

**RISK ASSESSMENT IN PRACTICE: HOW DO FORENSIC
PRACTITIONERS ASSESS AND FORMULATE RISK?**

By

EMMA JOANNE TARPEY

A thesis submitted to the University of Birmingham
for the degree of
Doctorate in Forensic Psychology Practice (ForenPsyD)

The Centre for Applied Psychology
School of Psychology
College of Life and Environmental Science
University of Birmingham
B15 2TT
August 2020

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Abstract

This thesis investigated forensic risk assessment in practice by exploring how forensic practitioners assess risk within forensic settings. Chapter 1 presented an introduction to forensic risk assessment in terms of how forensic risk assessment practices have evolved and developed over time. Chapter 2 examined the psychometric properties of the HCR-20, which is a set of structured professional judgement guidelines for the assessment and management of violence risk. This highlighted that the research demonstrated evidence of reliability and validity for elements of the HCR-20, and that variability existed in the assessment process, within both research and practice settings. Chapter 3 presented a systematic literature review of risk formulation within forensic settings. Findings of this review revealed a limited evidence base pertaining specifically to risk formulation in forensic practice, due to the small number of published studies, which evidenced methodological weaknesses. To address this and contribute to the knowledge base pertaining to risk formulation, chapter 4 presented an empirical study employing a qualitative methodology to explore practitioners' experiences of risk formulation within forensic practice settings. The findings demonstrated that whilst there was some evidence of shared understanding and consistency in practise amongst the practitioners in the sample, this did not appear to be underpinned by a uniformly implemented set of practitioner guidelines or supporting evidence base. Chapter 5 considered the challenges of defining and researching professional judgment, and recommended the development of professional practice guidelines for risk formulation, to support research and knowledge generation within the field.

Acknowledgements

I would firstly like to thank my supervisors Richard Barker and Dr Zoe Stephenson for all their guidance, encouragement and feedback throughout the completion of this thesis, your feedback has been invaluable and always gratefully received.

I would like to thank my Head of Department for her support in the completion of this qualification. I would also like to thank my work colleagues for taking an interest in my research and for sharing their knowledge and expertise. I would also like to thank all of the participants who gave up their time to be interviewed and share their experiences.

I would finally like to thank my husband and my daughters for believing I could do this, providing support and encouragement throughout, and for permitting me the time and space to 'do my work'.

Table of Contents

Abstract	iv
Acknowledgements	v
List of Tables	viii
List of Figures	ix
List of Appendices	x
Glossary of Terms and Acronyms	xi
CHAPTER 1: INTRODUCTION	1
Aims of the Thesis	8
CHAPTER 2: A PSYCHOMETRIC CRITIQUE OF THE HISTORICAL CLINICAL RISK MANAGEMENT 20 (HCR-20):V3	10
Introduction	11
The HCR-20 V3 as a Psychometric Instrument	12
Conclusion	28
CHAPTER 3: RISK FORMULATION IN PRACTICE: A SYSTEMATIC LITERATURE REVIEW	30
Abstract	31
Introduction	32
Method	37
Preliminary Data Synthesis	61
Narrative Synthesis	71
Discussion	80
Conclusion	85
CHAPTER 4: DOING RISK FORMULATION: A QUALITATIVE STUDY OF FORENSIC PRACTITIONER EXPERIENCES	86
Abstract.....	87
Introduction.....	88
Method.....	94
Results.....	100

Discussion.....	132
Conclusion.....	142
CHAPTER 5: DISCUSSION.....	143
Conclusion.....	154
REFERENCES.....	156
APPENDICES.....	169

List of Tables

Table 1:	SST: Inclusion / Exclusion Criteria	45
Table 2:	Characteristics of the Included Studies	50
Table 3:	Summary of Participant Qualification Level and Experience ...	97
Table 4:	Themes and sub-themes identified within the data set	101

List of Figures

Figure 1:	Search terms used for database searches	40
Figure 2:	Steps in the selection and screening process	47
Figure 3:	Concept map outlining data frequency relating to each of the review questions	71
Figure 4:	Diagram of sub-themes within the theme: Defining Risk Formulation	102
Figure 5:	Diagram of sub-themes within the theme: A Responsive Flexible Approach	109
Figure 6:	Diagram of sub-themes within theme: Where’s the Evidence Base for Risk Formulation?	119
Figure 7:	Diagram of sub-themes within the theme: The Learning Journey	124
Figure 8:	Diagram of sub-themes within theme: Roles and Responsibilities	128

List of Appendices

APPENDIX A.	Database Searches: Search Terms and Result.....	170
APPENDIX B.	Selection and Screening Tool	176
APPENDIX C.	Table of References to which Selection and Screening Tool Applied	177
APPENDIX D.	Data Extraction Form	197
APPENDIX E.	Quality Appraisal Tool for Quantitative Studies	198
APPENDIX F.	Quality Appraisal Tool for Qualitative Studies	199
APPENDIX G.	Summary of the Quality Assessment of the Included Quantitative Studies	202
APPENDIX H.	Summary of the Quality Assessment of the Included Qualitative Studies	203
APPENDIX I.	Recruitment Advert.....	204
APPENDIX J.	Recruitment Email	205
APPENDIX K.	Participant Information Sheet	206
APPENDIX L.	Consent Form	210
APPENDIX M.	Semi-structured Interview Schedule	212
APPENDIX N.	Data Analysis Template Development.....	213
APPENDIX O.	Reflexive Statement	216

Glossary of Terms and Acronyms

HCR-20	Structured professional guidelines for the assessment of violence risk
HCR-20 V2	Version 2 of the HCR-20
HCR-20 V3	Version 3 of the HCR-20
HMPPS	Her Majesty's Prison and Probation Service
OGRS	Offender Group Reconviction Scale: An actuarial measure to predict reoffending
PCL-R	Psychopathy Checklist Revised: A structured tool for assessing psychopathic traits
SPJ	Structured Professional Judgement
VRAG	Violence Risk Appraisal Guide: An actuarial measure to predict future violence

CHAPTER 1

INTRODUCTION

The most recent Crime Survey for England and Wales (CSEW) conducted in the UK (Office for National Statistics, 2020) documents that there were 1.2 million incidents of violence in the year ending March 2020, with a 6% increase in recorded offences involving a knife/sharp instrument on the previous year. The Safety in Custody statistics for England and Wales reports on the number of deaths, assaults and self-harm incidents in prison custody. There were 32,669 assault incidents and 3,813 serious assault incidents within prison custody over the 12-month period up to December 2019 (Ministry of Justice, 2020). Increased levels of violence towards staff in NHS mental health trusts has also been recorded (Royal College of Nursing, 2018).

The World Health Organisation's (WHO) report on violence and health highlights the complexity of violence, and how this has contributed to a lack of clarity regarding what constitutes violence (WHO, 2002). In an attempt to address this, the WHO proposed a definition of violence, intended to encompass the range of violent acts perpetrated, and the subjective experiences of those harmed. The WHO defines violence as:

The intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation. (p. 4)

The effects of violence are far reaching, and the impact of violence on individuals and communities is well documented (Guay et al., 2019). It has been recommended that a strategic multi-agency approach is employed to tackle the problem of violence in society (Local Government Association, 2018), with a key part of violence prevention and reduction being the assessment of violence risk (Royal College of Psychiatrists, 2016).

Over twenty years ago Hart (1998) connected the assessment of violence risk to intervention and management with his definition of violence risk assessment as “the process of evaluating individuals to (1) characterize the likelihood they will commit acts of violence and (2) develop interventions to manage or reduce that likelihood” (p. 122). Since then the assessment of violence risk has become a key activity in a wide range of settings (secure, community, custodial, hospital, criminal justice), and is undertaken by a variety of practitioners (psychologists, nurses, criminal justice staff, psychiatrists), using an expansive selection of assessment approaches. The focus of violence risk assessments also varies in terms of: the nature of the violence; who is at risk of perpetrating violence; who is at risk of harm from violence; and the timeframe within which violence risk is assessed. This suggests therefore that there is not a standardised, universally agreed, approach to assessing violence risk, in part due to the pervasive and diverse nature of violence perpetration. This was evident from the findings of a meta-review published in 2010, which identified that at that time there were over 120 forensic risk assessment tools in use (Singh & Fazel, 2010). Focussing specifically on assessment of violence risk, Neal and Grisso (2014), in their survey of 434 forensic evaluators (n=868 cases), found that 89% of the sample utilised structured tools to assess violence risk. There were 110 different violence risk tools/frameworks used, the most common being the Psychopathy Checklist Revised (PCL-R) (Hare, 1991) used in 35.6% of violence risk evaluations, and the HCR-20 (Douglas et al., 2013), also used in 35.6% of violence risk evaluations, with assessors using on average four different tools per case. It is likely that this heterogeneity in assessment practices is due to the significant developments within the field of violence risk assessment, which has grown exponentially over the past three decades.

Historically violence risk assessments were based on clinicians' opinions and judgements regarding the likelihood someone would perpetrate violence. These opinions, based on the assessors' expertise and knowledge regarding violence risk, were known as unstructured professional/clinical judgement approaches or first generation risk assessments (Hart, 1998). However, these unstructured approaches to assessing violence risk were criticised for being subjective (Grove & Meehl, 1996), lacking consistency and evidence in the decision making process, driving the change towards a more structured approach to the assessment of violence risk. These structured approaches, largely instigated by the work of Monahan (2001), in the form of actuarial measures and structured professional judgement approaches, were underpinned by empirical research into the factors that contribute to violence.

The second generation of violence risk assessment involved the use of actuarial assessment tools. Actuarial measures consider the statistical relationships between variables, with the strength of the correlation between the variables, rather than the explanation of how the variable links to violence, being key to determining the relevance of the variables in assessing violence risk (Roychowdhury & Adshead, 2014). Actuarial measures have been widely implemented within forensic practice settings; the Offender Group Reconviction Scale (OGRS) is an example of an actuarial measure used by Her Majesty's Prison and Probation Service (HMPPS) staff to predict general reoffending (Ministry of Justice, undated). The OGRS 3 (Version 3) score is calculated by gathering information on a number of static factors (offender age, gender, offence category, offending history). The OGRS3 is reported as a percentage indicating the likelihood of the individual reoffending within a two-year period. A further example of an actuarial measure is the Violence Risk Appraisal Guide (VRAG) (Harris et al., 1993). The VRAG assesses risk of violence using static factors such as early

school maladjustment, victim injury, and failure on prior conditional release, that contribute to providing a prediction of violence. Criticisms of the actuarial, nomothetic, approaches, as not being tailored to the individual, led to the development of more individualised, idiographic structured professional judgment (SPJ) approaches.

