measure perceived difficulty of RAP completion. Fewer RAPs completed by psychiatrists might be a result of their professional responsibilities (nurses may complete more of the assessments as a routine duty). Additionally, the differences in training such as formulation and diagnosis of service users between psychiatrists and all other MHPs may result in psychiatrists being more likely to think dynamically about recording and reporting risks. Thus, making them less inclined to use standardised aids, such as RAPs, to report risks when other methods of reporting (e.g. clinical letters, clinic notes, one-to-one conversations with colleagues) are more akin to their personal or professional working style. Psychiatrists' additional training in dynamic thinking may also result in more independent methods of reporting and a lesser perceived obligation to steadfastly adhere to organisational standards for risk assessment.

Little research has been undertaken to elucidate how mental health professionals make decisions in relation to descriptive models such as TPB. Reviews by Perkins et al., (2007) and Godin et al., (2008) concluded TPB as an adequate model for predicting medical professionals' attitudes, but only four studies across the two reviews related to MHPs, highlighting the limited knowledge in this area. In one study, the TPB domain of 'attitude', specifically toward self-help groups, was the strongest predictor of healthcare graduate (clinical psychology and social work fields) intentions to refer service users to those self-help groups (Meissen, Mason, & Gleason, 1991) and another found attitudes to the credibility and competence associated with using the DSM-IV (Diagnostic and Statistical Manual of Mental Disorders) predicted the use of the manual (Klaybor, 1999).

One particular study highlighted the superior accuracy of TPB in predicting MHP's dementia disclosure behaviour (Foy et al., 2007). Specifically, subjective norms and PBC represented almost 50% of intention to disclose diagnoses of dementia (Foy et al., 2007). There is further evidence to suggest that if we know the amount of perceived behavioural control an individual has for a particular action, we can accurately predict their intention to perform the action and subsequent behaviour itself (Ajzen & Madden, 1986; Sheeran, Trafimow, & Armitage, 2003). One later body of work also advocated the use of TPB for predicting the attitudes (and behaviour) of MHPs to using the principles of evidence based practice (Johnson-Emberley, 2010), however further literature in this area is extremely limited.

The summation of work in the attitude-behaviour relationship suggests that intention to conduct a behaviour may be a good predictor of the same. While some evidence suggests that a medium to large change in intention leads to a small to medium change in behaviour, the influence of intention upon subsequent behaviour remains a factor (Webb & Sheeran, 2006). In addition to theories attempting to explain how attitudes are initially formed, the relationship between attitudes and the resulting behaviours is of importance. If the attitude-behaviour theory applies across disciplines, there should be reason for concern that negative attitude to RAPs may impinge upon intention to comply with policy to complete RAPs to a satisfactory standard or within an expected timeframe.

## 2.2. Conclusion

Those working in healthcare settings make a number of decisions each day that have the potential to positively or negatively impact service users, their families and the public. As a consequence, MHP decision making needs to be as optimal as possible as the judgments they make are justifiably under scrutiny. As a process, decision making is known to be systematically biased by the use of heuristics that aim to make a task easier. Whilst these short cuts or rules of thumb may be advantageous in some situations, in others, they come with significant negative consequences. When a service user visits an MHP they expect accurate, evidence based, decisions but research suggests that clinicians are as biased as the general public and this may detrimentally affect the judgments they make about service user risk.

The emotions we experience at the point of decision making may further guide our judgment and final choices. Anxiety may lead to negative appraisals of risk and subsequent risk aversion, potentially resulting in MHPs being less likely to initiate positive risk taking for their service users and contributing additional financial burden to the Trust. As demonstrated consistently with other medical clinicians, MHPs may also experience high confidence in their decisions, and based on previous literature suggesting that confidence is often not aligned with accuracy, this is problematic.

There is solid grounding in theory that attitudes influence general and medical behaviour. There is not, however, conclusive evidence from a mental health perspective with regards to an overall model of RAP completion behaviour. With further

investigation, a model of MHP behaviour could be developed using the principles of the Theory of Planned Behaviour (Ajzen, 1991). Whilst acknowledging that there are a number of factors that hinder decision making, it is also important to recognise that there may be techniques and decision aids to help reduce these biases. In mental health care, RAPs fulfill such a role, however, the underlying attitude of MHPs towards risk assessment may impact their use. A negative attitude is especially significant in the completion of mental health RAPs as it may lead to poor compliance. If compliance is low, and RAPs are not completed to the highest standard, information sharing between MHPs and subsequent best practice for service users may be compromised. It is also plausible that failure to use such tools to their full potential may result in people being more prone to biases by basing their decisions on selected information rather than considering all available data. The following two chapters of this thesis therefore turn to attempting to understand MHPs attitudes towards the use of RAPs as an aid to decision making. The second of the two chapters seeks to explore what different groups of MHPs think and feel about the RAPs that they encounter, alongside ascertaining their levels of anxiety and confidence in decision making owing to these variables having an established impact on judgment and decision making.

### **3. Friend or foe? Attitudes of mental health professionals towards the use of standardised risk evaluation tools**

#### **3.1. Introduction**

Risk assessment is a core part of providing support for patients who are affected by mental health conditions, acting to safeguard both patients and the public (Department of Health, 2007). For example, Luoma, Martin & Pearson (2002) found that around one in five suicide victims came into contact with mental health services in the month prior to death, stressing the role of risk assessment practices to prevent adverse outcomes. In the UK, Mental Health NHS Trusts are required to complete risk assessment proformas (RAPs) for every service user in order to provide assurance of risk prevention and management. This process is driven by policy (Department of Health, (1999) and since there is no nationally standardised approach, each Trust has a locally agreed RAP (Hawley et al., 2006; Higgins et al., 2005) that typically sets out elements of patient history that may signpost increased likelihood of vulnerability.

Mental Health Professionals (MHPs) attempt to assess and manage risk in an environment where such prediction is challenging, if not impossible. For this reason, fulfilment of government policy is a tall order as risk is difficult to accurately predict, measure and contain. Evidence suggests that while homicide may be impossible to predict, MHPs should be able to recognise that a patient will relapse into illness and pre-empt the violence which may accompany it (2014). The additional subjectivity present in completing RAPs, together with the well documented poor predictive value



of RAPs for actual risks (Crawford, 1997; Mishcon, Dick, Welch, Sheehan, & Mackay, 1995) adds further challenge when considering the usefulness of policy around the implementation of RAPs. Indeed, some have emphasised the need to return psychiatrists' core focus of treating those with mental health illnesses over and above the use of RAPs (Undrill, 2011).

There is reason to believe that unstructured clinical judgment is the most utilised form of risk assessment, at least within forensic mental health settings (Menzies, Webster, McMain, Staley, & Scaglione, 1994; Undrill, 2007). At the same time, mixed views on the use of RAPs make it difficult to establish their applied value in risk prevention and management despite significant time and cost burden placed on services. Indeed, qualitative findings highlight that some MHPs are irritated by RAPs (Maden, 2003) and some are even antagonistic toward them (Godin, 2004). Furthermore, Hawley et al (2010) explored inter-professional differences in MHP attitudes, finding that despite spending twice as long completing RAPs, nurses were more favourable than psychiatrists towards using them. Differing professional attitudes towards RAPs may have implications for risk based decision making, since research in the wider medical field has demonstrated that attitude links with compliance (Godin, 2004). For example, one study found that the presence of a more favourable attitude towards medical precautions such as the wearing of gloves for routine blood testing was accompanied by a higher rate of compliance (Stein et al., 2003; Webley & Ashby, 2010). This research also found that reduced compliance, based on a less favourable attitude, was found more often in doctors than in nurses. It is plausible that, in the same way, professional

attitudes towards the use of RAPs impact the way in which they are used, their perceived importance in the decision making process and the patient care cycle. It is also important to note that risk based decision making, like decision making of other kinds, is likely to be impacted by a multitude of factors. For example, increased levels of anxiety in the general population have been found to induce heightened risk perception, resulting in a bias toward avoidance of risk taking, what is known as 'risk aversion' (Maner et al., 2007; Maner & Schmidt, 2006; Miu et al., 2008). Psychiatric nurses have been found to experience heightened anxiety for risk of violence from service users. Lack of safety and role conflict (Poster, 1996) were also suggested to engender anxiety in clinical settings. It is also true that affective and physical consequences of work are well documented in psychiatrists. Depression (Dawson, Johnston, Kehiayan, Kyanko, & Martinez, 1988), suicide (Hawton, Clements, Sakarovitch, Simkin, & Deeks, 2001) and 'burnout' (the emotional and physical exhaustion resulting from prolonged exposure to emotionally demanding situations) being occupational hazards to which they are susceptible (Deary, Agius, & Sadler, 1996).

Additional to emotion in decision making, there is also evidence to suggest that overconfidence is influential upon decisions about risk. Overconfidence is frequently seen in the context of missed diagnoses within medical decision making (Berner & Graber, 2008). The risk based decision making of MHPs is therefore fraught with difficulty due to underlying attitudes towards the use of decision making aids.

Additional to this, established influences on decision making in general, including the experience of anxiety and broader emotional and physical experiences, further threaten to impinge upon the process of risk assessment. The consequences of poor risk based

decision making in the context of mental health are serious: making the patient and public more vulnerable to negative outcomes. As such, it is important to understand factors that impact attitudes towards decision making aids that are implemented in the form of RAPs since the use of these is advocated by government policy in countries such as the UK. However, little is known about the added value of RAPs, as perceived by professional users, and under which circumstances their use is likely to be more beneficial. The current study aimed to explore the attitudes of a diverse range of MHPs in relation to RAP completion as an aid to effective clinical decision making, focusing on factors specific to individual RAPs such as perceived utility, ease of use, and beliefs about whether or not the information captured would be used by other professionals. We also considered the role of person-based variables, namely anxiety and confidence in decision making, as factors that may impinge on motivation to engage in RAP completion. It is expected that, in line with previous work, psychiatrists will spend less time completing RAPs and additionally report a less favourable attitude towards them. Nurses are expected to show more favourability regardless of their additional time spent completing RAPs. Anxiety is expected to correlate with measures of risk taking; specifically, those with higher anxiety will exhibit greater risk aversion. MHPs other than psychiatrists might show a higher degree of anxiety, potentially due to their lesser exposure to tolerating the final responsibility for service user risk.

### 3.2. Method

**Participants and recruitment.** Participants consisted of 673 (472 female [70.1%]; 201 male [29.9%]) mental health professionals (MHPs) from 24 mental health Trusts in England. MHPs included psychiatrists, psychologists, nurses, therapists, Approved Mental Health Professionals (AMHP) and social workers. The questionnaire was aimed at clinical staff, so staff employed in predominately or exclusively in management roles were excluded, as completion of RAPs is not a usual part of their job. Age was recorded using a range of bandings, rather than requesting specific years. This was decided based on previous experience of poor rates of questionnaire completion when specific MHP data was sought; one reason for this may be due to staff feeling that their confidentiality is at stake when giving such details. Age groups and percentages occupying those age ranges are presented in table one. One additional age group was removed from the analysis (Ages 18-20) as only 1 participant represented this group. The total number of participants originally recruited to the study was 1,239, however 522 chose not to complete the questionnaire beyond the demographics section. This resulted in a total sample of 717 participants, of which 44 were removed due to missing data. Overall, 55% of those who began the questionnaire completed all of the questions. Experience was also measured in bands, rather than asking specific dates to make quick calculation easier for staff. It was assumed that most staff would be able to estimate the amount of time spent in their job role, but may not be able to specify an exact number of years.

Table 1. Demographic characteristics of Mental Health Professionals (n=673)

Demographic	N	% of total
<b>Sex</b>		
Male	201	29.9
Female	472	70.1
<b>Job type</b>		
Psychiatrist	73	10.8
Psychologist	53	7.9
Nurse	381	56.6
Therapist	52	7.8
AMHP	87	12.9
Social Worker	27	4.0
<b>Age</b>		
18-29	60	9.0
30-39	153	22.7
40-49	235	34.9
50-59	188	27.9
60+	37	5.5
<b>Experience</b>		
0-10 years	463	68.8
11-20 years	136	20.2
21+ years	74	11.0
<b>Job Area</b>		
Community	411	61.1
Inpatient	134	19.9
Outpatient	56	8.3
All of the above	72	10.7
<b>Service User Type</b>		
Child	20	3.0
Adolescent	51	7.6
Adult	483	71.8
Older Persons	112	16.6
All of the above	7	1.0

**Design.** An opportunistic sampling strategy was employed to recruit participants via a website link to [surveymonkey.com](https://www.surveymonkey.com), distributed by their employing Trust. The study aimed to answer the following research questions:

1. Does the time spent on RAPs differ as a function of profession and how does this correspond, if at all, with attitudes towards RAPs?
2. Are there interdisciplinary differences in attitudes towards the usefulness of RAPs?
3. Does self reported anxiety correlate with self reported risk taking?
4. Is reported anxiety affected by any particular demographic characteristic?
5. What is the relationship between personal and occupational variables and attitudes towards RAPs?

**Measures.** Prior to completing the main 28-item questionnaire, 6 questions regarding participants' personal and professional demographics were included in order to help characterise the sample for further data analysis. Items relating to sex, age, profession, job area, patient type, and years spent in profession.

The main, 28-item questionnaire included questions relating to time-cost associated with RAP completion, attitude towards usefulness and format of RAPs, perceived levels of personal risk taking propensity, and confidence and anxiety associated with the completion of RAPs (see table two). Items relating to attitudes include such questions as 'In the last full week that you worked, how many times did you fill in a RAP?' (time-cost), 'When I consider patient related decisions that have an element of risk, I feel quite anxious' (anxiety & pressure) and 'The RAPs used in my department are intuitive to use' (attitudes to RAP formatting).

The choice of questionnaire items relating to attitude and time-cost was based on a previous study by Hawley et al (2010) and the remaining questions pertaining to attitude to formatting of RAPs, anxiety & pressure and confidence were written specifically for the study and were discussed with the supervisory team before collecting data. As part of the Hawley et al study (2010), a pilot phase was conducted and this was considered to provide additional validity to the questionnaire.

Table 2. Main questionnaire items (Q7–Q34: Items 1–6 comprised demographic questions)

7. In your personal experience, how long does it usually take to complete a risk assessment proforma (RAP)?	20. I find current risk assessment proformas in my department easy to understand.
8. What is the shortest amount of time one of these RAP forms has ever taken you to complete?	21. When I consider patient related decisions that have an element of risk, I feel quite anxious.
9. What is the longest amount of time one of these RAP forms has ever taken you to complete?	22. In comparison to other people, I am (in general) more willing to take risks
10. In the last full week that you worked, how many times did you fill in a RAP?	23. Imagine that 1 month after your RAP entry led to the release of a patient, they attempt to take their own life. Based on this experience, what would your actions be with a similar case profile (but a different patient), in the future?
11. Please bring to mind the last risk assessment proforma that you completed. In your opinion what is the likelihood that any professional will rely on this proforma as a source of useful information in the future?	24. I feel that by using risk assessments, some control can be exerted over patients' risk factors.
12. Considering the application of risk assessment proformas generally, which of the following best describes your belief about their usefulness?	25. If I had the choice, I would rather someone else made the risky decisions when it comes to patient safety
13. Imagine you have been to see a new referral but the only information you have, apart from the referred person's contact details, is a RAP completed three days previously. How assured would you feel that the proforma, on its own, gives you insight into the most important features and characteristics of the referred person?	26. I feel pressured to give risk related information about patients in RAPs even when I'm not 100% sure if I'm right.
14. To what extent do you generally believe that completed RAPs offer meaningful descriptions of a service user's risk?	27. Time constraints within my job make RAP completion a stressful task
15. In your opinion, what proportion of your colleagues would regard the completion of RAPs as a valuable part of patient care?	28. I find the RAP used most often, in my department, too long.
16. Of all the risk assessment proformas that you complete, what proportion of these do you think act as a basis of your clinical judgments or therapeutic actions?	29. I find the RAPs in my department difficult to understand
17. People who know me would describe me as a cautious person.	30. The RAPs used in my department are intuitive to use.
18. It usually takes me a while to decide on what to report in a RAP.	31. I think my colleagues would judge the decisions I make as accurate.
19. When judging the risk status of a patient, I generally prefer to err on the side of caution rather than take a risk.	32. Colleagues in my department have disagreements over information recorded in previous RAPs.
	33. I find the RAPs in my department difficult to navigate.
	34. I trust that the information provided in RAPs by members of staff less senior than myself are accurate.



*Note; A five-point response scale including the following response categories were used for items 17-34 (excluding Q23 and Q32): Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree. Questions referring to attitudes (Q7-Q16) used a four or five response scale.*

**Procedure.** Research and Development (R&D) approval was gained from each of the participating NHS Trusts via completion of the Integrated Research Application System (IRAS) Research & Development form and 24 separate Site Specific Information (SSI) forms, sent to each Trust that agreed to participate. Application for full NHS ethical approval was not necessary as this study was recruiting NHS staff only and was 'low risk' - this type of research is exempt from Research Ethics Approval. Ethical approval was also granted from the University of Hertfordshire's ethics board.

Participants were approached via email following contact with each host Trust's communications department. A link to [surveymonkey.com](https://www.surveymonkey.com), which was embedded in the invitation, was disseminated by each participating Trust via their preferred method. Dissemination was either by direct transfer to staff emails, via a 'mail-merge' style method, in which the email was sent to all relevant Trust staff simultaneously, or a link to the questionnaire, along with the participant invitation was posted as part of a Trust's weekly or monthly newsletter. In this instance, staff would need to access the newsletter to see the study advert. While the trust-wide email 'mail-merge' method was preferable in most Trusts the decision of which method would be used rested with the participating Trust's communications department. Once participants had accessed the link, they were presented with a welcome screen explaining what the study was about and were given the researcher's contact details. If they chose to participate, respondents then advanced to the demographics questions screen and completed this section (Q1-Q6: including sex, job, age, profession, job area and type of service users

worked with). Participants clicked next to advance to the next screen, which presented the remaining 28 questionnaire items in list format. The final screen thanked the participants for their time and provided contact details for the research team.

**Data analysis.** Data were screened to check for any missing values, outliers or inappropriate participants (e.g. managerial or administrative roles that were not principally clinical). Planned statistical analyses include initial exploration of frequency data for time-cost associated with RAP completion and formatting of RAPs and multivariate analysis of variance (MANOVA) investigating interprofessional and demographic data for usefulness of RAPs. Further analyses include multiple regression to establish which items in the questionnaire predict attitude ratings and factor analysis to establish whether items in the questionnaire tap into the domains for which they were designed.

### 3.3. Results

**Time cost associated with RAP completion.** On average, the time taken on a 'usual' RAP was 20.3 minutes (SD= 14.62). Table three illustrates that when analysed by job type, social workers suggested their 'usual' RAP time (Q7) was the longest, compared with that of Psychiatrists. When asked about their shortest ever RAP time (Q8), Psychiatrists spent the least average time (5.97 minutes; SD= 4.85).

Table 3. Descriptive data for number of minutes spent on RAP Completion MHPs. (Q7-Q10; n=673).

Profession		Usual RAP time	Shortest RAP time	Longest RAP time	RAPs in last 7 days
Psychiatrist	Mean	13.25	5.97	20.79	2.23
	SD	10.24	4.85	16.54	2.34
	Median	10	5	20	2
	Mode	15	5	30	0
Psychologist	Mean	16.23	6.94	24.91	1.32
	SD	12.96	5.02	17.84	1.29
	Median	15	5	25	1
	Mode	15	5	0	1
Nurse	Mean	21.92	8.79	23.75	3.76
	SD	14.92	6.49	20.81	4.66
	Median	20	10	20	3
	Mode	30	10	0	0
Therapist	Mean	17.27	6.67	24.85	2.52
	SD	12.57	4.92	17.29	3.24
	Median	15	5	20	2
	Mode	10	5	20	0
AMHP	Mean	21.53	7.34	24.11	3.29
	SD	15.11	5.91	20.29	5.2
	Median	15	5	20	2
	Mode	15	5	0	0
Social Worker	Mean	25.74	8.04	22.89	4.22
	SD	17.56	6.68	20.39	7.915
	Median	20	7	20	2
	Mode	30	10	0	0

The 'usual RAP time' variable was not normally distributed in this sample and therefore the Kruskal-Wallis test was used in place of a one-way ANOVA to test whether the mean usual time differed between professions. The assumptions of the Kruskal-Wallis test were met as the dependent variable is at the continuous level, the independent variable (profession) consisted of more than two groups and each participant belonged to only one of the independent variable professional groups. The Kruskal-Wallis H test showed that there was a statistically significant difference in usual time taken to

complete a RAP between professional groups ( $\chi^2(5) = 38.81, p < .001$ ). Psychiatrists significantly differed most from the other professions, reporting significantly less time spent on RAPs compared with nurses ( $p < .001$ ), therapists ( $p = .04$ ), AMHPs ( $p < .001$ ) and social workers ( $p < .001$ ) but not with psychologists ( $p = .13$ ). Psychologists' reported RAP time only differed significantly from nurses ( $p = .002$ ) and Social Workers ( $p = .009$ ).

Analysis also explored whether age and years of experience affected usual RAP completion time. Scores were normally distributed for age (skewness =  $-.15$ ; Kurtosis =  $-.61$ ) and experience variables were confirmed as normally distributed (skewness =  $1.33$ ; Kurtosis =  $.39$ ) based on scores yielded between  $-1.96$  and  $1.96$ . No significant differences were seen for age ( $F(5,673) 1.40, p = .22$ ; Partial  $\eta^2 .01$ ) or experience  $F(5,673) .17, p = .91$ ; Partial  $\eta^2 .001$ ).

When asked how many RAPs they had completed in the past week, social workers reported the highest number (mean  $4.22$ ), followed by nurses ( $3.76$ ). The other professions completed fewer, on average: Therapists ( $2.52$ ), AMHPs ( $3.29$ ) and psychiatrists ( $2.23$ ). Psychologists reported the lowest weekly rate of RAP completion ( $1.32$ ). Post hoc analyses using Tukey's test indicated that psychiatrists showed significantly less time spent on usual RAPs compared with nurses ( $p < .001$ ), AMHPs ( $p = .004$ ) and social workers ( $p = .002$ ).

#### Attitudes towards the use of RAPs

The most unfavourable views about usefulness of RAPs (Q12) were seen in psychiatrists, with  $49.3\%$  feeling they are useful half the time or less. In contrast, nurses were far

more positive, with the majority believing RAPs are useful half the time or more. Figure two shows differences in attitude across professions.

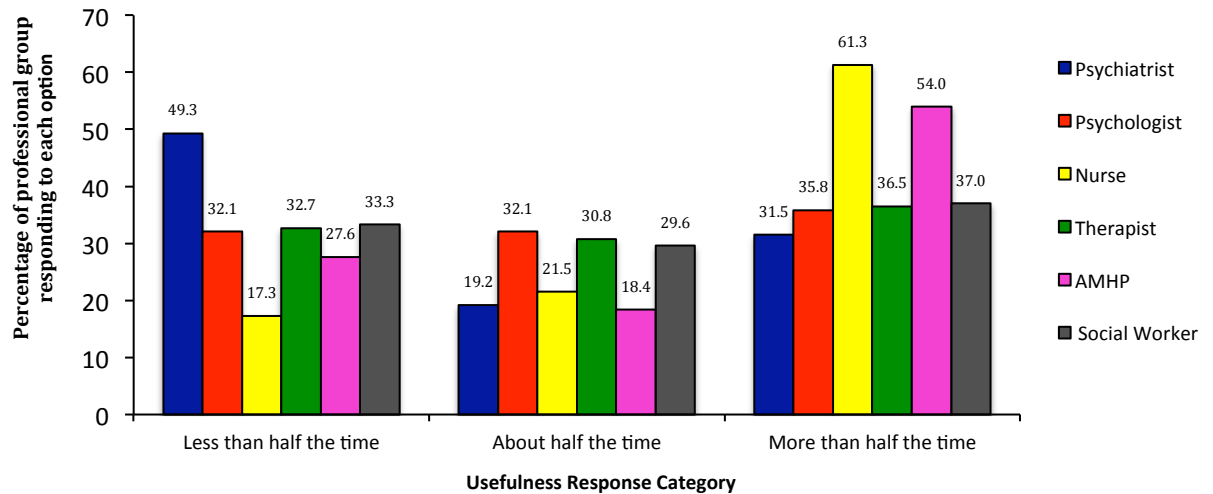


Figure 2. Interprofessional differences in usefulness ratings for RAPs.

When participants were asked to report whether RAPs offer ‘meaningful descriptions of service user’s risk’ (Q14), only small numbers of each professional group found them to be ‘excellent indicators’ and indeed, no psychiatrists endorsed this response.

Psychiatrists were least inclined to endorse the statement while nurses were more favourable, with 63.4% reporting that RAPs are meaningful descriptors of risk (see Figure three).

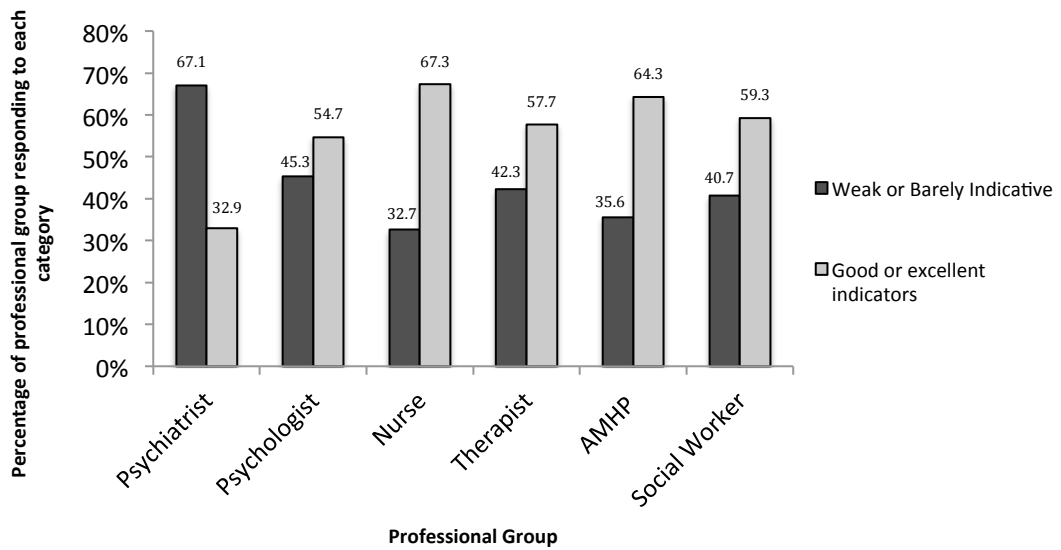


Figure 3. Interprofessional differences in meaningfulness ratings of RAPs.

When asked how RAPs affected their clinical judgement and therapeutic actions.

Psychiatrists showed the weakest belief with 39.7% indicating that 'close to none' of their RAPs affected their judgement or actions. Other professions were relatively more favourable with 34.8% nurses and 31% of AMHPs feeling that almost all of their completed RAPs act as a basis for their judgment and actions (See Figure 4).

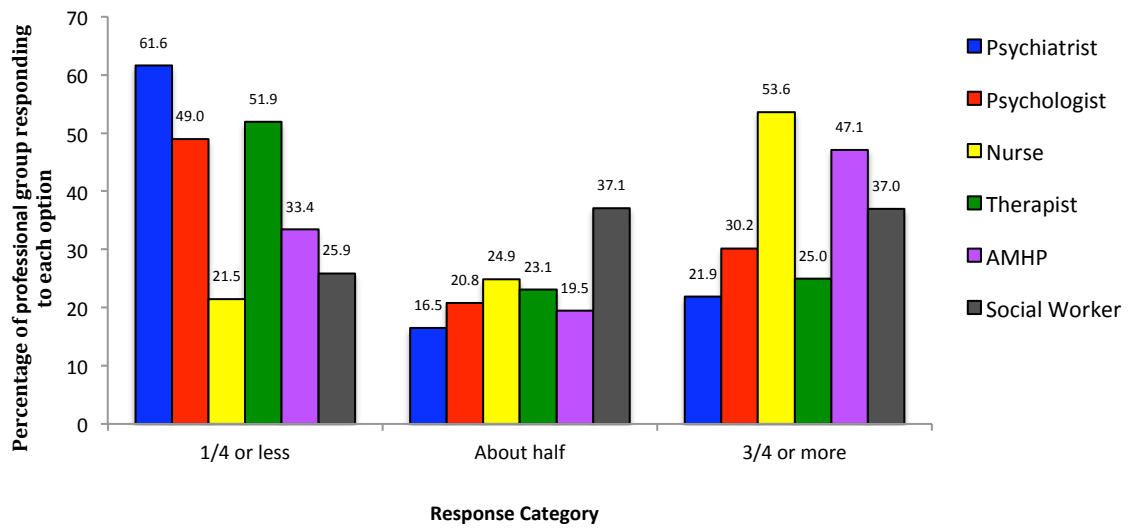


Figure 4. Interprofessional differences for ratings of RAPs as a basis for clinical judgment.

**Multivariate analysis of variance (MANOVA).** A MANOVA was conducted on questions 11–16 (items relating to usefulness, meaningfulness and value—refer back to Table two) to explore differences in attitude based on occupation and experience. The result from Box’s test was significant, suggesting that there is inequality across the covariance matrices. While this means that the assumption of the test was not met, an alternate statistic was used to compensate for this. Therefore, Roy’s Largest Root statistic, results of the MANOVA suggest that clear between-groups differences were seen by occupation ( $F(5,673) 1.54, p = .03$ ; Partial Eta<sup>2</sup> .02) but not experience in profession (years) ( $F(5,673)= 0.85, p =.64$ ; Partial Eta<sup>2</sup> =.008). This suggests that time spent in role did not significantly influence attitudes. Post hoc tests revealed the largest and most consistent differences to be between psychiatrists and nurses ( $p = < 0.03$  on all attitudes questions) where nurses were most favourable toward RAPs.

***Formatting/presentation of RAPs.***

*Length of RAPs: Q28. I find the RAPs used most often in my department too long.*

Approximately one third of participants (31.7%) thought RAPs were too long (agreed or strongly agreed with the statement). When investigating inter-professional differences, psychiatrists and social workers were the least positive, with 47.9% of both groups agreeing or strongly agreeing that RAPs were too long.

*Understanding of RAPs: Q31. I find the RAPs in my department difficult to understand.*

Half of the study sample (49.4%) considered RAPs simple to understand. This was reflected in a modal rating response of 4 on this item (Response categories: strongly agree 1, strongly disagree 5) and supported by the same response on Q20. *I find the RAPs in my department easy to understand* (mode = 4: Response categories: strongly disagree 1, strongly agree 5). Inter-professional differences did emerge with 36.9% psychiatrists agreeing with the statement that RAPs were difficult to understand, compared with 25.9% of social workers, 25% of therapists, 18.4% of AMHPs, 17% psychologists and 16.2% of nurses. An ANOVA revealed significant differences between MHPs in the understanding of RAPs ( $F(5, 673) 3.41, p = .005, \text{partial } \eta^2 = .03$ ). Psychologists (mean 3.56) and nurses (mean 3.50) were most positive and psychiatrists (mean 3.12) were least positive (Strongly Agree = 1, Strongly Disagree = 5). A post-hoc Tukey's HSD test revealed the largest significant differences between nurses and psychiatrists ( $p = 0.02$ ).



*Navigation of RAPs: Q33. I find the RAPs in my Department difficult to navigate.* A positive view was observed with over half the sample (54.9%) selecting 'disagree' or 'strongly disagree'. Around one fifth (20.8%) of participants felt that RAPs are difficult to navigate (agreed or strongly agreed). Inter-professional analysis of those who endorsed the view that RAPs were difficult to navigate showed that the least positive groups were psychiatrists and social workers (33.3% and 31.5% agreed or strongly agreed that RAPs were difficult to navigate, respectively). In comparison, 30.8% of therapists, 26.5% of psychologists, 18.3% of AMHPs, 16.2% of nurses felt this way. Nurses were more positive than any other professional group (63.1% disagreeing with the statement). ANOVA revealed that differences between professions were highly significant ( $F(5, 673) = 8.85, p < 0.001$ ; Partial  $\eta^2 = .04$ ). A post-hoc Tukey's test showed that the difference was greatest between psychiatrists and nurses ( $p = .007$ ).

*Intuitiveness of RAPs. Q30. The RAPs used in my department are intuitive to use.* Across all participants, 37.8% felt that RAPs were not intuitive to use. Investigating these data by profession, social workers were most negative about the intuitiveness of RAPs as 62.9% disagreed with the statement. Other relatively negative attitudes emerged from psychologists (51%), therapists (42.3%) and psychiatrists (45.2%). Comparatively less nurses (33.6%), AMHPs (32.1%) felt this way.

**Risk taking.** When asked questions pertaining to their own risk taking propensity (Q19) 40.2% of all participants reported that when judging the risk status of a service user they would rather err on the side of caution than take a risk. Thirty seven and a half per

cent felt they neither agreed nor disagreed with the statement and the remaining 22.3% disagreed or strongly disagreed. When asked in comparison to others whether they are (in general) more willing to take risks (Q22), more than a third (38%) agreed. Significant inter-professional differences were found ( $F(3, 673) 3.02, p = 0.02$ ) with therapists showing most risk averse responses where 1 was strongly disagree and 5 was strongly agree (mean = 2.92). Nurses were most likely to agree that they are, in general, risk takers (Mean 3.28). A significant difference revealed using ANOVA ( $F(5, 673) 2.74, p = 0.02$ ; Partial  $\eta^2 = .02$ ) and Tukey's post hoc test (0.002) supported these findings as the largest difference was between therapists and nurses.

**Anxiety and pressure.** One third of all participants showed anxiety about completing RAPs. Notably, half of all therapists reported feeling anxious when completing RAPs. More than one third of participants felt pressure to report information in RAPs when they were not 100% sure if this information was correct (Q26).

Differences between professional groups suggest a larger proportion of psychologists (56.6%) reported feeling this way compared with 40.4% of therapists, 32.2% of AMHPs, 31.5% of psychiatrists, 29.6% of social workers and 26.4% of nurses.

Across all professional groups, those who had been working within their role for 0–10 years were most affected by anxiety as indicated by their agree or strongly agree response to Q26. More than half (55%) of all participants reported that time constraints within their role makes RAP completion a stressful task (Q27) indicated by the combined responses of 'agree' or 'strongly agree' on this item.

MANOVA revealed significant differences based on occupation on Q21 (anxiety  $F(3, 673) 6.40, p < .001$ ; Partial  $\eta^2 = .05$ ) and Q26 (pressure to report information  $F(3, 673) 3.33, p = .006$ ; Partial  $\eta^2 = .02$ ) but not based on pressure due to time constraints (Q27  $F(3, 673) 1.39, p = .23$ ; Partial  $\eta^2 = .01$ ). Figure 5 graphically illustrates the professional differences on Q21 *When I consider patient related decisions that have an element of risk, I feel quite anxious.*

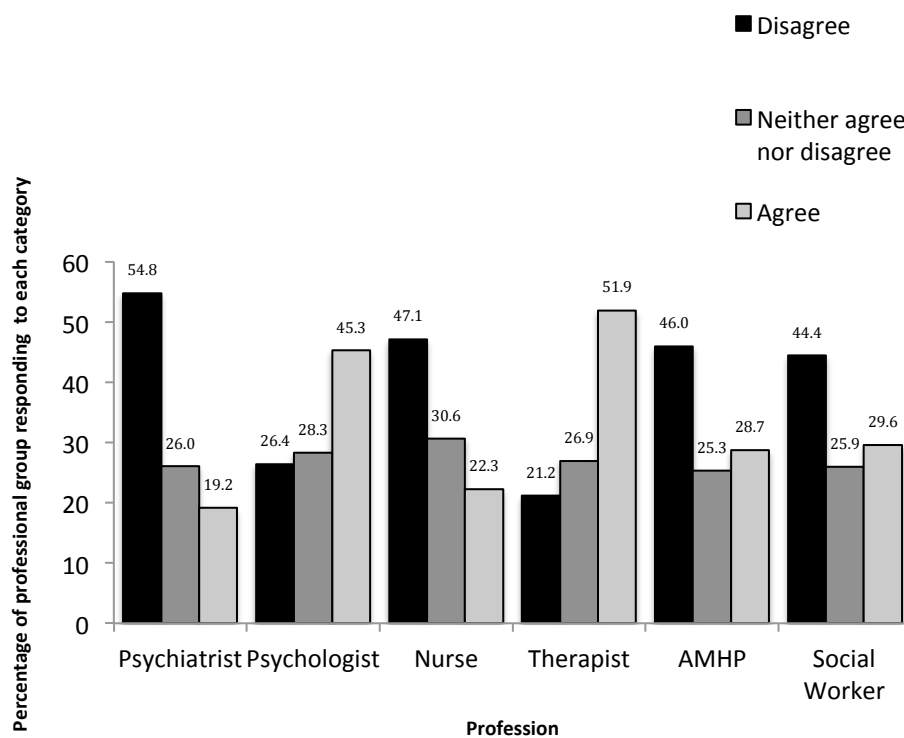


Figure 5. Interprofessional differences in anxiety about service user risk.

**Confidence.** Fifty per cent of all respondents were confident they did not spend a long time deciding what to report in a RAP (Q18) and when explored by occupation, it became clear that those who felt most strongly about this were psychiatrists of whom

67.1% chose to disagree or strongly disagree. Social workers reported the least disagreement with the statement (33.3% disagreed or strongly disagreed).

Across all groups, staff were extremely confident in others' perceptions of their decision making accuracy with more than 80% (mode=4; category coding: strongly disagree 1, strongly agree 5) believing that their colleagues would judge their decisions as accurate (Q31). Participants reported relatively favourable confidence in less senior colleagues (47.8% agreed or strongly agreed that they could trust the information in RAPs from less senior colleagues [Q34], just 13.8% of participants disagreed or strongly disagreed and the remaining participants remained neutral). However more than 70% reported disagreements over information reported in retrospective RAPs. Analysis via ANOVA revealed that, although psychiatrists were most confident in others' perception of their decision making accuracy, these differences did not differ significantly with other professionals ( $F(5, 673) 1.28, p = .27$ ; Partial  $\eta^2 .009$ ).