Structured professional judgement (SPJ) approaches involve the assessment of factors known to be related to future violence, however, rather than being allocated a score as in the actuarial approaches, the presence and relevance of the factors is assessed utilising professional judgment in a structured manner. One example of a structured professional judgement approach for the assessment of violence is the HCR-20 (Douglas et al., 2013), which is one of the most commonly used violence risk assessments internationally (Viljoen, et al., 2018).

The SPJ approaches have progressed, with SPJ guidelines such as the HCR-20 revising and updating the guidance on how violence risk should be appraised. Earlier versions of the HCR-20 (versions 1 and 2) required assessors to identify the presence of risk factors and then use a numerical scale to determine a rating for the risk factors. Assessing risk by assigning a numerical score or label has been criticised however, as it does not provide an understanding of the meaning or the function of the individual's behaviour (Logan & Johnstone, 2010). Nor does any meaningful link exist between risk factor ratings and final risk judgments when risk is assessed by simply identifying the presence of risk factors and then arriving at a risk judgment (for example, low, medium or high) (Doyle & Logan, 2012). Generating risk judgments such as low, medium or high, implies a particular volume of risk management as opposed to specifying the nature of the risk management required (Doyle & Logan, 2012). Consideration of the interaction, and functional links, between factors is needed, as opposed to simply listing factors associated with offending (Ward & Beech, 2015),

in an attempt to understand the mechanism by which the factor is causally linked to the behaviour (Jones, 2020).

In response to these criticisms and to further enhance the understanding of an individual's behaviour, formulation has now been included within the SPJ approach to assessing risk, embedded within a process that involves gathering information, identifying presence and relevance of risk factors, identify risk management strategies and generating summary judgments (Doyle & Logan, 2012). Formulation has been included within the current version of the HCR-20, Version 3, which, in addition to identifying presence of risk factors, now requires assessors to rate the relevance of the present risk factors and to generate an understanding of how critical each factor is to the perpetration of violence. Identifying the relevance of risk factors helps to 'make sense' of someone's behaviour (Strub et al., 2014); collation and integration of the information allows assessors to develop an understanding of the individual and their future harm potential (Logan, 2014).

The literature evidences a range of opinions and outcomes regarding the ability of structured (actuarial and SPJ) measures to predict violence risk, with outcome studies indicating a similar degree of accuracy for prediction of future violence. Singh et al. (2011) investigated the predictive validity of nine commonly used violence risk assessments (including both actuarial and SPJ) and concluded that there was no evidence to suggest that actuarial instruments produced better levels of predictive validity when compared with SPJ approaches. However, when considering the definition of risk assessment outlined earlier by Hart (1998), it is not solely the prediction of violence that concerns practitioners and researchers, but the ability to "develop interventions to manage or reduce that likelihood" (p. 122). SPJ approaches have been considered superior in their ability to identify key risk factors and permit opportunities to manage the risk posed (Guy et al., 2012). This is reinforced

within the BPS Practice Guidelines (BPS, 2017) which reminds practitioner psychologists that “risk assessment is not prediction” (p. 32), and advises that risk assessment in practice should involve the identification of factors to facilitate monitoring and intervention. Research concerning violence risk assessment has therefore shifted from focussing solely on the prediction of future violence, to understanding the capability of risk assessment approaches to decrease the potential for future violent behaviour.

A recent systematic review (Viljoen et al., 2018) attempted to determine the utility of risk assessment tools in reducing risk of violence and reoffending. The authors concluded that there was insufficient evidence to conclude that risk assessment tools had an impact on reducing the risk of violence and reoffending, highlighting how adherence to the tools was moderate, and that risk assessment tools appeared to be more beneficial when implemented according to guidelines. The authors recommended that future research should focus on how risk assessment tools are employed within practice settings and in particular, how the outcomes of risk assessments contribute to risk management. Identifying a risk level can be a starting point for understanding the level of intervention that may be required, but it does not provide any insight into the nature, and focus, of what is required to reduce future harmful behaviour (Doyle & Logan, 2012). It seems that the focus on prediction has obfuscated the ultimate aim of forensic risk assessment, as the purpose is not simply assessing or measuring risk, but to use the information from the risk assessment to inform intervention and management, in an attempt to reduce the risk an individual presents. Viljoen et al. (2018) suggest that researchers should focus on exploring how risk assessment tools are used to inform decision making in practice, rather than identifying the predictive validity of such tools.

Aims of the Thesis

Whilst there is a wealth of literature exploring risk assessment approaches, in terms of whether they are effective in predicting future harmful behaviours, research examining how forensic practitioners assess risk (i.e., the process of risk assessment) in forensic practice is limited. The aim of this thesis is therefore to explore and increase the knowledge base regarding risk assessment practices by identifying what forensic practitioners do when they are undertaking a risk assessment in practice. Knowledge of current practice will be beneficial in terms of informing and developing best practice for risk assessment, in order to contribute to the management of violence risk and the reduction of harm.

To fulfil this aim, this thesis presents three distinct, but interrelated, pieces of work:

Chapter 2 examines the psychometric properties of the HCR-20 (Douglas et al., 2013); structured professional judgement guidelines for the assessment of violence risk. This critique highlighted variability in the assessment process, which has been discussed in relation to the use of the HCR-20 in practice and research.

Chapter 3 presents a systematic literature review of risk formulation in practice, which is increasingly referred to as an essential element within the risk assessment process. A narrative approach was used to analyse the findings, and these are discussed in relation to how risk formulation is used within forensic practice.

Following on from the findings of the psychometric critique and the systematic review, chapter 4 presents an empirical study employing a qualitative methodology to explore practitioners' experiences of risk formulation within forensic practice settings, through remote semi-structured interviews.

Chapter 5 summarises and draws together the findings from each of the chapters; providing a summary of risk assessment practices and a discussion of implications for practice and directions for future research.

CHAPTER 2

A PSYCHOMETRIC CRITIQUE OF THE HISTORICAL CLINICAL RISK MANAGEMENT 20 (HCR-20): V3

Introduction

The HCR-20 (Historical Clinical Risk Management-20) (Douglas et al., 2013) is one of the most commonly used violence risk assessments internationally (Viljoen et al., 2018); and has been translated into 25 languages (Douglas, 2014). The first version of the HCR-20 was published in 1995 (Webster et al., 1995), followed by version 2, in 1997 (Webster et al., 1997). The current version, version 3, was published in 2013 (Douglas et al., 2013). The HCR-20 is a set of structured professional judgement (SPJ) guidelines consisting of twenty risk factors (ten historical - H, five clinical - C, and five risk management - R), that directs assessors to follow empirically supported guidance to reach evidence based decisions about violence risk. Unlike typical psychometric measures based on a set of explicit instructions, the HCR-20 instead provides guidance to assessors that allows them to align their decision-making with the available evidence base, permitting flexibility and professional judgment. Notwithstanding this, there exists an abundance of literature evidencing the psychometric properties of the HCR-20, evaluating the utility of the HCR-20 in practice settings, and comparing the performance of the HCR-20 against other violence risk assessments. Recent HCR-20 studies range from predicting the opinions of clinicians regarding readiness for transfer of not guilty by reason of insanity (NGRI) patients committed to a secure forensic psychiatric hospital in New York (Cabeldue et al., 2018), to a study exploring the efficacy of the HCR-20 in the prediction of self-harm in a UK sample of female psychiatric inpatients (Campbell & Beech, 2018). Alongside widespread use in forensic practice, the outcome of HCR-20 assessments has also been found to be strongly associated with parole decisions (Guy et al., 2015). Evidently the ability of the HCR-20 to predict future harmful behaviour is of interest within the forensic field, yet structured professional guidelines were not developed for this purpose, and this therefore raises questions about how the literature is used to justify

and support the use of the HCR-20 in practice. Therefore, it is necessary to consider the current research literature pertaining to the HCR-20, in order to understand the relevance of the psychometric properties to the use of the HCR-20 in applied settings.

Given that test administration procedures are an integral part of psychometric testing, providing assessors with strict assessment guidelines to promote consistency in test administration and confidence in test outcomes. Investigation of the HCR-20 assessment process is relevant to interpreting the research findings as it permits a more focussed and in depth critique of the evidence base. This review, therefore, will be structured according to the seven-step HCR-20 administration process as outlined in the HCR-20 V3 manual. It will provide an overview and critique of the HCR-20 assessment process and will then consider the psychometric properties of the HCR-20.

The HCR-20 V3 as a Psychometric Instrument

The HCR-20 assesses risk of violence in males and females aged 18 and over, “when there is a legal or clinical need to do so” (Douglas et al., 2013, p. 35). It can be used within a range of forensic and psychiatric settings, to assist decision making with regard to release, admission to/from institutions, and monitoring within institutions and in the community. It can also be used to inform decisions regarding whether an individual is suitable for transition to higher or lower security/supervision arrangements (Douglas et al., 2013).

The HCR-20 is completed by an assessor who is deemed to be knowledgeable about violence and mental disorder, and has expertise in individual assessment; HCR-20 assessments can also be completed collectively within teams. When the HCR-20 is solely being utilised for research purposes, the user requirements are less stringent, however the

authors of the HCR-20 stipulate that the qualifications of those administering the HCR-20, for research purposes, should be clearly articulated (Douglas et al., 2013, p. 39). On review of the literature pertaining to the HCR-20 it is evident that the background of those completing the HCR-20 assessments within published studies is diverse. In a study exploring the predictive ability of the HCR-20 on Japanese forensic psychiatric wards (Arai et al., 2017), forensic psychiatrists employed a Japanese translation of the HCR-20. Whereas a study by Jeandarme et al. (2017), exploring the use of the HCR-20 in medium secure units in Belgium, used a Dutch translation of the HCR-20 completed by criminologists (someone holding a Master's degree in criminology). This diversity of professional background could potentially influence the outcome of the assessments and the research findings, as evidence suggests that individuals are socialised into their profession (Chao et al., 1994), which encourages greater consistency within group thinking and behaviour, as compared with other professions. Therefore, HCR-20 outcomes may differ depending to the professional background, experience, and training of the assessors, and this needs to be considered when comparing the outcomes of research, as greater consistency in assessment outcomes may be evident when comparing within, rather than across, professions. Reynolds and Miles (2009) found no significant difference in assessment quality post-training when comparing qualified and trainee staff completing HCR-20 assessments in a secure forensic service, possibly because the staff had been socialised and trained in similar ways. Research exploring the impact of assessor experience and qualifications, within and between professions, in relation to completion of HCR-20 assessments would be beneficial.