Professional differences were found based on perception of disagreements between staff over information in RAPs ( $F(5, 673) 2.69, p = .02$ ; Partial  $\eta^2 .02$ ). Psychiatrists disagreed most strongly about disagreements between staff (mean= 3.01) and their attitudes were most disparate from therapists (mean= 3.29). Significant professional differences were seen regarding trust in less senior colleagues' decisions ( $F(5, 673) 4.15, p = .001$ ; Partial  $\eta^2 .03$ ) with psychiatrists being the least trusting in those less senior than them (mean= 3.10). Psychiatrists differed most from AMHPs (mean= 3.56,  $p=.002$ ) and nurses (mean= 3.40,  $p=.02$ ), both of whom showed most trust in those MHPs less senior than themselves.

***Predictors of attitude towards the usefulness of RAPs.*** Whilst exploration of descriptive data was helpful in highlighting differences between MHPs in their positive or negative attitudes toward RAPs, it is also useful to ascertain what factors predict attitudes toward the usefulness of RAPs. A multiple regression analysis was conducted, using the 'Enter' method, for each of the independent variables measured (risk taking, format of RAP, anxiety/pressure and confidence) and their relation to the dependent variable: attitude to RAPs (Q12 Considering the application of risk assessment proformas generally, which of the following best describes your belief about their usefulness?). Q12 was chosen as the DV as it was of interest to find which of the areas in the questionnaire predicted attitudes most significantly.

Before the regression was performed, a correlation analysis was conducted to ascertain which items on the questionnaire correlated to moderate levels (around a minimum value of .30) with Q12. Due to the rather low correlations within the items, relationship scores of .20 or more were included in the regression analysis (see table four, where items used in the analysis are denoted with an asterisk).

Table 4. Correlations of anxiety, risk taking, confidence and formatting items with Q12.

Item description	Correlation with Q12
Q17. Personal Caution	.044
Q25. Professional caution	.018
Q19. Professional risk aversion	.027
Q22. General risk taking	.030
Q24. RAP risk control	.276*
Q26. Pressure	-.217*
Q27. Stress due to time constraints	-.105
Q21. Professional anxiety	-.061
Q31. Confidence in own decisions	.146
Q32. Confidence between MHPs	.036
Q34. Confidence in those less senior	.170
Q18. RAP time confidence	-.045
Q33. RAPs are difficult to navigate	.181
Q20. RAPs easy to understand	.304*
Q28. RAP too long	-.231*
Q30. RAPs are Intuitive	.254*

Evidence of multicollinearity was ruled out by assessing any strong correlations between variables (strong being suggested as .80 or above, as suggested by (Loewenstein et al, 2001) and by using the Variance Inflation Factor (VIF). No strong correlations between variables were found when observing the correlation matrix, and VIF scores were observed as well below the level for concern (VIF of greater than 10; O'Connell & Myers, 1990; Myers, 1990) with the average VIF found to be 1.23 (min 1.04; max 1.46). Tolerance in all items was greater than 0.70, far exceeding the lowest acceptable tolerance of .1. The assumption of independent errors was met via Durbin-Watson statistic of 1.87 (Field, 2013). The sample size assumption for multiple regression requires that that 10–15 cases should be recruited per predictor. Based on

these calculations, 50–75 participants would be required to satisfy sample size assumptions and this was far exceeded with our sample of 673.

*Correlations between items.* The highest correlation between items was between Q28 ‘I find the RAP used most often in my department too long’ and Q29 ‘I find the RAPs used in my department difficult to understand’ ( $r = -.449, p < .001$ ). The item correlating most strongly with the attitude variable was Q24. ‘I feel that by using risk assessments some control can be exerted over patients’ risk factors’ ( $r = .276, p < .001$ ). The full correlation matrix is presented in table five.

Table 5. Correlation matrix for control, pressure and formatting predictors with attitude.

	<b>Q12. Usefulness</b>	<b>RAP control</b>	<b>Pressure</b>	<b>Difficult to understand</b>	<b>Too long</b>	<b>Intuitive</b>
<b>Q12. Usefulness</b>	1.00	0.28	-0.22	0.21	-0.23	0.25
<b>Q24. RAP control</b>	0.28	1.00	-0.11	0.12	-0.11	0.18
<b>Q26. Pressure</b>	-0.22	-0.11	1.00	-0.25	0.22	-0.10
<b>Q29. Difficult to understand</b>	0.21	0.12	-0.25	1.00	-0.45	0.42
<b>Q28. Too long</b>	-0.23	-0.11	0.22	-0.45	1.00	-0.28
<b>Q30. Intuitive</b>	0.25	0.18	-0.10	0.42	-0.28	1.00

*Summary of model.* All 5 items were entered into the model together owing to no particular previous research suggesting that one item would predict attitudes to a greater extent than another. Overall, the items 5 predicted just 16.3% ( $R^2 = .163$ ) of the variance in attitudes. Adjusted  $R^2$  allows us insight into how well the model is likely to generalise. Considering the close proximity in value to  $R^2$  ( $R^2 = .163$  and Adjusted  $R^2 = .158$ , a difference of just .005 or 0.5%). This means that cross validity of the model is very good and it is likely to yield a similar level of prediction in the general MHP population. Table six shows the beta weights for each item and suggests that RAP as a means to control service user risk has the most effect on attitude. As RAP as a control of risk increases by 1.0 units, attitude favourability increases by .269 units ( $p < .001$ ). This is a much higher proportion than in the lowest predictor, difficulty understanding RAPs, which increased by .04 units each time attitude increased. All items contributed significantly to the model apart from the item relating to difficulty of RAPs ( $p = .420$ ).

Table 6. Coefficient table presenting data for the contribution of each item to the model.

	Beta		95.0% Confidence Interval for B			
	Unstandar- dised	Standar -dised	Lower Bound	Upper Bound	Std. Error	Sig
(Constant)	2.78	-	2.118	3.442	0.34	0.00
Q24. RAP control	0.269	0.214	0.179	0.358	0.04	.000
Q26. Pressure	-0.167	-0.143	-0.252	-0.082	0.04	.000
Q28. Too long	-0.132	-0.117	-0.221	-0.042	0.04	.004
Q29. Difficult to understand	0.042	0.034	-0.061	0.145	0.05	.420
Q30. Intuitive	0.196	0.153	0.096	0.296	0.05	.000



Overall, data in the analysis suggest that using RAPs to control risk was the greatest predictor of attitude. The other four factors showing contribution to attitude related to the formatting of RAPs. As a model of attitude predictive factors the analysis reveals a complex picture owing to the low overall contribution (of all factors together) to attitudes.

**Confirmatory Factor Analysis (CFA).** To ascertain information about the validity of the attitudes questionnaire used in the current study, a confirmatory factor analysis was conducted on the items relating to formatting of RAPs, risk taking, anxiety and confidence. It was expected that items would converge upon a four-factor model, one factor to represent each of the areas (formatting of RAPs, risk taking, anxiety and confidence). On the contrary, results from the CFA indicated that just two factors underpin the questionnaire items: usability of RAPs and anxiety about Risk Taking. The items around the formatting of RAPs fell on one factor whilst items relating to anxiety and risk taking fell on the other. Reliability analysis revealed that 40% of the variability in the 'anxiety about risk taking' factor and 65% in the 'formatting of RAPs' factor is reliable and consistent.

Overall, results support the evidence for relationship between anxiety and risk taking. The overall reliability was better for the formatting of RAPs factor, however both factors showed a reliability of 40% or more. The full analysis can be observed in Appendix 1.

***Additional analyses to explore relationship.***

*The role of anxiety in risk aversion.* Based on previous research noted in the introduction of this chapter, an interest in the association between anxiety and risk aversion was explored by conducting a correlational analysis on questions 'Q19. When judging the risk status of a service user I tend to err on the side of caution rather than take a risk' and 'Q21. When I consider service user related decisions that have an element of risk, I feel quite anxious'. As previously reported, one third of all participants and half of all therapists reported that they were anxious when completing RAPs. Additionally, 40% of all participants also reported that they would prefer to be cautious when it comes to service user risk. In line with previous research, the Pearson product-moment correlation analysis suggested a moderate positive correlation between the two questions ( $r = .370$ ,  $n = 673$ ,  $p < .001$ ).

Those who agreed that they found completing RAPs anxiety provoking also showed a higher level of self reported risk aversion. As both domains were measured using categorical variables, the correlation could not be displayed using a scatterplot, however the boxplot in Figure 6 shows the positive association. No significant between-group differences were seen for this question ( $F(3,673) = 0.41$ ,  $p = .80$ ,  $\text{partial } \eta^2 = .002$ ).

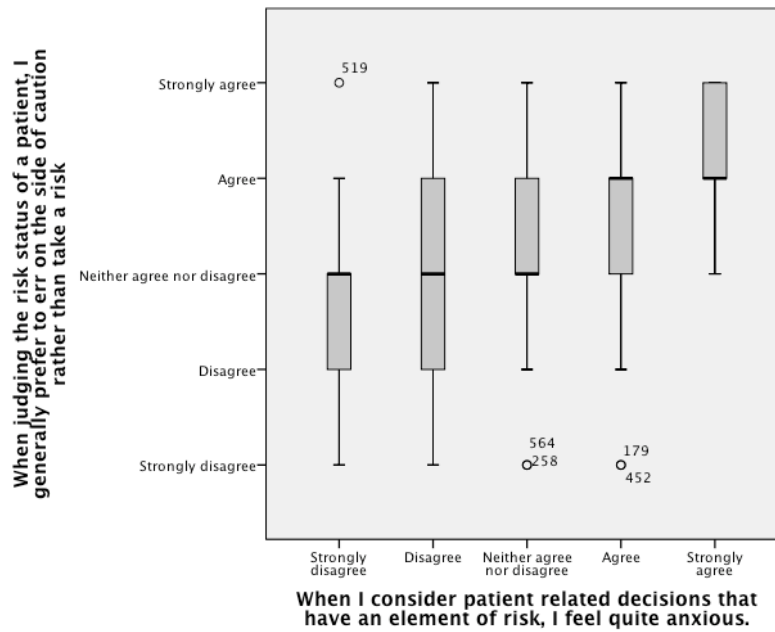


Figure 6. Boxplot to illustrate positive correlation between self report measures of risk aversion and anxiety.

### 3.4. Discussion

The current study aimed to elicit the attitudes of a diverse range of MHPs towards the completion of RAPs. This is important since RAPs may offer a medium through which to ensure that decision making processes are less susceptible to bias, compelling professionals to approach the task systematically. In their earlier work, Hawley et al (2010) suggested that while a relatively positive view of RAP use was seen overall, less favourable attitudes were uncovered when considering specific mental health job roles. Specifically, psychiatrists held the least favourable position towards RAPs. Nurses on the other hand spent considerably longer on the process and valued it more. Our study mirrored these data, finding overall positive views concerning usefulness and value

from MHPs but with far less positivity from psychiatrists compared with nurses. A negative attitude was found to be associated with less time spent completing RAPs overall, again in support for the study by Hawley and colleagues. Hawley et al. posit that this difference in opinion may reflect nurses' training, which favours compliance, and adherence, to policy. Psychiatrists complete their training at medical school and thus have more experience with critique and may hold a less steadfast view of strictly following policy-led guidelines. Psychiatrists also have a very different role to nurses, social workers, and AMHPs. Nurses may feel more reliant on RAPs, and therefore more favourable towards them, as their primary duties lie with the immediate safety of service users (factors such as nutrition and dignity) whereas psychiatrists may be more focused on accurate diagnosis and medication. Indeed, in our study, profession was the only differentiating factor in attitude and, perhaps surprisingly, experience (measured by duration of time spent in a profession) was not a significant predictor, a finding contrary to previous research suggesting that compliance is lower in older health workers (Moore, Goodwin, Grossberg, & Toltzis, 1998). Attitude might, then, not be specifically mediated by duration but by breadth of experience in a profession. Although there is a plethora of evidence to suggest that past experience is a predictor of attitudes and future behaviour (Ajzen & Cote, 2008; Fishbein & Ajzen, 1975; Fishbein & Ajzen, 2005) upon exploration of the available literature concerning experience (measured as duration of time) and its influence upon attitudes, very few research studies were found. Experiential differences found in the current sample may be as a result of differences in professional autonomy between psychiatrists and nurses, as proposed in Hawley et al. (2010).

With regard to the formatting and layout of RAPs, one third of MHPs felt that they were too lengthy. This finding was most prevalent in psychiatrists, even though they reported spending less time completing them and may reflect a time-cost balance issue attributable to the heavy clinical workload psychiatrists are expected to manage (Durbin & Watson, 1951). Perhaps the most important finding relating to format was that 40% of all participants felt that RAPs were not intuitive to use (Q30), which could suggest the need for further training for staff, specifically those in front line roles. Furthermore, psychiatrists also reported that they did not understand RAPs more often than did nurses. This, in addition to a less favourable view of RAPs, suggests the potential for interplay between user-friendliness of RAPs and time pressures experienced by MHPs. Misunderstanding of, and negative attitude towards, RAPs has the potential to result in poorly completed RAPs and this could result in reduced individual service user outcomes. It is important to ascertain whether mandatory training courses are providing sufficient information about Trust-specific RAPs to ensure MHPs are able to correctly navigate their content. As each Trust is responsible for determining their own locally implemented RAP it would arguably be of benefit to establish a nationally approved training process to ensure MHPs' understanding of RAPs prior to their implementation within clinical settings.

The current findings indicate general risk aversion in almost half of all participants when considering the risk status of a service user. MHPs may, by virtue of the job they undertake, experience anxiety during risk based decision making, however this area is not well researched. Considering previous suggestions that those experiencing anxiety exhibit risk aversion (Maner et al. 2007), it may explain why MHPs report less risk taking

within a clinical setting. A high level of anxiety about the completion of RAPs was seen in therapists; indeed half felt anxious when considering service user risk. This was far more anxiety than was observed in psychiatrists. A plausible reason for this could be that therapists feel more pressure to adhere to organisational rules and may have anxiety about the consequences of their decisions based upon their differing level of status and training. Based on previous research suggesting that anxiety and other negative emotions can have an influence on decision making (Hawley et al., 2006), this area is undoubtedly in need of further attention. As higher levels of anxiety, rather than just general negative affect, produce risk avoidance in risky decision making (Fessler, Pillsworth, & Flamson, 2004; Maner et al., 2007), MHPs who are anxious at the time of decision making might be more inclined to judge risk as higher and subsequently make risk averse decisions. While this seems a sensible and protective action, fewer opportunities for service users to take 'positive risks', for the betterment of their wellbeing and recovery, may be an unfortunate consequence of risk aversion.

A high level of confidence was seen in MHPs toward their own decision making and toward the risk choices of colleagues. They also expressed a high level of confidence in the ability of RAPs to have some control over risk, as though by completing risk assessments provides some protection against potential, future threats to service users. Previous literature suggests overconfidence is prevalent in general human behaviour (Howell, 1972). This tendency to express a heightened self-assurance is, what Langer (1975) suggested as the 'Illusion of Control', where humans feel in control of chance events. Overconfidence in MHPs may be born of previous, positively reinforced, experiences such as making a choice for a service user (such as non-admission to a

psychiatric unit) based on a low assessment of suicide risk and no adverse events resulting from this decision. In reality, the probability of service user risk is extremely low but continual professional reassurance (e.g. high risk cases where suicide was not attempted) may unduly raise confidence in MHPs and create a self-perceived justification for that decision.

Literature in the area suggests that the level of confidence is key in predicting violence (McNiel et al., 1998) however, some suggest that predictions made in psychiatry should be taken with caution (Cocozza & Steadman, 1978). In a study investigating the accuracy of psychiatrist assessment for risk of violence, high confidence was seen in personal accuracy for assessment of risk. Results suggested, however, that higher confidence was associated with lower predictive validity (Desmarais et al., 2010). While the overconfidence bias has been investigated in general decision making (Harvey, 1997; Harvey et al., 1997), research in MHP overconfidence in risk assessment is not well established. Implications of overconfidence, such as the underestimation of risk, may put the safety of the public in jeopardy. In contrast, overestimation of risks for service users might restrict their civil liberties and limit access to potentially beneficial treatment and recovery programmes (Desmarais et al, 2010).

***Theoretical suggestions.*** Previously noted research attends to the influence of attitude, perceived social norms and perceived behavioural control upon behaviour (Ajzen, 1985), however, owing to the absence of a comprehensive explanation of MHP behaviour, and its antecedents, an attempt is made here to propose a basic theoretical

perspective. It is likely that there are differing explanations for inter-professional differences in RAP completion behaviour based on numerous factors such as experience, expertise, clinical area and prior training type. It would therefore be difficult to propose one description of overall MHP behaviour. As previously introduced, a prominent model of attitude/behaviour relationship is the Theory of Planned Behaviour (TPB, Ajzen, 1991), which suggests the link between favourability of an action and the intention to complete that action (based on a number of factors: see Pages 7—12 of this thesis). Table 7 summarises some of the findings from the current study, mapped onto the main features of TPB in an attempt to elucidate the findings from our sample in relation to theory. Providing these interprofessional differences are noted within the descriptive model, TPB may also be beneficial for explaining RAP completion behaviour in MHPs. As previously described, the three elements of TPB—attitude, perceived social norms and perceived behavioural control—are crucial indicators of overall intention to behave in a certain way (in this case, the intention to adhere to policy led RAP completion). Thus, table seven, on the following page, describes one potential method by which one can assess the overall findings of the current study in relation to the foundations of TPB in an attempt to tentatively offer a tentative explanation of MHP behaviour.



Table 7. Findings from current study indicating intention to perform RAP completion. (Based on the principles of TPB, Ajzen, 1991)

TPB element (Method of measurement in current study)	Professional differences	Intention
<b>Attitude</b>  Measure: Items concerning attitudes to RAPs (Hawley et al., 2010)	<b>Psychiatrists:</b> showed a less favourable attitude toward RAPs. Poorer attitude may reflect less compliance.	LOW
	<b>Nurses:</b> More favourable attitude even in light of more time spent on RAPs. Higher level of compliance.	HIGH
<b>Perceived social norms</b>  (This was not explicitly measured in this study. Qualitative investigation recommended)	<b>Psychiatrists:</b> Psychiatrists may feel less concerned by social norms (suggested by Hawley et al, 2010). However, they may also attend to social norms of their peers (other psychiatrists) who hold similar negative attitudes, potentially maintaining the negative social norm for RAP completion.	LOW
	<b>Nurses:</b> Potentially more concerned with consequences of decisions and feel more accountability or sense of dispensability. Therefore more likely to adhere to social norm and policy of completing RAPs consistently.	HIGH
<b>Perceived behavioural control</b>  Measure: Usability of RAPs	<b>Psychiatrists:</b> Reported a difficulty in understanding the format of RAPs. Difficulty may result in poor perceived behavioural control and a reduced contribution to overall intention.	LOW
	<b>Nurses:</b> Results suggested a grasp of formatting of RAPs, potentially reflecting a high level of perceived behavioural control. Thus a larger contribution to overall intention to perform RAP completion behaviours.	HIGH

Psychiatrists and nurses are compared within table seven (rather than all MHPs) due to their relative disparity of responses to our attitudes questions and in previous comparison (Hawley et al, 2010), although with further investigation a broader theoretical model could be developed based on the behaviour of a wider range of

MHPs. In the current study nurses were most dissimilar with psychiatrists in their attitudes, time spent on RAPs and perception of ease when using RAPs in practice. Previous research has also highlighted the differences between these two professional groups (Hawley et al, 2010). The high and low levels indicated in the 'contribution to intention' column suggest the contribution that the TPB element makes to overall intention to complete RAPs, and in all cases it can be suggested that psychiatrists may be less likely to perform RAPs. Two of these factors can be suggested as negatively viewed by psychiatrists due to their less favourable attitude and lower perceived behavioural control (characterised by less reported understanding, higher reported level of difficulty and lack of intuitiveness felt about the risk assessment forms they are using). The latter of these is explained as such; perceived behavioural control is a function of an individual's belief about the ease or difficulty of conducting a behaviour (Ajzen, 1991) and thus, if psychiatrists assess RAPs as difficult to use, the implication of this could be a reduced level of intention and a lower subsequent tendency to perform the behaviour in practice. The contribution of 'perceived social norms' to MHP behaviour is discussed tentatively here with regard to theory, as our study did not include explicit measures of this element. However, anecdotal suggestions could be made that posit, based on differences in training, psychiatrists and nurses will differ in their perception of social norms. While dislike of RAP completion and subsequent preference for alternate risk reporting measures in psychiatrists *might* be the social norm, this is unlikely to be the norm for nurses, for whom adherence to rules and regulations are more commonplace. The training undertaken by psychiatrists to work dynamically and report risk in the most efficient ways could also reduce the likelihood

that they will be concerned for what the 'norm' for RAP reporting is with their department. Although confidence was seen as high across all professions, subjective confidence in psychiatrists may also afford them more conviction in using other methods of reporting (case notes, GP letters) and being less concerned with what is the accepted policy led method. To take this theoretical suggestion further would be beyond the scope of this chapter, but further investigation of views around compliance may reveal pertinent differences between MHPs. The implications of non-compliance in RAP completion has been previously discussed, not only with regard to adherence to policy but to the importance of using retrospective RAPs for future reference in cases of contact with unfamiliar service users. Additionally, due to the role of RAPs as objective, bias reducing, tools in the decision making process, the importance of their use must be emphasised.

The presence of MHP anxiety could also be built into a mental health model of TPB. Rather than explicitly leading to behaviours, anxiety may mediate the risk taking actions of MHPs when considering behaviours that are required to address service user risk. There is sufficient evidence in the current study to suggest, in support of previous findings (Maner & Schmidt, 2006; Maner et al., 2007), that heightened anxiety is associated with risk aversion. Our study elucidated, via correlation analysis, that anxiety and risk aversion are positively related. That is, MHPs who show more anxiety are also more cautious, directly supporting previous work. It would be presumptuous to build a model incorporating all of the above elements of TPB with anxiety to create an overall model of behaviour for MHPs at this stage; however there would be reason to suggest,

with the addition of future research, that incorporating these elements into a single overarching model of MHP behaviour could be achieved.

**Potential limitations.** Of the 28 main questionnaire items, 10 were adopted from Hawley et al (2010) and 4 of those utilised a five option response format, allowing participants to opt for the 'middle ground', avoiding using the extreme option categories, otherwise known as the 'Central Tendency Bias' and effectively express relative neutrality when contributing opinions. Additional biases of acquiescence (tendency to agree with questions in the format in which they are presented) and social desirability (attempting to portray oneself or one's organisation in a positive light) are also considered as potential issues. Measures were taken to avoid the bias of acquiescence by balancing the questionnaire with both positive and negatively worded items, and the social desirability bias was addressed by informing participants that their contribution was completely anonymous, however the bias of central tendency is difficult to control. Sixteen (of 18) items that were not part of Hawley's original study utilised the five option format. It was initially thought that this may have skewed our results and masked some attitudinal beliefs within MHPs. For this reason, data were investigated for frequency of the middle option selection and results showed that of the 20 questions with five option response format, 11 (55%) showed a median value of 3 (the middle option). This may go some way to reassuring that neutral responses were not selected in the majority of cases. To avoid the possibility of neutral responses to questions the format of the questionnaire could be altered to a four option format, thus encouraging participants to indicate favour, or disfavour, more explicitly. As discussed in their 2010 paper, Hawley et al suggest generally positive responses from MHPs may be

due to a number of biases experienced by humans when asked to complete questionnaire such as ours. Staff may be more inclined to respond positively to completing a task for which they are under compulsion. It is psychologically more comfortable to attribute positive value to the task rather than perform it reluctantly. This reflects the ideas of cognitive dissonance theory (Festinger, 1962), which suggests that humans are inherently programmed to strive for 'internal consistency'. When actions are dissonant with these existing beliefs or ideas, significant distress can be encountered and dissonant behaviour (expressed as dissatisfaction with RAPs in this dissertation's current research) may be avoided. Furthermore, similar to Hawley and colleagues' response rate, around half of those who started the questionnaire submitted a full response set, which could suggest that those who did complete the questionnaire had stronger opinions about RAPs than those who chose not to participate fully. Withstanding these limitations, the current study used a large sample of MHPs to investigate the area of attitudes and the associated factors, which will add literature to the wider knowledge base. This may inform NHS Trusts and policymakers within healthcare services about the factors affecting attitude to RAPs. If attitude is better understood when training programmes are developed and the content determined, less attitudinal and emotional disparity between professionals could be achieved.

**Conclusion.** Risk assessment is integral to the clinical work of MHPs and is justifiably guided by governmental policy. There is evidence to suggest the efficacy of RAPs is limited and the factors influencing their implementation have not been sufficiently

explored. RAPs, aside from serving a governance function, are also important aids to systematic, objective, decision making and information sharing between professionals so it is important to understand more about their use.

The results have shown interprofessional differences in a number of areas including attitudes towards the usefulness and value of RAPs, understanding of RAPs, and anxiety in using them. While a tentative description of how this may map onto an MHP theory of planned behaviour, additions of how anxiety and confidence in the process could be added in order to improve its applicability to this professional sample. It would be useful to explore what training individual professional groups receive so as to ascertain whether the currently revealed interprofessional differences are a product of job specific professional development. Mental Health Trusts should be informed that high anxiety could lead to risk aversion, the result of which could be avoidance of positive risk implementation for service users. Implications of this include constraints upon service users taking positive risks to further their therapeutic development. For risk assessment to be meaningful, policy makers will benefit from gleaning the aspects of these tools that both aid and hinder clinical decision making alongside ensuring that all those who encounter the tools are adequately informed and see the value of engaging with them. Overall, the study demonstrates that RAPs may not be serving their full function for a number of possible reasons. This includes factors related to the RAPs themselves and attributes of different professional roles. Whilst the current study has provided a useful extension to Hawley et al's (2010) study, its quantitative nature has revealed trends in attitudes as opposed to providing rich accounts of the day-to-day

experiences of MHPs of working with RAPs. To contextualise the current data, qualitative exploration may help shed light on the circumstances surrounding the effective use of RAPs, this further informing our knowledge base of decision making in mental health settings.

## **4. A qualitative exploration of Mental Health Professionals' thoughts, feelings and attitudes towards Risk Assessment**

### **4.1. Introduction**

For providers of NHS mental health services, service user safety and clinical accountability are driving factors in organisational policy. One key requirement is that a Risk Assessment Proforma (RAP) must be completed for all service users being assessed and treated within a service (Department of Health, 1999; Department of Health, 2007). Attitudes of Mental Health Professionals (MHPs) towards RAPs have been reported, in some cases, to be somewhat unfavourable (Godin, 2004; Hawley et al., 2010; Maden, 2003) but differ significantly between professional groups (chapter three of this thesis). Although a small number of researchers have used qualitative approaches to examine MHP attitudes to risk assessment (Maden, 2003; Godin, 2004), there is very limited data in the area. The richness of experience available from a qualitative exploration with MHPs could better elucidate the range of personal and professional factors that act as barriers and facilitators of engagement with RAPs. For example, while the existing literature has revealed psychiatrists to be relatively less favourable towards RAPs, little is known about why this negative view prevails. Hawley & colleagues asked 300 MHPs to complete a short questionnaire about their attitudes towards, and time spent on, RAPs. Nurses reported spending more time completing RAPs yet expressed a more favourable view towards them compared with psychiatrists. Although Hawley's study did not set out to determine whether opinion and attitude affected completion of RAPs, and withstanding the self report nature of the data, the results are suggestive that



attitude valence may impact upon engagement, at least with respect to time spent on RAP completion. This pattern is also replicated in this thesis (see chapter three), where self reported attitudes differed significantly between psychiatrists and nurses; the latter group, again, took longer to fill out RAPs and showed more favourable attitudes towards their completion than psychiatrists. While these studies are suggestive of an attitude-behaviour relationship, they do not elucidate clear reasons for such different views and the effect this may be having on the assessment of service user risk.

Qualitative exploration has the potential to elicit a deeper and richer set of data so that the factors underpinning these professional differences may be explored. The current study utilised one-to-one interviews with a range of MHPs to understand their attitudes, thoughts and feelings towards RAPs and their place in the safeguarding of service users.

***Attitude Formation and Behaviour.*** Attitudes are widely known to influence behaviour (Ajzen & Madden, 1985; Ajzen & Madden, 1991; Ajzen & Madden, 1986; Fishbein & Ajzen, 2005) and there is evidence to suggest that negative attitude is a leading factor in non compliance (Webley & Ashby, 2010). The relationship between attitude and compliance has been observed in health settings in which de-emphasis of the importance of health behaviours (such as wearing gloves when taking blood or washing hands before and after patient contact) by doctors was associated with non compliance in these areas (Stein et al., 2003).

It is suggested that a variety of factors such as self efficacy, attitude, perceived barriers and past behaviour influence behavioural intention and subsequent overt actions (Godin & Shephard, 1990). Attitudes are formed over time based on the positive and

negative experiences people have with increasing exposure to a certain person, event or object. Affective, cognitive and behavioural factors contribute to the overall attitude-behaviour relationship. Anxiety about risk taking might affect the ability to make risk decisions (Maner et al., 2007; Maner & Schmidt, 2006; Miu et al., 2008). Cognitive appraisals of RAP use will also feature strongly in the decision to input enough information in RAPs or to use paper based risk assessments at all. From a mental health perspective, an MHP who has some anxiety (as found in chapter three of this thesis) about not picking up on key risks for a service user may feel worried about missing risks and therefore rely on previous risk assessments completed by colleagues to ensure that potential risks are addressed. Cognitive appraisals such as 'I believe that risk documentation and use of historical RAPs is important' are likely to result in behaviour reflective of their positive attitude to RAPs. This might result in the appraisal 'I will spend time completing RAPs' which will, in turn, result in positive RAP completion behaviour. The opposite could be seen in someone with less anxiety. A non anxious MHP may not feel concerned about missing pertinent risks (due to experience) and therefore may not make the cognitive appraisal leading to the subjective need to rely on RAPs as a support to their assessment of risks. Their attitude would therefore be less positive toward using RAPs, and as such, the propensity to undertake RAPs reduced in favour of alternative reporting methods (e.g. clinical letters or clinic notes).

In summary, while there have been few studies investigating attitudes of MHPs towards risk applications in the clinical setting, the attitudes of MHPs to clinical responsibilities, such as in the completion of risk assessment proformas (RAPs), may be influential upon behavioural intentions for those activities. Time-cost and paperwork associated with

RAP completion, in addition to the time burden clinicians already face, could result in negative attitudes toward intentions to complete RAPs, complete them fully or within policy led time limits (i.e. at the time of a clinical interview or shortly afterwards).

Completion of RAPs is a policy driven requirement (Department of Health, 2007), and as such it is not suggested that negative attitude results in the completion of RAPs being neglected entirely, however, unfavourable attitudes to RAPs could result in reluctance to complete RAPs within the policy proposed time frame or to the highest possible standards.

**Current study.** Based on findings suggesting less favourable views from psychiatrists about the use of RAPs (Hawley et al, 2010; chapter three of this thesis), a relatively well documented level of anxiety affecting decisions in previous research (Maner et al., 2007; Maner & Schmidt, 2006), as well as reported interprofessional differences in the attitudes questionnaire (chapter three of this thesis), the aim of this study was to use qualitative methodology to unearth how different MHPs think and feel about Risk Assessment in NHS mental health settings.

This will include understanding of risk as a concept, alongside effective risk based decision making and its barriers and facilitators.

## 4.2. Methods

***Participants and Recruitment.*** The qualitative study involved staff of Hertfordshire Partnership University NHS Foundation Trust (HPFT), an NHS Trust providing care for people with mental illness and learning disabilities. All participants were recruited and interviewed between September and December 2014.

Using a purposive sampling strategy, a total of 15 MHPs participated (7 male, 8 female). Participants comprised 8 psychiatrists, 4 nurses, 1 cognitive behavioural therapist and 1 occupational therapist, ranging from 32 to 60 years of age (mean= 44.2; SD= 8.83) and with a mean experience (years working in profession) of 15.96 years (SD=9.19). The length of the interviews ranged from 16 minutes to 63 minutes (mean = 39.73 minutes; SD= 12.64). A breakdown of demographic information by profession can be seen in table eight

Participants were approached via email, either from their line manager or directly from the researcher, including an explanatory message about the study and an information sheet (Appendix two). The information sheet outlined the purpose of the study, the nature of participation, and that they could withdraw at any time. Participants were given at least 24 hours to read the information sheet before deciding to participate or not.

Table 8. Demographic (frequency) information for interview participants

	Psychiatrist	Non-psychiatrist
Male	5	5
Female	3	2
Mean Age	44.88 (8.01)	43.43 (9.62)
Age range	(37–60)	(32–59)
Community	1	4
Inpatient	3	0
Outpatient	4	3
Adult	7	6
Adolescent & Adult	1	1
Mean experience	16.75(9.20)	15.07 (9.09)

Note: Mean experience denotes years since qualification.

**Ethical Considerations.** Ethical approval was granted by the University of Hertfordshire Health and Human Sciences Committee with delegated authority. NHS Research ethics approval was not required because this study only involved NHS staff. NHS Research and Development Department approval was granted by the Trust R&D Committee. MHPs gave informed written consent (Appendix three) for the interviews to be audio recorded. All audio data and associated transcriptions were password protected and stored on a University computer, accessible only by the researcher and supervisors.

**Design.** Qualitative thematic analysis methodology, as described by Braun & Clarke (2006) was adopted to explore MHP attitudes towards RAPs, encompassing concepts of risk also alongside barriers and facilitators to the use of RAPs as a decision making tool. Questions guiding the exploration of attitudes were areas such as how MHPs define risk,

how do MHPs define the word risk, what is the role of RAPs in risk based decision making, what barriers and facilitators are there to the use of RAPs, do MHPs experience anxiety when using RAPs and does this anxiety influence their risk based decisions,

***Semi structured interview schedule.*** The interview schedule was informed by previous work into MHPs attitudes towards risk assessment. A small amount of previous work has qualitatively explored attitudes towards RAPs (Godin, 2004; Maden, 2003), however there is a general dearth of literature in the area. No studies have examined MHP attitudes in relation to the concept of risk and how it is best managed in mental health settings. Interview questions were devised by the author of this thesis and reviewed by the PhD supervisory team before R&D approval was granted for their use in the study.

The semi-structured questions included, but were not limited to:

1. What do you understand by the word risk?
2. How useful would you say your current Trust RAP is?
3. How do you feel when completing RAPs?
4. What training has the Trust provided for you in assessing patient risk?
5. Were you instructed on the understanding of probability in risk?

Further prompts for questions were provided when required. The interviewers own views were not articulated during the interviews (the full semi-structured interview schedule can be seen in Appendix 4).

**Procedure.** For those who agreed to participate, a convenient time was scheduled to meet on Trust premises, and written informed consent was taken. In the same session, participants answered six basic demographic questions including disclosure of their age, sex, job type, job area, service user type and number of years in profession (years since qualification). Following these questions, the semi-structured interview schedule was followed to facilitate an open and honest discussion around attitudes towards risk in the context of mental health treatment.

**Analytical Approach.** Each interview was analysed using the inductive thematic analysis procedure outlined in Braun & Clarke (2006). Qualitative rigour was pursued as far as possible by adhering to the COREQ 32 item checklist outlined in Tong, Sainsbury & Craig (2007). The checklist specifies best practice for the conduct of qualitative investigation and provides a framework comprising three domains: 1. Research team and reflexivity, 2. Study team, 3. Analysis and findings. This framework was adopted in the conduct and reporting of the study results. As part of the checklist, all interviewees were informed of the interviewer's background in psychology, current PhD student status and credentials as a Research Assistant and NHS Trust employee. A completed COREQ for this study can be seen in Appendix 5. Each interview was transcribed verbatim. The transcripts were actively read and re-read to gain an overall familiarisation of content. They were then read to identify meaningful codes (items of text within the interview which have meaning to the research questions) that highlighted important aspects of the interviews. Analysis progressed to identify overarching themes that subsumed the

codes. The data were then reviewed to ensure name and definition were accurate and that an exhaustive set of data, to support each named category, was present.

### **4.3. Results**

Six themes were identified and are described in detail below. Table nine provides an overview of themes and associated codes.