The HCR-20 V3 manual details a seven-step administration procedure for completing the assessment. Step one, gathering information, involves the assessor collecting and documenting relevant information about, and from, the individual being assessed. This is

gathered via interview with the individual and informants (family members, professionals, etc.), and reviewing file information (criminal justice records, health records, employment and education records, etc.). The manual offers guidance on what should be reviewed, however it is not a mandated list, and as such, it relies on the professional judgement of the assessor to determine whether they have gathered sufficient information. The manual does not require assessors to follow a standardised interview schedule, but instead advises assessors to complete “a comprehensive, thorough psychosocial interview” (Douglas et al., 2013, p. 41). Neal and Grisso (2014) surveyed forensic evaluators in the United States regarding their assessment practices; results highlighted diversity in the range and quantity of information utilised. When completing HCR-20 assessments, assessors may vary in their focus during the interview, they may select different evidence to include/omit and choose to access different information sources. Yet when HCR-20 assessments are completed for research purposes it is common practice for the assessors to be provided with the information on which to base the assessment, therefore individual choice about what to review does not form part of the research process. Given that this step is crucial to the assessment process in practice settings, further exploration of how and why assessors choose to review, include or omit information is required.

Based on the information gathered, assessors are then required to evaluate the presence of each of the twenty risk factors on a 3-point scale: Y (yes); P (partial/possible); or N (no). Risk factors may be omitted if there is no relevant information available or the information available is deemed unreliable. The manual provides a detailed description of each of the twenty risk factors, with indicators and coding notes, and the assessor judges presence based upon this. However indicators are illustrative and not quantifiable and, as such, the manual does not guide assessors to identify presence based on meeting a specific

number of criteria. Webster et al. (2002) note that, on occasion, assessors may drift from the manual item descriptors, instead applying their own interpretations to the item ratings.

The timeframe for coding the historical (H) items is lifetime, the clinical (C) items are coded based on the recent past (the specific timeframe should be determined by the assessor, manual guidance is provided); and the coding timeframe for the risk management (R) items is the near future, with institutional and/or community ratings being specified. Once the presence of the risk factors has been determined, step three involves the assessor rating the relevance of each of the risk factors in terms of future risk management for the individual, in essence, whether the factors contribute to the individual's propensity for violence. Relevance is coded on a three-point scale, high, moderate and low, with the option to omit. Dickens and O'Shea (2017) surveyed 45 mental health clinicians in a secure forensic setting and found that different weightings were placed on the risk factors by clinicians when assessing violence risk, with historical items being rated most relevant to future violence. It is noteworthy that historical factors, which are deemed more static in nature, were rated more relevant to future violence risk than those factors that focus on current or future circumstances. It would be interesting to conduct further research into assessor decision making processes when rating the items, as assessors may be employing their own decision making formulae in the absence of prescriptive guidance, and this may introduce the possibility of decision making biases or errors. Without clear guidance on how to assess and rate the risk factors, the likelihood of errors in the risk assessment process increases (DeMatteo et al., 2010) and the impact of this on HCR-20 assessment outcomes is yet to be explored.

Step four requires the assessor to generate a risk formulation, which is a "conceptually meaningful framework that explains a person's violence" (Douglas et al., 2013, p. 53). The manual provides guidance outlining the key features of a formulation, as proposed by Hart

and Logan (2011), and offers suggestions as to how the assessor might complete the formulation, with examples such as creating risk factor hierarchies or clusters, or identifying gateway risk factors. Despite the emphasis placed on formulation as being a key part of the assessment process, the empirical support for the use of formulation is limited (Hopton et al., 2018). McMurrin and Bruford (2016) developed a checklist for assessing the quality of case formulations based upon the criteria for judging formulations, as outlined by Hart et al. (2011), which includes coherence (internal and external), explanatory breadth, and simplicity, for example. One study exploring the quality of HCR-20 formulations, utilising the Case Formulation Quality Checklist Revised (CFQC-R, McMurrin & Bruford, 2016), found that the HCR-20 formulations were of poor to intermediate quality, however they noted that the formulations completed for HCR-20 V3 were better quality than those produced for HCR-20 V2 (Hopton et al., 2018). It is acknowledged that more research into risk formulation is needed (Logan, 2014).

Within step five the assessor generates future risk scenarios, which is described as informed speculation about the future, taking into account the risk factors identified. The manual offers guidance on generating scenarios based on past violence (i.e., better case, worst case and twist) and advises that the assessor should create a number of scenarios based on the case facts whilst linking this to theory and research. For each scenario, the assessor is directed to describe the nature, severity, imminence, frequency / duration and likelihood of violence. Scenario planning research is prevalent within the business and environmental sector (e.g., Varum & Melo, 2010), and there is a wealth of evidence highlighting the usefulness of the HCR-20 in predicting future violence. However, research exploring the development and utility of detailed, individualised, future violence scenarios is lacking. It may be that the professional responsibility of practitioners to prevent the harmful scenarios from occurring is

hindering the research process, yet research exploring the benefits of violence risk scenario planning is needed.

The assessor then proposes risk management strategies (step six), in terms of monitoring, supervision, treatment, and victim safety planning, in order to manage, and ultimately reduce, the likelihood of violence as predicted within the scenarios. The focus is no longer on simply identifying and assessing the risks (Heilbrun, 1997), but putting strategies in place to negate these risks. The preceding steps of the HCR-20 inform the development of individualised risk management strategies. However, research exploring the link between risk management strategies and violence outcomes is limited.

Finally, step seven involves making conclusory opinions or summary judgements on risk for future violence / case prioritisation, risk of serious physical harm, imminence of violence risk, case review periods and other risks identified. Case prioritisation is coded on a 3-point scale (low/routine, moderate/elevated or high/urgent), and risk for serious harm and imminence are rated low, moderate, or high, but guidance on how to generate these conclusions is not provided. Interestingly, it is reported that there is no agreed consensus amongst professionals about what constitutes a particular risk category in practice (Scurich, 2018); therefore, professionals may have different conceptualisations of the risk levels, which could have significant implications on the consistency of legal decision making. Finally, the manual directs assessors to specify the period for re-assessment. Within research and practice follow up periods differ, therefore this could have an impact on assessment outcome. This impact was demonstrated in a systematic review of risk assessment instruments (Ramesh et al., 2018) whereby those instruments focussing on imminent risk performed better than those with a longer follow up period.

It has been highlighted in the paragraphs above that, whilst the HCR-20 V3 manual is comprehensive, it is a guide rather than a prescriptive set of instructions, and there are numerous stages within the assessment process whereby assessors could differ in their approach to completing the assessment. This contrasts with the standardised test administration procedures outlined by professional bodies such as the British Psychological Society (BPS, 2016) and the International Test Commission (ITC, 2001), whereby assessors must follow an explicit set of instructions during administration and scoring of measures. This variability in administration procedures has been highlighted in a recent systematic review of structured risk assessment tools. Viljoen et al. (2018) reviewed 33 violence risk tools, involving 31,551 patients/offenders and 10,002 assessing professionals, and found that professionals do not always consistently apply the tools and concluded that further research is needed into how risk assessment tools are applied in practice.

Whilst the importance of standardisation in psychometric administration is widely accepted, it is not known whether the variability within how structured professional judgment guidelines are interpreted and utilised by assessors has implications for the outcomes of HCR-20 assessments within legal, and clinical, decision-making. Therefore, a clearer understanding of how assessors complete HCR-20 assessments in practice settings is needed.

Following on from standardised administration procedures, it is widely considered that a good psychometric test should be reliable and valid (P. Kline, 2014), and it is evident within the literature that studies have explored the reliability and validity of the HCR-20, as such, these concepts will now be discussed.

Reliability. Reliability of a psychometric instrument refers to the degree of stability of the measure, over time, across items and between raters/assessors (T. Kline, 2005). Internal

consistency refers to each item on the test measuring the variable of interest (P. Kline, 2014), so for the HCR-20, each of the risk factors assessing violence risk. Bjorkly et al. (2014) explored the internal consistency of the HCR-20 V2 and V3 for 20 patients rated by two forensic mental health nurses. Internal consistency for the clinical scale was considered moderate, whereas the internal consistency for the historical and risk management scales was considered good. However, research exploring the internal consistency of the HCR-20 is limited. Internal consistency infers that all of the items are measuring the same variable, yet this is clearly not the case for the HCR-20. Violence is not a singular psychological construct, therefore it would not be appropriate to apply measures of internal consistency to the HCR-20 as a whole. All the items measure different factors, and in combination with one another, these factors are thought to contribute to violent behaviour.

Interrater reliability (IRR) refers to the degree of consistency/stability of assessment findings between different assessors, this is usually reported as the intraclass correlation coefficient (ICC). Data gathered during the development of HCR-20 V3 reported good to excellent IRR outcomes. De Vries Robbe and de Vogel (2010) (as cited in Douglas et al., 2013) reported on 25 cases that had been assessed using draft 1 of HCR-20 V3. They reported excellent IRR for the sum of numerical ratings of presence (ICC1 .84) and for summary risk ratings (SRRs) (ICC1 .72) (de Vogel et al., 2014). Doyle et al. (2013) (as cited in Douglas et al., 2013) utilised the second draft of the HCR-20 V3 for 20 patients with four assessors, and reported acceptable IRR for the sum of numerical presence ratings for the subscales (ICC1 ranging from .69 to .76). Belfrage and Douglas (2012) (as cited in Douglas et al., 2013) reported on the consistency in ratings for three assessors using the HCR-20 V3 draft 3, on 35 patients, considering the reliability of a single assessor compared to other assessors (ICC1), and the reliability of a group of assessors (ICC2). They concluded that the IRR for the sum of

the numerical presence ratings was good to excellent (Historical scale ICC1 .94, ICC2 .98; Clinical scale ICC1 .86, ICC2 .95), and the IRR of the SRRs was also excellent for both institutional and community ratings (institutional ICC1 .81, ICC2 .93, community ICC1 .75, ICC2 .90). When publishing these findings Douglas and Belfrage (2014) reported that the interrater reliability (IRR) of the HCR-20 V3 was consistently excellent for presence ratings and summary risk ratings (SRRs), and that the majority of relevance was in the good to excellent range. Doyle et al. (2014) reported very good levels of IRR across four raters, on the total, historical (H), clinical (C) and risk management (RM) scales (ICC = total .92, H .91, C .90 and RM .93) for 20 randomly selected cases. Cabeldue et al. (2018) reported on a sample of NGRI (not guilty by reason of insanity) patients in New York; 74 cases rated by two assessors. They reported ICCs to be equal to or higher than the median ICCs, and concluded that IRR was generally high.

In sum, within these studies good levels of interrater reliability (IRR) have been found in relation to the presence and relevance ratings of the sub/total scales, and the summary risk ratings across a range of settings. However, it is important to consider the methods used within research studies, and how these compare with real-life administration of the HCR-20. The German HCR-20V3 workgroup (Kötter et al., 2014), reported good to excellent levels of IRR for the historical (ICC1 .65), clinical (ICC1 .66) and risk management (ICC1 .73) scales and the summary risk ratings, for five assessors rating 30 case vignettes using a German translation of the HCR-20 V3. Whilst it is reassuring that assessors achieved good levels of interrater reliability, on review of the study details it can be seen that the participants in this study had responded to a job advert and were hired to participate. They had no prior experience of risk assessment and were trained in a two-day workshop delivered by the German HCR-20V3 workgroup, completing the ratings over a six-day period. It is suggested

that these findings, therefore, may in part be explained by the study methods in relation to participant recruitment, participant training, and the study assessment procedure, which are not reflective of real-life HCR-20 administration processes, and the findings may not, therefore, be generalisable.

Whilst there is evidence supporting promising levels of IRR for presence and relevance ratings of the sub/total scales, and the summary risk ratings, the ecological validity of the study findings should be examined. Furthermore it is apparent that interrater reliability or consistency in relation to decision making within the other steps of the HCR-20 administration process (information gathering, formulation, scenario planning, risk management planning) have not been examined. For example, it is reported that the assessors in some studies had access to the same information (e.g., Douglas & Belfrage, 2014). This implies that the assessors were provided with case information on which to base their assessment. Therefore, whilst these studies demonstrate that there is a good level of interrater reliability when assessors are provided with the same case information, it would be interesting to explore the degree of consistency in ratings amongst assessors when they are selecting the information to review (step one of the HCR-20 process, information gathering), as would occur in practice settings. Determining IRR in practice settings however presents challenges as two assessors rarely rate the same case, unless during court proceedings, which has been demonstrated to influence outcomes. For example, Murrie et al. (2013) found a significant difference in risk ratings depending on whether the assessors believed they were working for the prosecution or for the defence. Therefore, whilst good levels of IRR have been demonstrated in research settings, more research is needed to determine IRR in more realistic, practice based situations.

Test-re-test reliability (stability over time) is relevant for tests that assess traits that are stable over time. Therefore, it would not be appropriate to measure stability over time for the HCR-20, as violence risk is not a singular stable trait.

Validity. Validity refers to the extent to which the outcomes of an instrument reflect what it is intended to measure, so in the case of this critique, does the HCR-20 effectively and accurately assess violence risk? Consideration of this question must take into account the nature of the construct being assessed and how the test authors have operationalised this. Violence is defined as “actual, attempted, or threatened infliction of bodily harm of another person” (Douglas et al., 2013, p. 2). Interestingly, the authors articulate that “risk for violence is not a characteristic of the physical world that can be evaluated objectively, but a subjective perception – something that exists not in fact, but in the eye of the beholder” (Douglas et al., 2013, p. 4). How can the validity of an instrument be determined when the very nature of the construct being assessed by the measure is considered to be subjective? This dilemma however has not deterred researchers and practitioners exploring the validity of the HCR-20. The different aspects of validity in relation to the HCR-20 will now be considered.

Content related validity refers to whether a measure represents all facets of the construct being assessed; for the purposes of this critique, does the HCR-20 fully capture the factors relevant in the assessment of violence risk? Typically, a theoretical model of the construct in question would be provided, which would form the basis for the assessment. Within the HCR-20 manual, key concepts are defined and the steps of the process are articulated, however there is no reference to a theoretical model of violence perpetration or the underlying factors that explain the structure of the HCR-20 (P.H. Witt, 2000). Empirical support for each of the HCR-20 risk factors is provided in an online resource (Douglas et al., 2014) which was developed to inform the revision process. Support for violence risk factors is

well documented in the literature; for example, a systematic review focussing on 45,533 individuals (K. Witt et al., 2013) found support for a number of static and dynamic factors linked to violence for individuals with psychosis. These included non-adherence with medication and psychological therapies, hostile behaviour, recent substance use, poor impulse control and criminal history factors. It is therefore clear that an abundance of literature exists evidencing the risk factors for violence, which can be applied to the HCR-20, yet specific research focussing on the content validity of the HCR-20 is lacking.

Criterion related validity refers to the sensitivity and utility of the test, generally referred to as concurrent and predictive validity. The first aspect to be considered is concurrent validity, this refers to how well the test compares to an established test. Smith and Edens (as cited in Douglas et al., 2013) compared HCR-20 V3 draft 3 and the PCL-R (Psychopathy Checklist-Revised, Hare, 1991) scores for 32 offenders awaiting trial. They reported correlations between the total scores (PCL-R and HCR-20) for institutional ($r = .66$, $p < .001$) and community ratings ($r = .70$, $p < .001$), and PCL-R and the individual sub scales (historical $r = .66$, clinical $r = .62$ and risk management out $r = .63$, $p < .001$). Blanchard and Douglas (2011) (as cited in Douglas et al., 2013) reported strong correlations between PCL-R:SV (screening version) scores and the HCR-20 V3 (ranging from $r = .71$ to $r = .82$). However, correlations between the HCR-20 and the PCL-R are not surprising given the overlap between the items on the two measures, and it is noteworthy that whilst the performance of the PCL-R as a risk assessment has been documented, it was not designed for that purpose.

Eidhammer et al. (2013) (as cited in Douglas et al., 2013) reported a high correlation ($r = .84$) between the sum of total numerical presence ratings between V2 and V3 of the HCR-20 in a sample of 20 Norwegian forensic patients. Looking at the subscales, there was a high

correlation for the sum of numerical presence on the historical scale ($r = .85$), and risk management, out ($r = .81$), however lower for the clinical subscale ($r = .59$). The HCR-20 manual also details a number of unpublished studies whereby the scores on V2 and V3 have been found to be highly correlated (Belfrage & Douglas, 2012; Blanchard & Douglas, 2011; de Vries Robbe & de Vogel, 2010; Douglas & Strub, 2013). However, comparing version 2 to version 3 is deemed to be inadequate due to the similarities between the two (Judges et al., 2016). Whilst there is some research examining concurrent validity of the HCR-20, this focuses on elements of the HCR-20 process rather than the assessment overall, therefore more research is needed, not only to compare the HCR-20 with other established violence risk assessments, but also to appreciate the comparability of each of the HCR-20 steps with other risk assessment procedures.

Predictive validity has been the focus of much research as the capability of risk assessment instruments to be able to accurately predict violence is necessary for effective application in practice. Predictive validity is generally measured using the area under the curve (AUC) statistic. Ramesh et al. (2018) investigated the use of risk assessment instruments for violence prediction in forensic psychiatric hospitals; 52 publications, which included 6840 patients and nine risk assessment instruments, were included. The HCR-20 was considered to have performed moderately when predicting inpatient violence ($AUC = 0.70$), performing similar to the PCL-R ($AUC = 0.64$), but inferior to those predicting violence in the shorter term such as the Broset Violence Checklist (BVC) ($AUC = 0.83$), and the Dynamic Appraisal of Situational Aggression (DASA) ($AUC = 0.83$). Agreement about interpretation and acceptability of AUC scores varies according to discipline, with Ramesh et al. reporting that below 0.7 reflects poor to moderate accuracy.

Studies have explored the predictive validity of the HCR-20 across a wide range of forensic populations and settings. For example, Cabeldue et al. (2018) explored readiness for transfer decisions for a sample of not guilty by reason of insanity (NGRI) patients committed to a secure forensic psychiatric hospital in New York (n=140), and concluded that the clinical and risk management scales of the HCR-20 predicted opinions regarding readiness for transfer.

Considering the prediction of community violence, Doyle et al. (2014) followed up all patients discharged from the 32 NHS medium secure units across England and Wales over a twelve-month period (n=788). The authors concluded that the total HCR-20 score and sub scale scores were, strongly correlated with frequency of violent incidents at six and thirteen months. The AUC at six months ranged from .747 (clinical) to .625 (historical).

A comparative study undertaken in a UK secure/forensic mental health setting (n=505 patients), found the HCR-20 to be a better predictor of aggression for female inpatients as compared with males (O'Shea et al., 2014). Predictive ability was also found to be dependent on diagnosis, with improved predictive ability for those diagnosed with personality disorder and/or schizophrenia, as compared with other diagnoses. Cartwright et al. (2018) explored the predictive validity of the HCR-20 in predicting non-sexual institutional aggression in a sample of 152 male sexual offenders, at 90 and 180 day follow up periods. The HCR-20 significantly discriminated between patients classed as moderate/high risk as compared with low risk. The authors conclude that the HCR-20 is effective for identifying violence risk in sexual offenders, over a six-month period.