1. The multifaceted nature of risk
2. Risk assessment processes- The double edged sword
3. Influence of experience on decision making
4. The role of affect
5. The challenge of effective decision making
6. Facilitating good risk assessment



Table 9. Themes, associated codes and example extracts from interviews with MHPs

Theme	Code	Example MHP Extracts
<b>The multifaceted nature of risk</b>	Defining the risk concept	I suppose it is about the likelihood about something happening, the cause and effect of that situation (P13- Nurse)
	Assistive nature of probability and statistics	I think just knowing facts and figures can be helpful. It can be helpful (P09- Nurse)
	Lack of control	There's always that element of doubt. Always that element of doubt. You do everything you can, within the resources that you've got but there's always that element of doubt. You don't know (P11- Nurse)
<b>Risk assessment processes- The double-edged sword</b>	Use of RAPs: like or dislike?	I think psychiatrists find the form very pedestrian and it reduces it to the lowest common denominator. Having said that...sometimes it will remind you, for example to think about self neglect when you might not have thought that' (P04 Psychiatrist)
	Protective nature of RAPs	...you get the sense that you know you've covered all the bases...The tool guides you to cover and not miss out on anything... (P06- Psychiatrist)
	Organisational formality	it's just data entry for commissioners and reaching targets. It has no purpose' (P03- Psychiatrist)

	Source of anxiety in risk assessment	I think ok, these questions are asking me about alcohol and I have only ticked 2 for this patient. 12 of them are not applicable, what if I have missed something?' (P08- CBT Therapist)
<b>The role of affect</b>	Anxiety and risk aversion	...somebody who is anxious is likely to rate somebody as very high risk and other people are bit more blasé and laid back and may not pick up on risks (P13- Nurse).
	Effect of experience on anxiety	...it is like when driving, you gain confidence and when you get this kind of very risky time when you have possibly driven for a few years, you have 100,000 miles and life is so easy, and unfortunately this is not the case (P02- Psychiatrist).
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	Mediative role of experience	... actually they don't want to do something that might be seen as different (P13- Nurse).
<b>Influence of Experience on Decision making</b>	Experience feeds confidence and intuition	It's not always 100% accurate, but I think there is an intuition that ups the stakes. And I think that comes with pattern recognition and practice and experience' (P04 Psychiatrist)

	The danger of complacency	People can get quite complacent. They can get quite stuck in their role and I think they can forget to start to read the latest articles, the latest research and I think they just kind of feel they know what's going on (P13 Nurse).
<b>The challenge of effective decision making</b>	Dissatisfaction with training delivery and content	I just think it's a waste of time! Its like, we know it all, you know it all, and unless there is something new that has come up then it is just going over the old stuff (P11- Nurse)
	Organisational formality	I personally think this is all about the Trust watching their back. Making sure everyone is trained up so they can tick the box, yeah. Because if you don't do what you're meant to do, then it's your fault (P11- Nurse).
	Favourability for statistical training	Absolutely...Crucially important...There is no training in the Trust that talks about that (P04- Psychiatrist)
<b>Facilitating good risk assessment</b>	Positive/negative view of RAPs	Positive: ...that's kind of a mechanism for us to store information isn't it, using those risk assessments so we can tap into them if we need them to inform the treatment of the service user (P15- Nurse)].  Negative: the Trust say well you haven't filled in the boxes. And they see the boxes as the job, I see getting the job done as the job (P03- Psychiatrist)
	Understanding statistics to facilitate good risk	When it comes to suicidal ratings in

assessment

schizophrenic patients it is like, 1 in 10. That is a very sad fact. That's a statistical figure that cannot change easily in a short period of time. So it is very important to know that fact. So statistics always have influenced clinicians' minds when it comes to risk assessment (P07- Psychiatrist)].

Training gap between MHPs

I think understanding probability and how that then fits is probably a good idea. And I would say nurses in particular...who have never really been able to think that way. I think with doctors, the very nature of research papers and clinical trials and things like that, they are much more statistically focused (P13- Nurse).

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***The multifaceted nature of risk.***

*Summary.* Most descriptions of risk culminated upon an overall definition- that risk is the probability of something happening. While most believed that risk is a negative word, a small proportion of MHPs also acknowledged that risk might carry positive inference, especially within the clinical setting. A prevailing lack of control over risk was revealed, with discussions of unpredictability and uncontrollability topics permeating throughout interviews.

*Main Findings.* The MHPs interviewed in this study advanced an understanding of risk as something that may cause harm to a service user or staff member. It was, however, apparent that risk took many forms and in this way, that risk extends to third parties

such as the service user's friends, family and the general public. *[Well, risk, I think, is quite a bland term on its own. You can ask the question 'what is the risk' but of what? Because to me there is all sorts of risk, risks of sexual offending, of substance misuse, of arson, risk to self, risk to others, risks of vulnerability, risks of exploitation. The list goes on (P06- Psychiatrist)].*

While most MHPs concluded that risk is the probability of something negative occurring, opinions about whether it was a positive or negative concept varied *[...I suppose it is about the likelihood about something happening, the cause and effect of that situation. And I guess, yeah previously it has been a negative thing, risk, something to avoid, something to be fearful of. Whatever you do, minimise the risk. But I suppose now it is about trying to see it as an opportunity (P13- Nurse)].* Importantly, job role was not influential to views that risk could be something that is either negative or positive. *[I would say it is a negative. But it is also positive when you prevent someone from some adverse effect of a situation. So when you prevent someone from unwanted events then it is a very positive thing to know about it (P07- Psychiatrist)].*

There was a prevalent sense of lack of control over risk- recognising that it is something that we attempt, clinically, to minimise, but that is complex and ever changing to allow it to be contained. *[You can't, you know, dot every i and cross every t when it comes to risk because it is a dynamic process and it is unpredictable so it's not a thing that sort of stands still so that you can measure it in that way (P09- Nurse)]* and another stating *[There's always that element of doubt. Always that element of doubt. You do everything you can, within the resources that you've got but there's always that element of doubt. You don't know (P11- Nurse)].* There was a perception from some that risks are

uncommon in clinical practice [*events happen very rarely and therefore there is a strong chance that they're not going to happen anyway* (P04- Psychiatrist)]. Staff were relatively staunch in their views in this area [*I think that it would be completely ignorant to ever say that you've successfully completely managed to control risk...the nature of the work is that its unpredictable and people present in different ways* (P14- Nurse)].

It is interesting to note that non-psychiatrists were distinctly more detailed in putting forward views of risk as being uncontainable or uncontrollable. [*...people are unpredictable and individual and you can never control someone else's behaviour, you can just identify the likelihood of it happening and you can take precautions to avoid or extricate yourself from the situation but you can never fully anticipate what's going to happen. My crystal ball broke last week* (P01- Occupational Therapist)]. In contrast, whilst psychiatrists also accepted the unpredictability of risks, [*For me, I totally accept that you can't predict suicide* (P10- Psychiatrist)], they expressed it less frequently than non-psychiatrists and were largely justified with a degree of pragmatism [*I think my kind of view is that ultimately that if you can demonstrate that you have thought long and hard, you took the information into consideration, and you made a sensible decision then it is fine. You cannot predict risk. You can't save everyone. If someone is really determined to kill themselves, they will do it. And all of the form filling and all the discussion, you can't save it. My view is if you have done it to the best of your abilities, you have done everything you could, you can rest easily* (P12- Psychiatrist)].

There was a suggestion of negative views towards managing risk and that, anecdotally, amongst psychiatrists, there are [*...varying attitudes toward risks as well, and there's quite a lot of people who think 'well risk is risk and it's inherent in the work we do, and*

*there's not much we can do about it'. Acknowledging it is very difficult to predict suicide or violent acts in the future. So well then 'let's not bother'. (P10- Psychiatrist)]. This negative attitude regarding control of risk may reinforce and perpetuate the lack of control MHPs feel about assessing the same. Psychiatrists did, however, appear to have a more relaxed approach about controlling risk than nurses.*

***Risk assessment proformas- the double-edged sword.***

*Summary.* Some MHPs have strongly negative views about the use of RAPs (and admit to not using them) and others maintain that they have value in the clinical setting. Regardless of the unfavourable attitudes, some MHPs found valid reasons to continue to support the utilization of RAPs within their professional role. This is possibly due to the perceived objectivity afforded to MHPs through the use of risk proformas, and also the professional protection some may experience when completing them- although some noted that this is an erroneously held notion. RAPs are viewed as a help *and* a hindrance for risk assessment, with more experienced MHPs tending to feel that they are too simplistic for advanced users. These contradictions in opinions across MHPs could suggest that RAPs and risk assessment processes are seen as a double-edged sword. Thus a RAP has its benefits, but also harbours associated risks and barriers ascribed to its use.

*Main Findings.* Participants discussed the process they go through when assessing the likelihood of negative events based on chance and associated hazard, and some contradictions between MHP beliefs emerged. RAPs were understood by most participants to be assistive tools in assessing risk but that risk itself cannot be predicted.

Nonetheless, a prevailing positive view about continuing to use risk assessments remains within the mindset of many MHPs. One suggestion for the motivation behind utilising RAPs in a non-predictable world is the ability to provide the same level of care for all service users [*...my interest and favour about risk assessment forms isn't so that I can more accurately predict a suicide, its more to do with the thoroughness of my assessment so I have identified the things that can be managed and manage them* (P10- Psychiatrist)].

RAPs were also thought of as both help and hindrance to MHP decision making processes. Some felt that RAPs have an important role in reminding staff about possible risks for service users, although it was felt by some psychiatrists that the form is too simplistic to capture the most detailed and rich narrative of risk. [*I think psychiatrists find the form very pedestrian and it reduces it to the lowest common denominator. Having said that...sometimes it will remind you, for example, to think about self-neglect when you might not have thought that. So I don't think it is completely valueless, but I think most psychiatrists would find it too simplistic to be helpful* (P04- Psychiatrist)].

RAPs were also thought of as somewhat burdensome to the clinical workload [*...how much time am I going to spend on the risk assessment that is already is going to take me an hour? And I keep going back to that one hour...it takes me an hour but I've only got 10 minutes* (P15- Nurse)]. One particular senior nurse reported that owing to this negative attitude, RAPs may not be completed at all [*what's actually coming up is that the doctors aren't completing risk assessments. So they might not value the risk assessment but that is also translating into the practice* (P13- Nurse)].



While a negative report of RAPs was exhibited by some, opinions emerged suggesting that they are good historical sources of risk reports, vital for information sharing between staff [*...for historic risks. That's something you can only see on the risk assessment...if a patient is so disturbed, that patient is not likely to give me all the information about the past. So if there is something beautifully documented in the past, very organised, very systematic assessment that has the best source I would go back and have a look there* (P07- Psychiatrist)] and that RAPs are a good way to store and share information between MHPs [*So, find the information, record it wherever you want it recorded, store it properly within the risk assessment where everybody can have access to it. Because that's kind of a mechanism for us to store information isn't it, using those risk assessments so we can tap into them if we need them to inform the treatment of the service user* (P14- Nurse)]. This view of using RAPs as a way to share information between MHPs suggested a positive attitude toward RAPs, as long as the quality of information is good [*Completing the form? I think it is important because you really need to demonstrate that you have thought about it. The quality of completing the form is very important because people just tick the boxes and the form can be complete but has very little information. But clearly documented, properly completed forms are very valuable* (P12- Psychiatrist)].

In contrast, some were definite about their negative views of current RAPs, and experienced MHPs showed a more unfavourable view of RAPs overall, suggesting that they are [*About as useful as an ashtray on a motorbike* (P03- Psychiatrist)] and that they pose a limiting factor to the assessment of service users [*If you ask me how useful are they from the experience...not very helpful...In that they are limiting. They don't focus on*

*how the patients are in our situations (P08- CBT Therapist)]. One psychiatrist admitted that they did not use RAPs themselves, but that the form was in fact useful to them irrespective of this [I have little to do with filling the form myself but I do assess the risk, every decision I make to take somebody from observations or let them go on leave is about risk so it is part and parcel of my job. But it is useful for me to have this risk assessment form to base my decision on (P12- Psychiatrist)]. Additionally, one experienced non-psychiatrist also suggested that they did not complete RAPs [I don't use the risk proforma, I'll be honest with you... whilst I'm working with the patient I am constantly evaluating all those risks and then we document that. If there is any concern of risk we inform the appropriate team (P08- CBT Therapist)].*

Nurses exhibited a generally more positive view about the usefulness of RAPs as a tool to efficiently communicate vital service user information between MHPs. Views of usefulness were expressed in relation to efficiency of clinical judgment. *[I think it is very, very useful...in the sense that you will be very efficient in terms of the information you get you will be able to make a very good clinical judgment (P15- Nurse)].* Some instances of less favourable viewpoints were seen in psychiatrists and these appeared to be characterised, in part, by the notion that a clinical judgment is made prior to using a RAP *['I think I have already made my decision. I think that a lot of the decisions are made from the clinical interview and probably make up my mind quite quickly' (P05- Psychiatrist)].* However, some more experienced nurses also indicated this feeling *[The form is almost done in hindsight to record almost what you've done. So it doesn't feel as if you are using it as a decision making tool, you are more using it as a recording tool of the event and what has actually happened (P13- Nurse)].*

Some staff upheld the view that the use of RAPs, in an attempt to quantify risk, is useful for a number of reasons, including their reproducibility and role as a protective factor for MHPs [*So I'm a fan of them because I know that I am fallible. I think I'm a good psychiatrist, I don't think I am the best in the world, and that I have good and bad days. So the idea of having something that is reproducible is appealing to me* (P10- Psychiatrist)]. There was expression of comfort gained from completing RAPs [*...you get the sense that you know you've covered all the bases...The tool guides you to cover and not miss out on anything...So its something I think comforts me* (P06- Psychiatrist)].

There was a suggestion that there is a 'culture of blame' inherent within NHS settings, commenting on the concern over having to carry out duties such as attending coroner's courts in the event of a service user death. Some MHPs use the completion of RAPs as a way to cover themselves against future negative consequences.

Of this blame culture, one nurse remarked [*I don't really understand why this culture and this feeling exists but it certainly seems to because you'll hear people say it all the time. 'Oh you just have to cover your back, you have to fill this in to cover your back'* (P13- Nurse)]. Some reported a sense of reassurance from RAPs, not just for themselves, but also for the benefit of service users. Some suggested that as risk reporting should provide consistent and objective measures of risk, it reassures them that RAP completion is conducted correctly [*For me it's reassuring, I think, and for me it's also very important. (I) wouldn't be in comfort but I think I would recognise and acknowledge that it is important and it's relevant and its appropriate* (P15- Nurse)].

Some MHPs confirmed the importance of RAPs as a comfort for service users as well as for staff. There was a sense that the service should be objective and comparable for

each service user accessing the Trust's services and that they are also safer once their risk has been assessed by a qualified MHP [*...And that the patient is covered...I think its really important that patients get a similar experience as possible whenever they come to see a doctor...this should be a fairly standard level of expertise and competency that a patient should get when they see a doctor and so, I definitely like feeling that things have been covered. It's also like ensuring that the patient gets an adequate service I suppose... it's a bit of a safety net for the patient from me if you like* (P10- Psychiatrist)].

There was a prevailing view that clinical assessment is superior to paper-form/electronic RAP completion and a suggestion that the form is not assistive in the decision making process, but merely acts as a reminder of risks that may have been overlooked. This negative attitude appears to be further perpetuated by manifest beliefs about the principal utility of RAPs being tools to satisfy organisational targets and to placate commissioners. [*...it's just data entry for commissioners and reaching targets. It has no purpose* (P03- Psychiatrist)]. Additionally, a belief that completing RAPs gives staff an erroneous sense of talismanic protection from risk [*I think it gives false sense of security...because 'oh we did a risk assessment'. It becomes like a totem. You know when you hang something round your neck, a sharks tooth so you become invulnerable to bullets. The answer is no you don't. It might make you feel good and it might make the Trust say 'oh, we're all wearing the totems' but that actually doesn't change anything* (P03- Psychiatrist)].

Possible reasons for differences in attitude between nurses and psychiatrists were explored with interviewees. Training was the main suggestion among all participants as a differentiating factor and an issue for making universal decisions for service users [I

*think what it probably highlights is that, professionally, everybody has been taught very different things, social workers are taught one thing, nurses are taught differently to the doctors, but the reality of it is when we are then in the job, actually we are all expected to approach risk assessment in exactly the same way (P13- Nurse)].* These differences were extrapolated even further by other MHPs [*...nursing and their educational system is geared towards them filling in forms, ticking boxes, and following advice and guidelines efficiently and correctly. The nature and nurture of doctors is to think outside the box, is not to follow protocol slavishly but to think laterally, to make shortcuts (P04- Psychiatrist)].* Similarly, there appeared to be a difference in the way that nurses and doctors adhere to certain rules set out by the Trust. Psychiatrists, in comparison to non-psychiatrists, were believed to be more likely to challenge rules that they do not agree with or do not feel are helpful to them. [*Doctors tend to subvert the rule if it doesn't make sense. So we are not very good at following rules that we don't think are helpful. So if we don't think risk assessment is helpful, we are unlikely to follow it (P04- Psychiatrist)].*

The reported differences in training appear to also differentiate between MHPs as when discussing following policy led guidelines (previous comment- P04- psychiatrist), nurses and psychiatrists were differentiated based on their confidence [*We have the confidence to not follow (rules), whereas I don't think the nurses have the confidence to not follow something that they don't think is useful (P04- Psychiatrist)].*

How RAPs are used in practice also reflected the training and confidence gap between MHPs. The specific processes involved in assessing risk were discussed with regards to

the importance of only focusing on the most important cues during assessment. The use of a RAP was considered less important than actually focusing on the vital cues for risk *[the training is all about not writing down all the detail but going straight to the most important thing and then ignoring all the rest and focusing on that. Considering all the rest, using it to colour your judgment, and then focusing on the priority. That's what we are trained to do and that's what we're skilled at doing (P04-Psychiatrist)].*

Thus, it was clear that MHPs were aware of differences in how others may be inclined to use RAPs and attributed this more to factors related to the nature of the professions.

### ***The role of affect.***

*Summary.* Interplay of anxiety and confidence emerged from the interviews with MHPs. While some were unwilling to directly admit that they experienced anxiety when assessing risk, they did indicate, more subtly, that neglecting risks was a concern. Anxiety was suggested by some to be influential upon decisions, potentially reducing the chances of taking positive risks for service users.

*Main Findings.* While some acknowledged the presence of anxiety and agree that it does influence decision making in clinical settings *[There is always some anxiety, we have to take it home and we have to sleep and take it into our bed (P07- Psychiatrist)],* there was disagreement that the completion of the actual RAP form caused any anxiety or negative affect *[Not in terms of recording my decision making, no anxiety around that, because I think...when you're talking to someone, you're doing this constant risk assessment anyway. So it's not a difficult thing to kind of document...it's more the anxieties or stress would be more around the pressures on time to complete them (P13-*

Nurse)]. Reports of frustration featured in almost all interviews as a product of time restrictions and administrative time-cost [*If you were to ask how I feel about filling risk assessment after a busy clinic, people coming in different shapes and forms and still requiring the same level of paperwork, so I would say when I am filling the paperwork and the conclusion is always this is not even cluster 2<sup>1</sup>, so what kind of risk will you get, but I still need to fill the forms. So I would say more frustration is the feeling* (P02- Psychiatrist)].

While there appeared to be a disinclination to admit that anxiety was present in risk assessment, there were subtle references to such experiences [*I think ok, these questions are asking me about alcohol and I have only ticked 2 for this patient. Twelve of them are not applicable, what if I have missed something?* P08- CBT Therapist)].

One underlying reason for anxiety was the potential for missing risks for high risk service users. [*...I just need to make sure...I need to be absolutely certain, I suppose I have been in certain situations, the only time I would get anxious is if I have forgotten,*

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<sup>1</sup> Service users categorised as 'Cluster 2' have 'definite but minor problems of depressed mood, anxiety or other disorder but not with any distressing psychotic symptoms'. Their disorder is 'unlikely to cause serious disruption to wider functioning but some people will experience minor problems'. (Department of Health, 2012)

*especially if you have done a joint assessment and the other person hasn't dug deep enough to ask that question I feel nervous filling the risk assessment in at that point* (P11- Nurse)]. Psychiatrists, as well as nurses, reported worries about missing risks they felt they should have acknowledged at the time of assessment. *[I have done that before. So, the patient has gone in the morning and I have phoned them up in the afternoon if I think there is something that's concerning. I've done that before, not commonly, but I've done it* (P10-Psychiatrist)].

When the influence of this anxiety upon risk assessment was explored, interviewees exhibited a sense that a higher level of anxiety may lead to a higher perception of risks for service users. *[...somebody who is anxious is likely to rate somebody as very high risk and other people are bit more blasé and laid back and may not pick up on risks* (P13-Nurse)] but that 'good anxiety' could help make informed decisions as long as the anxiety is not so elevated that it is detrimental to decision making *[...good anxiety is always good...It's a good worry because that informs your clinical decision...It's always a balance because the other extreme anxiety is all about avoidance. Being anxious about what the client is going through...might arouse you to ask even more questions* (P15-Nurse)]. Anxiety was explored with interviewees in relation to taking positive risks *[... (positive risk taking) is something that people are still scared of and still nervous about because it has been a kind of protect yourself, protect your patients and stick to the normal kind of thing rather than doing something creative and a bit different* (P13-Nurse)]. When asked about anxiety felt during positive risk taking, one psychiatrist added *[Well, of course...for example I have just been doing a risk assessment for*



*someone who was on continuous observations because there was a very serious risk of self harm. And I was making a decision whether to let them have 10 minutes on their own. It wasn't an easy decision to make and she (service user) really struggled with that because she wanted to try and see if she could manage. So ultimately the outcome could be that she could kill herself and yes, you need to really kind of think about it (P12- Psychiatrist).*

MHPs believed that while anxiety is present regardless of experience, the length of time a person has worked as a MHP might encourage and reinforce a sense of misplaced confidence in decisions [*when you document in an emergency setting it is always anxiety provoking no matter how experienced you are. And while you would say that...it is like when driving, you gain confidence and when you get this kind of very risky time when you have possibly driven for a few years, you have 100,000 miles and life is so easy, and unfortunately this is not the case (P02- Psychiatrist)*]. It was noted that staff could also be less confident when they have not built experiences over time. It was suggested that when this occurs, a level of risk aversion is present due to the anxiety experienced. [*Sometimes not confident at all. And when they don't feel confident at all they usually try to pass the buck. Or make themselves feel less anxious (P02- Psychiatrist)*].

### ***Influence of experience on risk based decision making.***

*Summary.* Much discussion centered on the ability of experience to change the way that MHPs make their decisions about risk assessment. Many believed that pattern recognition in their work was a factor, rather than a higher-order illusory process such

as 'intuition' and that the recognition of service user scenarios comes with experience (duration of time spent in profession). Experience was also suggested to be detrimental to RAP reporting, with complacency contributing to the lack of clarity in risk reports featuring in a number of interviews. Complacency appears to develop with time, and nurses expressed negative views that psychiatrists were particularly complacent.

*Main Findings.* Staff identified experience as a key factor in assessing risk. This was expressed as the importance of having awareness of specific service user needs and that direct risk assessment is something that is developed with experience. 'Experience' was not necessarily defined as time spent on risk assessments of service users, but rather, that the range of different types of role in a variety of clinical settings is important for building a well-rounded risk assessment skill-base. Staff had opinions on how experience may hinder decision making [*We have had some fairly newly qualified staff who have been recruited into positions, and we have some very experienced agency nurses and, actually, on a couple of cases it is the newly qualified nurse who's decision making and risk taking is actually better (P13- Nurse)*]. Recent training might be one of the reasons for this difference in decision making between experienced (based on duration) staff and newly qualified professionals [*Because they are more up to date, more informed. They're used to, in their own practice, having to take risks in order to develop, so I think they are more willing to go with promoting risk taking within practice with their service users (P13- Nurse)*]. Staff who have been qualified for longer (...are very experienced and have many years of nursing practice behind them, actually they don't want to do something that might be seen as different (P13- Nurse)].

There was a predominantly negative view of RAPs from psychiatrists, and those who had been in their job for longer seemed to hold more extreme views than the more newly qualified staff in this sample. One experienced psychiatrist suggested that a RAP is *[about as useful when you do it 4 months after you've done the history as, I don't know, I cant think of anything else you would pretend is a risk assessment]* (P03- Psychiatrist)].

Greater experience may encourage complacency within staff. One nurse suggested that this complacency can lead to MHPs failing to remain current with good practices and instead relying on their intuitive senses when undertaking their role *[People can get quite complacent. They can get quite stuck in their role and I think they can forget to start to read the latest articles, the latest research and I think they just kind of feel they know what's going on (P13- Nurse)]*. There was also a sense that complacency may not just be due to experience *[...maybe some of the reasons are not necessarily because they are senior members of staff, there are other obstacles that come in the way, the nature of how people work, time, workload, support (P15- Nurse)]*. Complacency in reporting RAPs was seen as an obstruction to good information sharing between MHPs, particularly, for some, from psychiatrists to other MHPs *[...you'll tend to get quite clipped remarks by a doctor. They'll just say, 'no risk of self harm, no risk of suicide, no risk to others'. You know, it's three standard lines. Whereas, when you read it by nurses or social workers, you tend to get the context. So the reason there is no risk of self harm at the moment is because the person is feeling happier and brighter and they are telling you there is no risk of self harm...The reason that they're not feeling suicidal is that life has picked up for them, they've got a job now, they've got housing sorted out, the debt*

*has been sorted. So I think those three categories are covered but in a descriptive way so you can see the context of why there is no longer these risks. (P13- Nurse)].* When asked whether the nurse thought this happened because those with less experience are documenting the service user's situations in more detail than doctors, they remarked: *[Yes it appears that way, it certainly appears. Because they are putting it in the context of how the person is living and how they're functioning and what's going on in their life in general. So because you've got that richer description, it is a bit more meaningful. Whereas if you've got a line that says, no risk to self harm, they've just ticked a box (P13- Nurse)].* This issue with a lack of information sharing between psychiatrists and non-psychiatrists appeared to raise frustrations in nurses *[...if you know it all, it doesn't necessarily mean that the next person reading the risk assessment knows it all as well. Because this is a tool, it's a communication tool to provide and pass down and disseminate the most important information in relation to the patient. So it has got to be about the patient so if someone becomes complacent and said in three words, were they suicidal, high risk, low weight, what does that mean to that other person who is going to read it? So complacency, yeah it becomes an obstacle you know (P15- Nurse)].* Further comments supported the differences between psychiatrists and non-psychiatrists *[...the doctors are coming from a different school of thought as well. They are saying well I have done my assessment, I write three lines and I assess the risk so I don't need to complete that form...their reason...I probably wouldn't know, I think it's just a variance in the way they work (P15- Nurse)].*

Those who have more experience were thought of as more confident and that inter-professional confidence also builds with time *[I would say that you know confidence*

*comes over time, how people view your decisions, so after 3 months or so you will know if your team have confidence in your decision because they'll either go along with it and all the decisions are made from it...or they will be more hesitant and more worried than usual or people will do joint assessments with you (P06- Psychiatrist)].* The confidence in other MHPs was evident from a number of interviews [*I think you've got to have confidence in your colleagues. I guess they haven't come into post lightly so I would like to think they were in fresh and reading from the text books really (P14- Nurse)]. [That's where you have to trust your colleagues, you know. Because you want to think that if you work at a certain level and a certain standard (P15- Nurse)]. [I think my nurses in the liaison team are really good at holding risk and they are very independent and confident at sending people home even though there are risks but they think that's the right clinical judgment. They are right almost all of the time (P05- Psychiatrist)].*

While confidence builds with time, there could be evidence to suggest that this is accompanied by a subsequent underestimation of risk. MHPs who are able to use pattern recognition to assess risky situations (e.g. using previous experiences to judge the likelihood of current service user risk) may underestimate the chances of present risk. In response to a question about whether confidence that is built over time can cause underestimation of risk, one psychiatrist said [*Yes, because it is human nature...there's always one or two cases where you think you thought you had an angle on and something crops up that you didn't think about. Something new crops up that you don't think about (P06- Psychiatrist)].*

A mixed response emerged as to the presence or classification of intuition and some agreed that there was a type of intuition involved in the assessment of risk. Some

participants felt that the use of intuition in guiding clinical judgment was important.

*[...when you are introduced to someone...they make you feel certain feelings. What we call gut feeling or intuition. And if you really have an uneasy feeling about someone I think it's important to listen to that (P12- Psychiatrist)]* and general comments alluding to the presence of intuition in judgment of service user presentation were made *[Yeah, its quite often what they don't say or how they say things or how guarded they are (P01- Occupational Therapist)]*.

Some agreed that intuition exists, but may not be completely relied upon. Nevertheless, it was suggested as assistive in the process of risk assessment *[...It's not always 100% accurate, but I think there is an intuition that ups the stakes. And I think that comes with pattern recognition and practice and experience (P04- Psychiatrist)]*. This intuition was suggested to develop into an automatic, or instinctive, process based on environmental cues *[It becomes spontaneous, it's like driving your car. You know, you can judge that car is driving very fast, I can tell from its position that it is going to drive in front of me. And you just know it because you get all these subtle vibes that come through, so maybe you could say intuitiveness, that's right (P08- CBT Therapist)]*.

Others felt that rather than intuition, clinician's perceptions are based upon pattern recognition and that experience and feedback from decisions is important. *[I would say sometimes we take subliminal cues when we see somebody. It's usually based on experience. After some time you learn to trust your feeling, one would call it. Because we have seen so many people and learned what happened afterwards, we may notice some clusters of things that would increase the risk (P02- Psychiatrist)]*. This use of pattern

recognition was expressed by other psychiatrists [*You really do need to send the patient home and say I will see you tomorrow, I hope you don't harm yourself and I will see you tomorrow. And they turn up. And you recognise that pattern and then you feel confident in giving the advice* (P04- Psychiatrist)]. With the advent of a change in psychiatrist training and service organisation, including the implementation of crisis mental health teams, there has been less opportunity for feedback from risk-related decisions. One particular clinician commented that although pattern recognition is important, without the feedback necessary to learn from one's mistakes, it is very difficult to progress [*they don't get the feedback, you have to get the feedback to learn. You have to make a decision, see what happens, see the outcome, metabolise that in your brain and the next time you adjust your behaviour accordingly. But if you just make a decision and it goes off to another team and you never have any feedback you never know whether your decision was the right one* (P04- Psychiatrist)].

Additionally, there was a view that any available intuition should not be regarded with as much weight as the service users self report. When asked if intuition was used upon first sight of a service user, one interviewee stated [*No, no. I think that would be far too dangerous and subjective. I mean we all have intuition and a gut feeling about things. But I don't have it before seeing anyone, even reading the referral. You build up an image maybe, a picture of what might be happening or going on, you know in that person's life. But no, I would have to hear it from the horses mouth, definitely* (P09- Nurse)].

***The challenge of effective decision making.***

*Summary.* A predominantly negative view was held by MHPs about the current risk assessment training they receive. While some were able to see its merits and that the provision of across-the-board training for staff meant a greater opportunity for objectivity in RAP completion, the training is not memorable and does not cater to the variety of professionals in a Mental Health Trust.

*Main Findings.* A general dissatisfaction, that the current training is not fit for purpose, was held. [*... bizarrely the last risk assessment training I had wasn't even delivered by the Trust. It was delivered by (an external company) who the Trust had commissioned to deliver this training. So it was very kind of theoretical on risk but when they tried to link it to practice examples and documentation they couldn't because they didn't have a working knowledge of what was happening in the Trust currently and how we were documenting.* (P13- Nurse)].

Many felt that the current training did not make good use of MHP provision and suggested that it provided a recap at best. [*I just think it's a waste of time! Its like, we know it all, you know it all, and unless there is something new that has come up then it is just going over the old stuff* (P11- Nurse)]. There was also suggestion that training did not give MHPs any additional confidence to assess risk in the clinical setting [*I wasn't confident leaving that training that I would be any better at managing risk and if anything, you know, that it was more of a burden really* (P10- Psychiatrist)].

Additional dissatisfaction was held about the subjectively held reasoning for the training. As has been seen in other themes, a belief about the Trust's reasoning behind



certain Trust processes as motivation to adhere to organisational policy rather than for staff development and maintenance of good service user care was also reported about the training [*I personally think this is all about the Trust watching their back. Making sure everyone is trained up so they can tick the box. Because if you don't do what you're meant to do, then it's your fault* (P11- Nurse)].

Interviewees were asked about their views on a different type of training, one that would be able to address areas of decision making such as probability and human biases. There was a generally well-received response from MHPs who felt that this would aid their decisions about service user risk. Some suggested that such training is vital for MHPs to understand the risks for each service user group and that the current use of certain risk classifiers are too broad to make specific estimates of risk. One MHP felt that training in probability and statistics was [*Absolutely...Crucially important...there is no training in the Trust that talks about that. It's all about the assumption is that if somebody falls within a certain categorical analysis. Various groups of individuals have been deemed high risk...so the training at the moment involves identifying if people fall into these categories, labelling them as high risk and then acting in some way as a result of that. That categorical way of looking at people, either high risk or low risk, is really not subtle enough and for some of these things the risk may be increased but it is still very, very low* (P04- Psychiatrist)]. This highlighted the presence of human biases in MHPs and a misunderstanding of probability. The psychiatrist went on to add [*...(if) it doubles the risk of pulmonary hypotension from 1 in 1000 to 2 in 1000 and you say 'yes it does' but if I came to you and told you 2 in 1000, you would say that is very low. But*

*now you know it was doubled from 1 in 1000 to 2 in 1000 you're suddenly worried about it...If you first presented to them 2:1000 is that high or low, and then you do it the other way around, they would say something completely different (P04- Psychiatrist)].*

Favourability for education in statistics was supported by ideas that training in areas such as probability could provide a framework for staff to refer to [*I think it would (be useful) because for people who are anxious, perhaps it would give them a framework or model to go by. And for those who are the opposite end who maybe have got a bit too relaxed about it, it would be a good prompt to say actually this person is unemployed, they are male, they are of this age, they are drinking, it would be a good prompt to start to think about those lifestyle impacts (P13- Nurse)*]. This suggestion feeds back into the issue of MHP anxiety in that training in probability and statistics could be alleviative for anxious staff.

***Facilitating good risk assessment.***

*Summary.* MHP views about the way in which information should be gathered and stored in clinical settings varied. Some more experienced MHPs (often psychiatrists) exhibited a more negative view towards using forms and advocated more for their own way of recording and disseminating service user risk to other professionals. In contrast, less experienced MHPs felt that RAPs were a good way of sharing information between colleagues. Some felt as though risk assessment could be improved by understanding statistics and probability due to such objectivity in risk assessment. While some MHPs felt that risks were not under their control, there was a feeling that knowledge of probability could be assistive to their role in assessing risk.

*Main findings.* Some experienced MHPs felt that their own alternative, more traditional methods of risk assessment were sufficient, thus negating the need for actual completion of forms [*It's the managers saying we need you to fill all this stuff out and not listening to 'I've done that, but in a different way'. Believe me, I've done it. I'm quite happy to stand up in court and say I've done it. But the Trust say well you haven't filled in the boxes. And they see the boxes as the job, I see getting the job done as the job* (P03- Psychiatrist)]. Communication tools such as clinical letters were seen as sufficient to disseminate information about risk, rather than completing a RAP form [*I don't feel I need to do it in a form. Maybe that is arrogant of me...if you communicate it with a good clinical letter* (P05- Psychiatrist)]. In contrast less experienced MHPs advocated for RAPs as a vehicle to store information, enabling all professionals to share knowledge about service users [*So, find the information, record it wherever you want it recorded, store it properly within the risk assessment where everybody can have access to it. Because that's kind of a mechanism for us to store information isn't it, using those risk assessments so we can tap into them if we need them to inform the treatment of the service user* (P15- Nurse)].

Previous themes indicated a sense of lack of control over risk from MHPs. It is likely that there are strategies to overcome this, such as the suggestion from interviewees that having more knowledge about statistics would be assistive in the clinical setting. While it was acknowledged by some that probabilities and numbers can complicate things, and the use of broader risk classifications simplifies risk assessment [*Well, you know, I*

*think we live in a world where we try to quantify everything don't we. ...some people say medium and these different phrases for it. So I believe in a sense of keeping it as simple as possible. Someone's either got a really big risk, or you've got an unlikely risk. If you're a bit unsure, then maybe somewhere in-between- let's call it medium or moderate (P06- Psychiatrist)]* there were far more MHPs who advocated the use of numerical risk identifiers in their work [*Well, statistics are very important. For example, when it comes to statistical figures, they tend to be quite constant most of the time. When it comes to suicidal ratings in schizophrenic patients it is like, 1 in 10. That's a statistical figure that cannot change easily in a short period of time. So it is very important to know that fact. So statistics always have influenced clinicians' minds when it comes to risk assessment (P07- Psychiatrist)]*. While psychiatrists elicited a view of statistics as a specific tool in assessing service user risk, nurses expressed their use in a somewhat more general way [*I think just knowing facts and figures can be helpful (P11- Nurse)]*. MHPs did believe that using probability could assist with improving objectivity in risk assessment [*...if you have got a room full of people everyone is going to have their own idea of risk (P09- Nurse)]*].

There was some suggestion of variation in the type of training in MHPs and that nurses may benefit more than psychiatrists from understanding probability [*...I think understanding probability and how that then fits is probably a good idea. And I would say for nurses in particular...who have never really been able to think that way. I think with doctors, the very nature of research papers and clinical trials and things like that, they are much more statistically focused. They are probably used to dealing with that whereas particularly with mental health nurses, it just doesn't come up. Its statistics we*

*hear in the news, things like that but not really through training or professional development it wouldn't really get mentioned (P13- Nurse)].* The lack of statistical training for nurses was mentioned on a number of occasions. This area was covered in further detail in an earlier theme 'The challenge of effective decision making' (Page 139-141 of this chapter).

#### **4.4. Discussion**

This qualitative interview study aimed to explore beliefs and attitudes towards the concept of risk and NHS risk assessment processes, specifically in the context of mental healthcare. Additionally, anxiety and confidence in MHPs were explored within MHP decision making. These areas were previously investigated using a questionnaire (chapter three of this thesis) that highlighted inter-professional differences in attitudes to RAPs (more unfavourable attitudes were seen in psychiatrists than nurses [and other MHPs]) but differing attitudes did not seem to be based on level of experience. In chapter three, anxiety was also seen in 50% of one professional group (therapists) and a high level of confidence was seen across all participants. In order to further explore the reasons for the self reported attitudes, anxiety and confidence, the current study conducted semi-structured interviews with a range of MHPs, who spoke at length about their experiences of assessing risk and using RAPs; two processes that were clearly defined as separate tools for the assessment of risk.

The process of risk assessment (independent of paper/electronically based RAP completion) was expressed as a central part of an MHP's clinical responsibility and was

accompanied by favourability for the process. Completion of RAPs, however, was met with a lack of favourability, regardless of their explicitly expressed positive qualities (as an information sharing and prompting tool). MHPs concurred in their general definition of risk, reporting the definition as the likelihood of something potentially harmful occurring, thus revealing no clear differences between professions in this area. Risk was generally expressed in negative terms, although some interviewees did assign positive implications to the concept (i.e. taking positive risks for service users). Additionally, there was a sense that a lack of control exists that cannot be improved by using RAPs. While it was expected that psychiatrists would be more negative about the use of RAPs based on previous findings (Hawley et al, 2010; Chapter three of this thesis), in fact, comments from MHPs in the current study revealed experience as the differentiating factor for attitude. Longer serving MHPs exhibited a sense of disillusionment with current risk processes and were more likely to have a more negative view towards the use of RAPs, regardless of profession. Rather interestingly, disfavour for RAP use was accompanied by occupationally compelled behaviour for the completion of the same. There was, however, evidence to suggest that completion was undertaken, in part, to avoid failure in an important element of their profession. Indeed, some spoke of the pervasive belief that RAPs offer some form of protection from risks. The subject of RAPs being a way to cover an MHP against the chances of missing risks was visited on many occasions during the interview process. Some expressed a rather hostile view of the Trust's reasoning for using RAPs as a way to placate commissioners and reach organisational targets and others felt a sense of reassurance from the sense of protection that RAPs offer. Godin (2004) reported unfavourable views of RAPs among

Community Mental Health Nurses (CMHNs). In his set of 20 interviews, Godin found differing attitudes towards RAPs from those who felt RAPs were 'useful and informative' to those with more negative attitudes such as 'reductive, stifling and unnecessary' (Godin, 2004, p1). Findings from the current study were very similar to those found in Godin's study and further added to validity by including a broader range of MHPs in the interview process. Views in the current study ranged from the extreme, suggesting that RAPs are [*'about as useful as an ashtray on a motorbike'* (P03- Psychiatrist)] to far more obliging [*'I think it is very, very useful'* (P15-Nurse)]. There were, however, MHPs who appeared to have conflict between the perceived usefulness and the bureaucratic burden they place upon MHPs in clinical practice.

Based on current findings supporting the level of disfavour in Godin's study in 2004, implications are that attitudes towards the use of RAPs have not much changed in the past decade. This leads to speculation as to why, if research suggests such negative attitudes toward RAPs (even MHPs in the current study who were positive about their use also revealed objections of some kind), have changes not been implemented?

Research in general human attitudes suggests that negativity toward a process, object or person can lead to a lack of compliance (Gershon et al., 1995; Stein et al., 2003; Webley & Ashby, 2010). The current findings in this chapter support this notion, with reports that more experienced staff (who tended to be those with more negatively polarised views) write less vital information in RAPs, trivialise their importance, sometimes completing forms months after the initial assessment; some even confessed to rarely or never using them. If attitudes do indeed lead to non-compliance, for

processes such as RAP completion, possible ramifications for clinical practice, and service user safety, should be considered. For example, increased workload will be placed upon those who do remain compliant with RAP completion. This said, if other MHPs do not take on this task in place of those who are non-compliant, a decrease in the sharing of risk based information between staff would become an obstacle to future risk based decisions.

***Affect and risk.*** Previous research implicates emotion as an influential factor in judgment and decision making and particularly in the perception of risk (Bower, 1981; Johnson & Tversky, 1983; Lerner & Keltner, 2000; Loewenstein & Lerner, 2003; Raghunathan & Pham, 1999; Schwarz, 2000; Schwarz & Clore, 1983; Wright & Bower, 1992). Results from the questionnaire study in chapter three of this thesis suggest that self reported anxiety about the risk assessment process is seen in MHPs. Since general decision making under anxiety causes the avoidance of risk, then this bias may impinge on the decisions made for service users. Interview content in the current chapter supported this suggestion, with one experienced nurse alluding to a sense of anxiety associated with taking positive risks- [...(positive risk taking) *is something that people are still scared of and still nervous about because it...(is) doing something creative and a bit different* (P13- Nurse)]. A potential ramification of failing to implement positive risk taking is reduced liberty for service users. Reducing the freedom of service users potentially limits their progress towards recovery.

Unidentified risks were the source of some anxiety within MHPs in the current interviews. Again, this was irrespective of profession as both psychiatrists and nurses



reported feeling anxious when assessing risk. Rather than this affective response being synonymous with RAP completion, a position generally disregarded by MHPs, the associated anxiety appeared to be around clinical assessment and the potential to miss important service user risks. Available research suggests that the presence of anxiety (in general populations) causes risk avoidance (Johnson & Tversky, 1983; Loewenstein et al., 2001; Mellers et al., 1997; Wright & Bower, 1992) and pessimistic appraisals of risk (Maner et al., 2007; Maner & Schmidt, 2006; Raghunathan & Pham, 1999). As general anxiety leads to risk aversion, anxiety in MHPs could also lead to the same in the clinical setting. No studies have specifically investigated the effects of anxiety in risk assessment by MHPs, although the previous chapter in this thesis (chapter three) found, via self report measures, that there was a positive correlation in the presence of anxiety and the tendency toward risk aversion. MHPs experiencing anxiety might be more likely to rate service users as high risk and therefore less likely to take positive risks for service users. Without the presence of positive risks, the ability for service users to accept new opportunities and empower themselves to gain independence is reduced (Morgan, 2004). Additional consequences of risk aversion is a larger number of admissions to hospital beds, leading to a shortage for those service users in most need and raising costs for NHS mental health Trusts.

Anxiety also appeared to be related to a lack of knowledge about statistical risk and probability. A number of MHPs believed their work in risk assessment would be enhanced if they understood more about probability, an issue that has already been highlighted by a previous study more than a decade ago (Gale et al., 2003). A small number of MHPs in the current study reported that using statistics and numbers is not a

large part of their assessment of clinical risk and suggested more practicality of broad risk classifiers (such as high, medium and low). However, previous research and interviewees in the current study believed that these classifiers are not sensitive enough to accurately denote service user risk [*That categorical way of looking at people, either high risk or low risk, is really not subtle enough* (Psychiatrist)]. Indeed, it is argued by Gale and colleagues that these, more qualitative classifiers of risk, express very little about risk outcomes and give little indication as to what future interventions would be necessary and suggested that 'to describe an individual as being at 'low' risk of suicide would be a meaningless statement' (Gale, Hawley & Sivakumaran, 2003, p. 421).

***The interplay of experience, anxiety, confidence and complacency and intuition.***

Confidence was explored in chapter three of this thesis, where results from the questionnaire study indicated high levels of self reported confidence in a large proportion of staff members. In the current study, there was a sense that experience has an influential role in level of confidence.

Throughout the current interview study, continuous and systematic reports of the interconnections between anxiety, confidence and complacency were expressed. There was a suggestion that those with more experience (time spent in profession) reported less anxiety, more confidence and subsequently more complacency. Nurses, in particular, reported the brief and 'clipped' comments in RAPs from experienced psychiatrists and noted this as a significant barrier to good information sharing between MHPs. Owing to their experience, psychiatrists might not feel it is necessary to record detailed information in RAPs. Additionally it may be that non-psychiatrists are more

likely to, owing to the nature of their role, more frequently visit service users in their homes rather than being limited to short office based consultations. This affords them richer 'on-the-ground' information about service users that psychiatrists may not have direct access to.

Intuition might be a part of this model of interaction, as comments within interviews supported the notion that experience led to pattern recognition and subsequent 'intuition'. It has been suggested that intuition is simply recognition of previously learned information (Kahneman & Klein, 2009), thus supporting this relationship between experience and intuition. Those who use intuition within their role may also be more confident in their decisions, based on previous positive feedback, but this confidence may lead to an underestimation of risk.

It was also noted that MHPs with less time spent in their profession might, by virtue of their limited knowledge and experiences, hold more anxiety about taking risks for service users. This higher level of anxiety was thought, by the interviewees in the current study, to result in a lack of confidence (and as previously mentioned, a resulting disinclination for risk taking) and, subsequently, less complacency. The presence of anxiety was suggested to be beneficial for decision making as it results in a more careful and attentive MHP. Thus, newly qualified MHPs may exhibit a form of 'good anxiety' that keeps them vigilant to potential risks. There appears to be a balance between those newer MHPs who are low in confidence, but are reported as being attentive decision makers and individuals with more experience (and less anxiety) who may exhibit more complacency, with the potential to miss risks. There is reason to suggest

that this 'good anxiety' in more newly qualified MHPs may counteract some complacency exhibited by those with more experience. A suggested illustrative example of the specific interconnections between experience, confidence, anxiety and complacency and the associated risk propensity can be seen in Figure 7 and the full code map can be viewed in Appendix 6.

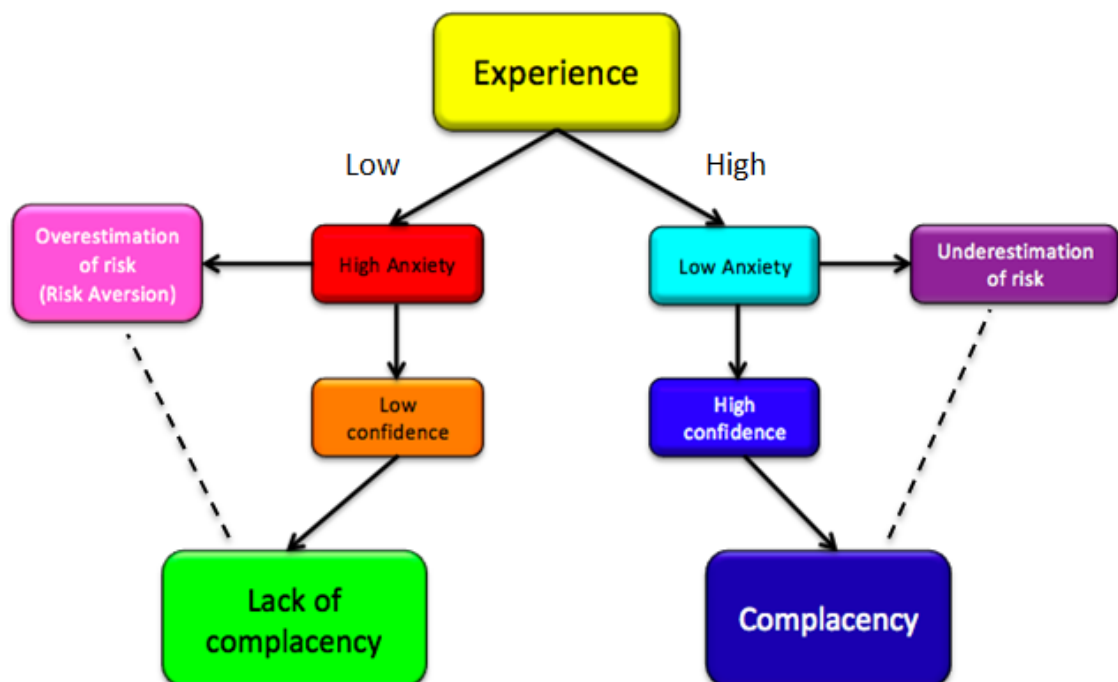


Figure 7. Suggested relationship between experience, anxiety, confidence and complacency with risk perception consequences in mental health decision making.

Figure 7 shows the potential relationship between experience and a selection of other variables associated with decision making in mental health settings. As a practical example, individuals who are experienced may have less anxiety around the assessment of risk owing to the number of experiences that have reinforced their confidence around service user risks and outcomes. Whether this confidence is misplaced, or not, is

unclear, but its presence could lead to an increased complacency for the completion of RAPs. The result of this complacency could be a reduced quantity or quality of information offered in RAPs, as well as non-compliance for RAP completion altogether. The complacency and associated anxiety experienced by an experienced clinician may lead to the underestimation of risk and, consequently, discharge of service users into the community before they are equipped for such a change. If this were to occur, while liberty for patients is increased, there is a risk of harm to the wider community or to the service user themselves if risk is underestimated.

***Implications for Practice.*** The current study used a robust and evidence based method (Braun & Clarke, 2006) to interview and analyse qualitative data from a subset of MHPs discussing their attitudes to risk assessment processes in the NHS. The findings reflect previous work in MHP attitudes, strengthening the knowledge base in this area. A larger number of participants could be recruited in any future studies in the area in order to add to the richness and diversity of data, although it is widely agreed that qualitative approaches are about depth of exploration as opposed to focus on sample sizes. Indeed, in the current study, all themes reached theoretical saturation- the point at which no new codes or themes were being generated (Glaser & Strauss, 2009; Glaser, Strauss, & Strutzel, 1968). In the current qualitative study, nurses and other non-psychiatrists reported an absence of targeted training in statistical and probabilistic concepts during their nursing education. With further statistical education, more accurate calculation of risks based on larger populations can be made. This can only assist the more individual, qualitative assessment of service user risk that is, unquestionably, a large part of MHPs'

clinical work. Conversely, psychiatrists gave an account of the opposite; expressing that they are encouraged to use statistical information, such as prior probabilities for particular mental illnesses, in their formulation of service user cases. While it is expected that psychiatrists would be proficient in the statistical nature of risks owing to their medical training, and additional duties such as expert witness involvement in criminal cases, the lack of statistical training in nurses leads one to suggest that they would not require such expertise. On the contrary, nurses are also required to attend such court cases, and interviews in the current study revealed anxieties about the perceived culture of blame inherent in NHS Trusts relating to service user deaths. While the completion of training will not eradicate anxiety associated with appearing in a coroner's court, the addition of some statistical education, e.g. particularly for non-psychiatrists, may help to assist MHPs, easing the cognitive strain that may be placed upon them during this stressful process. It may be that, with an improved knowledge of statistical risk, the anxiety around the assessment of risk could be reduced. As a consequence, the likelihood that decisions will be influenced by risk aversion would be decreased.

As well as the understanding of statistical risk being a differentiating factor between MHPs, the formulation based risk assessment and non-adherence to forms (such as RAPs) also separated psychiatrist from non-psychiatrists. One important factor touched upon in a small number of interviews was the method by which psychiatrists are trained, and how such training encourages them to only assess the most important cues about risk. In contrast, the approach that non-psychiatrists might take to risk assessment is completing a lengthy RAP about *all* of the possible risks posed to a service

user and weighing those risks based on a traditional linear weighting model of decision making. The method described by psychiatrists is akin to a process reviewed in chapter two of this thesis, called 'Take the Best' (TTB). TTB involves considering the most pertinent cue from the environment (i.e. a particular risk in the case of MHPs) and working only with that piece of information to make fast and frugal decisions (Gigerenzer & Goldstein, 1996). One particular psychiatrist reflected this exact process *[the nature...of doctors...is not to follow protocol slavishly but to think laterally, to make shortcuts. We often have to prioritise. The training is all about not writing down all the detail but going straight to the most important thing and then ignoring all the rest and focusing on that]*. Notable comments within this quote include the consolidation of the idea that some (possibly more experienced) psychiatrists oppose the arduous task of completing RAPs, that they make '*shortcuts*' and have to '*prioritise*', and that there is a previously learned process occurring in which the most important cues are being taken first and others are ignored. Therefore, psychiatrists could be utilising TTB within their daily decision making about risk. Previous research has already found TTB processes being used by experts (Garcia-Retamero & Dhami, 2009) and medical doctors (Green & Mehr, 1997) and the previous medical training undertaken by psychiatrists in medicine may be why TTB is a prominent process within their decision making. This suggestion of TTB within psychiatry may have implications for future training in mental health settings. Knowledge of its presence, and its assistance in encouraging fast and frugal decisions may also be of benefit to non-psychiatrists, who are unlikely to have been trained in this manner previously. Additionally, Mental Health Trusts, whose

responsibility includes the treatment vs. financial cost balance of service user care, may benefit from having knowledge of a time and money saving heuristic such as TTB.

**Conclusion.** The attitude of MHPs to RAPs is diverse and complex. From qualitative exploration in this cohort of NHS staff, we can see that regardless of the somewhat negative view of the use of RAPs, MHPs remain generally compliant in completing them. Great importance is placed upon the completion of RAPs in a modern mental health setting where staff can feel pressure from organisational targets. If attitudes are poor in MHPs, there is the possibility for non-compliance and sub-standard RAP completion; the implications of which are a breakdown in information sharing between staff and frustration with risk assessment processes. The current study finds evidence for the need to train MHPs in statistical and probabilistic risk assessment, possibly with a focus on nurses who may not have received such training during their nursing education. While it is not suggested that the use of this actuarial approach is any more than a small part of the process of risk assessment, risk is nonetheless defined as a statistical likelihood of possible outcomes. Thus, it can only be beneficial for MHPs to have at least a basic understanding of how numerical identifiers of risk, such as the prior probabilities for suicide in a particular population, relate to individual service users. In this way, the use of statistics can act as an adjunct to structured clinical judgment in clinical practice.



## **5. Making clinical decisions about risk: The influence of information presentation on admission decisions in psychiatry.**

### **5.1. Introduction**

A significant part of mental health decision making relates to assessing a variety of risks and making the optimum decision for service user wellbeing. Individuals affected by psychiatric diagnoses (such as major depressive episode and borderline personality disorder DSM-5 (Douglas, Guy & Hart, 2009) can become violent and engage in self-harm or behave aggressively towards others and a recent meta-analysis found that psychosis was related to a 49-68% increased likelihood of violence to others (APA, 2013). This highlights the crucial nature of the decisions MHPs make concerning service user care and affirming the importance of assessing and documenting risk.

***Probability and statistics in mental health.*** While assessment of risk is deemed vital to the role of a MHP, there is no policy led guidance for the understanding of probability and statistics related to such assessment. A certain level of risk is assigned to each service user based on the MHP's previous experiences, usually in a qualitative manner by assessing present threats to themselves or others.

In a number of MHPs, the assignation of numerical identifiers to service user risks is simply not considered, likely due to this never being part of their educational curriculum (see chapter four of this thesis for qualitative findings).

Others, namely psychiatrists, are educated in an entirely different manner, with the understanding of how to calculate individual risk estimations based on prior

probabilities of service user populations firmly on the academic agenda. Additionally, the requirement to remain current with academic research papers ensures psychiatrists are well informed about statistics and how to interpret their meaning for particular service user groups. The role of probability in every day decision making is more prominent than one might assume. We often unconsciously base our decisions on the likelihood of an outcome and our future behaviour is guided by these probabilities. Prospect Theory (Kahneman & Tversky, 1979) suggests that individuals make decisions based on the way they personally value losses and gains, and the probabilities attached to them, rather than the overall outcome of a situation. Decisions made by MHPs must be made accurately and objectively, as far as possible and this needs to be based on the risk information available. If mental health professionals have difficulty understanding clinical risk probabilities it could have implications for clinical practice.

Health numeracy, the ability to “apply numbers and quantitative reasoning skills in order to access health care, engage in medical treatment, and make informed health decisions” (Reyna, Nelson, Han, & Dieckmann, 2009) is important, if not central, to the understanding of risk information, particularly for clinicians. A probabilistic questionnaire study found that MHPs have a poor understanding of general probability and are not superior to the general public in tasks that involve processing probabilistic information . A further study in the United States showed that 50% of the general population had only the very basic numeracy skills required for such understanding (Gale et al., 2003; Kirsch, Kader, Jensen, & Kopher, 2002; Reyna et al., 2009) and even highly educated lay persons and health professionals have poor understanding of

probabilities, risks and chance related concepts (Estrada, Barnes, Collins, & Byrd, 1999; Lipkus et al., 2001; Nelson, Reyna, Fagerlin, Lipkus, & Peters, 2008). A variety of studies have shown that regardless of speciality, medical practitioners have difficulty understanding numerical risk information (Casscells, Schoenberger, & Graboys, 1978; Gigerenzer, Gaissmaier, Kurz-Milcke, Schwartz, & Woloshin, 2007; Kalet, Roberts, & Fletcher, 1994). These studies suggest that there is a necessity for improved understanding of risk related information in clinicians.

Peters et al., (2007) suggest less numerate individuals make choices that do not maximise expected utility (choose an option that reflects their own best interests- see Kahneman & Tversky (1979). Conversely, more numerate individuals appear to find affective meaning in risk-related numbers and base their decisions on that meaning. Lipkus & Peters (2009) suggest a dual-process information processing framework for medical decision making whereby decisions are made by one of two modes of thinking: the deliberative, yet slow-working 'system 2' and the affective and/or intuitive, fast processing 'system 1'(Kahneman, 2011; Sloman, 1996). Each of these systems are thought to inform the other with decision makers considering the information carefully (system 2) but also needing to be motivated by the meaning behind the information (system 1) (Hibbard & Peters, 2003; Reyna & Brainerd, 1995; Slovic, Finucane, Peters, & MacGregor, 2002). The importance of numeracy, in the Lipkus & Peters (2009) framework is such that intuition (system 1) of basic numeracy influences the extent to which the decision maker attends to information. Without this basic numeracy, individuals may not have the motivation or ability to understand the risk-related numbers in the first place. It is understandable that members of the general public have

difficulty with probabilistic information as they have not had the extensive training and experience that health professionals have obtained. Equally, one would assume that health professionals have a better understanding of such information, however, research conducted in the literature thus far suggests this is not the case and in actual fact, health professionals may be no better than the general public in their understanding of probability. One study found that understanding of even basic probabilistic notions was very low in participants, with MHPs showing no better ability than non MHPs (Gale et al., 2003).

In recent decades, a focus on the understanding of probability in risk has increased in mental healthcare, with therapeutic interventions being described in terms of odds ratios and relative risks. Policy incentives in the 1990s indicated the necessity for evidence based clinical care (Department of Health, 1999), however findings still suggest that statistics and research data is not fully utilised in clinical practice. In an interview study involving 108 general healthcare nurses, McCaughan and colleagues found that nurses reported difficulties using research findings in their clinical work due to research papers being overcomplicated and 'over-statistical' in nature (McCaughan, Thompson, Cullum, Sheldon, & Thompson, 2002). Nurses have also been found to extract a large amount of information when making clinical judgments, for example, when asked to make judgments about a service user case, over 150 information cues and 17 possible nursing actions were generated (Shanteau, Grier, Johnson, & Berner, 1991). These numbers are well beyond a single human's capabilities (Simon, 1957) suggesting that nurses could benefit from training to effectively manage information for rational decision making so as not to detrimentally affect service user care (Sisson,

Schoomaker, & Ross, 1976). Further evidence from the medical nursing field suggests that as a result of overestimating the risks of drug addiction in service users, nurses were under-medicating individuals requiring pain relief (Grier & Grier, 1978) and were also found to be more occupied with minimising the risks to service users despite their goals to maximise wellbeing (Bailey, McDonald, & Claus, 1973). Since these early studies were conducted, the modern field of medicine has experienced a growth in misconduct cases and a shift toward medical liability making it likely that these biases in health professionals toward minimising risk at the cost of maximising service user care could be seen more often; this could lead to overestimation of risk and financial burden to NHS Trusts.

Although the understanding of numeracy is one facilitator to good health related decisions, there are other biases individuals exhibit when given dilemmas based on probabilistic information. Due to probabilistic information being used more and more frequently to describe health related risks to service users it is important to investigate these findings from a mental healthcare perspective. A number of judgment heuristics and biases can come into play when individuals process statistics, causing distorted perceptions of certain risks. For example, decisions can also be influenced by the presentation of health information- that is the frame in which information is presented. Service users are more likely to opt for a treatment if they are informed that there is a 99% survival rate (positively framed) rather than the chance of 1% mortality (negatively framed), although these figures equate to the same risk (Edwards et al., 2001). Tversky & Kahneman (1981) found that seemingly insignificant changes to the presentation of

probability based information altered the way participants responded to a scenario. Participants were asked to make a decision between two health programmes to save the general population from losing their lives to a deadly disease. Results showed that when the scenario was presented as 'lives saved' participants were risk averse (less likely to take risks). When presenting the information as 'lives lost', participants became risk seeking- in general terms, the prospect of people definitely dying from a disease is much less attractive than the gamble of potentially killing nobody (Tversky & Kahneman, 1981).

Marteau (1989) used health related vignettes to demonstrate the impact of framing on medical student decision making. Three situations framed either positively or negatively, and that varied in their level of risk, were presented to 74 medical students. Each participant was asked to make their decisions as to whether they would undergo invasive procedures both as though they were the doctor *and* the patient. Results showed that significantly more 'doctors' agreed to surgery when risk was presented as 10% chance of survival rather than 90% chance of death. For 'patients', the framing effect caused a significant number of participants to choose surgery when the risk was presented as 'chance of survival' (40%) rather than chance of death (60%). Further research that illustrated the framing effect asked clinicians and students to decide whether they would undergo surgery or radiation therapy. Both graduates and clinicians chose the option of surgery over radiation therapy when the scenario was framed as the probability of surviving rather than the probability of dying (McNeil et al., 1982). In essence, this research suggests that decisions made by health professionals can be

manipulated by the presentation format of statistical information, a fact that may have serious implications for service user care.

***Presentation of risk information.*** Presentation format in the form of base rate information has been found to influence decision making. In one study, manipulation of base rate information and anchoring points were found to influence rankings of 'risk of death' (Yamagishi, 1997). Yamagishi used 'risk of death' probabilities in the form of frequencies or percentages over four conditions. The first two conditions (LW- Larger frequency within wide range and SW- smaller frequency within wide range) stated the probability as a frequency in a large range (e.g. 2,414 people out of 10,000 and 1,286 people out of 10,000 respectively).

The third and fourth conditions (LN- larger frequency within narrow range and SN- smaller frequency in narrow range) stated the same probabilities as a percentage (24.14 out of 100 and 12.86 out of 100 respectively). Results found, over two experiments, that participants judged the probability 1,286 out of 10,000 (12.86% chance) ***more*** risky than 24.14 in 100 (24.14% chance) suggesting evidence of base rate neglect (probabilities are calculated without taking prior probabilities/available statistics into account) and that decisions were more influenced by altered anchoring points (number of deaths) rather than the rates of death (based on how many deaths per 10,000/100) (Yamagishi, 1997).

The aim of this study was to investigate what influence presentation of risk information has on admission decisions in psychiatrists. Specifically, it explored the manipulation of numerical vs. percentage data and the impact of the semantic labels of high vs. low risk

admission decisions. Sex and years of experience in profession were also considered in the analysis of responses. Whilst the framing effect is well established in the boarder medical literature, application in mental health has been limited, although risk based decision making may rely on the sound understanding of such numeric information.

## **5.2. Method**

***Development of the questionnaire & piloting phase.*** The research team collaborated to create the clinical scenario vignette. The team's consultant psychiatrist gave expert advice for the scenario and wording of the conditions to ensure appropriateness to a psychiatrist sample. The research team discussed each aspect of the clinical scenario to ensure it approximated closely to a real life situation facing psychiatrists.

Eight psychiatrists, including four consultants and four junior level clinicians, took part in the pilot phase. They were approached via a routine psychiatrist teaching session held at the Queen Elizabeth II Hospital in Hertfordshire where they were given the vignette on paper. The rationale behind this phase of the study was to ensure that decisions within conditions were not polarised to one side or the other. The 'numerical high' condition (see procedure section for explanation of each condition) was presented to all participants and results showed a 50:50 split in responding.

***Participants.*** Six hundred and seventy eight (398 male and 280 female) psychiatrists from Hertfordshire Partnership NHS Foundation Trust (HPFT) and the Royal College of Psychiatrists (RCPsych) participated the questionnaire. As part of an independent



measures design, all participants completed one of four conditions (outlined in section 5.2.2.2). The presentation of risk data was manipulated to be presented as either numerical or percentage. Semantic labels of high and low were also inserted to indicate an expert's opinion of high and low risk in a specific situation. Participants completed one of the four conditions via email. Participants were not directly allocated to conditions. Instead, a member of staff at RCPsych distributed conditions in stages (condition A was sent, then condition B 1-2 weeks later, followed by condition C and D at equally spaced intervals). Individuals participated opportunistically and the condition presented was dependent upon the point at which they chose to take part.

***Procedure.*** MHPs accessed an Internet link, via one of the above methods, to the online site where they were able to complete the questionnaire on their own computers, at their convenience. As this was an online study, consent was implied by voluntary completion. After entering demographic information (age, sex, profession, area of profession and length of time in role) participants progressed to reading the clinical scenario vignette (same for all participants- see section 5.2.2.1) followed by one of four experimental conditions (see section 5.2.2.2). Participants were required to select one of two options (Recommend admission; Not recommend admission) and then click 'next' to progress to the next screen. The final screen thanked them for their participation and provided them with a short explanation of the study and the rationale behind the research programme. They were provided with the contact details for the researcher.

***Clinical scenario vignette.*** “The patient is a 33-year-old male. At the age of 18 a firm diagnosis of schizophrenia, paranoid type, was made. The clinical course over the past 15 years has included readmission, some suicidal behaviour and some threatening behaviour to others.

He presents to you with paranoia needing prompt treatment attention. Imagine you have the benefit of an extract from a report made by a previous treating Unit that had known the patient for a long time and has sophisticated, and highly accurate, techniques for assessing key risks.”

*Experimental Conditions.*

After reading the clinical case vignette, participants were informed that :

“The extract, written by the consultant, reads:”

**“If one considered 10,000 similar cases, 70 would kill someone within a month if not admitted to hospital - a high risk”. [Numerical/high]**

**“If one considered 10,000 similar cases, 0.7% would kill someone within a month if not admitted to hospital - a high risk”. [Percentage/high]**

**“If one considered 10,000 similar cases, 70 would kill someone within a month if not admitted to hospital - a low risk.” [Numerical/low]**

**“If one considered 10,000 similar cases, 0.7% would kill someone within a month if not admitted to hospital - a low risk.” [Percentage/low]**

The statement **“No further information is available beyond this extract”** concluded the vignette text.

*Explanation of experimental conditions.* Conditions containing risk information as a number (i.e. 70/10,000) were deemed a 'numerical' condition and conditions presenting risk as a percentage (0.7%) were considered a 'percentage' condition. Additionally, semantic labels of 'low' and 'high' were also included. This resulted in four conditions: numerical/high, percentage/high, numerical/low, percentage/low (shown in their full form above). Participants were then asked to indicate whether they would admit the service user, based on the information available. The rationale behind using the figure of 70 or 0.7% (both equalling the same proportion of 10,000) was to avoid floor or ceiling effects in the data. Setting the number too high may cause most individuals to respond with the decision to admit, and vice versa if the number was set too low. The small pilot study corroborated the suitable figure.

**Data analysis.** Data were cleaned and screened for missing items and entered into the Statistical Package for the Social Sciences (SPSS) software. Initial analysis consisted of simple descriptions of the collected data. Further investigations included implementing a Chi<sup>2</sup> analysis on each comparison to determine any statistical differences in admission decisions between psychiatrists

**Ethical approval.** In accordance with UK NHS ethical procedures, since the research was low risk and involving NHS staff, it was exempt from research ethics committee approval. Research and Development approval was sought and acquired from Hertfordshire Partnership NHS Foundation Trust and Local approval was sought from

the Royal College of Psychiatrists to send the questionnaire to their members. Consent was implied by the voluntary completion of the questionnaire.

### 5.3. Results

Responses of 'recommend admission' and 'not recommend admission' between conditions show that there was an ordering of responses as follows A>B≈C>D (see figure eight).

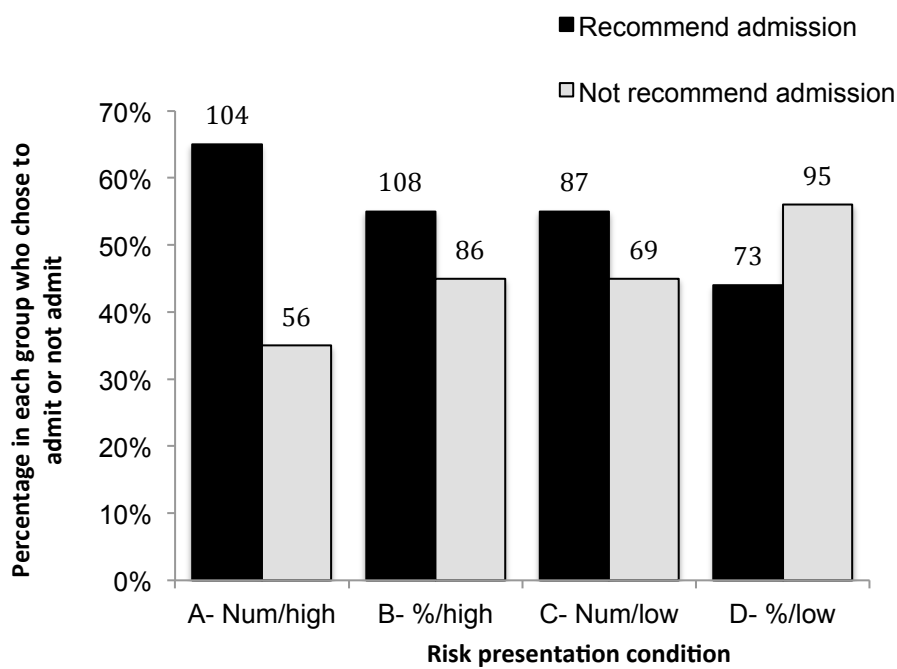


Figure 8. Distribution of 'recommend admission' and 'not recommend admission' scores across conditions.

When conditions were collapsed into numerical vs. percentage conditions, individuals were more likely to recommend admission in the numerical than percentage condition ( $X^2(1, N=678) = 7.43, p=.006$ ) (see Figure 9).

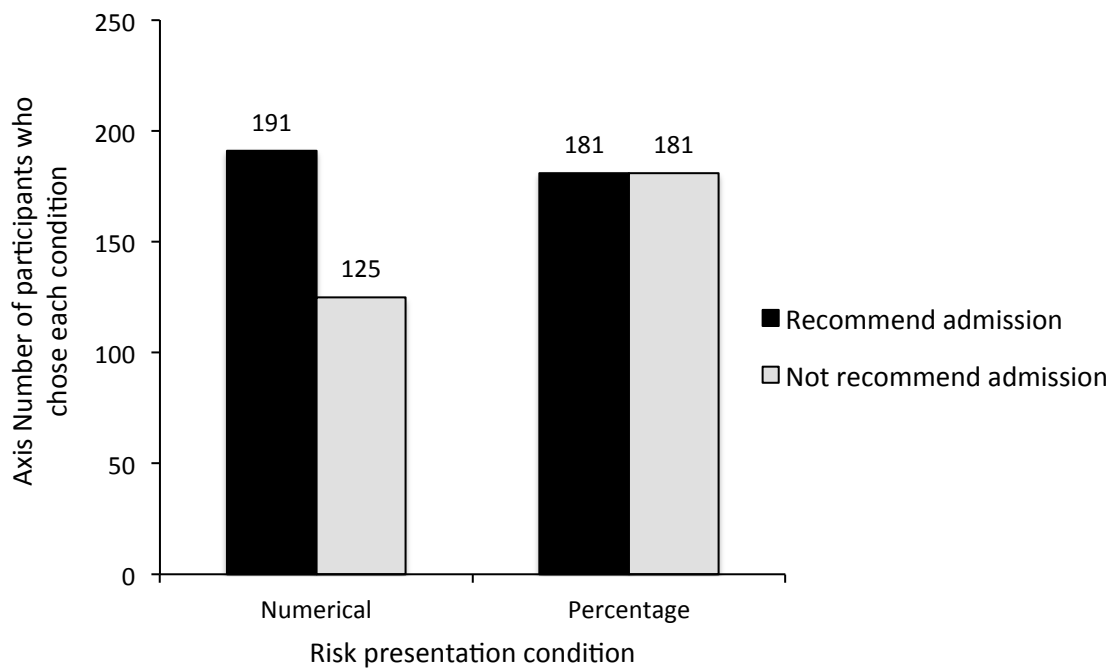


Figure 9. Distribution of decisions for numerical and percentage conditions.

Responses were also analysed for admission rates based on semantic labels (high and low). A higher rate of admission was seen in conditions in which risk was indicated as high rather than low ( $\chi^2(1, N=372) = 7.269, p=.007$ ). See Figure 10.

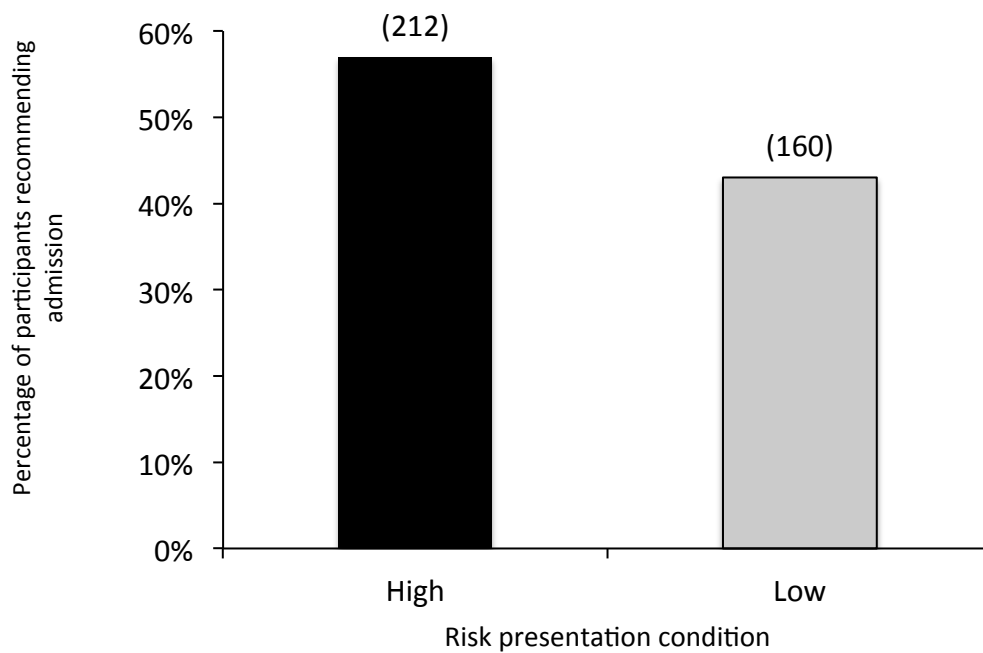


Figure 10. Proportion of participants who chose admission in high and low risk conditions

**Demographic differences.** Male participants recommended admission to a statistically higher level than females (57.29% [n=228] vs. 51.43% [n=144], respectively) across all conditions ( $\chi^2(1, N=678) = 4.34, p=.03$ ). When exploring decisions to admit, psychiatrist rating by age groups varied in their distribution: age groups 21-29 and 30-39 (n=254) suggested ‘recommend admission’ more often than the 40-49 and 50-59 (n=367) age groups, though the results were not statistically significant.