Considering field based studies, Persson et al. (2017) demonstrated good predictive validity of the HCR-20 V3 (AUC=.79) in a prospective, naturalistic cohort study of violence

among Swedish forensic psychiatric clients (n=193). In a UK study, Campbell and Beech (2018) explored the performance of the HCR-20 V3 in a prospective cohort design in the prediction of self-harm in a sample of female psychiatric inpatients (n=89). They found a significant association between the mean scores on the HCR-20 and frequency of self-harm behaviours ($B = 4.23, p < .001$).

However, research findings from other field-based studies have shown much lower predictive ability for the HCR-20. Jeandarme et al. (2017) explored the use of a Dutch translation of the HCR-20 V2 in three medium secure units (n=205). Findings indicated that only a small number of risk factors (personality disorder, impulsivity and early maladjustment) could discriminate between those who reoffended at the two year follow up, and those who did not. The AUCs for the total score, subscales and final risk judgement were non-significant. The authors concluded that the HCR-20 was not useful in prospectively identifying who was likely to reoffend and that overall predictive validity of the HCR-20 in a naturalistic design was low. Similarly, a study by Neal et al. (2015), which explored the HCR-20 ratings of 14 clinicians from routine clinical practice, found that they did not predict recidivism better than chance. The authors considered whether the poor predictive ability was due to risk management efforts, i.e., that the likelihood of future violent behaviour had been reduced or prevented due to targeted intervention. This has been discussed within the literature (Vojt et al., 2013) and it may be that poorer predictive accuracy is apparent in field-based studies due to the impact of risk management efforts. Therefore, although research has evidenced good predictive ability of the HCR-20 in some studies, research is needed to more fully understand the variability in the predictive ability of the HCR-20 in forensic practice settings, and the influence of risk management activities upon this.

Normative samples. Norm group data is typical within psychometric test manuals as it facilitates comparisons of the individual outcomes with what would be typical of that population. Norm group data can be split into categories based on a range of variables, depending on the test. In the case of the HCR-20 there could be normative data for gender, age, setting (prison, community, hospital) and outcomes (recidivism, inpatient aggression), and with the HCR-20 being utilised internationally, normative data for countries. Normative data is not provided within the current HCR-20 manual, however it is reported by Judges et al. (2016) that normative data for the prevalence of risk factors within different samples, was provided in the V2 manual (Webster et al., 1997). Judges et al. (2016) questioned the applicability of this data to V3 due to the changes made to the item descriptors and also highlighted the narrow focus on criminal, North American, samples. Dematteo et al. (2010) describe the HCR-20 as being created using nomothetic data, that is, data gathered from the assessment of large groups of individuals, yet this normative data is not easily accessible to the users of the HCR-20. However, this may not be a fair criticism for structured professional judgment guidelines, as the intention is to provide an understanding of the risks posed by an individual, with suggestions of strategies to manage identified risks. Therefore, comparing an individual with large data sets would not necessarily enhance the risk assessment process, and would not therefore, appear to be appropriate. This would also moderate the widespread applications of the HCR-20 across service-users and settings, to focussing only on those populations on which it had been standardised.

Conclusion

This review explored the research evidence in relation to the HCR-20, one of the most widely used violence structured professional judgment risk assessments, with a specific focus on psychometric properties, given the evident focus on this within the extant literature. Interrater reliability and predictive validity for future violence has been demonstrated within research settings. However, lower reliability and validity outcomes are apparent in some field-based studies. The variability in the assessment process within the field, alongside the impact of risk management efforts are likely to have contributed to this; however, the influence of these factors upon HCR-20 outcomes has not been explored. The assessment process undertaken by assessors, and the qualifications and experience of the assessors, should be more clearly articulated in published studies to enable transparency of process, and interpretation/comparison of research findings. In addition to this, more research is needed to explore the points of variability within the assessment process, such as assessor qualifications/experience, and the professional judgments, such as formulation and scenario planning, to explore whether these have any influence on assessment outcomes, in essence, how the HCR-20 is used in practice settings. To facilitate this, it is recommended that those using the HCR-20 to inform clinical and legal decisions demonstrate transparency with regard to the assessment process and current research findings.

This review has critically reviewed the literature pertaining to the psychometric properties of the HCR-20, and the relevance of the research to the use of the HCR-20 in practice. The HCR-20 is a respected tool with the forensic field and is frequently used to inform clinical and legal decisions, yet structured professional judgment guidelines are intended as a guide to decision-making, not a prescriptive set of instructions (Logan & Lloyd, 2019). Therefore, it begs the question of whether professional, informed, decision-making,

can or should be evaluated in terms of strict psychometric properties? Possibly an alternative approach to understanding the quality, effectiveness, and impact of structured professional judgement frameworks should be employed.

CHAPTER 3

Risk Formulation in Practice: A Systematic Literature Review

Abstract

Forensic practitioners are increasingly required to generate risk formulations as part of the assessment and management process, for those with the potential to commit future harmful behaviour, such as violence. These risk formulations form part of the decision making in a range of settings, in regard to release, transfer, progression and risk management. This review therefore sought primary studies investigating risk formulation in forensic practice settings, with a particular focus on how risk formulation is defined, how it is implemented, and what the outcomes of risk formulation are. Ten electronic databases were searched, followed by hand-searching and contact with the experts. The selection and screening criteria were applied and ten studies were found to meet the inclusion criteria. The quality of the studies was assessed using an adapted form of the Effective Public Health Practice Project (EPHPP) Quality Assessment Tool for Quantitative Studies (EPHPP, 2009) and the Critical Appraisal Skills Programme checklist for qualitative research (CASP, 2018). The quality scores obtained ranged from 15% to 73%, none of the studies were excluded based on quality due to the small number of studies meeting the inclusion criteria. Data were extracted and analysed utilising a narrative synthesis approach. The findings of the review are inconclusive with regard to risk formulation in forensic practise. This is due to the narrow scope of the included studies, the small yet diverse samples, the heterogeneity in research aims, and the methodological weaknesses apparent within the included studies. Research is needed to develop a shared understanding of what risk formulation is in order to provide a basis for the development of further research into the benefits and outcomes of risk formulation in forensic settings.

Introduction

Psychological formulation was first cited in the clinical psychology regulations in 1969, and is defined within the British Psychological Society Good Practice Guidelines as “a hypothesis about a person’s difficulties, which links theory with practice and guides the intervention” (BPS, 2011, p. 2). The guidance recognises formulation as a core competence for clinical psychologists, however, acknowledges that there is no agreed consensus on the definition of formulation. Formulation is specified within the Health and Care Professions Council (HCPC) Standards of Proficiency for Practitioner Psychologists (HCPC, 2018), in relation to planning interventions, assisting multi-professional communication, facilitating service user understanding of their experiences / situation, and as part of the cycle of assessment, formulation, intervention and evaluation. Similarly, the British Psychological Society Practice Guidelines identify “formulation of client needs and problems” (BPS, 2017, p. 9) as one of the core skills of registered, chartered and in training psychologists. It is considered an alternative to psychiatric diagnoses, in that it provides meaning to a person’s difficulties, by generating hypotheses about the origins of their problems (Johnstone, 2018).

The application of formulation to risk assessment and management in clinical settings began to appear within the literature in the 1990’s (Lewis & Doyle, 2009). Within the Royal College of Psychiatrists guidance on assessment and management of risk of harm to others (RCP, 1996) (as cited in Lewis & Doyle, 2009), the use of formulation was recommended in order to identify factors that are likely to increase and decrease risk related behaviours, and to utilise this information to understand the nature of the risks and to inform intervention strategies. Formulation was identified as the “crucial link” (Doyle & Dolan, 2002, p. 654) previously missing from risk assessment and risk management; involving the use of systematic methods to organise information to understand the causes of the presenting

problem (Lewis & Doyle, 2009), with the aim of proposing hypotheses to facilitate change (Hart & Logan, 2011). Applying risk formulation within a medium secure forensic psychiatric setting has been described as “a method of analysing, understanding, and communicating an individual’s risk” (Lewis & Doyle, 2009, p. 288), within a five-step structured professional judgment framework. This involves specifying historical (predisposing) factors, current (precipitating) factors, and future (protective and prolonging) factors¹. The authors do highlight, however, that there is a lack of research into the efficacy of risk formulation.

Doyle and Logan (2012) define risk formulation as “an organizational framework for producing a narrative description that explains the underlying mechanism involved in the generation of harmful behaviour and for proposing hypotheses regarding action to facilitate change” (Doyle & Logan, 2012, p. 413). Within the paper they provide a detailed account of the process of completing a risk formulation, which involves understanding how and why past harmful behaviour occurred to enable the identification of potential situations where it could happen again. The aim is to ensure that the formulation is future focussed and not simply an account of past behaviour, which informs decisions aimed at reducing the potential for future harmful outcomes. Specifically focussing on sexual offending behaviours, Craig and Rettenberger (2018) have proposed a model that incorporates risk assessment and case formulation, to support the assessment and risk management of sexual offenders.

Risk formulation has been incorporated into a range of practice settings. The Department of Health (2009) outlined best practice for mental health practitioners when managing service users’ risk of harm. Within these guidelines, risk formulation is highlighted as a point of best practice, identifying and describing “predisposing, precipitating,

¹ Note the terminology differs from Weerasekera’s (1993) 4 P model of formulation (predisposing, precipitating, perpetuating, protective).

perpetuating and protective factors, and how these interact to produce an elevation in risk” (DoH, 2009, p. 20), with a view to informing risk management planning.

Shingler and Needs (2018) identified that within the parole process, Parole Board members and psychologists contributing to the parole process, valued formulation as it facilitated their understanding of prisoners and the risk assessment process and was helpful in generating recommendations. The authors concluded that Parole Board members view formulation as key to understanding the individual and recommend that focus on formulation should continue.

The Offender Personality Disorder (OPD) strategy, jointly delivered by NHS England and HM Prison and Probation Service (HMPPS), is aimed at those whose offending is linked to problematic personality traits and who present a high risk of harm, the aim being to protect the public and improve psychological health (Joseph & Benefield, 2012). One of the overarching aims of the strategy is reducing reoffending (NOMS & NHS England, 2015). Case formulation is considered an essential part of the strategy and is used throughout the sentence to guide planning and management in custody and in the community. It is based on the premise that a good formulation enhances the ability of the Offender Manager to manage risk (Skett et al., 2017), leading to more successful outcomes in terms of risk and psychological wellbeing (Minoudis et al., 2013). Hart and Logan (2011) have outlined a number of key features that should characterise a formulation. They suggest that a formulation should: explain the behaviour and direct the risk reduction activities; have a theoretical basis, be individualised and written as a narrative; address multiple time periods; be testable; and create new information about the individual.

It therefore appears that risk formulation is increasingly being utilised within a range of forensic settings, and is considered pivotal to the assessment and management of risk

(Hopton et al., 2018), and has been described by Cooke and Michie (2013) as the fourth era of risk assessment, preceded by unstructured clinical judgement, actuarial measures and structured professional judgement approaches.

Current Review

Given the increase in the use of risk formulation in forensic practice settings, particularly in relation to decisions about containment, progression, release and intervention, it is imperative that the knowledge, practise, and outcomes, of risk formulation, and the evidence pertaining to this is explored. Systematic reviews of more established topics are likely to have increasingly defined and focussed review questions, for example, Geraghty and Woodhams (2015) conducted a systematic review on the accuracy of risk assessment tools to predict violence and recidivism in female offenders, with fifteen studies meeting the inclusion criteria. For the purposes of the current review, the scoping exercise revealed a limited number of papers pertaining to risk formulation, so to refine this even further in terms of specific populations or outcomes (such as whether risk formulation impacts risk management in the community, for example) would have severely limited the usefulness of this review. This review utilised an integrated mixed-methods synthesis design (Sandelowski et al., 2006), as it was anticipated that the outcomes of both quantitative and qualitative research papers would be synthesised in order to interpret and understand (configure) risk formulation in practice, as opposed to adding or assimilating the findings (Gough et al., 2012).

Therefore, the overall aim of this systematic literature review was to explore risk formulation in forensic practise settings. The specific objectives of the review were:

- To understand how risk formulation is defined in forensic practise settings
 - *How do practitioners define risk formulation when used in practice?*

- To understand how risk formulation is implemented in forensic practise settings
 - *What models or frameworks are utilised in risk formulation practise in forensic settings?*
 - *When and how is risk formulation completed, and who by?*
 - *Is the risk formulation completed collaboratively with the service user / other professionals?*
 - *Is the risk formulation shared with the service user / other professionals?*
 - *Are there any quality assurance measures in place?*

- To understand the outcomes of risk formulation in forensic practice settings
 - *Does the risk formulation inform risk management practises?*
 - *Are there any other outcomes as a result of the risk formulation?*

Within this review the concept of risk formulation followed the definition outlined by Doyle and Logan (2012), “an organizational framework for producing a narrative description that explains the underlying mechanism involved in the generation of harmful behaviour and for proposing hypotheses regarding action to facilitate change” (Doyle & Logan, 2012, p, 413). Therefore, risk formulation was conceptualised as a process of understanding the underlying mechanisms in the risk behaviour, which is completed as part of an assessment process to inform risk management.

The researcher for the review is a forensic practitioner with experience in completing risk assessment and risk formulation in a range of forensic settings. The researcher is also an academic responsible for teaching forensic psychology theory and practice to postgraduate level students. Guidance on who should complete systematic reviews indicates that the researcher should have expertise in the area under review (Cooper et al., 2018).

Method

Scoping Exercise. A scoping exercise was undertaken searching specifically for the phrase *risk formulation*, in order to identify the existing literature on the topic. A preliminary search of the bibliographic database PsycINFO was conducted, plus searches using the library search engines for the University of Birmingham and Manchester Metropolitan University, using *risk formulation* within the title. It was clear from this preliminary search that papers using this specific phrase within the title were limited (28, 22 and 11 respectively), therefore generating synonyms and related terms was considered essential to facilitate capturing relevant literature. A search for *risk formulation* within the Cochrane Database of Systematic Reviews and the Centre for Reviews and Dissemination did not identify any systematic reviews on the topic.

Search Strategy. The stages of the search strategy were as follows:

1. Electronic database searching
2. Exclusion of obviously irrelevant references based on title
3. Review of full text of remaining references
4. Citation searching of the references included in the current review

5. Contact with experts

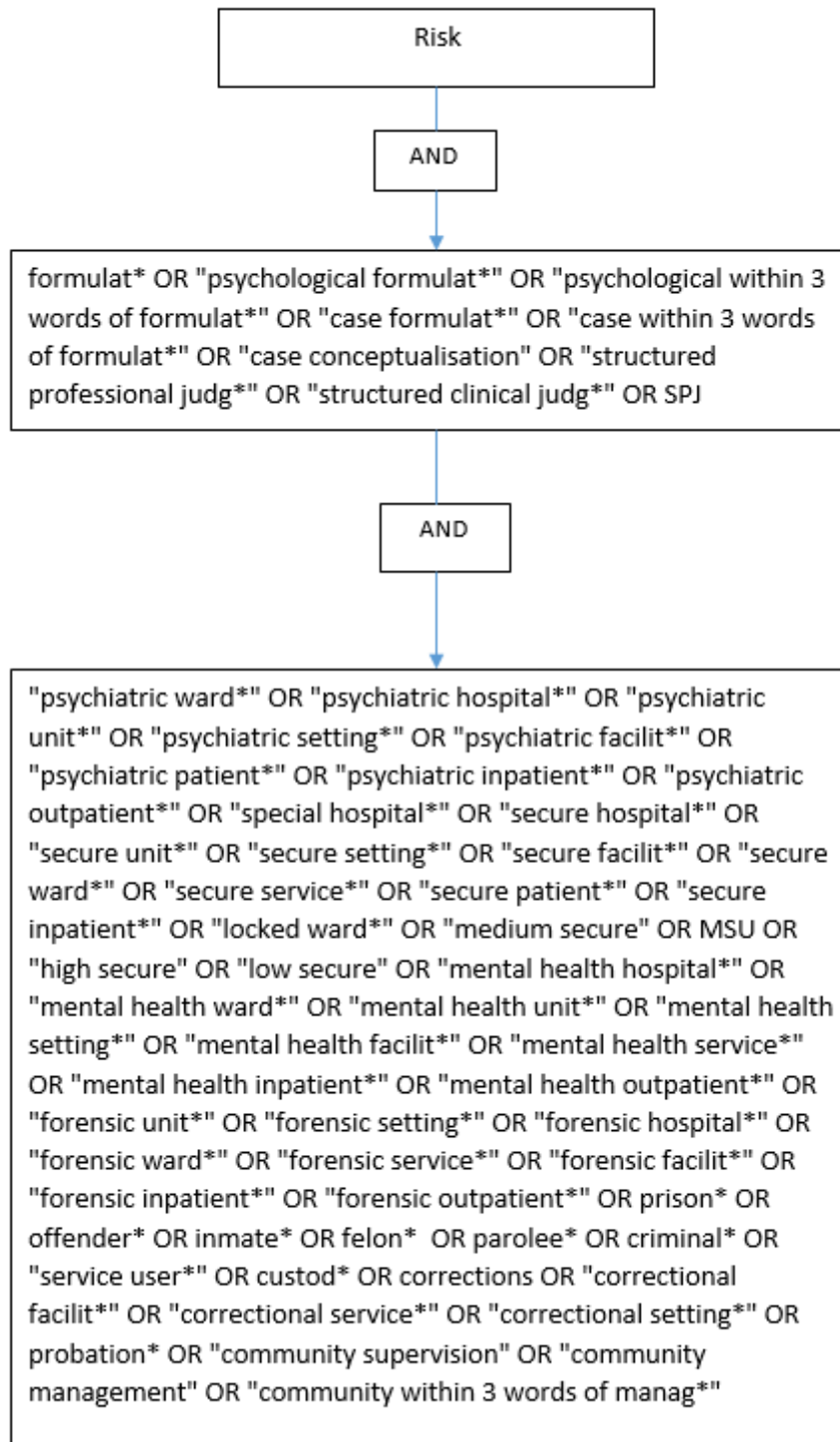
Rationale for Database Search Strategy. The search strategy was developed with the aim of identifying literature exploring risk formulation in forensic practice, however given the outcome of the scoping exercise it was decided that to focus specifically on these phrases would not facilitate the completion of a thorough review. Risk formulation is a developing field, so agreed terminology may not be firmly established, and therefore it was necessary to generate a range of synonyms for risk formulation. It was recognised that using less specific synonyms, such as formulation and case formulation (see Figure 1 for full list of search terms), would likely result in a high number of irrelevant references being retrieved. Formulation has been a key element of clinical psychology and psychotherapy since the 1950's (BPS, 2011), and so would be a recurrent theme within the literature.

The search strategy was devised to capture the range of forensic settings within which risk formulation is anticipated to occur, be that hospital, custodial, or community settings. The “subjects” of the formulation were included within the search strategy, in order to identify evidence of risk formulation in relation to service users, as opposed to risk formulation discussed as solely a theoretical concept not in relation to forensic practice. The search did not include terms related to who completes risk formulations as this could potentially exclude relevant papers, as there are no agreed guidelines for who can/cannot complete a formulation.

The intention of the review was to uncover evidence of risk formulation in relation to offending behaviour; however, the risk behaviour was not specified within the search terms as it was considered that using specific inclusion and exclusion terms in the initial search strategy would reduce sensitivity and would potentially lead to relevant papers being excluded. For example, papers relating specifically to the risk of suicide and self-harm have

not been included in this review, as the formulation of risk in relation to this may be conceptually different to that for risk of offending and also suicide is not exclusive to forensic settings. However, search terms relating to suicide and self-harm were not used as exclusion criteria within the database search strategy, as this may have led to the exclusion of relevant papers as suicide/self-harm is discussed in papers about reoffending. The key concepts of the review were therefore identified as risk, formulation, and population / setting.

Figure 1. Search terms used for database searches



Consideration was given as to how to generate appropriate terms for the database searches, it was decided that citation pearl growing techniques (Booth et al., 2016) would be difficult to apply, as there appeared to be no exemplar empirical paper on risk formulation on which to base this. Similarly, utilising thesaurus terms would not be particularly beneficial due to the apparent lack of consensus on what constitutes risk formulation. Therefore, search terms were generated by brainstorming related terms for the key concepts of the review (Phelps et al., 2007).