*Demographics for those choosing to ‘not recommend admission’.* When investigating the group of respondents who did not choose to admit a service user under the numerical/high condition (most likely to induce an ‘admit’ response), it was found that the group consisted of more males (n=33) than females (n=23), that there were a

greater number of older participants ( $\chi^2(1, N=54) = 4.74, p=.03$ ), and the respondents were less experienced (as measured by time in job role).

#### **5.4. Discussion**

In this simple one-response survey, the presentation of risk information influenced decisions made by a large group of psychiatrists. The way risk based clinical information was presented created a framing effect by which numerical and high risk presentations yielded risk averse decision making. A clear ordering of responses was seen showing the responses across conditions ( $A>B=C>D$ ). In simpler terms, admission was recommended more in numerically presented than percentage presented high risk conditions ( $A>B$ ) and the same pattern was seen in the low risk conditions where admission was recommended more often in numerical than percentage conditions ( $C>D$ ). The two other conditions (numerical/low and percentage/high) showed almost identical results, potentially explained by their competing biases.

The use of semantic labels within conditions also influenced admission decisions. In conditions where the risk was presented as high, more psychiatrists recommended admission than when risk was suggested to be 'low'. Based on demographic information, results showed a higher instance of a 'recommend admission' decision in male psychiatrists, potentially refuting the often-accepted notion that females are more risk averse than males (Gale et al., 2003; Jianakoplos & Bernasek, 1998; Watson & McNaughton, 2007). Experience had an effect on the admission decision with younger,

less experienced psychiatrists choosing to admit the service users more often than older, more experienced psychiatrists.

While the study was not modelled on any previous work, our results resemble findings in the previously study by Yamagishi et al. (1995). Their findings suggested that riskiness was perceived as higher when risks were presented as relative frequencies (numbers) using a larger range (1,286 out of 10,000). Correspondingly, the current study found that presenting risk as a frequency (rather than percentage) led to a higher perception of risk indicated by a response to admit a service user to hospital. Although the studies differed in some respects (our use of semantic labelling) a similar result was found with regard to base rate neglect. In Yamagishi's experiments, participants disregarded the overall statistics and concentrated on the number of deaths. In our study, participants were also influenced by the presentation of risk rather than the overall statistical computation for the risk, thus indicating base rate neglect in our cohort of psychiatrists.

***Semantic labelling.*** Participants exhibited further bias, elicited by the addition of semantic labels 'high' and 'low'. Psychiatrists who were presented with a 'high' risk scenario selected to recommend admission more often than did those who were presented with 'low' risk scenarios, regardless of whether risk information was presented as numerical or percentage.

Compared with the classical framing effect (Tversky & Kahneman, 1981) where situations positively framed as 'lives gained' (i.e. individuals will survive) resulted in risk aversion and negatively framed situations resulted in risk seeking, the medical version



of the framework yields a reverse pattern. McNeil et al (1982) investigated decisions about hypothetical treatments (radiation or surgery) and found that participants were more likely to choose the more invasive surgery option when the situation was framed in terms of 'survival' (this being the low risk frame) and the less invasive option of radiation when risk was viewed in terms of mortality (high risk frame). The current findings have followed this medical model of decision making with participants who viewed the case as 'high' risk being more risk averse by recommending the service user for admission. In the current study, the supporting information about the service user was presented using semantic 'high' and 'low' labels, which potentially led to manipulation of decisions.

A large body of work suggests that behavioural intentions can be influenced by loss or gain framed messages (see review by Gallagher & Updegraff, (2012). If positive gains of a particular behaviour are presented to participants, preventative behaviours (or in our study, the risk aversive action of admitting the service user) may be more likely to be carried out (Detweiler, Bedell, Salovey, Pronin, & Rothman, 1999; Rothman, Martino, Bedell, Detweiler, & Salovey, 1999). Specifically, behavioural intentions for actions that are deemed high risk (such as attending a mammogram to ascertain confirmatory or negative evidence of breast cancer) are likely to be encouraged by loss framed, or negative, messages (Banks et al., 1995; Block & Keller, 1995; Meyerowitz & Chaiken, 1987; Thomas et al., 2011). In the case of the current study, decisions to admit were indeed encouraged by loss framed messages as participants were informed that if actions were not taken, the service user might kill someone within a month. Although

previous theories may not be entirely cohesive with a model of clinical decision making by psychiatrists, MHPs might benefit from the knowledge that presentation of risk has the potential to alter risk perception and bias subsequent admission behaviour.

Previous work suggests that simply having knowledge of certain biases can reduce the probability of their influence upon decisions in general settings such as the recency effect in financial auditing (Kennedy, 1993) and, with more relevance to the current study, in medical emergency settings (Croskerry, 2002; Croskerry, 2003). It is suggested that particular cognitive techniques can neutralise (Croskerry, 2003; Hirt & Markman, 1995) or at least attenuate (Koriat et al., 1980; Slovic et al., 1977) biases. With these studies in mind, it would be important for MHPs to be aware that the information they receive about service user risk, whether it be via a GP referral letter, verbally from a colleague or otherwise, may influence their judgment and lead to biases in their decision making. The bias towards risk aversion in the current study's high risk conditions (numerical/high and percentage/high) may support theories suggesting that decision making can be strongly influenced by emotions (Lerner & Keltner, 2000; Lerner & Keltner, 2001; Loewenstein & Lerner, 2003). Emotions guide our decision making by eliciting cognitive responses that encourage the avoidance of threats or the attainment of rewards. During the assessment of risk MHPs might experience a level of anxiety that could lead to risk-avoidant decision making. This has also been seen in general decision making (Maner, 2007; chapter three of this thesis) and the implications of this bias in mental health settings includes possible restrictions to care by way of insufficient positive risk taking, potentially impinging on the human rights of a service user.

Additional reasoning behind the larger admission decisions in high risk conditions may be 'attentional bias', the cognitive bias resulting in focused attention on semantically representative information. The heightened sensitivity for the words 'high' and 'low' in relation to the risk factors surrounding a service user may have been the cause of this bias toward opting for admission. This may derive from increased pressure on clinicians to make accurate decisions in situations, which are inherently ambiguous and uncertain. If it is the case that semantic labels can influence decisions to recommend admission, the implications could be reduced bed availability, increased workload and financial burden for NHS trusts.

**Demographic differences.** Some differentiating factors in admission decision were seen based on demographic differences, such as sex, age and experience. Contrary to expectation, male respondents were more likely to admit the service user than females, suggesting a level of risk averse behaviour from men. Previous work in risk assessment of service user cases has found interprofessional variability for the assignment of risk (Montandon & Harding, 1984; Ryan, 1998) and that risks are perceived as higher by women than men (Ryan 1998; Gale et al, 2003).

This suggests that, if our study concurred with previous findings, men should have recommended admission *less* than women. However, of those who observed the 'numerical high' condition, female respondents were more likely to recommend admission than males, suggesting a higher level of risk aversion in women, in that particular condition. This is analogous with expectation based on previous literature (Gale et al. 2003) and possibly indicating susceptibility to bias by affective information in

female participants. While some previous studies indicate sex differences in perception of affective stimuli (Hamann & Canli, 2004), with women processing emotion better than men (Bradley, Codispoti, Sabatinelli, & Lang, 2001; Collignon et al., 2010), no specific work has been undertaken into the affective bias in MHPs.

Age and experience also revealed pertinent differences between MHPs. Across all conditions, the youngest two age groups (21–29 and 30–39) were most risk averse, reflected more frequent admission decision in this group. When focus was shifted to just those individuals who recommended admission, individuals with less experience exhibited *less* risk aversion. This elicits some confusion as it might logically follow that time spent in a profession would directly correlate with number of experiences and therefore result in less risk aversion—possibly due to a higher level of confidence. The two domains (years spent in profession and duration in years) might be distinct from one another rather than forming an overarching concept of ‘experience’. For example, a psychiatrist with 30 years of time spent in their office based role working only with service users with depression would have an entirely different set of experiences as a psychiatrist who has only been qualified for 10 years but had worked in a variety of settings and had seen great variety of diagnostic presentations. These discrepancies raise further questions as to how experience and variety amalgamate to aid decision making. Chapter four of this thesis explored the relationships between experience, confidence and subsequent risk aversion and suggested that there may be grounding in the notion that MHPs who are experienced are also more likely to show less anxiety, more confidence and less risk aversion. This reflects the finding in the current framing

study with regard to less experienced individuals being more risk averse, but does not account for the unexpected findings of risk aversion in admission recommendations, as the two are paradoxical (those who recommend admission are effectively exhibiting risk aversion). Further exploration of this area would be beneficial to the understanding of risk aversion within MHPs.

***Understanding of probability.*** The significant difference between decisions made by psychiatrists in the current study may be explained by a lack of understanding about probability. Although psychiatrists are routinely faced with decisions based probability and risk, they may not understand this probability based on numerical or percentage criteria (Gale et al, 2003). These concepts are key as therapeutic interventions are routinely discussed in terms of odds ratios or numbers requiring treatment.

Using these concepts is by no means the sole basis for a decision, and is intended to facilitate treatment decisions. Previous evidence points toward a misunderstanding of even basic probability not only by the general public (Kirsch et al., 2002) but also a range of mental health professionals (Gale et al., 2003). Gale et al.'s research found MHPs showed no differences to controls in their understanding of probabilistic concepts. Their study did glean information about basic general probabilities but did not investigate the clinically derived risk information that clinicians would be familiar with as part of their profession.

***Limitations.*** The study, using a sizeable sample, provides strong evidence that psychiatrists are influenced by the way in which risk information is presented. There are

few studies in the mental health literature that have explored the impact of such framing effects on decision making. This research provides a primary step towards raising awareness about potential biases in psychiatry and so may assist psychiatrists in making more objective and evidence based decisions about service user risk. Future research may explore the circumstances under which individuals do not succumb to framing effects and inform suitable decision making training, particularly in less experienced professionals such as trainee and junior psychiatrists. As part of the study, a novel clinical vignette was developed and results found that such methods appear to be a useful way of exploring decision making in MHPs. Although the vignette questionnaire was subject to a small pilot study, which yielded positive results, this is not a validated measure. There is evidence, however, to support the use of vignettes as validated measures in the investigation of decision making in clinical professionals (Veloski et al, 2005).

It is acknowledged that this study carries with it a degree of artifice, and in real life clinical settings psychiatrists and other MHPs would have a richer source of available information on which to base their decisions. Participants were informed that they were taking part in a study investigating clinical decision making but were not informed that they were only participating in one of the four conditions or the exact direction of the study. We cannot, therefore, be certain to what extent other factors intervened in the decision making process

**Conclusion.** The rationale for this research was to ascertain whether psychiatrists are influenced by small changes in the presentation of risk information, due to the implications this may have for risk based admission decisions. Our findings offer initial insights into clinical decision making processes based on framing effects and observes that while the type of risk information is influential, additional key words denoting risk magnitude also have some control over final decisions about service user admission. A number of demographic differences suggest the necessity for clear definition between experience as variety of encounters and experience as duration of time spent in profession. In light of these findings, it would be beneficial for NHS Trusts to be aware of how simple informational presentation of risk can have large effects upon subsequent admission decisions and for future training to include basic educative content incorporating cognitive bias and probability.

Taken together with the findings of preceding studies in this thesis and the wider literature, it would appear that whilst risk based decision making is key to safeguarding service users and the public, it is fraught with difficulty. The current study demonstrates that the way in which information about risk is presented has the potential to impact decisions reached. It is also true that decision making is likely to be affected by established biases in human judgement and whilst the NHS has policy driven tools such as RAPs to encourage systematic decision making to overcome bias, attitudes towards their use are mixed. With this in mind, it is important to highlight to professionals the factors that may impact them when reaching clinical decisions. This is not to say that professional practice is compromised necessarily, but that to make the best decisions,

MHPs may benefit from better awareness and conscious efforts to understand how they make decisions and under which circumstances their decision making abilities may be subject to bias.



## **6. A pilot study of an educational intervention aimed at improving knowledge of decision making processes and numeracy in Mental Health Professionals**

### **6.1. Introduction**

In the UK, training for Mental Health Professionals (MHPs) working in the NHS is managed by individual Trusts and is therefore subject to variation in content and quality (Hawley et al., 2006). The subject areas within local mandatory risk training programmes across UK Trusts are unknown, however there is no evidence to suggest that issues such as factors influencing decision making, and the associated biases, contribute to the on-going education of MHPs. This raises concern, as bias is inherent in human decision making and there is no reason to think that mental health decisions are exempt from the same (see chapter two of this thesis for review). There is also evidence to suggest significant comprehension deficits in the general public (Lipkus et al., 2001), students (Yamagishi, 1997) and medical doctors (Forrow et al., 1992). Having competency in statistical numeracy is essential for making informed decisions about health risks (Galesic & Garcia-Retamero, 2010) and as such, low levels of numeracy could have implications for the decisions MHPs make for service users. Considering the frequency with which the assessment of risk is undertaken, it would be preferable for MHPs to have a good level of statistical numeracy.

Neglecting to take decision bias and lack of numeracy into account may serve to undermine the work undertaken by Mental Health Trusts to ensure that quality

decisions are being made for service users and in a systematic way so as to reduce or avoid biases. For example, chapter five of the thesis (and Jefferies-Sewell et al., 2014) demonstrated that, like members of the general population and other health professionals, MHPs are subject to the framing effect, whereby information presentation can influence decision making. Whilst this is not to say that such an experimental manipulation impacts actual decision making around risk, it at least signals the need to raise awareness about influences on the judgements that professionals make about service users. Educational interventions may have a role to play in increasing recognition of biases, specifically in relation to how they may impact decision making, and the use of statistical information—the latter being absolutely fundamental to mental health practice when considering relative risk.

Affect and attitude are additional factors that potentially influence the decisions made in mental health settings. Especially pertinent for risk based decision making is that judgments made while experiencing anxiety are likely to be risk averse (Maner et al., 2007; Maner & Schmidt, 2006), potentially leading to a reduction in positive risk taking in mental health settings. This is an important factor in the empowerment toward progress and recovery for service users. While it is acknowledged that positive risk taking must be balanced with the safety of those in the community (and the service user themselves; Morgan, 2000), without taking these risks, development and growth for service users will be diminished within the policy driven recovery orientated approach for mental health providers (Mental Health Reform, 2012). Education of the influence that anxiety has upon decisions may elicit proactive behaviour on the part of MHPs to address any anxieties they have around taking positive risks for service users with

supervisors or colleagues. In doing so they may reduce the risk aversion they may be placing between the service user and their journey toward recovery.

Research around attitudes in medical settings suggest that negative attitudes lead to non-compliance, such as to infection control and safety precautions (Stein et al., 2003). Specific evidence to suggest that attitudes may affect compliance with completion of Risk Assessment Proformas (RAPs) has not been previously established, however negative attitudes to their use has been seen in MHPs (Godin, 2004; Hawley et al., 2010; Maden, 2003) and in chapters three and four of this thesis. While it is acknowledged that raising the awareness of the effects of attitude upon decisions will not effect marked improvement in judgment or eradicate non-compliance completely, if knowledge of the same is kept in mind by MHPs when making such decisions, negative outcomes may be reduced.

***Can education reduce bias?*** While some suggestions allude to the contrary (Arkes, 1981), awareness of human cognitive biases may reduce the presence, and subsequent influence, of those biases upon final decisions (Croskerry, 2002).

Particular strategies have been suggested to correct bias (Croskerry, 2003) and active, rather than passive, dissemination of information appears to afford individuals with enhanced learning outcomes (Haidet, Morgan, O'Malley, Moran, & Richards, 2004; Michel, Cater, & Varela, 2009; Sanna, Schwarz, & Stocker, 2002).

For example, material learned under the expectation of imparting it to others leads to higher learning scores (Benware & Deci, 1984; Haidet, Morgan, O'Malley, Moran, & Richards, 2004; Michel, Cater, & Varela, 2009; Sanna, Schwarz, & Stocker, 2002). Thus, a

more targeted approach, such as a specific educative module or seminar, is likely to be more effective than education via posters or leaflets, for example. The current chapter reports on the development and implementation of an online educational module aimed at raising awareness amongst MHPs in relation to the impact of bias and affective responses on decision making, alongside improving or in some cases, refreshing knowledge of probabilistic concepts. The precise nature of the educational module was informed by findings presented earlier in this thesis in which it has been demonstrated that (1) whilst risk based decision making has several consequences for service users and the public, MHPs note that risk is complex and cannot be accurately predicted or contained (2) biases may occur in the decision making process that lead to the neglect of certain types of information (3) the use of RAPs, designed to facilitate systemic decision making, is variable (4) decisions about service user admission are influenced by the way in which risk based information is framed and this may be debiased by education of the framing effect (5) evidence of negative attitudes have been seen in MHPs, especially in psychiatrists (6) evidence of anxiety and its positive relationship with risk aversion in MHPs has also been observed.

## Research Questions

1. What is the current level of knowledge of probabilistic concepts, biases, anxiety and attitudes among MHPs?
2. Are there interprofessional differences in knowledge and understanding of factors that may affect decision making? (probability, biases, anxiety and attitudes).
3. Can participation in an educational module improve knowledge in these areas?
4. Does knowledge of the framing effect suppress its influence on a vignette-based admission decision?
5. Are those with lower initial statistical numeracy (mean scores on probabilistic concept questions) and less knowledge of the framing effect more likely to be affected by framing?

## 6.2. Method

**Participants.** All participants were Mental Health Professionals (MHPs) from Hertfordshire Partnership University NHS Foundation Trust.

A total of 63 individuals completed the pre-module questionnaire (PRE-Q), 25 of those continued to complete the module and post-module questionnaire (POST-Q) and 21 completed the follow-up questionnaire (FOL-Q). A study phase flowchart, including numbers and characteristics of completers and non-completers at each stage, can be observed in Figure 11.

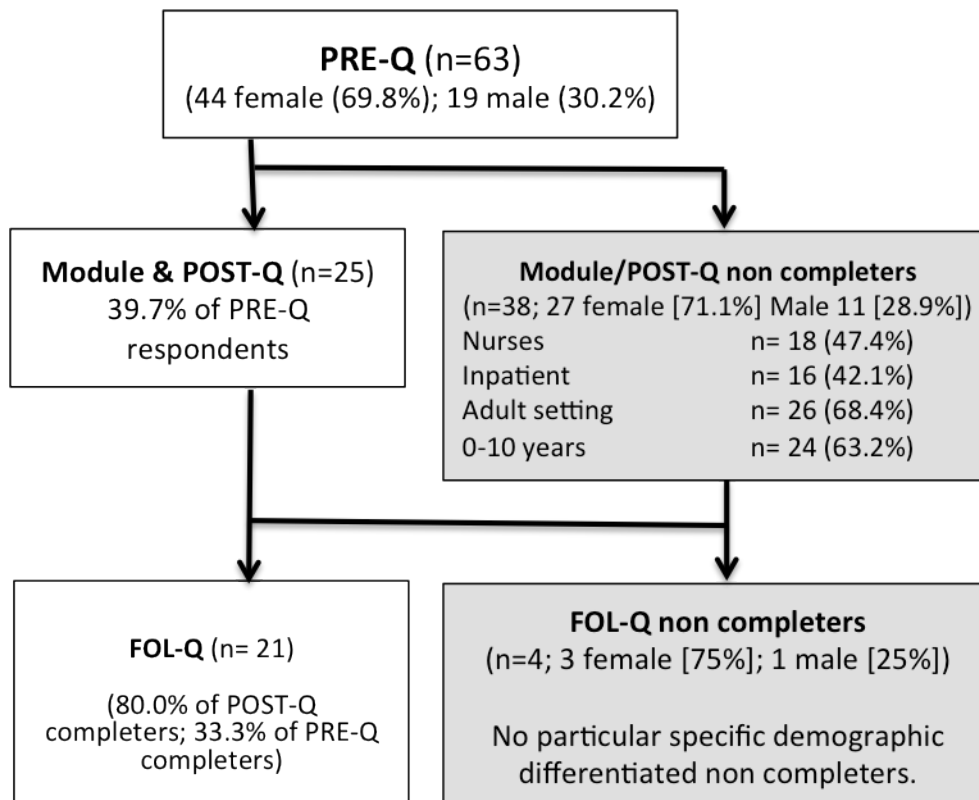


Figure 11. Flowchart illustrating stages of the educational module study and number of participants, and non-completers, at each stage.

Participant age and experience was recorded using a range of age bandings, rather than requesting specific ages. This was motivated by experience of participants failing to disclose personal information about their specific age and to make quick calculation easier for staff. It was assumed that most staff would be able to estimate the amount of time spent in their job role, but may not be able to specify an exact number of years (All demographics for the 63 PRE-Q completers can be seen in Table 10).

Table 10. Demographic information for Pre Module Questionnaire (PRE-Q) participants (n=63)

Demographic	N	% of total
<b>Profession</b>		
Nurse	29	47.5
Therapist	9	13.1
Support worker	7	11.5
Psychologist	9	13.1
Psychiatrist	4	6.6
AMHP	3	4.9
Social Worker	2	3.3
<b>Age</b>		
21–29	13	20.7
30–39	15	23.8
40–49	20	31.7
50–59	13	20.6
60+	2	3.2
<b>Country of origin</b>		
England	49	77.6
Ireland	3	4.8
Germany	3	4.8
India	3	4.8
Pakistan	1	1.6
Romania	1	1.6
Trinidad & Tobago	1	1.6
Zimbabwe	2	3.2
<b>Experience</b>		
0–10 years	38	60.3
11–20 years	18	28.6
21 years +	7	11.1
<b>Job Area</b>		
Community	21	33.3
Inpatient	22	34.9
Outpatient	7	11.2
All of the above	13	20.6
<b>Service user Type</b>		
Child & Adolescent	2	3.2
Adult	45	71.4
Older Persons	13	20.6
All of the above	3	4.8

**Design.** Quantitative questionnaire and qualitative methods were used in this study of interventional design. An opportunistic sampling strategy was employed to recruit participants via direct email from the research team or via a voluntarily accessed hyperlink in the HPFT newsletter/ magazine. Snowball, or chain sampling was employed via emails distributed directly to team managers, who forwarded to relevant staff known to them. MHP participation was via self selection.

**Measures.**

*Educational Module.* The module was comprised of four key sections: 1. General Heuristics & Biases, 2. Heuristics and Biases in Mental Health Settings, 3. Probability and, 4. Emotion and attitude. The module also included an introductory section, explaining who the author is and why the educational module is important, and a summary section briefly reviewing the module and thanking the participant for taking part (both presented in Appendix 7). A link to the POST-Q was embedded at the end of the summary section.

1. General Heuristics and Biases: within this section, four key biases were presented: availability (see module slides in Figure 12 for an example), representativeness, base rate neglect and the framing effect. Key studies and examples were presented to educate MHPs about the biases in general settings.



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### Heuristics & biases

Consider another question: Is it more likely that there are more four letter words that begin with the letter R or have R in the third position?

R \_ \_ \_                      \_ \_ R \_  
R \_ \_ \_                      \_ \_ R \_  
R \_ \_ \_                      \_ \_ R \_

How many can you think of? **Click on which type you think is more likely**

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### Heuristics & biases

**Most people assume that there are more words BEGINNING with R**

**RING**  
**RANG**  
**RUNG**

That's because it is much easier to bring to mind those words that start with a certain letter –

That's understandable. Afterall, the English dictionary lists words by their first, not the third, letter.

*Actually, there are three times as many words with R in the third position than the first!*

**FORT**  
**PARK**  
**CARD**

So, the availability heuristic can also cause judgmental biases

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Figure 12. Module slides depicting education of the availability heuristic.

2. Heuristics and biases in a mental health setting: Examples of how biases can be influential in mental health decisions were presented with key focus on biases such as framing effects and the availability bias (see Figure 13 for slides on availability).

The image shows two presentation slides from a module. The top slide is titled "Availability heuristic in mental health" and contains the following text: "A call of this nature is likely to cause some concern, but while Claire may be absolutely right in worrying about John, what she didn't tell you is that **one month ago, another service user on her caseload took an overdose**. It is possible that this experience gave Claire an increased expectation of the same happening to John Smith." To the right of this text is a photograph of a woman (Claire) looking thoughtful. Below the text, it says "It works both ways..." and explains that both negative and positive events can produce this bias. The bottom slide is also titled "Availability heuristic in mental health" and explains that recently experiencing an event can lead to a heightened sense that the same thing will happen again. It includes a scenario where a colleague named Claire calls about a service user named John Smith. A speech bubble from Claire says, "Hi, it's Claire. I just wanted to discuss a service user with you ... It's John Smith". A second speech bubble from John Smith says, "He told me he's feeling really low in mood and I'm worried he is going to do something dangerous over the weekend...". The slides include navigation buttons for "Previous" and "Next Slide" and the Hertfordshire NHS logo.

Figure 13. Module slides depicting an example of how the availability heuristic is applicable mental health settings.

- Probability: Basic probabilistic concepts were presented, with examples. Definitions of probability and its possible expressions in numerical form, understanding changes in risk using numerical expressions and basic probabilistic calculations were explained (see Figure 14 below for example of a general probabilistic concept module slides)

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### Example- general probability

?

Two dice are thrown simultaneously. What is the probability that the two will show the same number when they land?  
 (a) 1 in 6; (b) 1 in 36; (c) 1 in 12; (d) None of these.

Did you get it right? If you did, well done! If not, don't worry- we will work through the calculations now. Only a quarter of people in the study answered it correctly.

To solve this problem, we needed to know how many outcomes are possible on each die. We firstly note that a die has 6 sides, and therefore 6 possible outcomes. So two dice would have 6 x 6 outcomes = 36 outcomes  
 (see box below- each number within the bracket denotes one roll of each die)

Now we know there are 36 possible outcomes from throwing 2 dice, we can calculate how many possibilities there are to throw the same number.  
 There are 6 possible numbers on a die, so the probability is:

6 in 36 OR 1 in 6

Click on the 'number of possible rolls' box. You can use this to count the number of times the same number might be rolled.

Number of possible rolls

(1,1)	(1,2)	(1,3)	(1,4)	(1,5)	(1,6)
(2,1)	(2,2)	(2,3)	(2,4)	(2,5)	(2,6)
(3,1)	(3,2)	(3,3)	(3,4)	(3,5)	(3,6)
(4,1)	(4,2)	(4,3)	(4,4)	(4,5)	(4,6)
(5,1)	(5,2)	(5,3)	(5,4)	(5,5)	(5,6)
(6,1)	(6,2)	(6,3)	(6,4)	(6,5)	(6,6)

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Figure 14. Module slides depicting the description of basic probability using a dice-rolling example.

4. Emotion and attitude: The impact of negative emotions and negative attitudes as well as the influence of anxiety upon decisions (see slide in Figure 15 for example of module content) were presented to illustrate the implications for general and mental health settings.


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**Emotion and Attitude- Anxiety in clinical settings**

Taking action to reduce risks might sound like a good thing. (e.g. If we judge risk as being high, we might increase the number of actions taken in the interests of service user safety). On the other hand, heightened perception of risk may prevent MHPs from allowing service users to take positive risks.

Now let's look at how negative affect might influence our attitudes...



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### **Emotion and Attitude- Anxiety in clinical settings**

As we have just seen, a negative emotion can lead to people being more likely to assess risk as high. Anxiety can be considered a negative emotion and if this causes MHPs to alter their assessment of risk, we need to be investigating at how this impacts upon MHP decision making.

Previous research has suggested that work done by MHPs can be stressful, leading to anxiety. We know that when anxiety is experienced under experimental settings, people's perception of risk is heightened.



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Figure 15. Module slides depicting the potential effects of anxiety in decision making.

**Demographic collection and knowledge questionnaires.** The knowledge questionnaire was administered to all PRE-Q participants to establish baseline knowledge of statistical concepts, biases, emotion and attitude in relation to decision making. At the first knowledge questionnaire completion (baseline), seven demographics questions were asked to ascertain participants' personal and professional information. These included sex, age, profession, job area, patient type most often worked with and number of years in profession (experience) and country of origin. Basic demographic information can be seen in Table 10. The main 11 item questionnaire included questions relating to understanding of probabilistic concepts and knowledge of areas known to affect decision making (Exact wording of each question and associated multiple choice answers can be seen in Table 11). Items Q1, Q2 and Q3 were chosen based on questions used in Gale et al (2003) who had previously tested the knowledge of probabilistic concepts in MHPs and non-MHPs. The remaining questions (Qs 4–5 and 7–11) were devised with the assistance of the supervisory team to ensure the appropriate areas of interest were sufficiently covered before collecting data. Q6 included a previously used experimental case vignette (n=673; see chapter five of this thesis) to explore framing effects across two time points.

**Statistical power and sample size calculations.** Sample size calculation, based on a confidence level of 95% and a potential population of around 2000 (MHPs in the study's host Trust), the sample size required is 104 (confidence interval= 9.36%). With a sample size of 104, a substantial power level of .99 would be achieved.

Table 11. Knowledge questions in PRE-Q, POST-Q and FOL-Q and associated multiple choice options

Question content	Response Choice
1. A coin is tossed six times and you record whether it lands as a head or tail each time. Which of the following do you think is the most likely sequence you would see?	A: H T H T H T B: H H H H H H C: T H H T T H D: They are all equally likely*
2. Four playing cards are chosen at random from a shuffled pack. Which of the following scenarios is the most likely outcome?	A: The 4 chosen cards are all of the same suit; B: The 4 chosen cards are all of the same value C: The 4 chosen cards are all pictures ( i.e. J, Q, K, A)* D: It is not possible to say.
3. True or false. Two dice are thrown simultaneously. The probability of throwing one 5 and one 6 is 1 in 18	A: True* B: False
4. The availability bias can be best described as:	A: When we use the information available to us to make diagnoses about service users B: When our judgments are influenced by information that is easiest to bring to mind* C: Having information available that isn't correct D: When information is not available to us
5. Service user A is told that a certain medication has a 10% chance of adverse side effects. Service user B is told that the same medication has a 90% chance of producing no adverse side effects. If A chooses not to take the medication, but B chooses to take it, to what bias might this be referring?	A: Representativeness B: The Framing Effect* C: Base Rate Neglect D: Availability
7. What effect might anxiety have upon risk taking?	A: Anxiety can cause an avoidance of taking risks* B: Anxiety can lead to increased risk taking C: Anxiety has no effect upon risk taking D: All of the above
8. Which of the following describes the representativeness heuristic?	A: You believe there is more chance of you being killed in an aeroplane crash based on a recent tragic event of the same nature. B: You choose a medication based on a positive report of its low chance of potential side effects. C: You think it is likely that a person has a certain profession based on a prototype you

	hold about their personal characteristics.*D: You calculate the likelihood of an event but fail to take the available information into account.
9. ____ describes the bias humans exhibit when they do not take all of the available information into account when calculating probabilities.	A: Base Rate Neglect* B: Representativeness C: Availability D: The Framing Effect
10. We know that anxiety can cause risk ____ behaviour. This may not be a beneficial outcome in health settings because it could lead to fewer ____ being taken.	A: Seeking/Positive risks B: Avoidant/Positive risks* C: Seeking/Referrals D: Avoidant/Referrals.
11. What effect can negative or unfavourable attitude have upon decision making?	A: It might make people more likely to take risks B: It might cause people to take less risks C: It might make staff less likely to give due attention when completing RAPs* D: All of the above

Note: Asterisks denote the correct answer to the item.

The knowledge questionnaire items were the same for all three time points (PRE-Q, POST-Q and FOL-Q). The vignette question was only measured at PRE-Q and FOL-Q but not at POST-Q. The motivation for this was to create a sufficient time gap between the education about the framing effect (during the module) and the vignette question (4 weeks later) to ensure participants' admission decisions were not biased by learning the framing material. A feedback questionnaire was included in the POST-Q, which addressed, among other areas, the participant's perceptions of the overall favourability of the module (Q1. Overall, how would you rate the module?), the quality of materials (Q11. The quality of the module materials was good), and whether they thought that



their knowledge had improved (Q12. The module improved my knowledge). A comprehensive list of feedback questions can be seen in Appendix 8.

**Procedure.** Research and Development (R&D) approval was gained from Hertfordshire Partnership University NHS Foundation Trust's Research & Development Committee. Application for full NHS ethical approval was not necessary as this study was recruiting NHS staff only and was 'low risk'. This type of research is exempt from Research Ethics Approval. Participants did not sign an informed consent form as consent was implied via their voluntary participation with the online materials. Participants who were approached via email were sent the information sheet (Appendix 9) and a link to the PRE-Q on the Bristol Online Surveys (BOS) website. Those accessing the module via the newsletter or magazine were able to see the information sheet and link online and proceeded in their own time to the PRE-Q by clicking the hyperlink. Participants were presented with a welcome screen explaining the nature of the study and the researcher's contact details were provided. If they chose to participate, they advanced to the demographics questions (Q1–Q7) screen and completed this section. Participants clicked 'next' to advance to the next page, which presented the remaining 11 questionnaire items in list format. At the end of the PRE-Q, access to the HPFT online mandatory training site was provided (via hyperlink) and details given to explain the process of logging into the Trust's online e-learning (OLM: Oracle Learning Management) system. Participants progressed through the module sections, at their own pace, using the 'next page' buttons when necessary. Once the last page of the module was reached, a direct hyperlink to the POST-Q (BOS website) was provided.

Participants could save their progress in the module at any time during the process and could return to the material at a later time. Although there was no way of measuring how long, on average, participants took to complete the module, it is estimated that it would take up to 1 hour to complete. Participants completed the POST-Q in the same way as the PRE-Q (same procedure as above). The final screen of the POST-Q thanked the participants for their time, provided research team contact details and informed them that they will be contacted again, via email, in 4 weeks to request completion of the FOL-Q. Four weeks after participation, participants were contacted directly via email to request completion of the FOL-Q, which was accessed via a direct hyperlink to the BOS website. Participants completed the FOL-Q in the same way as the PRE-Q and POST-Q (see above). The final screen thanked the participants for their time and provided contact details for the research team.

**Hypothesis.** It was expected that the sample would demonstrate limited understanding of probabilistic concepts, however, due to their training background, psychiatrists were expected to have a better initial (pre-module) knowledge of statistical concepts than other MHPs. No significant differences were expected between MHPs in the knowledge of cognitive bias, as it is not likely that any particular type of MHP would have specific NHS training in this area. Improvement was predicted to occur between the pre module questionnaire (PRE-Q) and post module questionnaire (POST-Q) and knowledge maintained in the follow-up questionnaire (FOL-Q). As the presentation of risk information in the vignette was altered for the FOL-Q to percentage, rather than numerical data (in the current study), it was expected that knowledge of the framing

effect would reduce the likelihood that responses would shift to 'Not recommend admission'. Those with poorer scores on the probabilistic concept questions were expected to be more susceptible to framing (i.e. will be more likely to change their decision to 'Not recommend admission'), based on previous findings.

### **6.3. Results**

Performance on pre-module (PRE-Q), post-module (POST-Q) and follow-up questionnaires (FOL-Q) were the main outcome variables for the study. Sixty-three participants took part in the PRE-Q and 25 of these participants (39.7%) completed the subsequent module and POST-Q. Twenty-one (33.3% of the original 63 participants; 84.0% of POST-Q completers) completed their participation in the study by filling in the FOL-Q four weeks after reading the module. Performance on the PRE-Q will be presented for all 63 participants and for the purposes of score comparison across the three knowledge questionnaires (PRE-Q, POST-Q, FOL-Q), analysis will only be conducted on the 21 participants who completed the whole study. Figure 16 shows the movement of participants from one stage of the study to the next and the individuals who did not progress to the next stage(s) of the study. Individuals who took part in the POST-Q and FOL-Q are a subset of those who participated in the PRE-Q.

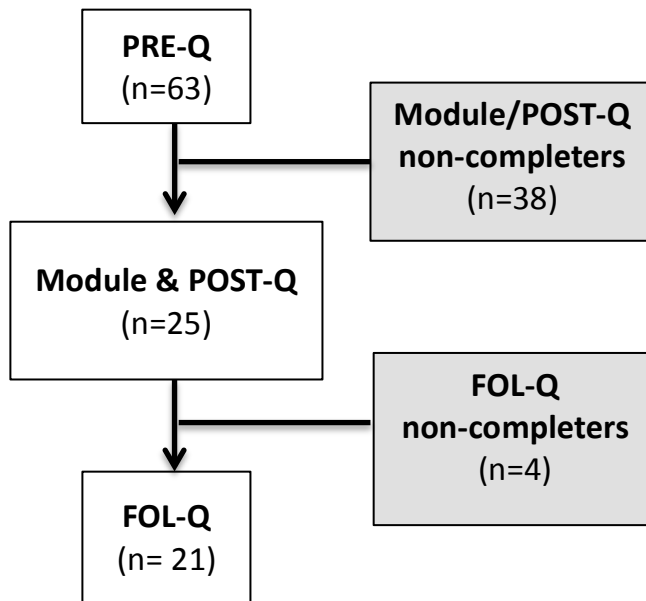


Figure 16. Flowchart to illustrate movement of participants through the study

**Results for PRE-Q respondents.** All questions and multiple choice answers can be seen by referring back to Table 11. Participant performance for all PRE-Q respondents (n=63) showed that while most questions concerning factors affecting decision making (Qs 4–5 and 7–10) were answered correctly, errors were seen in the question concerning the effects of negative attitudes on decision making (Q10: What effect can negative or unfavourable attitude have upon decision making?). See Table 12 for results of each knowledge questionnaire item in the PRE-Q. Just 12.7% of participants answered this item correctly and 100% of psychiatrists, therapists, social workers and AMHPs answered incorrectly. A high proportion of incorrect answers were also seen in two of the probabilistic concept questions (Q2. Four cards are chosen at random from a shuffled pack. Which of the following scenarios is the most likely outcome? and Q3. True or false, two dice are thrown simultaneously. The probability of throwing one 5

and one 6 is 1 in 18). Just 11.1% and 20.6% of MHPs correctly answered Q2 and Q3, respectively. The overall mean score for correct answers on the PRE-Q (out of 10 knowledge questions) was 4.86 (SD= 1.48; n=63; Min= 1, Max= 8).

Table 12. Performance on probability and biases questionnaire items for PRE-Q participants (n=63)

Item	A	B	C	D
Q1	4 (6.3%)	0 (0%)	11 (17.5%)	48 (76.2%)*
Q2	9 (14.3%)	1 (1.6%)	7 (11.1%)*	46 (73.0%)**
Q3	13 (20.6%)*	50 (79.4%)**	-	-
Q4	11 (17.5%)	47 (74.6%)*	1 (1.6%)	4 (6.3%)
Q5	12 (19.0%)	44 (69.8%)*	2 (3.2%)	5 (7.9%)
Q7	36 (57.1%)*	6 (9.5%)	0 (0.0%)	21 (33.3%)
Q8	14 (22.2%)	20 (31.7%)	18 (28.6%)*	11 (17.5%)
Q9	38 (60.3%)*	8 (12.7%)	7 (11.1%)	10 (15.9%)
Q10	6 (9.5%)	49 (77.8%)*	2 (3.2%)	6 (9.5%)
Q11	3 (4.8%)	14 (22.2%)	8 (12.7%)*	38 (60.3%)**

*Note: Results with one asterisk (\*) denote correct answer to the questionnaire item. Results with two asterisks (\*\*) denote those items in which the majority of participants selected the incorrect answer. Question content and multiple choice answers can be referred to in Table 11. Question 6 comprised the vignette used in chapter five of this thesis (page 163.)*

**Interprofessional differences in PRE-Q responses.** Table 13 shows that the psychologist group (n=8) yielded the highest mean score (out of 10) on the PRE-Q knowledge questionnaire. Psychiatrists (n=4) followed, although a larger spread of scores was seen in the psychiatrist group (SD 2.08; min correct 3, max correct 8), whose most knowledgeable participant on the PRE-Q scored 1 point higher than that of the psychologist group (SD 1.40, min correct 3, max correct 7).

Support worker/healthcare assistants and AMHPs showed the least knowledge of all MHPs. Numeracy scores (Q1, Q2, Q3) were found to be low, with a mean of 1.00 out of

a possible 3 correct responses across groups. Interprofessional differences were revealed in mean score; nurses showed the best knowledge, with a mean of 1.10 out of 3 and psychiatrists showed the least knowledge with a mean of 0.50 out of 3 on these items. All other groups averaged 1.00 out of 3. The differences between groups were not statistically significant when results were analysed in a one-way ANOVA ( $F(3,19) = 0.25, p = .86$ ).

Table 13. Professional differences in mean correct responses to PRE-Q knowledge items (n=63)

<b>Profession</b>	<b>N</b>	<b>Mean (SD)</b>	<b>Min</b>	<b>Max</b>
<b>Psychiatrist</b>	4	5.50 (2.08)	3	8
<b>Psychologist</b>	8	5.62 (1.30)	3	7
<b>Nurse</b>	29	4.90 (1.50)	1	7
<b>Therapist</b>	8	4.63 (0.92)	4	6
<b>Social Worker</b>	2	5.00 (1.41)	4	6
<b>Support worker/healthcare assistant</b>	7	4.00 (1.91)	1	6
<b>Approved Mental Health Professional</b>	5	4.00 (1.00)	3	5
<b>Total</b>	<b>63</b>	<b>4.85 (1.49)</b>	<b>1</b>	<b>8</b>

*Note: SD refers to Standard Deviation; Min and Max refer to minimum and maximum knowledge questionnaire scores, respectively.*

**Module completion and POST-Q results.** Twenty-five participants (8 male; 17 female; 39.7% of the original 63 PRE-Q participants) continued on to complete the module and the POST-Q. Improvement in overall mean score (out of a possible 10) was seen in module completers between scores on the PRE-Q (mean 5.37; min 3, max 8; SD 1.35) and POST-Q (mean 6.87; min 4, max 10; SD 1.62). Table 14 shows results for the participants who completed the module knowledge questionnaire across the three time points: PRE-Q, POST-Q and FOL-Q for the 25 PRE and POST-Q completers.

Table 14. Knowledge questionnaire responses (%) for PRE-Q, POST-Q and FOL-Q (n=21)

Item	A PREQ	A POSTQ	A FOLQ	B PREQ	B POSTQ	B FOLQ	C PREQ	C POSTQ	C FOLQ	D PREQ	D POSTQ	D FOLQ
Q1	12.5%	8.3%	15.8%	0.0%	0.0%	0.0%	16.7%	8.3%	21.1%	70.8%*	83.3%*	63.2%*
Q2	20.5%	20.8%	15.8%	0.0%	0.0%	0.0%	12.5%*	25.0%*	10.5%*	66.7%**	54.2%**	73.7%**
Q3	25.0%*	25.0%*	26.3%*	75%**	75%**	73.7%**	-	-	-	-	-	-
Q4	4.2%	0.0%	0.0%	87.5%*	95.8%*	89.5%*	0.0%	0.0%	0.0%	8.3%	4.2%	10.5%
Q5	12.5%	0.0%	10.5%	83.3%*	100%*	84.2%*	0.0%	0.0%	0.0%	4.2%	0.0%	5.3%
Q6	66.7%*	100%*	68.4%*	4.2%	0.0%	5.3%	0.0%	0.0%	0.0%	29.2%	0.0%	26.3%
Q7	20.8%	16.7%	21.1%	25%	4.2%	21.1%	29.2%*	70.8%*	26.3%*	25.0%	8.3%	31.6%**
Q8	66.7%*	83.3%*	63.2%*	16.7%	4.2%	15.8%	8.3%	4.2%	10.5%	8.3%	8.3%	10.5%
Q9	4.2%	0.0%	5.3%	83.3%*	83.3%*	78.9%*	0.0%	0.0%	0.0%	12.5%	16.7%	15.8%
Q10	0.0%	4.2%	0.0%	25%	33.3%	21.1%	12.5%*	20.8%*	15.8%*	62.5%**	41.7%**	63.2%**

*Note: Results with one asterisk (\*) denote the correct answer to the item. Results marked with two asterisks (\*\*) denote an incorrect answer that was selected by the majority of participants.*

Repeated measures ANOVA. A repeated-measures Analysis of Variance (ANOVA) was conducted on the PRE-Q, POST-Q and FOL-Q scores of those who completed the study (n=21) to ascertain whether the module had successfully improved, and maintained, knowledge. The assumption of sphericity (assumption that the level of dependence between pairs of groups is roughly equal) was met by yielding a non-significant result on Mauchley's test ( $\chi^2(2) = 0.87, p = .28$ ).

The repeated measures ANOVA revealed that there was a significant difference between the knowledge questionnaire scores at PRE-Q, POST-Q, FOL-Q ( $F(2,19) = 7.08, p = .002, \text{Partial Eta}^2 = .26$ ). Table 15 shows the increase from PRE-Q to POST-Q and a decrease in knowledge from POST-Q to FOL-Q, and associated post hoc pairwise comparisons.

Table 15. Descriptive statistics for pre, post and follow up questionnaire completion (n=21).

	Mean score	Min/Max score	SD	Pairwise Comparison	P
PRE-Q	5.19	3 / 9	1.28	POST-Q FOL-Q	.01* .39
POST-Q	6.71	4 / 9	1.58	PRE-Q FOL-Q	.01 .07
FOL-Q	5.90	2 / 9	2.04	PRE-Q POST-Q	.39 .07

*Note: PRE-Q= pre module questionnaire, POST-Q= post module questionnaire and FOL-Q= follow up questionnaire. SD denotes Standard Deviation.*

While scores on the PRE-Q did not differ significantly from those on the FOL-Q (scores improved but not by a significant amount), reading the module did significantly improve knowledge, as evidenced by the higher knowledge



score on the POST-Q ( $p = .01$ ). The non-significant finding for PRE-Q to FOL-Q reflects the decrease in knowledge score; although the level of knowledge did not decline significantly to the original mean score ( $p = .07$ ) suggesting that, although by a very small amount, there was some maintenance of knowledge.

Although there were interprofessional differences for score improvement (psychologists made the largest mean improvement and support workers/health care assistants the least), this was to a non-significant level,  $F(4, 21) = 0.42$ ,  $p = .70$ ,  $\eta^2 = .14$ ). It is difficult to draw meaningful conclusions from these findings due to small numbers of MHPs in some groups. Nonetheless, mean scores and mean improvement in score from PRE-Q and POST-Q, can be seen in Table 16.

Table 16. Descriptive data for professional differences in knowledge improvement

Profession	N	Pre-Q Mean(SD)	POST-Q Mean (SD)	Improvement PRE-POST	Min	Max
Psychiatrist	2	4.50 (2.12)	6.00 (1.41)	1.5	-1	4
Psychologist	4	5.25 (1.70)	7.75 (0.50)	2.5	1	4
Nurse	10	5.60 (1.17)	6.70 (1.82)	1.1	-3	3
Therapist	3	4.33 (0.57)	6.66 (1.52)	2.33	1	1
Support Worker	2	5.00 (1.41)	5.50 (2.12)	0.5	-2	3

Note: 1. SD denotes Standard Deviation; Min and Max denote minimum and maximum improvement in knowledge score. 2. Some participants scored less in the FOL-Q than they did in the POST-Q and this is reflected by minus scores in the 'Min' column.

**Vignette admission decision.** Participants (study completers  $n=21$ ) were shown a clinical case vignette (that was previously used in chapter five of this thesis) to ascertain whether decision to admit would change following awareness of the framing effect. Decisions in PRE-Q responses showed that 57.1% ( $n= 12$ ) chose to recommend admission but reversal of preferences for admission was seen on the FOL-Q (where information was presented as a percentage) as 28.6% ( $n= 6$ ) chose to recommend admission the majority of participants (71.4%;  $n=15$ ) did not recommend admission. PRE-Q knowledge scores on statistics questions (Q1, Q2 and Q3) and PRE-Q knowledge of framing (Q5) were explored for individuals who showed a preference shift from admission to non-admission in order to establish whether lower levels of knowledge in these areas increased the likelihood of bias. When mean numeracy for those participants affected by framing was taken into account ( $n=7$ ), contrary to expectation, scores were observed as higher in those who had been affected by framing (mean=1.14; SD= 0.69) than in those who had not been affected by framing (mean= 0.92; SD= 0.86).

Those who answered the framing effect item correctly ( $n=17$ ; Q5: Service user A is told that a certain medication has a 10% chance of adverse side effects. Service user B is told that the same medication has a 90% chance of producing no adverse side effects. If A chooses not to take the medication, but B chooses to take it, to what bias might this be referring? Correct answer: The Framing Effect) were found to be less affected by the bias of framing than those who answered incorrectly. Of the participants who correctly answered Q5, 6 individuals (35.29%) showed preference shifts from recommending admission to not

recommending admission and 11 (64.71%) did not show this preference shift suggesting that knowledge of framing suppressed the influence of the bias in almost two thirds of those who knew about it. In comparison, of the four participants (19.0%) who answered the framing item incorrectly, 75% (n=3) were affected by the bias of framing.

**Perception of educational module.** Results from the feedback questionnaire in the POST-Q suggest overall positive opinions of the module content with 91.7% of participants rating the module ‘good’ or ‘excellent’ in Q13 ‘Overall, how would you rate the module?’ Two individuals (8.3%) rated the module as ‘fair’ and none rated it as poor. Results from the other main feedback questions suggest a continuation of this positive view, and a breakdown of each question is summarised in Table 17.

Table 17. Responses to module feedback items Q14.1–Q15.5 (n=24)

The module was...	Strongly Agree	Agree	Disagree	Strongly Disagree
<b>Q14.1 Enjoyable</b>	4 (16.7%)	18 (75%)	2 (8.3%)	0 (0.0%)
<b>Q14.2 User friendly</b>	7 (29.2%)	15 (62.5%)	2 (8.3%)	0 (0.0%)
<b>Q14.3 Relevant to my role</b>	9 (37.5%)	13 (54.2%)	2 (8.3%)	0 (0.0%)
<b>Q14.4 Informative</b>	10 (41.7%)	14 (58.3%)	0 (0.0%)	0 (0.0%)
<b>Q14.5 At a level I could understand</b>	7 (29.2%)	15 (62.5%)	2 (8.3%)	0 (0.0%)
<b>Q14.6 Interesting</b>	9 (37.5%)	15 (62.5%)	0 (0.0%)	0 (0.0%)
<b>Q15.3 Met my expectations</b>	4 (16.7%)	18 (75%)	2 (8.3%)	0 (0.0%)
<b>Q15.5 Improved my knowledge</b>	7 (29.2%)	17 (70.8%)	0 (0.0%)	0 (0.0%)

Participants were positive about recommending the module to colleagues and about the quality of the material, but were positive to a lesser degree about having a module of this sort as part of their mandatory training. Table 18 summarises the opinions in these three areas.

Table 18. Participant views about recommendation, quality and usability of educational module

Question	Strongly Agree	Agree	Disagree	Strongly Disagree
<b>Q15.1. I would recommend the module to a colleague</b>	5 (20.8%)	17 (70.8%)	2 (8.3%)	0 (0.0%)
<b>Q15.2. I would like to see this sort of session as a mandatory module</b>	6 (25.0%)	10 (41.7%)	7 (29.2%)	1 (4.2%)
<b>Q15.4. The quality of the module materials was good</b>	5 (20.8%)	18 (75.0%)	1 (4.2%)	0 (0.0%)

Free text qualitative responses for Q15. Unfavourable views about including this type of module in mandatory training were explored further using the free text opinions given by participants. Comments were analysed using content analysis techniques that included reading and grouping responses by thematic content. The following text outlines the main areas that MHPs mentioned in their comments. Of those who chose ‘disagree’ or ‘strongly disagree’ when indicating their preference for adding a similar module to mandatory training, one indicated that they *“Would not like it to be mandatory as too much is mandatory at the moment” (Nurse)*, but did not show any disfavour for the actual content or

quality of the actual module itself. Two individuals did not agree that they would recommend the module to colleagues. Their free text responses revealed that one felt that the module needed *“More practical examples”* such as *“Mention of risk benefit balance: If I gave you a hundred pounds would you play Russian roulette? What about a million pounds?”* (Psychiatrist). The other participant’s least favourite part of the module was the *“the charts, probability”* and felt that *“a better breakdown of some of the information would be beneficial. Some of the module was easy to understand and the breakdown was good, in other parts I felt lost and found it difficult to understand”*.

*General free text analysis for Qs 16, 17 and 18 in POST-Q.*

Q16. What was your favourite part of the module? The most common theme seen in participant responses related to the ability of the module to teach MHPs about their own biases. Within the short free text responses, 8 (33.3%) reported that *‘recognising one’s own biases’* (Nurse) and *['Gaining understanding of how biases in the way that we may think can affect decision making’* (Nurse)] were their favourite part of the module. One suggested that *['The subject made me reflect on my own practice and biases’* (Nurse)]. Some felt that the module was a good way of applying theory to a mental health setting. Some were interested by *['Finding out about the different ways we think and take risks and how I might be affected in my work’* (Social Worker)]. Another felt that *['The examples were very useful in trying to apply it to a "real life" setting’* (Psychologist)].

Some particularly positive views were seen on this question. A psychologist

remarked [*'I think this is a really excellent piece of training'* (Psychologist)] and a nurse revealing that their favourite part of the module was [*'The whole thing. Why was this not covered in basic training? An essential in my line of work but I knew nothing about it!'* (Nurse)].

Q17. What was your least favourite part of the module? (e.g. this might include, but is not limited to, parts you did not feel you understood or topics you did not find interesting). The largest proportion of the group (n=9 [37.5%]) suggested that their least favourite part of the module was 'Statistics'. Some suggested that the [*'use of numbers was a bit complicated'* (Nurse)] and that [*'Some parts I understood the idea you were getting across but couldn't do the maths!'* (Therapist)]. One said [*'I found it tricky to get my head round the probability stuff'* (Support Worker)] and an additional participant simply stated that [*'Statistics!'* (Nurse)] was their least favourite element. Seven participants (29.2%) implied their favour toward the module in that they did not report any least favourite parts of the module (either stated 'none' or left the field blank).

Q18. Do you have any other suggestions to help us improve future educational modules? Two thirds (n= 16; 66.6%) of participants indicated that they had no suggestions for improvements on the educational module. Of those who did give suggestions, 4 participants (16.66%) felt that adding more, and particular types of, examples of how decisions may be influenced by certain biases would be useful. Specifically, suggestions pertaining to [*'some more interactive examples'*

(Therapist)] and [*when explaining the different terms, to go straight in with mental health examples*] (Nurse)] were suggested.

#### **6.4. Discussion**

This study aimed to use educational material on cognitive biases, probabilistic concepts, attitudes and emotions in order to inform MHPs about the influence of these areas on decision making processes. The likelihood that a negative event will occur is complex to predict and control, yet risk based decisions have significant potential consequences for service users and the public. Since decision making is generally prone to bias, some of which have a negative impact, it was thought that raising awareness of this issue might be beneficial to those who have the power to make service user related decisions in mental health settings. This is particularly important since earlier in the thesis it was demonstrated that the use of RAPs, which are designed to aid decision making, is variable in terms of a RAP's contribution to the actual judgement versus its role as a tool for simply recording decisions (chapter four). One potential impact of the same is failing to consider the host of information that one may need in order to reach the best decisions, thus allowing room for certain biases to cloud judgement. Using a pre and post-study, repeated measures design, a pilot of an educational intervention was reported that unearthed interesting findings in terms of its utility in facilitating awareness of decision making processes in MHPs.

In the current study, initial MHP knowledge of the statistical concepts was poor, with around an average of one question out of three answered correctly. Knowledge of biases, affect and emotion was somewhat better, however overall correct score for all areas in the pre-module questionnaire was less than 50%. For those who completed the module, scores were initially higher than for those who only completed the pre-module questionnaire, suggesting that participants who chose to continue through the study may have had an initial interest and background knowledge of the module areas covered. Immediate improvement in knowledge across areas was seen in participants who completed the module, suggesting that the content was successful in educating MHPs about the areas covered. Improvement was based on an increase in mean correct answers to the module knowledge questionnaire. When participants completed the knowledge questionnaire four weeks after the module, knowledge had reduced to some extent (less overall mean score on the 10 questionnaire items), however the change was not statistically significant and did not return to the pre-questionnaire level of knowledge. It is therefore suggested that the module was successful in maintaining some level of knowledge in MHPs after one month. Responses to the case vignette revealed that despite education about the framing effect, preference to admit a patient to hospital was influenced by the way that risk information was presented. Specifically, when participants saw risk presented as a frequency they were more likely to suggest admission of a patient than when risk was presented as a percentage. This mirrors findings from



chapter five of this thesis and Jefferies-Sewell (2014) that demonstrated the same trend in psychiatrists. Most participants in the current study reported favourable attitudes towards the module content but suggestions for improvements included the addition of further interactive examples of influences upon decisions specific to mental health. As a result of suggested improvements, the module could be enhanced for future use in educating MHPs.

***Framing in MHPs: A clinical case vignette.*** To our knowledge, presence of the framing effect specifically in MHP admission decisions has not yet been researched, apart from in one recent study (Jefferies-Sewell et al., 2014). Misunderstanding of statistical information has been reported as equally present in MHPs and non-MHPs (Gale et al., 2003) and a lack of comprehension could lead to base rate neglect and framing effects. There is a body of work implicating the framing effect within medical professionals (Gong et al., 2013; Marteau, 1989; Peng, Jiang, Miao, Li, & Xiao, 2013; Peng, Li, Miao, Feng, & Xiao, 2013; Tengs, 1987) and the general public (Gallagher & Updegraff, 2012; Tversky & Kahneman, 1981) which could suggest the same bias in MHPs, as found in chapter five of this thesis and Jefferies-Sewell et al., (2014). The findings in the current study support previous framing effect results in that MHPs chose to recommend admission more often when risk information was given as a number (70 people rather than 0.7% of people), thus eliciting protective behaviour when they felt that the risk was higher. Correspondingly, findings in a study by Meyerowitz & Chaiken found that messages about breast self examination were

more inclined to effect positive attitudes toward carrying out this health-protective behaviour when risk information was presented in 'loss language' (Meyerowitz & Chaiken, 1987).

The current study expected to find that as participants had been exposed to some educational material about framing effects and statistical concepts, reversal of preferences toward non-admission in the lower risk (percentage) condition would be reduced. Simply, the framing effect would have less influence over the decisions of those who knew about the bias and/or had good statistical knowledge. While participant scores on the numeracy questions did not predict the absence of the framing effect (in fact we found the opposite), those who had previous knowledge of the bias were less likely to be influenced by framing.

Therefore, although participants were generally influenced by the change from numerical to percentage information, there is some suggestion that knowledge could provide some level of debiasing for this cognitive error.

Previous work has identified that individuals find numerical information easier to digest and understand (Peters et al., 2007; Wallsten, Budescu, Zwick, & Kemp, 1993) but the use of such information may, according to our findings, lead to overestimation of risk. This might reflect the aforementioned propensity of misunderstanding statistics and probability and direct future dissemination of risk information among staff. Mental Health Trusts should be made aware that presenting risk information in numerical form may induce risk averse assessments, and corresponding RAPs, for service users; effectively causing overestimation of risk. Conversely, risks posed as probabilities may lead to

underestimation of risks. While some research suggests that simply having knowledge of bias does not eliminate its presence (Sanna et al., 2002), there is evidence additional to our own to suggest the contrary (Almashat et al., 2008; Arkes, 1991; Croskerry, Singhal, & Mamede, 2013; Keren, 1990; Lehman et al., 1988; Queirós & Schachner, 2013). The importance of this area for mental health risk assessment motivates further research in the field.

Use of educational modules as an adjunct to current risk assessment training. The current body of work was designed as an educative module, rather than a training session aimed at changing or advising on decision making in MHPs; content addressed factors that may affect general decision making and the potential application of these areas to clinical settings. The results suggest that the module succeeded in its aims to enhance the knowledge of MHPs, if marginally, about the areas that may affect their decisions. This outcome indicates that this type of education might be useful in Mental Health Trusts, not only for the areas included in this module, but for other supplementary topics. Whether the module will effect a change within the decision making or risk assessment of MHPs in practice is beyond the scope of this thesis but the findings could be used to advise future material in educational modules. Future research may wish to attend to the effects that a module of this type has upon the real-life clinical decisions made by MHPs or at least whether it impacts attitudes towards and actual use of RAPs that are designed to aid the systematic exploration of risk. Positive changes to the assessment of risk may have been

made by educating MHPs about probability, understanding of which has been observed as problematic for MHPs in previous work (Gale et al., 2003). In practice, it would prove difficult to quantify improvements in the quality of risk assessment based on improved probabilistic knowledge owing to the lack of quantitative measures in place across NHS Trusts to do so.

**Module feedback.** Feedback about the module suggested a general satisfaction with the educational content and some were extremely complimentary about the overall learning experience provided by the module. Despite general favourability, many expressed difficulties in understanding the statistics content and felt that while the information was comprehensive, further practical examples from a mental health perspective would be beneficial for staff. Some disagreed that including this type of training as a mandatory module would be a good idea, however, this was not reflective of the module content but of the current overabundance of mandatory training with which staff are required to comply. The fact that MHPs had difficulty understanding the statistics portion of the module was not unexpected. Despite the numerous illustrations of concepts they felt that further examples would have aided learning. This is a problematic issue for Mental Health Trusts who rely on MHPs to make risk related decisions without the knowledge that they do not have good comprehension of basic probabilistic concepts. While it is acknowledged that understanding of statistics and biases is not the sole basis for making an assessment of risk, or an indication of good service user care, it should be noted that in situations where this

knowledge is useful (e.g. working from an evidence base of prevalence for particular disorders) MHPs, at their current level of knowledge, may be disadvantaged. Training in statistical concepts is undertaken over a number of years during medical, or psychological training and is unlikely to improve significantly over the course of a short module. It would be more beneficial for knowledge of statistical concepts to be addressed at the time of MHP qualification (e.g. during a nursing degree) rather than professional training after MHPs have begun working in their professional field. Without a basic understanding of statistical and probabilistic concepts, there is the potential for staff to miscalculate important risks brought about by biases such as base rate neglect (Barbey & Sloman, 2007) or framing (Tversky & Kahneman, 1981). The qualitative account, acquired from direct participant comments, suggests that difficulty in these areas serves to consolidate the need for additional training for MHPs. Conversations with relevant NHS Trust executives have already begun (in the host NHS Trust) with regard to the biases inherent in MHP decision making and it is hoped that positive feedback from participants about the module will encourage dissemination of the findings. The findings may also encourage change or additions to material in the current risk assessment training provision.

**Limitations.** The nature of the MHP role means that it is difficult for them to find time to participate in research studies such as this educational module. Rates of completion were low based on the number of staff within the host Trust who were contacted to participate (more than 1000 MHPs were contacted via email).

Sixty-three MHPs completed the PRE-Q, however, just 24 (39.34%) of those continued to read the module and complete the POST-Q, and of these 19 (79.16%; 31.15% of original participants) participated in the FOL-Q to complete their participation. It is likely that professional obligations were instrumental in non-completion of the FOL-Q portion of the study. It should also be noted that individuals self-selected for participation in the study, and as such might represent an atypical sample of the MHP population. Notwithstanding these limitations, as a pilot study, the research has demonstrated 100% completion of those who began the educational module itself, suggesting that once engaged, the content is interesting (as supported by positive comments in module feedback questions) and or useful to MHPs to warrant them giving up their time to complete. The success of the study is somewhat limited by its follow-up time. Owing to the constraints upon the PhD programme in which the study was conducted, a 4-week follow up was the longest duration possible. It would be beneficial for those who completed the study to be followed up again 6 months after the module to ascertain whether the knowledge gained was retained and if so, what were the contributing factors to this maintenance. I.e. did the module content resonate with MHPs and was absorbed and conserved in mind. The module content may also encourage further research of the areas, or MHPs may discuss, with colleagues, the key concepts.

The original sample size calculation requirement of 104 participants was not reached, possibly due to time limitations for the study and the ability of MHPs to have the time to participate in a study of this nature owing to their often very

busy schedules. Using statistical power analysis software, the 63 participants in the PRE-Q yielded a substantial power of .94. For the 25 module and POST-Q completers, power was reduced somewhat to .60 and to .53 for the final analysis on the 21 full study completers. These calculations suggest that the overall analysis on the study completers yielded a moderate level of power (i.e. 53 times out of 100 when results were significant, they are likely to, indeed, be significant). For this reason, the findings are limited in their generalizability, but further study with a larger and more appropriate sample size (104 or more) would be likely to achieve a very high level of power (approximately .99).

***Implications for practice, and concluding comments.*** This was a preliminary attempt to devise an educational module that covers areas of bias and statistical concepts so as to inform MHPs of influences on decision making processes. Further work will be required to refine the aspects of the module to improve its overall suitability to MHP audiences. That more than 60% of the original sample did not complete the module could reflect general disinterest in the area or that they did not have the time available to continue participation. Either way, the disinclination to participate found in this study indicates the difficulty that future modules may have in educating the entire mental health workforce.

Although some improvement in knowledge of biases and statistical concepts was observed in the current study, the outcomes were not as strong as were hoped for the prevention of bias via improved knowledge of the same. This is not to say

that with a larger sample, more favourable outcomes would not be achieved. The understanding of probability and human bias is not, and should not be, the main focus of MHP training, however, it is important for Mental Health Trusts to be aware of the effects that misunderstanding of these areas has upon decision making. At best, the effects on service users will be undetectable and will not impinge upon their care and wellbeing. At worst, the risks for service users are unacceptably overestimated, or underestimated, resulting in reduced liberties or an unjustified level of freedom in the community, respectively. Both of these scenarios have the potential to pose risk to the service user or others around them and there is scope for prevention with appropriate training.

Implementation of further work would be required to ascertain any debiasing methods that could be influential for MHP decision making.

**Conclusion.** A large part of mental health care relies on making suitable decisions about service user risk. This is essential to safeguarding in this context. There are a number of factors that are likely to impact how MHPs make risk based decisions, and it is important to note that some of the influences on decision making act to create biases. It is also true that the use of statistics and probability-based data can be misleading and this effect has been demonstrated reliably across general population and medical samples. With this in mind, the current study advanced an educational module to try and raise awareness of these concepts in MHPs.



Whilst such education may not impact the way in which MHPs reach their decisions, this is not to say that without awareness, problematic choices about service user care are being reached. It is more a suggestion that awareness of influences on decision making are likely to enhance the decision making process to provide heightened assurance of effective approaches to the task. This pilot study has demonstrated that a short online educational module does have the potential to raise awareness of factors that effect decision making, although the training alone, at least in the short-term, may not improve use of specifically statistical knowledge. Whether such educational modules impact engagement with NHS risk assessment processes such as the use of RAPs was not explored, although future research should consider impact of education on behaviour of this kind. It is plausible that heightened awareness of biases in decision making would draw professionals to the better use of RAPs- essentially designed to aid, rather than simply record, decisions.

## **7. Brief overview of key findings**

This chapter briefly summarises each of the key findings from current studies in chapters one to six of this thesis. Chapter eight will attempt to further elucidate the current study results with regards to theoretical perspectives and impact for decisions made in mental health settings.

### **Chapters One and Two- Introduction and literature review**

Risk assessment Proformas (RAPs) are policy-led processes put in place to record service user risk. RAPs consume a proportion of Mental Health Professional's (MHP's) time and resources, however little research has investigated the factors that might affect their optimal functionality. Heuristics and biases, understanding of probabilistic information, affect and confidence are all factors that have the potential to influence decisions, and by extension, may also bias service user related decisions by Mental Health Professionals (MHPs). Framing effects (well researched outside the field of mental health) and anxiety were both considered as determinants of how risk is assessed. Owing to the implications of bias in risk-related decisions, these factors were considered. Dislike of protocols has previously been observed to cause staff non compliance in health settings which may extend to the use of RAPs.

### **Chapter Three- Attitudes to risk assessment**

Results from a large-scale questionnaire (n=673) found interprofessional

differences in attitudes to RAPs, risk taking, anxiety and confidence. Psychiatrists expressed the most unfavourable attitudes toward using RAPs but also spent the least time completing them. A relationship was found between high levels of anxiety and risk aversion, supporting previous research. Confidence was high in all participants (but highest in psychiatrists) suggesting possible overconfidence in risk-related mental health decisions. Supplementary analysis found that attitude towards the formatting of RAPs was the strongest predictor of attitudes to the same.

#### **Chapter Four- Qualitative exploration of attitudes to risk and RAPs**

Fifteen MHPs from a Mental Health Trust took part in semi-structured interviews in order to build on work in chapter three of this thesis and establish a richer understanding of attitudes around the use of RAPs. As well as profession, experience was also revealed as a differentiator in attitudes: those who were more experienced were also less favourable towards RAPs, regardless of profession. A relationship was found between experience and a number of other factors, anxiety, findings that more experienced MHPs may hold less anxiety, more confidence and more complacency. These factors appear to result in experienced individuals being less likely to elaborate on descriptions of risk in RAPs, or to complete them at all.

### **Chapter Five- Framing effects in psychiatry**

Based on previous findings that the framing effect influences risk based decision making, a vignette study with a one-response questionnaire was developed, and completed by 678 psychiatrists. Results suggested that admission decisions were influenced by the label *high risk*. More also chose to recommend a service user was admitted to hospital when risk was presented as a natural frequency (e.g. 70) rather than as a percentage (0.7%). Implications of this finding are that the framing effect is as robust in psychiatrists as in other medical professionals and the general public. Education of probability and bias is suggested as a way to reduce the susceptibility to the framing effect, as well as other biases, in mental health decisions about risk.

### **Chapter Six- Educating MHPs about factors affecting decision making**

This chapter amalgamates current findings from chapters one to five in an educative intervention to attempt knowledge improvement in MHPs for the following areas: heuristics and biases, probability and the influence of anxiety and attitude upon decisions. A one-hour module improved and moderately maintained knowledge questionnaire scores. The clinical vignette developed for chapter five of this thesis was implemented during the knowledge questionnaire and results mirrored previous and current findings; importantly, MHPs were affected by the presentation of information, regardless of receiving training about framing effects. This said, pre-module knowledge of framing reduced the likelihood of susceptibility to the effect. This gives some credence to the use of

education for improving bias and a larger sample could reveal more clear and generalizable results.

Currently, there is no Trust specific or nationally accepted education in the areas covered by the current module study and, for this reason, there is a necessity for the dissemination of these findings to mental health Trusts in order to 1. Inform them of biases inherent in MHPs and 2. Make a case for the use of education in improvement of knowledge and reduction in associated biases. This would be with the aim to make MHP decisions as objective and unbiased as possible in order to provide the most optimal care for service users.

The following chapter will discuss and conclude the contribution of this PhD programme to the on-going decision making literature, with specific implications for risk-related choices made by MHPs. It offers potential theoretical underpinnings of the attitudes around, and intentions towards, RAP completion and will address future directions and implications for this area of research.

## **8. General Discussion**

### **8.1. Introduction**

Mental illness is relatively common with around a quarter of individuals in the UK being affected in any one year (Singleton et al., 2003). Although negative outcomes are rare, in a small number of cases the well-being of a service user or the general public is compromised. For this reason, Mental Health Trusts (MHTs) within the UK have a duty of care to both help patients cope with and recover from disabling symptoms and ensure their safety throughout. Safeguarding is a major concern in this context and so the decisions made by professionals about service user risk are paramount. It is also true that decision making is a complex process and one that can be fraught with difficulty. Whilst some of the errors in decision making have been explored in healthcare contexts, this programme of research was inspired by the dearth of evidence looking at how Mental Health Professionals (MHPs) think and feel about risk based decision making, in addition to considering factors that may impact on how they go about the process. It also sought to use such knowledge to advance an educational intervention aimed at raising knowledge and awareness of decision making and its influences in this context.

Over a series of studies, specific factors that have been considered include attitudes towards risk assessment, the use of decision aids to support the process, biases (including understanding of statistical concepts), affect and

confidence. The mixed quantitative and qualitative methods have ensured that trends can be unearthed alongside gaining richness of experience from practitioners who have the very job of making risk based-decisions on a daily basis. The current chapter aims to provide an overview of the key findings from the research programme, alongside proposing theoretical perspectives and signalling the key implications for professional practice.

**Attitudes.** Previous work has highlighted negative attitudes to RAPs (Godin, 2004; Maden, 2003; Undrill, 2011). The current study (chapter three) replicated the findings of Hawley et al. (2010) who devised a questionnaire about MHP attitudes to RAPs and originally collected data from 300 MHPs in one MHT. The current replication study (chapter three) was completed by 673 MHPs across 24 MHTs in England in order to establish validity of the previous findings. In replication of the original findings, psychiatrists in the current study (chapter three) were more negative about using RAPs but spent significantly less time completing them than other MHPs. Nurses spent the longest amount of time completing RAPs, and were also most favourable towards their use. Psychiatrists may hold more negativity towards RAPs because their training encourages dynamic and lateral thinking. Thus, the use of restrictive forms (RAPs) may not be their preferred mode for the assessment and reporting of risk. Psychiatrists in the current interview study (chapter four of this thesis) made comments alluding specifically to interprofessional differences, stating that the nature of a psychiatrist is to think [*outside the box*] and [*not to follow protocol slavishly but*

*to think laterally, to make shortcuts*]. Although psychiatrists did state that they [*don't think (RAP use) is completely valueless*] they also expressed that [*...most psychiatrists would find (RAPs) too simplistic to be helpful*], the observed differences in attitude, particularly seen between psychiatrists and nurses in the current body of work, could imply variation in the propensity for particularly negative MHPs to complete RAPs accurately or at all.

Considering RAP completion is a policy requirement (Department of Health, 2007), non-completion of RAPS by psychiatrists may lead to the overburdening of other MHPs. Additionally, RAPs, whilst serving a governance and information sharing function, generally include key elements of risk that should be explored with the service user. RAPs may also, therefore, act as a decision making tool, ensuring that information is gathered in a systematic way and so trying to avoid bias or clouding of judgement by selected evidence. Finding mixed attitudes towards RAPs in both quantitative and qualitative exploration is problematic since it suggests that they may not be fulfilling their function to the fullest despite such heavy policy led pressure to ensure their completion. Safeguarding requires the most pertinent information about service users to be collected and shared between all MHPs involved in the individual's care and RAPs form a core part of this process, where the current research points to aspects of the tool that may benefit from refining to encourage use. Indeed, the formatting of RAPs was the greatest predictor of MHP attitudes for their use in the current quantitative studies (chapter three of this thesis). The need for improvement to RAP format



was supported during qualitative exploration with MHPs [...(RAPs) *are under review because they are full of errors and not fit for purpose. So some of the questions, for example, have been wrongly set up so you need to answer yes rather than no to register a neutral result...Some people just write in the text that they have risk assessed and that's what I usually do. I only fill the Trust PARIS risk assessment if I really think there is a point in doing that* (psychiatrist)]. With some adaptation to the format of RAPs, a matter that is already on the agenda in the host Trust of the current research, behaviour toward completion may be improved as previous research suggests that perceived difficulty of an action is one of the strongest predictors of intention to carry out the same (Ajzen & Madden, 1986; Foy et al., 2007; Sheeran et al., 2003). See section 0 later in this chapter for proposed Theory of Planned Behaviour explanation of the attitude-behaviour relationship for RAP completion in MHPs.