Selection and Screening of References. Databases were accessed through the University of Birmingham Library online site. Advice on searching strategies was sought from the University of Birmingham Library staff and the Manchester Metropolitan University subject librarian for psychology. On 30th August 2019, ten databases were searched: Criminal Justice Database, Psychology Database, Social Science Database, ProQuest Dissertations and Theses Global, National Criminal Justice Reference Service (NCJRS), Applied Social Sciences Index and Abstract (ASSIA), PsycINFO, MEDLINE, Embase and Web of Science. Alerts were set up so that the searches were conducted on a weekly basis, the results emailed to the researcher's university email address up until 1st March 2020². The searches were limited to English language, however no date range was applied as, although risk formulation was first discussed within the literature in the 1990's (Lewis & Doyle, 2009), limiting the searches to post 1990 may miss references where different terminology was used. Doctoral theses were included but below doctoral level (i.e., BSc, MSc) were excluded as it was considered that these had not received sufficient peer review. All references retrieved were

² This yielded two references that would have been subject to the SST, however they did not meet the search inclusion criteria. These have been added to the table of references in appendix C for information.

exported to RefWorks, a reference management software database, and duplicates were removed. The search syntax and results for each database search can be found in Appendix A.

Following removal of duplicates, the titles/abstracts of the remaining references within the initial search (n=1330) were reviewed by the researcher, and obviously irrelevant references were removed, 64 references remained. It was not possible to retrieve the full text for two of the references retrieved from the Proquest Dissertations and Theses Global database, as these were embargoed by the academic institutions.

The next stage of the search was the application of the Selection and Screening tool (SST) to the remaining references (n=62). The SST (appendix B) was based on the SPIDER search tool (Cooke, Smith & Booth, 2012), which the authors state is appropriate for use with qualitative and mixed methods studies, due to the refinements made to the search strategy as compared with the PICO (population, intervention, comparison, outcome) search tool designed for quantitative research. The Screening and Selection tool was applied by reviewing the abstract and/or full text of the 62 remaining references to determine whether the inclusion/exclusion criteria were met (see appendix C for results of the SST review). The search categories utilised within the SST were defined as follows:

The Sample included were any forensic practice setting/service that works with adult service users who are at risk of offending/reoffending/harming others, exclusions were non-forensic settings and/or populations, and juvenile populations. As the HCR-20 is aimed for use with those over 18 years of age, and the planned setting for the empirical study was in adult services, excluding juvenile populations from the review maintained consistency across the elements of this thesis. Similarly, life-course studies of the development of violent behaviour in males have suggested risk-focussed family

and school intervention strategies for juveniles at risk of offending (Farrington, 2019), therefore risk formulation for juveniles at risk of offending is likely to focus more on these elements as compared with adult offenders.

The Phenomenon of Interest was formulation in relation to service user risk to others/risk of reoffending conceptualised as a process of understanding the underlying mechanisms in the risk behaviour, undertaken as part of an assessment process to inform risk management. Exclusions for this category were a sole focus on risk assessment or risk prediction, formulation not in relation to service user risk to others and instead in relation to general functioning, mental health, personality, cognitive functioning, focus solely on risk of suicide/self-harm, and risk assessed by actuarial measures. As there does not appear to be a consensus on what risk formulation is, and terminology used within the literature, consideration was needed regarding how to identify the relevant references for inclusion regarding the Phenomenon of Interest. It was decided not to exclude based on definitions of risk formulation as there are a range of definitions within the literature, and so using one of these as the inclusion/exclusion criteria may frame the review from one perspective only, narrowing the scope of the review. For references to be included based on Phenomenon of Interest, the following criteria were applied: clear evidence that paper is focussed on risk formulation in practice and/or explicit link between the concept of formulation and future risk.

The Design category included a range of research designs including questionnaires, interviews, focus groups, surveys, case study, observation or illustrative case studies/examples. Studies with no empirical data collection methods were excluded.

The Evaluation could be expressed as themes, experiences, attitudes, perceptions, descriptions or outcome of assessment measures (numerical, statistical). Studies with no empirical data analysis or no application to real life settings were excluded.

The Research Type could be quantitative, qualitative or mixed. Discussion/opinion papers were excluded as the focus was on the application of risk formulation in practice.

The Selection and Screening tool applied the inclusion and exclusion criteria, see table 1 below.

Table 1

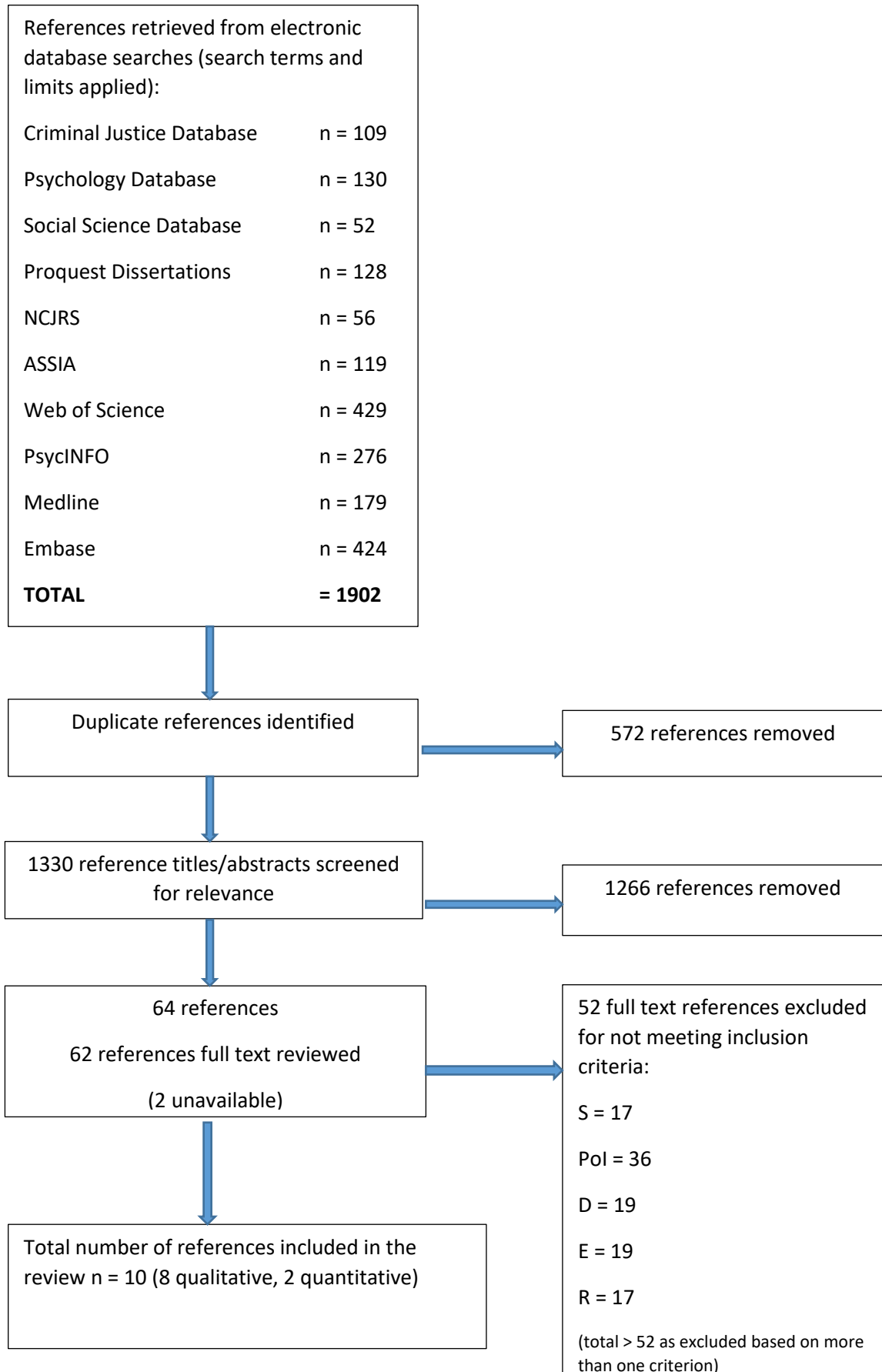
SST - Inclusion/Exclusion Criteria

	Inclusion Criteria	Exclusion Criteria
Sample	Forensic practice setting/service that works with adult service users who are at risk of offending/reoffending/harming others	Non forensic setting Non forensic population Juvenile population
Phenomenon of Interest	Formulation in relation to service user risk to others/risk of reoffending. Risk formulation conceptualised as a process of understanding the underlying mechanisms in the risk behaviour. Completed as part of an assessment process to inform risk management	Solely focussed on risk assessment or risk prediction Formulation not in relation to service user risk to others and instead in relation to general functioning, mental health, personality, cognitive functioning Focus solely on risk of suicide/self-harm Risk assessed by actuarial measures
Design	Questionnaire, interview, focus group, survey, case study, observation, illustrative case studies/examples	No empirical data collection methods used
Evaluation	Qualitative – themes, experiences, attitudes, perceptions, descriptions Quantitative – outcome of assessment measures	No empirical data analysis methods used No application to real life setting/data
Research type	Quantitative Qualitative Mixed	Discussion/opinion papers

Following application of the SST, ten references remained. The reference lists of each of these papers were reviewed, however, no additional relevant references were identified. The *cited by* function in Google Scholar was used to search for references that had cited any of the ten included studies. This yielded two potentially relevant references; one was a Masters level dissertation thesis (not included due to the limited peer review), and the other a

Doctoral level thesis (although this research examined risk formulation this was not a field based study, so did not take place in a forensic setting, therefore it was not included). A number of experts within the field were contacted (Caroline Logan, Vivienne de Vogel, Michiel de Vries Robbe, Jason Davies, and the HCR-20 authors); however, this did not yield any additional references. When reading a full-text during the selection and screening process (Craig & Rettenberger, 2018), one reference was extracted. The source paper referred to the article as concerning risk formulation, however on reviewing the paper (Clark & Chuan, 2016), the authors themselves had not referred to risk formulation within the paper. It was therefore decided not to include this paper within the review. A diagram of the selection and screening sequence can be seen in Figure 2 below.