**Affect.** Cognitive errors and understanding of information have been seen to bias medical diagnosis (Croskerry & MacKinnon, 2007), risk decisions (Jefferies-Sewell et al., 2014; Kühberger, Schulte-Mecklenbeck, & Perner, 1999; Reyna et al., 2009) and patient health choices (Banks et al., 1995; Rothman, Salovey, Antone, Keough, & Martin, 1993; Tengs, 1987). Emotions such as anxiety are suggested to have significant effects upon decision making (Maner et al., 2007; Maner & Schmidt, 2006; chapters three and four of this thesis) and the risk aversion resulting from inherent anxiety was of interest to the current studies. There is a wealth of literature documenting anxiety, stress and burnout in medical

professionals but a limited amount suggesting the same in MHPs. Considering many MHPs qualify as medical professionals before specialising in mental health, their anxiety levels could be assumed as at least equivalent to those of medical practitioners in general health settings; in fact, anxiety may be even higher considering the potential for mental health patients to perform self-injurious behaviours (Herpertz, 1995; Klonsky, Oltmanns, & Turkheimer, 2003; Van der Kolk, Perry, & Herman, 1991) or attempt suicide (Ogundipe, 1999) whilst under the care of MHPs.

Half of all therapists in the current attitudes questionnaire study (chapter three of this thesis) reported RAP related anxiety and more than half of all participants reported that time constraints within their job role made RAP completion a stressful task. The current qualitative exploration also confirmed MHP stress and frustration as a consequence of professional time constraints. Inherent anxiety about risk has been suggested as the root cause of 'the risk assessment of everything' (Power, 2004) in that there is a growing culture, at least in business organisations, of systematic organisational accountability for risk. Secondary risks have become equally as important as primary risks within public and private sector organisations; that is, accountable parties have been increasingly preoccupied with managing their *own* risk (secondary risk) rather than the primary risks posed to those they are expected to safeguard (in mental health, this would be the risks posed to, or by, service users). Work in this thesis qualitatively upheld the presence of this 'culture of blame' and it was indeed

discussed as a source of anxiety for MHPs. Of this feeling among some MHPs, one commented [*I don't really understand why this culture and this feeling exists but it certainly seems to because you'll hear people say it all the time. 'Oh you just have to cover your back, you have to fill this in to cover your back'*]. The awareness that risk is unknowable, and unpredictable is likely to be, in itself, anxiogenic (Undrill, 2007). A possible influence of this over MHPs is that their reputation is pivotal, and must be upheld for the continuation of their role as a health professional. As a result, defensiveness against culpability may begin to overshadow judgment of primary risk to service users and this could be detrimental to care provision. Of the risk assessment process, Power (2004) contemplated whether it is '*simply a managerial smokescreen, deflecting attention from the more fundamental fact that individuals are increasingly alone with risk, unable to trust the very institutions designed to absorb it on their behalf?*' (p.10) and, as a result of this, suggested that alternate discourse around uncertainty of risk is necessary to move away from this blame driven culture. This discourse must, as Power suggests, make clear the fallibility of risk assessment; encouraging organisations to instil within their staff (MHPs) that not all risks are controllable. Power also suggests that public knowledge of professional fallibility may engender trust, rather than the opposite. This may be applicable to mental health service users in that through their acceptance that no risk can ever be fully predicted regardless of a MHP's professional level, a reduction in the weight upon the shoulders of mental health staff and the associated anxiety could be achieved.

Rather importantly for MHPs, a new discourse for uncertainty that allows acceptance of fallibility in judgment may create a safe environment for considered decision making. In this way, anxiety about risk based decisions might be reduced, resulting in less avoidance of risks and more positive decision making for service user outcomes. Nevertheless, anxiety remains a present concern for the judgments and decisions made by MHPs and, as such, considerations for the reduction in positive risk taking for service users should be taken. Although caution (such as admission of a service user to hospital or restricting access to community-based opportunities) is a natural response to potentially negative consequences, if risk aversion limits and restricts the liberties or opportunities of service users its presence must be addressed in order to balance tolerance for risk taking and optimal decision making. The consequences of risk aversion on the efficient operation of mental health services should also be considered. If anxious, risk averse, individuals are more likely to suggest admission of an individual to psychiatric inpatient care, services could become overcrowded, having financial implications for the NHS Trusts involved. This has been seen in other aspects of general health care, where 90% of patients with chest pain were admitted to a coronary care unit as a result of risk averse behaviour by clinicians. As well as an increase in costs and overcrowding, the ability to provide quality of care decreased in accordance (Green & Mehr, 1997).

Individual MHP supervision could be specifically targeted to reduce the anxiety experienced during risk based decision making. The need for supervision in MHPs

is highlighted by Machulloch & Shattell (2009) who suggested that higher levels of accountability by MHPs has resulted in elevated stress levels. Supervision affords staff a space where any negative emotions associated with assessing risk can be acknowledged and managed with the help of a suitably trained colleague. Supervision is something that MHPs already have access to, however, further investigation of a targeted and individualised supervision programme specifically addressing anxiety about risk-taking might be beneficial for future Trust practices.

**Cognitive Biases.** Although a wealth of research has been undertaken in the psychology of framing for general decisions (Banks et al., 1995; Gonzalez, Dana, Koshino, & Just, 2005; Kühberger, 1998; Levin, Schneider, & Gaeth, 1998) and medical judgments (Gong et al., 2013; Marteau, 1989; McNeil et al., 1982; Peng, Jiang, et al., 2013; Tengs, 1987), the influence of this well-established effect in MHPs, and how this affects their clinical decisions, is limited.

Previous findings in medical decision making suggest choices made in the presence of losses (e.g. chance of mortality) are more likely to be risk averse resulting in the selection of less invasive treatments for patients (McNeil et al, 1982; 1988). The findings in the current thesis corroborate this notion; when faced with high risk service user scenarios, MHPs were more likely to show risk averse behaviour (by recommending admission). The anxieties produced by the risks associated with non-admission (an omission that could be considered risk-taking behaviour) may produce risk aversion. The studies in the current thesis

(chapter three) showed a relationship between risk aversion (associated with decisions about service users) and anxiety, supporting previous literature.

An additional concern is that MHPs may be just as equally affected by the framing bias as the general public. While previous findings suggest a general lack of numeracy in non-MHP (Lipkus et al., 2001; Okamoto et al., 2012; Peters et al., 2007; Reyna & Brainerd, 2008) and medical practitioners (Reyna et al., 2009; Schwartz, Woloshin, Black, & Welch, 1997; Sheridan & Pignone, 2001), limited research exists for this in MHPs (Gale et al., 2003). Investigation using an educational module (chapter six of this thesis) verified the previous suggestion that MHPs do not score highly on questions relating to statistical concepts. Considering the accountability MHPs have for those under their care, it is necessary to better ascertain the level of probabilistic knowledge that is relevant to risk estimation. Thus, if such calculation is ever required (e.g. when estimating risk for a particular service user based on base rates of illness within the population), decisions about subsequent care will be rationally and accurately reached.

The information MHPs receive in order to make vital decisions for service user care can be derived from many sources (other health professionals, case notes, past RAPs) and will potentially be transmitted in many formats (textual, verbal, numerical, percentage). In chapter five of this thesis, MHPs were influenced by the presentation of risk information; selecting more risk averse decisions

(admission of a service user to hospital) when risk was presented as a number, rather than a percentage. In the experiment, each participant was presented with one of two risk conditions (numerical *or* percentage information). To reduce any possible experimental bias produced by participants only observing one of the two conditions, the experiment was adapted in the current educational module study so that participants saw both conditions at different time points, effectively giving them the opportunity to detect the informational change (from numerical to percentage) and debias their subjective susceptibility to the framing effect. On the contrary, results mirrored the previous findings (chapter five) that MHPs were affected by the presentation of risk information. Accordingly, the framing effect appears to be equally robust in MHPs (Jefferies-Sewell et al., 2014) as it is in other medical professionals (Gong et al., 2013; Marteau, 1989; Tengs, 1987) and the general public (Banks et al., 1995; Block & Keller, 1995; Detweiler et al., 1999; Gurm & Litaker, 2000).

***Potential implications and theoretical perspectives: Interplay of anxiety, confidence and complacency.*** Anxiety was observed in a subset of MHPs in the current attitudes to risk assessment questionnaire (chapter three) and in qualitative exploration (chapter four); as were confidence and complacency. The interrelation of these domains could be driven, in part, by experiential differences between MHPs. This is based on qualitative reports of less anxiety in those who had spent the longest in their role (see chapter four). It is unclear whether experience relates to time in a profession or variety (i.e. years spent in

profession or the diversity of professional areas in which MHPs have worked), however the two could be positively related to some degree (e.g. the longer a MHP has worked, the more psychiatric domains to which they have been exposed). From the current qualitative study, experiential differences were observed in MHPs; with less experience associated with less confidence and vice versa for those with more experience (See chapter four). Non-psychiatrists expressed some frustration with experienced psychiatrists offering 'clipped' comments about pertinent risks in RAPs, implying a degree of complacency within their risk reporting. Conversely, other less experienced non-psychiatrists were suggested to be more vigilant, and detailed, in their risk-related decision making, as evidenced through qualitative exploration in chapter four of this thesis [we have had some fairly newly qualified staff who have been recruited into positions and we have some very experienced agency nurses, and actually...it is the newly qualified nurse whose decision making and risk taking is actually better (nurse)].

Figure 17 reiterates the previously discussed (chapter four of this thesis) outline of how the influence of experience on anxiety, confidence and associated complacency might map theoretically, including the propensity to under, or over, estimate risks under high or low anxiety.



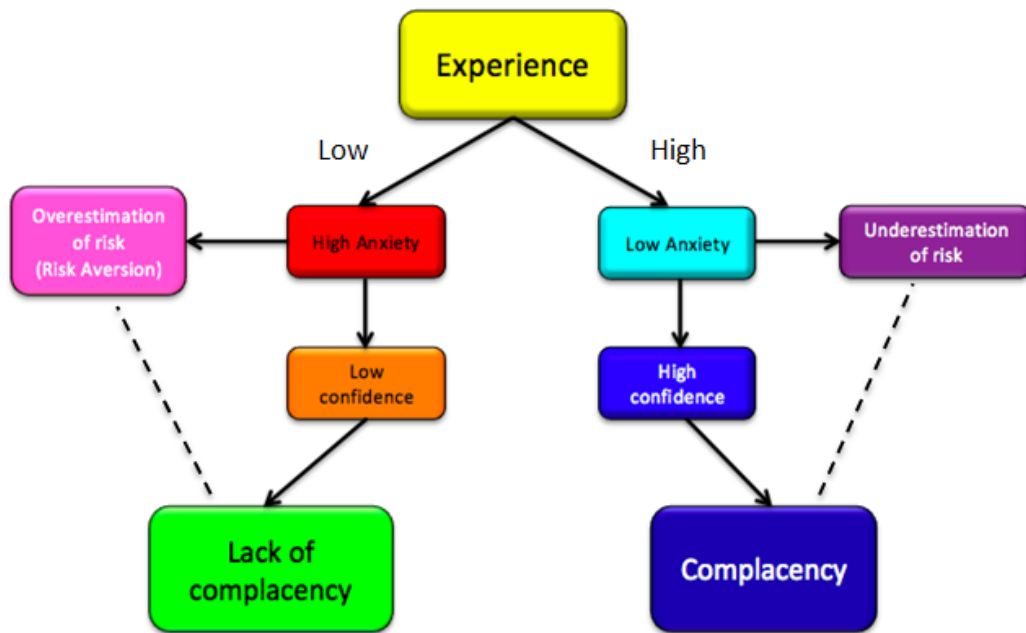


Figure 17. Suggested conceptual map for the interplay of experience, confidence, anxiety and complacency

It appears from the qualitative exploration that experience increases, possibly erroneously, the level of confidence in one’s own decisions. One experienced consultant psychiatrist admitted that [it is like when driving, you gain confidence and you get this kind of very risky time when you have possibly driven for a few years, you have 100,000 miles and life is so easy, and unfortunately this is not the case (P02- Psychiatrist)].

As a result of experience (whether this refers to time or variety of experiences), anxiety may be reduced. In the case of those with less experience, risk aversion may be the result of this anxiety [...somebody who is anxious is likely to rate somebody as very high risk and other people are bit more blasé and laid back and may not pick up on risks (Nurse)]. The sensitivity to potentially negative

outcomes that newly qualified MHPs experience (owing to their lack of experience) is reported to be the source of vigilance for asking pertinent questions about potential risks and could be beneficial as long as the anxiety does not lead to avoidance of encouraging positive risk taking [...good anxiety is always good...It's a good worry because that informs your clinical decision...It's always a balance because the other extreme anxiety is all about avoidance. Being anxious about what the client is going through...might arouse you to ask even more questions (P15- Nurse)]. While this model may not be applicable to all MHPs, the interconnections found between experience and complacency have negative consequences for the reporting of risk in RAPs.

Experience may also lead to intuition within decision making, a concept that is principally underpinned by pattern recognition. A concern for the outcomes of using intuition is that overconfidence may be increased (Sadler-Smith & Shefy, 2004) and in turn, complacency may develop for reporting risk via RAPs. There was some suggestion in the current qualitative interviews that intuition should be tentatively trusted, and would certainly not be something that decisions would be solely based upon, however others felt intuition was important for identifying particular risks for service users. One particular issue currently faced in mental health settings has resulted from a change in services offered to the public. The introduction of Crisis Assessment and Treatment Teams (CATT), a subset of mental health services that provides a 24-hour a day emergency mental health service to individuals in the community, has meant that psychiatrists have had a reduction in feedback from their decisions. This has led to a lack of

continuity of care and subsequent difficulties in building pattern recognition for risks. One psychiatrist suggested [...you have to get the feedback to learn. If you just make a decision and it goes off to another team and you never have any feedback you never know whether your decision was the right one... you don't learn from your mistakes (P04-Psychiatrist)]. For example, individuals who may be in crisis due to a mistake a clinician has made (e.g. with prescribed medication, decision to discharge) will speak to the CATT team, via a single point of access hub (SPA), and this information may not reach the clinician themselves, meaning that they can never gain the required feedback for building improved pattern recognition. According to Kahneman & Klein (2009), there is no magic to intuition, and it simply describes recognition of previously experienced information. Without feedback, recognition cannot be developed. There have been various studies discussing the use of intuition in general nursing (Davidhizar, 1991; McCutcheon & Pincombe, 2001; Rew, 1989) and more importantly for the current area of research evidence exists to suggest that it is an important skill in mental health nursing. Welsh & Lyons (2001) advocate that although standard assessment tools and processes, such as evidence based practice are valid, intuition and pattern recognition have an important role in the assessment of service users. This said, experience is still likely to cause an increase in intuition and confidence, and there is evidence that the two are interrelated (Griffin & Tversky, 1992; Sadler-Smith & Shefy, 2004). The findings from current qualitative study paint a complex picture. On one hand, intuition might be beneficial for the assessment of risk but may also lead to

overconfidence. On the other hand, there are reports of decreasing opportunity to build such skill in practice. It may be that confidence in experienced MHPs is explained by intuition, and the inherent anxiety in those with less experience is derived from their inability to build this important skill. The current programme of work did not aim to investigate this area, but future study may be beneficial to begin disentangling this intricate relationship and build a model of intuition in MHP decision making.

Some nurses commented upon the complacency that appears to accompany this confidence, with this tendency specifically indicated as being exhibited by psychiatrists. One nurse remarked [...you'll tend to get quite clipped remarks by a doctor. They'll just say, 'no risk of self harm, no risk of suicide, no risk to others'. You know, it's three standard lines. Whereas, when you read it by nurses or social workers, you tend to get the context.]. As well as overconfidence potentially resulting in complacency, misalignment of confidence and accuracy, particularly in medical diagnosis (Berner & Graber, 2008; Mann, 1993; Meyer et al., 2013; Rabinowitz & Garelik-Wyler, 1999) has also been observed. An association between anxiety, confidence and complacency might exist for risk-related decisions by MHPs, and therefore the area should be considered further in future research.

Increased risk vigilance and detailed reporting of risks may be due to anxiety about making mistakes or missing risks. Indeed, MHPs in the current qualitative study (chapter four) indicated this [...I just need to make sure...I need to be absolutely certain...the only time I would get anxious is if I have forgotten (to

record a risk) (Nurse)]. A psychiatrist recalled an instance when anxiety caused them to contact a service user after their appointment [I have done that before. So, the patient has gone in the morning and I have phoned them up in the afternoon if I think there is something that's concerning. I've done that before, not commonly, but I've done it (P10-Psychiatrist)]. This said, while vigilant and detailed completion of RAPs follows policy driven guidelines clinical practice (Department of Health, 2007), there are previously noted drawbacks of anxiety with regard to risk aversion (and associated neglect of positive risk taking). With this in mind, it is vital to find a balance between acceptable levels of anxiety (and associated confidence) and reducing complacency by clearly emphasising the value in detailing pertinent risks within RAPs. In this way, MHPs needing access to (previously completed) RAPs in the future will have the necessary quality and quantity of information to support their appraisal of risk for service users in the present.

***A Theory of Planned Behaviour explanation for the attitude-behaviour relationship in RAP completion?*** Following previous findings that highlight interprofessional variation in attitude to RAP completion (Hawley et al., 2010; Jefferies-Sewell et al., 2014) and subsequent compliance (chapter four of this thesis), ascertaining the theoretical underpinnings for intention to complete RAPs might better explain MHP behaviour. As outlined in chapters two and three of this dissertation, there has been a great wealth of evidence to suggest attitudes, perception of 'normal' behaviour and the perceived capacity to

conduct these behaviours are all contributory factors towards our final actions (Ajzen, 1985; Ajzen, 1991; Ajzen, 1996; Ajzen, 2005; Ajzen & Cote, 2008; Ajzen & Madden, 1986; Fishbein & Ajzen, 1975; Fishbein & Ajzen, 2005). Atypical behaviour in any one of these domains may provide a significant barrier to facilitating decisions to undertake RAPs. In MHP decisions, we can consider the choice for reporting risks in RAPs being based on 1. Attitude: how an MHP feels about the overall process, 2. Perceived social norms: what they perceive as 'normal' or acceptable practice in the opinion of their peers and 3. Perceived Behavioural Control: whether they feel they are actually able to complete RAPs; this is comprised of the perceived difficulty and perceived control over whether they feel able to complete them. The following three sections discuss each area in relation to the process of MHP decision making with regards to RAP completion.

1. *Attitudes*: A generally low level of favourability toward RAPs has been reported by MHPs in previous research (Godin, 2004; Maden, 2003) and specifically elevated disfavour was found in psychiatrists (Hawley et al., 2010; Jefferies-Sewell et al., 2014). Negative attitudes could imply a reduced intention to complete RAPs, and this was further strengthened by current qualitative interviews (chapter four). For example, one experienced psychiatrist suggested that *[when there's a rule, the doctors tend to subvert the rule if it doesn't make sense. So we are not very good at following rules that we don't think are helpful. So if we don't think risk assessment is helpful, we are unlikely to follow it]*. This

may reflect a difference in pre-professional education and training in psychiatrists, who are provided with extensive education in the formulation of service user cases and may have a more preferable manner of recording and reporting risk. For example, one psychiatrist revealed how her background in training means that risk assessment for psychiatrists differs from the methods used to complete RAPs [*the training is all about not writing down all the detail but going straight to the most important thing and then ignoring all the rest and focusing on that...That's what we are trained to do and that's what were skilled at doing*]. Rather than using RAPs to guide risk assessment, psychiatrists might utilise the 'fast and frugal' cognitive heuristic called 'Take the Best, Ignore the Rest' or 'Take the Best' (TTB) (Gigerenzer & Goldstein, 1996) where they use a process of ruling out options based on what is most poignant to the decision at the time. For psychiatrists, this might be whether a service user will attempt suicide. Choices for the next steps in the care of that service user (for example, detention under mental health section and/or admission to psychiatric inpatient care) will be based on that most important piece of information, rather than taking all of the associated data into account (e.g. is there a risk of self harm). It is suggested that this process can be explicated using decision trees, which graphically present the way medical practitioners make fast and frugal decisions based on limited information (Green & Mehr, 1997). A full review of TTB and its applications in psychiatry, including an example of a psychiatric decision tree, can be referred back to in chapter two of this thesis. As a decision making tool, TTB may hold particular facilitative value for decisions made in

mental health practice and if, by virtue of their training during professional education, non-psychiatrists do not utilise this method, it may be beneficial to provide such training post-hoc. While it is possible that TTB is an explanation for some clinical decision making, it is important to note that evidence from the current thesis provides potentially biased self report descriptions. Self report accounts of decision making may be biased and evidence suggests experts are poor at introspection and thus may not be accurate in describing their own decision making processes (Dreyfus & Dreyfus, 2005; Zacharakis & Meyer, 1998). Self reports of decision making processes are consistently found to be inaccurate and a reason for this may be a misreporting of their perceived processes. For example, an expert may think that they use a method of Take The Best (TTB) such as in the current thesis' findings (Chapter 4), however, unconscious inductive reasoning might also account for the decisions made by psychiatrists. Pattern recognition is one example of how experts may form decisions (Ericsson, 1998) and in this way decisions about current events can be made by comparison to previously encountered patterns of behaviour. One particular study has shown that pattern recognition was one of the most commonly used, and most diagnostically accurate, methods of decision making in clinicians (Norman, 2005) and, specific to mental health, expert nurses were also found to exhibit pattern recognition-based decision making in the workplace (Benner & Tanner, 1987).

2. *Social Norms*: It may be that, based on their training in dynamic thinking, psychiatrists are less likely harbour concerns about what is the 'norm' of RAP



completion. For example, from current qualitative exploration (chapter four of this thesis), psychiatrists expressed frustration in their employing Trust valuing the use of RAPs for risk reporting so highly over other methods [*I've done (risk assessment), but in a different way. Believe me, I've done it. I'm quite happy to stand up in court and say I've done it. But the Trust say well you haven't filled in the boxes. And they see the boxes as the job, I see getting the job done as the job*]. They may be equally as indifferent about the perception of other MHPs about their decisions to report risk in alternative ways owing to confidence expressed by psychiatrists in qualitative interviews [*We have the confidence to not follow (the rules)*]. In a busy and often overburdened clinical setting psychiatrists will likely have their own efficient ways of assessing and reporting risks, without the need for paper, or electronic proformas (i.e. RAPs). Their professional training to think in this way may lead to lower perceived pressure to undertake formalised RAP completion (either in a timely fashion, or at all). A number of psychiatrists in the current interview study revealed preferences for using clinical letters or clinical case notes as ways of recording risk and there was an underlying sense of RAP completion as a box ticking exercise. Less concordance with social norms by psychiatrists may lead to less overall intention to complete RAPs.

**3. Perceived Behavioural Control (PBC):** The final element in prediction of MHP behaviour is the level to which they feel able to carry out RAP completion. In the current studies, psychiatrists expressed the most perceived difficulty in

navigation and understanding of RAPs, and were also the most negative about the intuitiveness of the forms (see chapter three for full results). Conversely, nurses expressed the least difficulty in these areas, and statistically differed from psychiatrists in these areas. This is possibly reflective of a higher frequency of RAP use by nurses, as a result of increased adherence to policy for the same. Adherence to policy by nurses is evidenced by comments from the qualitative work in this thesis where one psychiatrist differentiated psychiatrists from nurses [*the nature of people who go into nursing and their educational system is geared towards them filling in forms, ticking boxes, and following advice and guidelines efficiently*].

If it is the case that psychiatrists find RAPs more difficult and less intuitive to use, there is reason to deduce that this will negatively impact upon their intention to complete them. This is supported by work suggesting that PBC is a very accurate predictor of final behaviour (Ajzen & Madden, 1986; Foy et al., 2007; Sheeran et al., 2003). Additionally qualitative work in this thesis confirms the discontent with using RAPs in practice, specifically that the nature of doctors is to think laterally about risk reporting, and that RAP completion is not always the preferred option [*if we don't think risk assessment is helpful, we are unlikely to follow it (Psychiatrist)*] and additional comments from a senior nurse stated that during departmental audits of RAP completion that [*what's actually coming up is that the doctors aren't completing risk assessments. So they might not value the risk assessment but that is also translating into the practice*]. Before negative

attitudes to RAPs are improved, the underlying perceived social norms for, and behaviour control over RAPs should be addressed in more detail.

With current findings suggesting low intention for RAP completion in psychiatrists for all areas of the model (Ajzen & Madden, 1986), TPB could have applications to, and implications for, the decisions made in mental health settings. Taken with the additional current findings of high anxiety in some MHPs and associated confidence, an overall model of TPB with the addition of affective factors, and specifically in relation to the completion of RAPs by MHPs could be suggested. Figure 18, on the following page, offers a preliminary model suggesting the interconnections of TPB and affective elements in a decision to complete RAPs and an explanation is presented below the model. While this model is based on the initial indicative findings from this thesis and has not been validated in MHP populations via extensive research, the concept could be developed based on future associated studies in this area.

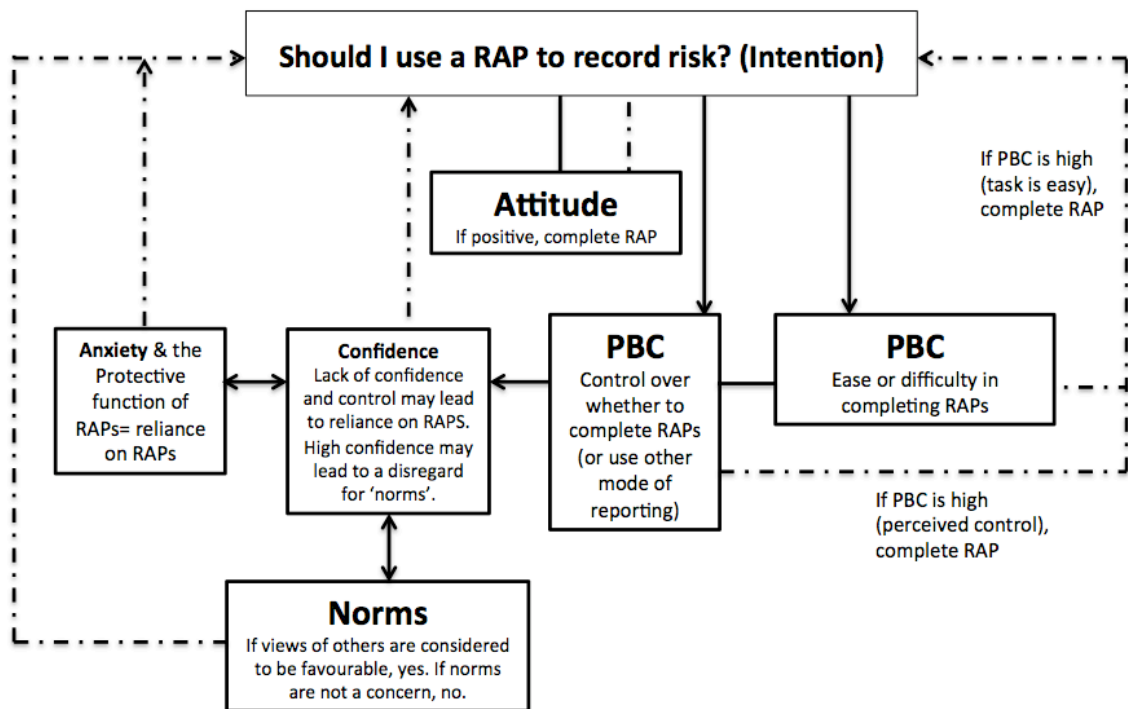


Figure 18. Theory of Planned Behaviour perspective, with additional affective factors, of RAP completion intention in MHPs.

The model can be summarised as follows. The intention to utilise RAPs may be compromised if the attitude toward its use are unfavourable, social norms are not of concern and if the amount of control subjectively held for the completion of RAPs is low. Attitudes in the current studies were found to vary by profession (chapter three of this thesis) and by experience (chapter four of this thesis). With particular application to MHP intention to complete RAPs, those who do hold negative attitudes towards their use might be less inclined to complete them based on previous work suggesting a negative attitude-compliance relationship (Gershon et al., 1995; Larson & Kretzer, 1995; Moore et al., 1998; Stein et al., 2003; Webley & Ashby, 2010). Thus, attitude in MHPs might be a strong indicator of RAP use in itself. Next in the model, the ‘social norms’ associated with

completion of RAPs may differ based on experience (chapter four of this thesis) or profession (chapter three). Those working in their profession longer or in particular professional roles (usually psychiatrists) find the confidence to overlook social norms and think dynamically when it comes to completing risk assessments. Some experienced MHPs express fervently their ability to report risk without the use of a RAP. As previously discussed in chapter four of this thesis, this may be a feature of the training that psychiatrists receive. Finally, the perceived difficulty of RAPs might be a strong predictor of their use. In chapter three of this thesis, psychiatrists reported to have most difficulty completing RAPs and the least favourability compared with nurses.

It is also considered, based on the findings throughout this thesis, that there is a place for affective emotion, namely anxiety, within a model of MHP intentions for RAP use. The previous research around anxiety and risk aversion has been discussed and suggest that anxiety leads to risk aversion in decision making (Butler & Mathews, 1987; Maner et al., 2007; Maner & Schmidt, 2006; Miu et al., 2008) and by extension it is likely that an anxious MHP is likely to make risk averse decisions and rely on RAPs to reduce this anxiety. It should be noted, however, that the act of risk assessment might be anxiogenic in itself (Undrill, 2007). This has potential to result in a cycle of anxiety in that MHPs complete RAPs to feel less anxious about missing pertinent risks, but also find the act of risk assessment anxiety provoking. Further exploratory research in this area, by way of targeted qualitative interviews or physiological reaction experiments to measure anxiety would be of great benefit to improving knowledge in the area

and to advise supervision for anxious staff in order to reduce the bias of anxiety on risk based decisions.

If it is the case that particular professionals are less driven to complete RAPs, it might follow that their colleagues will be overburdened with the accumulation of RAPs that have not been completed. In extreme cases where RAPs are not completed within suggested time frames (MHPs are required to complete RAPs at the time, or soon after contact with the service user in question) the result would be a loss of important risk information. Equally, RAPs could be neglected completely and this was elucidated by qualitative study in chapter four, where psychiatrists indicated their preference for other modes of risk reporting and stated that their training encourages them to not follow rules if they do not believe they are helpful. If non-completion of RAPs occurs, this would be to the detriment of other MHPs needing access to historical service user risk for future clinical encounters; as a result, this would also disadvantage the service user involved. There is potential that non-compliance of RAP completion in the present will affect future decision making. It would be beneficial to ascertain whether this bias toward negative attitudes, and associated factors for non-completion, can be reduced via education and whether additional work could be completed to build a stronger and more accurate module of TPB in mental health decisions.

***Can education improve knowledge and reduce bias?*** Admission decisions are influenced by base rate neglect and framing of information (Jefferies-Sewell et al., 2014). Framing also has implications for health decisions (Detweiler et al., 1999; Gallagher & Updegraff, 2012; Meyerowitz & Chaiken, 1987) and treatment preferences (Edwards & Elwyn, 2001; Mazur & Merz, 1993). There is potential for improvement in knowledge of biases in order to reduce their presence, and their influence, of decision making. This has been confirmed in a number of published papers (Almashat et al., 2008; Arkes, 1991; Croskerry et al., 2013; Keren, 1990) and also tentatively by the findings in the current thesis' educational module (See chapter six) where improvement and retention of knowledge was found. Education might reduce the presence of bias in risk based decisions and there may, therefore, be benefit in educating MHPs about biases, including the errors seen in decision making (Fong et al., 1986; Krantz, 1981; Lehman et al., 1988; Nisbett et al., 1983). A small amount of evidence does suggest that education about bias does not reduce its presence (Arkes & Blumer, 1985; Sanna et al., 2002). Nonetheless, it would be beneficial to continue attempts at debiasing considering the consequences that erroneous mental health decisions could have upon service user wellbeing. For example, if the presentation of risk information leads to the framing effect and subsequent underestimation of risk (e.g. if risk was presented in percentage form or relayed as 'low risk') and, based on this judgmental bias, a service user was released from psychiatric care before they were fully prepared to manage in the community, unjustified risks may be taken for that individual and those around them. Considering that risk of suicide and

self harm are heightened in the week following discharge (Appleby et al., 1999; Busch et al., 2003; Goldacre et al., 1993), especially for those who have already self-harmed (Pompili & Baldessarini, 2015), the implications of this for service user safety are incontrovertible.

While the success of the current educational module (chapter six of this thesis) for real world clinical decisions is beyond the scope of this thesis, the study did establish that improvements in knowledge could be achieved by education, for the majority of MHPs. The framing effect, however, continued to influence risk based admission decisions. Using the same vignette as was used in chapter six (framing in psychiatrists), participants were presented the case before the educational module (with risk information in numerical format) and again 4 weeks after the module (with risk information in percentage format). It was expected that, if education about the framing effect had the ability to reduce the bias, participants would be less likely to alter their decision to not admit the patient. On the contrary, results suggested that participants were indeed influenced by the framing of information, characterised by the decision to alter preferences toward a less risk averse choice (non-admission) when presented with percentage information. This said, the educational module study also found that those who had prior knowledge of the framing effect were less likely to alter their preferences based on the presentation of information. So, while as a cohort the participants were influenced by the presentation of information, it may be possible that knowledge is a factor in debiasing the effect. Although the attempt to educate MHPs was modestly successful, the results suggest that this approach



could be developed for more widespread use.

***Training: Current efforts and future challenges.*** The novel educational module in the current research attempted improvement in knowledge of cognitive biases, statistical concepts, emotion and attitude and their influence upon how MHPs make risk based decisions in clinical practice. Although not completely successful in making large improvements to knowledge, modest maintenance of improvement was observed. Interprofessional susceptibility to the framing effect was also established, with no particular group more susceptible than any other, however the framing effect was not debiased by training. Module feedback was favourable toward content and quality, however there were some reservations about additional modules, such as the one in the current study, being added to mandatory training.

Uptake for the educational module study in the current thesis was low. Of the 1400 (approx.) MHPs who were informed of their free access to the module, those who took part in the PRE-Q represented just 4.7%; and those completing the entire study represented just 1.5%. This indicates the presence of significant challenge to any organisation wishing to educate large numbers of staff via voluntary participation. Non-participation was likely due to time limitations as a result of heavy caseloads, however some individuals simply may not have been interested in the content of the module. Those who did self-select for participation probably had a prior interest in biases, risk or general factors influencing decisions; indeed results from the current education study (chapter

six of this thesis) did reveal prior MHP knowledge of at least some of those areas covered by the module. Individuals who did not take part might be those in most need of education in the areas of bias, probability and emotion. However, without an active interest or willingness to undertake such training, it will be challenging to implement the same across the entire staff-base. For an organisation such as a Mental Health Trust (MHT) to grow and improve, the training needs of staff (in the case of the current thesis, MHPs) must be recognised and positive actions implemented to ensure education is suitably comprehensive (Laird, Holton, & Naquin, 2003). In this way, individual MHP development will, in turn, nurture new, or refine existing, skills in order to realise the patient centred goals of a MHT. For this to happen, positive attitude toward commitment to training is required from staff. Although positive attitude toward the current educational module (chapter six) was seen in the limited sample of participants, some MHPs in other studies (chapters three & four; (Hawley et al., 2010) held negative attitudes to the use of RAPs and for this reason, the task of engaging MHPs in voluntary training associated with factors affecting the assessment of risk, will be challenging. The solution may be in finding ways to improve staff buy-in to such training programmes. The willingness to actively participate in or support training may be underpinned by a number of attitudinal factors. In a study of education reforms in schools, teachers' buy-in for the implementation of such reform was most likely when they had support from management, adequate resources, and perceived control over the implementation of the reform in the classroom. The perceived behavioural

control (PBC; Ajzen, 1991) over the implementation of an action is one of the most influential predictors of the same (Ajzen, 1988; Ajzen, 1991; Laws et al., 2009), as previously covered with reference to RAP completion earlier in this chapter. With this in mind, perhaps the control that MHPs feel over risk and RAP completion is a factor needing to be addressed in future training; specifically relating to whether risk can be controlled and what the role of RAPs might be within that process in addition to the control of the process of RAP completion.

What also remains a challenge is how to alter the attitudes of those who do not value RAPs as meaningful and useful tools for the assessment and reporting of service user risk. As Laird et al. (2003) suggest, "*training is a remedy for people who do not know how—not for people who do know how but for one reason or another are no longer doing it*" (p.10). Using this as a basis for MHP attitudes, it may not be that the individuals who do not wish to partake in RAP completion are unaware of the standards established by their employing Trust, but that they choose not to do so for some reason (a number of which are discussed in chapter four of this thesis). Thus, while training may improve knowledge in MHPs of the factors affecting decisions, it cannot directly alter the opinions of those who have deeply ingrained negative attitudes that have developed over many years.

**Potential limitations.** The use of clinical scenarios limits the application of findings to real life decisions. Owing to difficulties observing MHP behaviour directly, the use of case vignettes aims to simulate decision making under

artificial conditions. It is, therefore, acknowledged that vignettes bring with them a degree of artifice and the application of their findings to real life settings may be limited. This said, there is a history of their utilisation within research domains (Alexander & Becker, 1978; Finch, 1987) and vignettes of fictitious service user case reports have been used in medical (O'Toole, Turbett, & Nalepka, 1983) and psychiatric research (Kitamura & Kitamura, 2000; Mayou, 1977; Meyer et al., 2013; Steinert & Lepping, 2009).

Apart from the face-to-face interviews conducted with MHPs (chapter four of this thesis), data regarding attitudes to RAPs was obtained remotely via self report measures. This is potentially limited in its ability to collect rich and diverse information. Free-text boxes, where appropriate, were used to add richness of data, however it was not possible to offer this for all questions. Response rate may also have been impeded by the remote, and anonymous, nature of completing questionnaires in this way as MHPs could remain unidentified and therefore less likely to feel obliged to take part. Equally, participating anonymously in the questionnaire may have allowed staff to be honest about any negative feelings toward RAPs without fear of reproach.

The voluntary nature of the research in this thesis also leads to self-selected samples that may be biased in that they have an interest in the content of the research or have prior knowledge of the area. For example, in the current educational module study (chapter six of this thesis), those who did not self-select, and subsequently did not participate, may have been less knowledgeable about the research topics and are possibly the individuals in most need of

education. The sample size in the current educational module also limits findings. Although 63 participants began the study, just 21 completed their participation therefore indicating limits to the overall applicability to general MHP populations. Remote completion of the educational module meant that the use of outside sources for answering knowledge questionnaires (i.e. internet access to find the correct answers) could not be monitored. By 'looking up' the correct answers on the initial knowledge questionnaire, initial knowledge scores would be inflated and any substantial improvement that reading the module induced (i.e. via post-module and follow-up questionnaires) would be undetectable. If the module study were to be replicated, it would be preferable to ask individuals to complete the tasks in person, although, the logistics of such measures, owing to the busy schedules of MHPs, would be challenging.

Withstanding some limitations, the programme of studies in this thesis yielded a large number of participants for both quantitative and qualitative research. Its mixed methodology has added a quantity and richness of data to an under researched area. Knowledge acquired from the current questionnaire and interview data may serve to build a more comprehensive model of MHP decision making around RAP completion and guide future enquiry into how attitudes to RAPs may influence compliance with the same. Additionally, outcomes from the educational module will offer some insight into the factors that might influence the risk based decision making of MHPs.

**Conclusion.** Decisions about risk are of importance to the wellbeing and treatment outcomes of mental health service users; risk assessment, and its associated paperwork (RAPs), acts as an adjunct to these decisions. Despite this fact, there is very little research into the factors that might directly affect decisions about risk in mental health. From research in unrelated domains, factors such as attitude, anxiety, confidence and cognitive bias have been consistently implicated in biasing decision making. The current mixed methods programme of research supports suggestions of interprofessional differences in MHP attitudes to RAPs—specifically with psychiatrists being most unfavourable towards their use. It further seeks to contribute a Theory of Planned Behaviour perspective to elucidate the differences between MHPs in their attitudes to completing RAPs. Training background in psychiatrists may be pertinent to understanding their methods of assessing risk and the source of their associated negativity toward RAP use.

Heightened anxiety and pressure was also found in a subset of MHPs in the current studies and risk averse behaviour regarding patient decisions was related to a higher level of anxiety in MHPs. The potential for anxiety to cause risk avoidant behaviour in MHPs is unsettling owing to implications such as increased financial costs to the NHS as a result of more admissions to psychiatric hospitals and clinics, and the restriction of liberty for service users due to a decrease in positive risks taking. Detailed study of the ways in which anxiety can be reduced was beyond the research scope of the current studies, however addressing anxiety within training and supervision might serve to reduce its influence upon

risk-related decisions.

Although previous research offers mixed opinion about the efficacy of education for the reduction of bias, the current thesis suggests evidence highlighting that education not only has the ability to moderately improve and maintain knowledge but that the framing effect is suppressed in the majority of those who had prior knowledge of the subject. There is, however, ambiguity as to the ability of the module to measure any real, long term, benefits to MHPs.

In order to further the research in this area, specific investigation of attitudes towards training programmes, in addition to increasing mindfulness around the importance of supplementary education, should be undertaken; Positive attitude and a general willingness from MHPs will be required for widespread education in factors influencing decision making.

To available knowledge, current NHS provision does not incorporate anything, within MHP mandatory training, that resembles the educational module developed for this thesis. The current findings may, however, proffer initial advancement towards Mental Health Trusts embracing these supplemental educational materials, possibly as optional modules for continuing professional development. In doing so, Trusts will broaden the knowledge of staff and, accordingly, facilitate the mindful decision making necessary to best support mental health service users.

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## 10. Appendices

Appendix 1. Confirmatory Factor Analysis for attitudes to risk assessment questionnaire.

### **Confirmatory Factor Analysis- Attitudes to risk assessment questionnaire**

*Results.* A Confirmatory Factor Analysis (CFA) was conducted on attitudes to risk assessment as a way of establishing whether the questionnaire items addressed their proposed areas (attitudes to format of RAPs, risk taking, confidence and anxiety/pressure). CFA is a data reduction technique to explore the dimensionality of the questionnaire items used and to ensure the questionnaire measures the latent variables of attitudes to RAP format, risk taking, anxiety/pressure and confidence. Items included were those that were created for the purposes of this study, and not questions previously used in the Hawley et al (2010) study. The questions included were Q17-Q34 and followed likert scale format; strongly agree, agree, neither agree nor disagree, disagree, strongly disagree. Questions 23 and 32 were excluded due to their difference in response format. These questions pertained to the attitude of MHPs to the structure of RAPs, risk taking, confidence and anxiety/pressure related to completing RAPs. As the additional questionnaire items were included in an attempt to tap into the previously identified latent variables, a confirmatory factor analysis, rather than an exploratory factor analysis, was chosen as the most relevant and useful statistical analysis to ascertain whether the items measured those variables. It was expected that, as items explored potentially associated latent attitudinal constructs, these factors would correlate to some degree.

*Data Screening for Confirmatory Factor Analysis.* The data were screened for particularly high and low correlating items to check for singularity of data. No extreme items were found suggesting no multicollinearity (in which items correlate very highly and the unique contribution cannot be determined). Additional support for non-multicollinearity was the yielded determinant

value of 0.078 (correlation range= .65 to .004). A determinant value of more than 0.00001 indicates that there are no computational errors within the factor analysis.

### **CFA Results**

*Screening of data.* Initially, *the* factorability of 16 items in the questionnaire was examined using several well-known factorability measures of correlations. There were no items that correlated highly or weakly enough to necessitate removal from the analysis at this stage and all items correlated to a level of .30 with at least one other item. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy yielded a value of .81, which is within the 'meritorious' range according to Hutcheson & Sofroniou (1999), suggesting a compact correlation pattern in the values supporting the use of FA for this dataset in producing distinct and reliable factors. Bartlett's Test of Sphericity, a test to establish whether the samples are from populations with equal variances, yielded significance ( $\chi^2(673) = 2426.09, p < .001$ ), suggesting sufficient equality of variances across the sample and, thus, offering additional support for the use of FA in this instance. It is notable to mention that in a large sample such as this, with a large participant to item ratio, Bartlett's test will invariably be significant. This is based on the recommendation that sample size should be 10 times larger than the number of items in the questionnaire (Nunnally, 1978). With 28 items in the current questionnaire, the recommendation would be 280 participants; which was exceeded by our sample of 673.

*Data Analysis.* Data were analysed using maximum likelihood method with oblique, direct oblimin, rotation. An initial observation of the data suggests that the 16 items loaded onto two main factors. Initial eigenvalues indicate that the first factor accounts for 19.65% of the variance and the second factor 14.12%. Cumulatively, therefore the two factors account for 33.77% of the variance. In support of this two-factor solution, inspection of the scree plot (Figure 19)

indicates only 2 factors before the point of inflection (the elbow of the plot line). Table 19 illustrates the factor loadings for the questionnaire items, which gives further validation for the use of two rather than three factors.

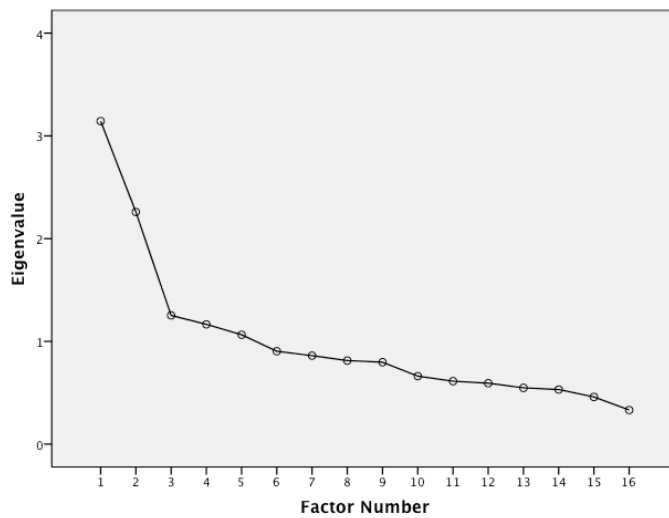


Figure 19. Scree plot indicating a two-factor solution



Table 19. Factor loadings for initial confirmatory analysis

	Factor	
	1	2
I find the RAPs in my department difficult to navigate	0.818	
I find the RAPS in my department difficult to understand	0.780	
I find the RAP used most often, in my department, too long.	-0.583	
The RAPs used in my department are intuitive to use.	0.538	
Time constraints within my job make RAP completion a stressful task	-0.347	
I feel that by using risk assessments, some control can be exerted over patients' risk factors.		
I trust that the information provided in RAPs by members of staff less senior than myself are accurate.		
Colleagues in my department have disagreements over information recorded in previous RAPs.		
When I consider patient related decisions that have an element of risk, I feel quite anxious.		0.730
If I had the choice, I would rather someone else made the risky decisions when It comes to patient safety		-0.595
When judging the risk status of a patient, I generally prefer to err on the side of caution rather than take a risk		0.542
I feel pressured to give risk related information about patients in RAPs even when I'm not 100% sure if I'm right.	-0.338	0.419
In comparison to other people, I am (in general) more willing to take risks		-0.408
People who know me would describe me as a cautious person.		0.408
It usually takes me a while to decide on what to report in a RAP.		0.369
I think my colleagues would judge the decisions I make as accurate		

Extraction Method: Maximum Likelihood

Rotation Method: Oblimin with Kaiser Normalization.

It can be observed in the table that two underlying factors are present. Four of the variables do not load on to either of the factors (those items to which a loading is not assigned) and necessitate removal from the analysis.

*Factor Labelling.* At this stage, based on the items loading onto each factor, it was possible to assign labels to each of the two factors. These labels were devised based on the content of the questionnaire and partly followed the expected loadings. While it was expected that four factors might emerge, reflecting usability of RAPs, risk taking, anxiety/pressure and confidence, just two emerged as main factors; one representing 'Usability of RAPs' and the other reflecting 'Anxiety about risk taking'.

*Cross-loading and redundant items.* In this initial CFA, cross loading was found on one item (Q26. 'I feel pressure to report information about patients in RAPs even when I'm not 100% sure I'm right'). The items yielded small factor loadings on both 'Usability of RAPs' (0.30) and 'Anxiety about risk taking (0.45). The reason for this cross loading may be the unintended double-clause in the question. The question might therefore address both pressure to give risk information and uncertainty about doing so; thus leading to ambiguity in participant understanding of the question and resultant cross-loading of responses.

Four items entered into the analysis did not load onto either factor. These were questions relating to confidence: Q24. 'I feel that by using risk assessments, some control can be exerted over patients' risk factors, Q31. I think my colleagues would judge the decisions I make as accurate, Q32. 'Colleagues in my department have disagreements over information recorded in previous RAPs' and Q34. I trust that the information provided in RAPs by members of staff less senior than myself are accurate. The items were therefore removed from the overall factor structure prior to the subsequent CFA.

*Analysis of CFA with removed items.* A further CFA was conducted following the removal items Q24, Q31, Q32 and Q34. Based on the scree plot in the previous CFA, a subsequent CFA analysis specified for the items to converge upon a two-factor solution, excluding any loading less than .30. As in the original CFA, data were analysed using a maximum likelihood method with oblique, direct oblimin, rotation. Eigenvalues in this two-factor solution indicated that the first factor

accounted for 25.09% of the variance, the second factor 18.20%. Cumulatively, the two factors account for 43.29% of the total variance. Table 20 illustrates the factor loadings for this final two-factor solution. While the cross loading remained for Q26. 'I feel pressure to report information about patients in RAPs even when I'm not 100% sure I'm right', it was decided to accept the higher loading onto the 'Anxiety about risk taking' factor. Support for this course of action is by virtue of the question originally being designed to measure risk taking.

Table 20. Final structure matrix illustrating two-factor structure

	Factor	
	Usability of RAPs	Anxiety about risk taking
I find the RAPS in my department difficult to navigate	0.820	
I find the RAPs in my department difficult to understand	0.787	
I find the RAP used most often, in my department, too long.	-0.579	
The RAPs used in my department are intuitive to use.	0.530	
Time constraints within my job make RAP completion a stressful task	-0.350	
When I consider patient related decisions that have an element of risk, I feel quite anxious.		0.717
If I had the choice, I would rather someone else made the risky decisions when It comes to patient safety		-0.585
When judging the risk status of a patient, I generally prefer to err on the side of caution rather than take a risk		0.555
I feel pressured to give risk related information about patients in RAPs even when I'm not 100% sure if I'm right.		0.429
People who know me would describe me as a cautious person		0.417
In comparison to other people, I am (in general) more willing to take risks		-0.414
It usually takes me a while to decide on what to report in a RAP.		-0.375
Extraction Method: Maximum Likelihood.		
Rotation Method: Oblimin with Kaiser Normalization.		

*Reliability Analysis.* To ascertain the internal reliability of the questionnaire, the Cronbach's alpha ( $\alpha$ ) test was conducted. Firstly, the items loading onto the 'usability of RAPs' factor were analysed, followed by items loading on the

‘anxiety about risk taking’ (as suggested by Cronbach, 1951). Items loading onto their respective factors can be reviewed by referring back to Table 20.

*Usability of RAPs- internal reliability of scale using Cronbach’s  $\alpha$ .* Results from the ‘usability of RAPs’ factor showed a rather low Cronbach’s  $\alpha$  of .40 suggesting that just 40% of the variability within the composite score of ‘usability of RAPs’ can be considered internally consistent, or reliable, variance. According to benchmarks for the Cronbach’s  $\alpha$  test, this level of variance would be considered unacceptable. This level of variance was obtained by removing of one of the items, ‘Q28. I find the RAP used most often, in my department, too long’, before which time the Cronbach’s  $\alpha$  score was .009 suggesting almost no internal reliability (.09%) for this scale. Confirmation of the lack of inter-correlation between items loading onto the ‘usability of RAPs’ factor was revealed in the correlation matrix. One particular item (Q27. Time constraints within my job make RAP completion a stressful task) showed a negative correlation with all of the other 3 items within the scale. It was therefore decided to remove this item, based on its weak relationship qualitatively with the other items (measurement of time constraints does not sit well qualitatively with usability of RAPs within a factor). Doing so resulted in the Cronbach’s  $\alpha$  increasing to .76, suggesting that 76% of the variability in the factor can be considered reliable variance. This is suggested to be a ‘good’ level of internal consistency. Moderate to large, positive correlations between items can be observed in Table 21.

Table 21. Correlation between items in 'usability of RAPs' factor.

	Q30. Intuitiveness	Q33. Navigation	Q29. Understanding
Q30. Intuitiveness	1.00	.463	.421
Q33. Navigation	.463	1.00	.652
Q29. Understanding	.421	.652	1.00

*‘Anxiety about risk taking’ factor items- internal reliability.* All items loading onto the second factor (‘Anxiety about risk taking’) were entered into a separate

reliability analysis. An initially low reliability score of .39 was achieved by entering all of the items into the analysis. Inspection of the inter-item correlation matrix revealed systematically negative correlations of all items with Q25. 'If I had the choice, I would rather someone else made the risky decisions when it comes to patient safety' with the expectation that removal of this item would produce a higher  $\alpha$ , thus more reliability within the scale. As expected, results suggested that removal of this item would dramatically improve the  $\alpha$  score to an acceptable standard. The corrected item total score gives the correlation between the item and the composite score of the remaining items in the scale. This yielded a negative score of -.45, affirming its need for removal. When removed from the analysis, a much improved variance of .65 was achieved, suggesting that 65% of the variability within the scale is reliable and consistent variance. The corrected item total scores were satisfactory across all items (approximately .3 or higher) and no improvements could be made to  $\alpha$  by removing any items. According to Cronbach benchmarks, .65 (or 65%) can be assessed as 'acceptable'. The positive correlations for all items in the scale can be observed in Table 22.

Table 22. Inter-item correlation matrix for 'anxiety about risk taking' factor items

	Q21. Anxiety	Q19. Risk aversion	Q26. Pressure	Q17. Risk taking	22. General risk taking	Q18. Confi- dence
Q21. Anxiety	1.000	0.37	0.321	0.259	0.288	0.253
Q19. Risk aversion	0.370	1.000	0.183	0.336	0.343	0.211
Q26. Pressure	0.321	0.183	1.000	0.119	0.04	0.241
Q17. Risk taking	0.259	0.336	0.119	1.000	0.262	0.227
Q22. General risk taking	0.288	0.343	0.040	0.262	1.000	0.085
Q18. Confidence	0.253	0.211	0.241	0.227	0.085	1.000

*Confirmatory Factor Analysis Summary.* Results from the CFA were not quite as expected. The additional questionnaire items that were included in the

analysis were designed to measure four domains; usability of RAPs, risk taking, anxiety and confidence. Contrary to expectation, the CFA results suggested a 2-factor structure and taking the loaded items into consideration, factors were labelled 'usability of RAPs' and 'Anxiety about risk taking'. When investigated as a two-factor structure, one iteration was required to reach the final factor solution, including removal the four items previously described. It appears that two of the original variables ('anxiety/pressure' and 'risk taking') formed one factor. Thus some anxiety is probably associated with the act of risk taking in MHPs. It should be noted that one item (Q26 I feel pressured to give risk related information about patients in RAPs even when I'm not 100% sure if I'm right) continually cross-loaded throughout the two analyses. As previously mentioned, this could be due to some ambiguity within the question so its implications should be considered with some reticence. In short, these analyses suggest that the additional items in the questionnaire (those not in the original Hawley paper) are a measure of the attitudes concerned with the usability (i.e. format, length, etc) of RAPs and also the anxiety associated with the completion of RAPs. However, when conducting reliability analyses on each of the factors, it was clear that the 'anxiety about risk taking' factor had more reliability as a scale than did the 'usability of RAPs' factor.

The findings from the factor analysis suggest that items pertaining to both anxiety/pressure and risk taking produced one of the two factors within the structure. This suggests support for the notion that there is some anxiety associated with risk related decision making. There is a logical basis to support the assumption that the two domains are interrelated.

Appendix 2. Information sheet for qualitative interview study about attitudes to risk and risk assessment in MHPs (chapter four)



Hertfordshire Partnership   
University NHS Foundation Trust

## INFORMATION SHEET

### **Title of Research Study: Attitudes to mental health risk assessment; a mixed methods approach**

**Name of Researcher: Kiri Jefferies**

We would like to ask you to take part in a research study. This information sheet will tell you about the study so please read it carefully. Take as much time as you need to decide whether or not you wish to take part. Please feel free to ask questions.

### **WHAT IS THE PURPOSE OF THE STUDY?**

A potential hurdle in accurate risk assessment proforma completion may be the attitudes held by mental health professionals toward the process. Favourable attitudes would presumably lead to better and more comprehensive completion, whereas a negative or hostile attitude could result in less time spent or less information provided. Research investigating the attitudes of mental health professionals to risk assessment is limited, but there is evidence to support the idea that some staff may become irritated or antagonistic toward the process. Some evidence suggests that despite spending more time completing risk assessments, nurses held a more favourable attitude towards them than doctors.

These attitudes can be investigated, on the surface, by questionnaires. However, deeper understanding of the reasons why mental health professionals like or dislike the process of risk assessment proforma completion could be acquired by speaking directly to staff that complete them as part of their role. This study has been designed to do just this by using a semi-structured interview to ask staff about their feelings toward and confidence associated with risk assessment. This could eventually be of practical benefit to staff and patients as more information on the subject could lead to changes in the way risk assessment proformas are completed and potentially make changes to patient safety.

### **WHY HAVE I BEEN CHOSEN?**

We have previously completed a large-scale study asking people to complete a questionnaire investigating attitudes to and confidence associated with



RAP completion. Now, we would like to investigate more deeply the feelings mental health professionals have toward this process and to do this, we would like to conduct some interviews which will be included in a qualitative analysis (in this case analysis of the spoken word)

### **DO I HAVE TO TAKE PART?**

You do not have to take part in this study. If you would prefer not to take part, you do not have to give a reason. If you would like to take part, we will ask you to read and keep this information sheet. You will also be asked to read and sign a consent form to show that you understand what is involved in this study. You are free to stop taking part at any time and you do not have to give a reason.

### **WHAT WILL HAPPEN IF I TAKE PART?**

If you decide to take part, we will ask you to meet with a researcher (Kiri Jefferies) on one occasion, at your convenience where we will ask you some questions and audiotape your responses. The interviews will last for up to 1 hour. You may ask questions about the interview or the research at any point before during and after your session. There are no other tasks apart from this and you will be free to take a break whenever you like.

### **WILL MY INFORMATION BE KEPT CONFIDENTIAL?**

Your information will remain fully confidential at all times and will be seen only by the research team.

### **FURTHER QUESTIONS?**

We would like to thank you for reading this information sheet. If you would like more information on the study or would like to discuss anything in more detail please contact us using the information below.

**Researcher**  
**Kiri Jefferies**  
**Research Assistant and PhD student**  
**QEII Hospital**  
**Howlands**  
**Welwyn Garden City**  
**AL7 4HQ**  
**Tel: 01707 22 4755**  
**e-mail [kiri.jefferies@hpft.nhs.uk](mailto:kiri.jefferies@hpft.nhs.uk)**

**PhD supervisor**  
**Dr Shivani Sharma**  
**Associate Dean**  
**University of Hertfordshire**  
**College Lane**  
**Hatfield**  
**AL10 9AB**  
**email: [s.3.sharma@herts.ac.uk](mailto:s.3.sharma@herts.ac.uk)**

If you have any questions or queries and would like to speak to someone who is not part of the research team, you may contact the Hertfordshire Partnership University NHS Foundation Trust Complaints Department on 01727 804705.

Appendix 3. Consent form for qualitative interview study about attitudes to risk and risk assessment in MHPs (chapter four)



**PARTICIPANT CONSENT FORM**

**Title of Project: Attitudes to mental health risk assessment; a mixed methods approach.**

Name of Project Lead: Kiri Jefferies

**Please initial boxes below:**

1. I confirm that I have read and understand the information sheet dated 5/8/13 (Version 1.0) 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 legal rights being affected.

3. I agree for my interview to be audio-recorded and for the tapes and transcripts to be stored securely and confidentially until the study is complete.

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

\_\_\_\_\_  
Name of Participant                      Date                      Signature

\_\_\_\_\_  
Name of Person taking consent                      Date                      Signature

Appendix 4. Semi structured interview schedule for qualitative attitudes study.

QUESTION	PROMPTS
1. Could you tell me a bit about your job?	Daily responsibilities, types of patient, working hours, length of time in job
2. What do you understand by the word risk?	<p>Can you define the word?</p> <p>What do you understand by the term 'risk assessment'?</p> <p>How important do you think that risk assessment is within your job role?</p> <p>Do you believe when you fill in a RAP that you are carrying out 'risk assessment'?</p> <p>Is it possible to assess psychiatric risk at all?</p>
3. Could you describe your experiences of the process of risk assessment in a patient?	<p>Description of the RAP used</p> <p>How many?</p> <p>How long do they take?</p> <p>Support from other staff? Managers?</p>
<p>4. How do you feel about the format of the RAP you use?</p> <p>How do you feel about the RAP process in general?</p>	<p>Intuitive?</p> <p>Too long/short?</p> <p>Easy to understand?</p> <p>Do you think that RAPs are a valuable part of patient care? Do we do enough? Too many? What are your general feelings?</p>
<p>5. USEFULNESS</p> <p>How useful would you say the current HPFT RAP is?</p>	<p>Why do you think this may be?</p> <p>Do you hold the same views as our previous study (chapter three)? OR what proportion of your colleagues do you think would hold the same views?</p> <p>Are you aware of and able to comment on how other health care professionals with whom you work view RAPs?</p>
<p>6. ANXIETY AND PRESSURE</p> <p>How do you feel when completing RAPs?</p>	<p>Anxiety?</p> <p>Pressure to give correct information</p> <p>How might that affect your decisions?</p>

<p>7. On a weekly/daily basis how many times would you refer to risk assessments completed by other colleagues?</p> <p>CONFIDENCE</p> <p>Do you think you can control the risk associated with a patient by conducting risk assessments? Do you feel that you are in a better position to manage risk around patients by engaging in this process?</p> <p>Can you tell if someone is going to self-harm/ cause harm to others? Do you use RAPs to establish this or do you just 'know'?</p>	<p>How confident would you feel in their RAP completion?</p> <p>If negative: What might you be able to do to raise confidence in others' completion?</p> <p>How confident do you feel in your own decisions?</p> <p>Intuition? Why do you think this might be? Does engaging with RAP provide you with any comfort or security within your role?</p>
<p>8. TRAINING FOR UNDERSTANDING RISK</p> <p>What training has the Trust provided for you in assessing patient risk?</p>	<p>Did it help you understand the process?</p> <p>Were you instructed on the understanding of probability in risk?</p> <p>Do you think you would like more training?</p>
<p>9. If you had the power to improve the process of complete RAPs what would you do?</p>	<p>Change to RAP format? Or process around RAP reporting? Supervision? More training?</p>
<p>10. Finally, Is there anything else you would like to say, positive or negative, about the risk assessment process?</p>	

Appendix 5. Completed COREQ-32 form for guidance in conducting qualitative studies as validated by (Booth et al., 2014; Tong et al., 2007).

## **COREQ-32**

### **Checklist for completing qualitative interviews**

#### **Domain 1: Research Team and Reflexivity**

Interviewer: Kiri Jefferies-Sewell

Credentials: *Masters of Science (Research Methods in Cognitive Neuropsychology), Bachelor of Science (Psychology)*

Occupation: (at time of study) Research assistant, PhD student

Gender: Female

Research experience: Have worked as a Research Assistant for five years. Completed modules within BSc and MSc for qualitative methods. Training: Undertook an additional MSc module on the Research Methods in Clinical Psychology module for Qualitative methods before beginning the study.

#### *Relationship with participants*

Relationship established: Most participants had no prior relationship with interviewer, except in case of interviewees VS who has previously worked in the R&D department as a research nurse, NF who had been apprenticeship supervisor during MSc and DM who was part of NF's specialist team.

Participant knowledge of the interviewer: Participants were informed that KJS was a research assistant with a substantive contract within their employing Trust and that she was a PhD student exploring the way that staff feel about risk and RAPs.

Interviewer characteristics: Interviewees were informed of the researcher's interest in the areas of bias, attitudes and risk perception and of the previous work that she has undertaken in the area

#### **Domain 2: Study design Theoretical framework**

Methodological orientation and theory: Mixed methods interview study using semi-structured interview techniques and thematic analysis.

### *Participant selection*

Sampling: Male and female MHPs from Hertfordshire Partnership University NHS Foundation Trust. Participants self selected for participation.

Method of approach: Email via managers or directly from researcher.

Sample size: 15 participants chose to participate in the intervention

Non-participation: Some MHPs who initially agreed to participate did not due to other commitments or time constraints.

### *Setting*

Setting of data collection: Data collection took place within HPFT premises, usually at the interviewee's place of work.

Presence of non-participants: there were no instances of non-participants present during interviews.

Description of sample: The sample consisted of Mental Health Professionals from a variety of professional backgrounds.

### *Data Collection*

Interview guide: The interview guide was developed based on findings from a previous study (chapter three of this thesis). Questions were devised by the principal researcher and discussed with supervisors within the team.

Repeat interviews: Nil

Audio/visual recording: All interviews were audio recorded with a digital device. All such recordings were manually transcribed by Kiri Jefferies-Sewell.

Field notes: A reflective log was made during the process for informal notes and reminders.

Duration: Interviews lasted between 16 minutes and 63 minutes. Duration was as long as the participant wished to speak on the subject or related to how much time they had to devote to the study.

Data saturation: Yes, discussed in supervision with Dr Sharma.

Transcripts returned: No

## **Domain 3: Analysis and findings**

Number of data coders: Coded by principal author and verified by three members of the supervisory team.

Description of the coding tree: Evident from results

Derivation of themes: Derived from the data

Software SPSS for quantitative data. Manual coding of qualitative data according to Braun & Clarke (2006).

Participant checking: Participants were invited to provide feedback on the findings but did not respond to requests.

*Reporting*

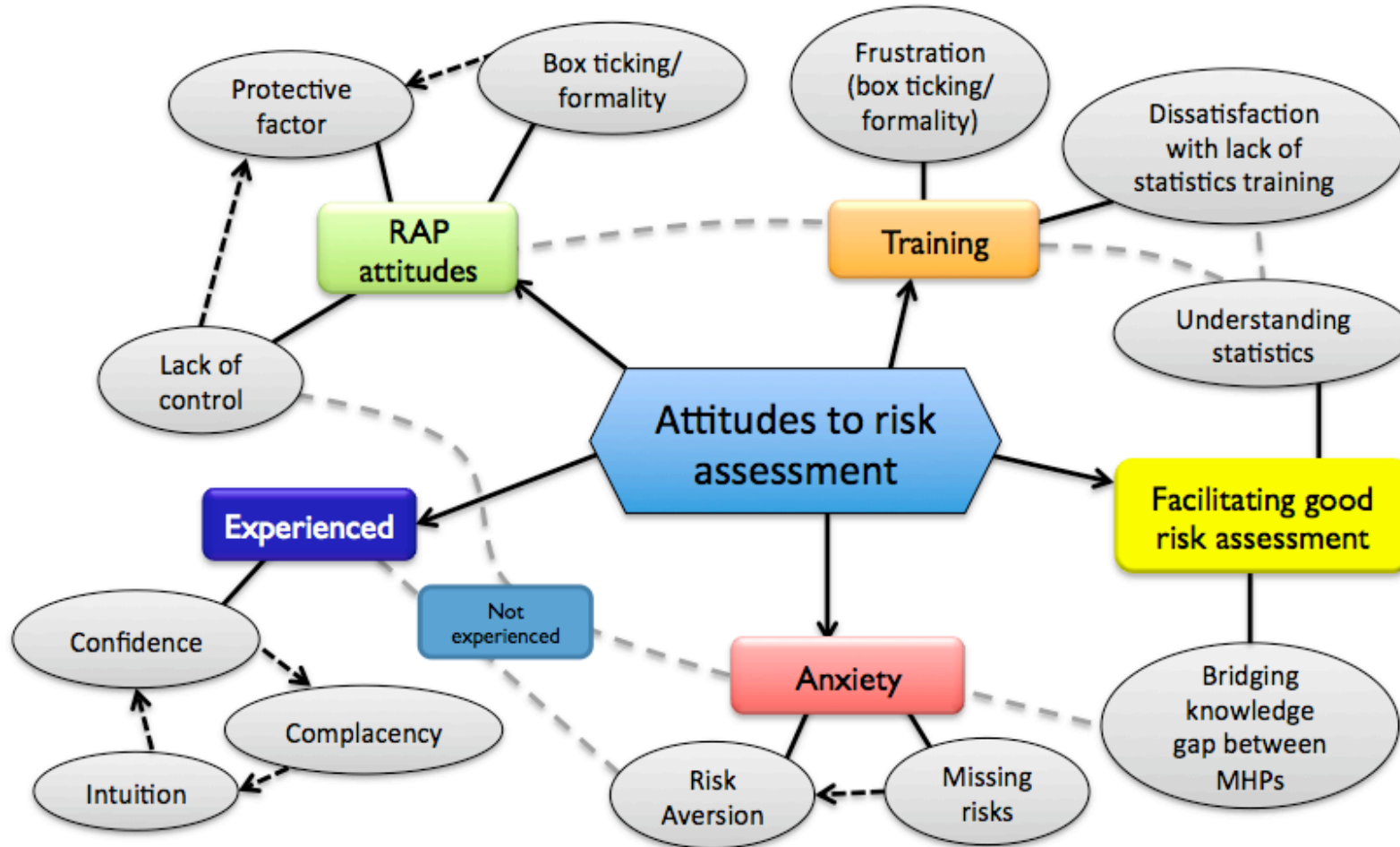
Quotations presented: Multiple participants' quotations are presented to illustrate themes.

Data and findings consistent: Yes

Clarity of major themes: Major themes are clearly presented in the findings.

Clarity of minor themes: There is a discussion of minor/sub-themes within the results.



Appendix 6. Qualitative code map for interview study (chapter four).






Appendix 7. Slides illustrating introduction and summary to the module.

a. Module introduction page

Hertfordshire Partnership NHS Foundation Trust  


[Previous](#) [Next Slide](#) 

### Informing Mental Health Professionals about cognitive biases, probability, attitude and emotion: an educational module


Welcome to this educational module, which has been designed to inform you about; 1. the possible biases in judgment that humans experience, 2. how understanding elements of probability might help mental health professionals in clinical practice and 3. the potential effects of negative emotions on decision making (for ease, we will now refer to mental health professionals as MHPs).

I am Kiri Jefferies-Sewell and I work in HPFT's Research & Development Department. I have been working toward my PhD, at the University of Hertfordshire, since 2012. The main focus of the PhD is risk in mental health settings, how MHPs make service-user related decisions and their attitudes toward risk assessment processes.


Thank you for agreeing to take part in this session. You are here because you have agreed to participate in this piece of work, which will form the final part of my thesis. I hope you find the session informative.




**Kiri Jefferies-Sewell**  
(Research Assistant and PhD student)



b. Module summary page

Hertfordshire Partnership NHS Foundation Trust 

[Previous](#) [Next Slide](#) 


### MODULE SUMMARY

You have reached the end of the educational module and I hope you have found the content interesting.

The content of the module was not designed to change any specific behaviours of MHPs, but highlight the importance of being aware that basic human biases, understanding of probability and negative emotions might influence our decision making. This information can be crucial to the decisions we make about service user care and therefore knowing about potential weaknesses in judgment may help neutralise these biases.

Please now follow this link to complete the last part of the session, the post-module questionnaire:

**<https://sdu-surveys.herts.ac.uk/post-module>**



Appendix 8. Full list of module feedback questions (chapter six)

**Feedback about the module**

Overall, how would you rate the module?

Excellent  
 Good  
 Fair  
 Poor

Please rate the following aspects of the module:

Having trouble with the format of this question? [View in tableless mode](#)

	Opinion			
	Strongly disagree	Disagree	Agree	Strongly Agree
The module was enjoyable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The module was user friendly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The module was relevant to my role	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The module was informative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The module was at a level I could understand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The module was interesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate your preference for the following:

Having trouble with the format of this question? [View in tableless mode](#)

	Strongly Disagree	Disagree	Agree	Strongly Agree
I would recommend the module to a colleague	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to see this sort of session as a mandatory module	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The module met my expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The quality of the module materials was good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The module improved my knowledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What was your favourite part of the module?

What was your least favourite part of the module? (e.g. this might include, but is not limited to, parts you did not feel you understood or topics you did not find interesting)

Do you have any other suggestions to help us improve future educational modules?

Appendix 9. Participant information sheet for educational module study.



Hertfordshire Partnership   
University NHS Foundation Trust

## INFORMATION SHEET

**Title of Research Study: Informing mental health professionals about cognitive biases, probability attitude and emotion: an educational module**

**Name of Researcher: Kiri Jefferies-Sewell**

We would like to ask you to take part in a research study. This information sheet will tell you about the study so please read it carefully. Take as much time as you need to decide whether or not you wish to take part. Please feel free to ask questions.

### WHAT IS THE PURPOSE OF THE STUDY?

The proposed study has been designed to see if a specifically tailored educational module will help mental health professionals better understand cognitive biases, probability and attitudes that might affect the way decisions are made.

Decision making by MHPs in mental health practice is of utmost importance to the welfare of those under mental health services, their families and mental health professionals themselves. Despite this importance, very few studies have been conducted to address the issue of whether MHPs are aware of certain human biases that could affect how these decisions are made. Previous findings suggest that humans have difficulty understanding probability, which could have an influence upon decision making. It may be especially beneficial to inform MHPs about these areas due to the service user decisions they need to make on a daily basis. Additionally, it is thought that attitudes to Risk Assessment Proformas (RAPs) might also have an effect on how they are completed. Therefore, a short module has been devised to advise MHPs in these areas.

### WHY HAVE I BEEN CHOSEN?

You are a MHP within Hertfordshire Partnership University NHS Foundation

trust and we would like to invite you to help us find out whether a short educational module would be beneficial to your knowledge of decision making biases and how emotion can affect our decisions. As a valued professional, your expertise will allow us to investigate this area.

### **DO I HAVE TO TAKE PART?**

You do not have to take part in this study. If you would prefer not to take part, you do not have to give a reason. If you would like to take part, we will ask you to read and keep this information sheet. You are free to stop taking part at any time and you do not have to give a reason. Even if you have completed your participation, you may contact the study team at any time to withdraw your data and the team will remove any participatory information you have given.

### **WHAT WILL HAPPEN IF I TAKE PART?**

If you decide to take part, you will be asked to access an Internet link sent to you via email. If you choose to take part, you may follow this link where you will complete some questions about yourself and a short questionnaire that will give us an idea about your current knowledge of the three key areas described in the 'What is the purpose of the study?' section above. At the end of the questionnaire, a link will take you directly to the Trust's mandatory training site where you will be able to log in using your usual Trust log in credentials. At this point you will be able to work through the module at your own pace (we ask that you allow around an hour to complete this). After you complete the module, you will be directed back to the survey site, where you will complete the knowledge questionnaire again, this time with the additional option of giving some feedback on your experience with the module. This is so we can measure whether the session has been useful to you and see if we can make any improvements to the module. Four weeks after you complete the module, you will be contacted once again, via email or telephone, to request that you complete the knowledge questionnaire to assess learning outcomes from the module. A link to survey site will be sent to you via email.

### **WILL MY INFORMATION BE KEPT CONFIDENTIAL?**

Your information will remain fully confidential at all times and will be seen only by the research team. Any data collected during the study will be kept securely stored and encrypted within HPFT or University of Hertfordshire property. Data collected will be destroyed within 2 years of the study's completion.

### **FURTHER QUESTIONS?**

We would like to thank you for reading this information sheet. If you would like more information on the study or would like to discuss anything in more detail please contact us using the information below.

**Researcher**

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If you have any questions or queries and would like to speak to someone who is not part of the research team, you may contact the Hertfordshire Partnership University NHS Foundation Trust Complaints Department on 01727 804705.