Figure 2. Steps in the selection and screening process



Approach to Data Extraction and Analysis. The stages of data analysis followed that outlined by Popay et al. (2006). The initial stage was a preliminary data synthesis, which involved extracting data and generating a table to provide a descriptive summary of the characteristics and findings for each study (see Table 2). This then fed into the quality assessment of each of the included studies. From review of the study characteristics and the outcome of the quality assessment, it was evident that meta-analysis and meta-synthesis would not be appropriate for synthesising the data from the review (Higgins & Green, 2011). It was therefore considered appropriate to adopt a narrative synthesis approach as this allows a discussion of the commonalities, relationships, and exceptions within the data set leading to a summary of knowledge on the topic (Lisy & Porritt, 2016).

The review questions were used as a format for extracting the data from the studies. As definitions of risk formulation were not explicit within the studies, this was extracted from the narrative by the researcher. Similarly, the information pertaining to the second review question, implementation of risk formulation in practice, was also gathered from the narrative within the papers and/or the method section. Only two of the included studies measured the outcomes of risk formulation, in terms of relationship quality from the perspective of offenders and their Offender Managers (Shaw et al., 2017), and in terms of practitioners' views on the utility of risk formulation within practice (Judge et al., 2014). One study compared the quality of risk formulations completed within practice settings, utilising a quality checklist (Hopton et al., 2018). Seven of the included references were illustrative case examples, providing information about the utilisation of risk formulation with a specific case. Outcomes of risk formulation were extracted as presented by the paper author/s. A data extraction form was developed to facilitate the extraction of data from the studies (see appendix D).

Approach to Quality Assessment. Due to the different types of included studies, it was necessary to use different quality assessment checklists, one for the quantitative studies and one for the qualitative studies. The quality of the quantitative studies was assessed using an adapted form of the Effective Public Health Practice Project (EPHPP) Quality Assessment Tool for Quantitative Studies (EPHPP, 2009) (see appendix E). For the qualitative studies, the Critical Appraisal Skills Programme checklist for qualitative research (CASP, 2017) was utilised (see appendix F). The checklists were adapted to facilitate application within and between the quantitative and qualitative studies. Three additional questions were included in the qualitative checklist to further refine the quality assessment process (Has the researcher explained how the participants were selected? Is it clear how the data were collected? Is there an in-depth description of the data-analysis process?). For both the quantitative and qualitative quality checklists rating scales were developed to include a partial rating as it was noted during reading of the studies that they may meet some, but not all, of the criteria for the quality assessment questions. To generate a numerical score to enable comparisons between studies, a score was assigned to the ratings, 2 = yes, evidence that the criterion is fully met, 1 = criterion is partially met, 0 = criterion is not met. When it was not possible to determine whether the criterion had been met, no score was assigned. The final score for each study was converted to a percentage to allow comparisons. Due to the small number of studies included in the review it was decided not to exclude any based on quality. The researcher assessed the quality of the included studies.

Table 2

Characteristics of the Included Studies

	Study Characteristics		Findings relevant to Review Questions		
Author Year Country Quality Assessment Rating (%)	Setting and aim of study	Design of the study Participants Data source	Definition of risk formulation	<u>Implementation of risk formulation</u> - Framework/models - Completion - Collaboration - Communication - Quality assurance	<u>Outcomes of risk formulation</u> - Risk management - Other outcome
Belfrage 2015 Sweden 15%	Two forensic psychiatric hospitals. To illustrate how the HCR-20 V3 was implemented in two forensic psychiatric hospitals.	Illustrative case example from the perspective of the report author, who is also Director of Research at research sites and trainer of the HCR-20 assessors.	Risk formulation and scenario planning as starting point for treatment. Providing “an individual risk theory for every patient, like a risk diagnosis, and think about the scenarios of violence” (Pg. 34).	<u>Framework:</u> No longer than one page, covering: • Background (crimes committed and index offence) • Highly relevant risk factors (including motivators, destabilizers, and disinhibitors) • Scenario planning and risk management recommendations • Risk-relevant changes (Pg. 36) <u>Completion:</u> Every 6 months. Team completed first 5 steps of V3 administration to produce a condensed risk formulation and scenarios of violence. <u>Collaboration:</u> Site S - Risk assessment team consisting of two full-time and two part-time assessors Site V - one full-time nurse and one part-time psychologist <u>Communication:</u> Risk assessment team member present at treatment planning meetings Formulation fed back to patient and ward staff <u>Quality Assurance:</u>	An understanding that risk formulations are starting points for future work with the patients Improved relations within and across the professional groups at the hospitals All staff are aware of every patient’s risk formulation

Author Year Country Quality Assessment Rating (%)	Study Characteristics		Findings relevant to Review Questions		
	Setting and aim of study	Design of the study Participants Data source	Definition of risk formulation	<u>Implementation of risk formulation</u> - Framework/models - Completion - Collaboration - Communication - Quality assurance	<u>Outcomes of risk formulation</u> - Risk management - Other outcomes
Connell, C. 2015 UK 38%	Custodial setting “To discuss value of occupational therapy contributions to risk assessment and formulation with personality disordered offenders” (Pg. 94)	Illustrative case example of one adult male offender in custodial setting, from the perspective of the report author.	No clear definition stated.	<u>Framework:</u> Multi-sequential functional analysis and occupational adaptation Identifies antecedents, behaviour and consequences for five discrete events. Hypotheses generated about learning points from each event. <u>Completion:</u> Data gathered from assessment performing a therapeutic vocational role and other occupations; interview; psychometric scales and clinical documentation <u>Collaboration:</u> <u>Communication:</u> <u>Quality assurance:</u>	In relation to the case: Reveals a repeating pattern of behaviour related to employment. Facilitates identification of treatment targets that will reduce reoffending risk. Effective formulation tool to identify offence paralleling behaviours. OPBs can be monitored to evaluate efficacy of intervention in reducing reoffending risk Enables management of inpatient environments to reduce risk and informs recommendations for safe occupational goals and discharge locations

	Study Characteristics		Findings relevant to Review Questions		
Author Year Country Quality Assessment Rating (%)	Setting and aim of study	Design of the study Participants Data source	Definition of risk formulation	<u>Implementation of risk formulation</u> - Framework/models - Completion - Collaboration - Communication - Quality assurance	<u>Outcomes of risk formulation</u> - Risk management - Other outcomes
Duff and Willis 2006 UK 27%	Forensic outpatient To outline the issues of clients who present to forensic services with a limited offence history who have disclosed that they are at risk of sexually offending against children (Pg. 43).	Illustrative case example of adult male at risk of sexual offending from the perspective of the report author/s.	“A provisional explanation / hypothesis of how an individual presents a particular disorder or condition. Multi perspective and includes biological, psychological and systemic issues to develop a deeper understanding of the risk information and its implications (Pg. 48, Weerasekera, 1996)”	<u>Framework:</u> Finkelhor model used to develop an understanding of factors that raise and lower risk <u>Completion:</u> <u>Collaboration:</u> <u>Communication:</u> <u>Quality assurance:</u>	None stated

	Study Characteristics		Findings relevant to Review Questions		
Author Year Country Quality Assessment Rating (%)	Setting and aim of study	Design of the study Participants Data source	Definition of risk formulation	<u>Implementation of risk formulation</u> - Framework/models - Completion - Collaboration - Communication - Quality assurance	<u>Outcomes of risk formulation</u> - Risk management - Other outcomes
Hopton, Cree, Thompson, Jones and Jones 2018 UK 65%	Secure psychiatric “To evaluate the quality of risk formulations in a clinical service in the UK using the CFQC-R” (Pg. 196). Comparing the quality of risk formulations using V2 and V3 of the HCR 20.	Quantitative. 20 independent secure psychiatric hospitals in the UK, HCR-20 formulations randomly selected (n=1040). Final sample, n=121 from 17 of 20 hospital sites (n = 58 V2 n = 63 V3) 3 assessors assessed the quality of the formulation (two forensic psychiatrists and one forensic psychologist, authors) 15 cases used for IRR, ICC = .65	“A narrative understanding or hypothesis of how and why factors contribute to risk” (Pg. 195). “Framework... to understand complex presentations and behaviours that aids effective communication about risk of violence” (Pg. 196).	<u>Framework:</u> <u>Completion:</u> HCR-20 completed within 3 months of admission and updated every 6 months. Completed by psychologists or trainee psychologists under the supervision of a qualified psychologist <u>Collaboration:</u> <u>Communication:</u> <u>Quality assurance:</u>	“V3 rated significantly higher than V2 on 6 CFQC-R criteria – narrative, external coherence, factual foundation, internal coherence, events understood over time completeness and overall quality” “No significant difference in mean word count between V2 and V3. Optimal length appeared to be approx. 400-800 words in length” (Pg. 198). Formulations generally were poor to intermediate quality. Going beyond description of facts to make testable predictions was poor. Prioritised and planned of treatment was low in frequency.

	Study Characteristics		Findings relevant to Review Questions		
Author Year Country Quality Assessment Rating (%)	Setting and aim of study	Design of the study Participants Data source	Definition of risk formulation	<u>Implementation of risk formulation</u> - Framework/models - Completion - Collaboration - Communication - Quality assurance	<u>Outcomes of risk formulation</u> - Risk management - Other outcomes
Judge, Quayle, O'Rourke, Russell and Darjee 2014 UK 73%	Criminal Justice community "To explore the clinical practice of SPJ risk assessment and risk management through qualitative analysis of accounts of users of the assessments" (Pg. 94). Explore view on utility of SPJ approach and whether risk management recommendations derived from the RSVP impact offender management.	Qualitative design utilising framework analysis Referrers to SOLS (Serious Offender Liaison Service) 15 questionnaires and 16 interviews – 6 x criminal justice social workers, 4 x criminal justice social work managers, 5 x police officers from offender management unit and 1 x senior staff from hostel for high risk sex offenders	Formulation as a step in the SPJ process using RSVP Don't provide an explicit definition of risk formulation	<u>Framework:</u> Use RSVP to provide risk assessment and management advice. <u>Completion:</u> Review file information and conduct clinical interview with the offender <u>Collaboration:</u> SOLS provide clinical input to CJS agencies, providing assessment, consultation, advice, training and supervision. <u>Communication:</u> The risk assessment and management advice is shared with the referrer, verbally and in writing. <u>Quality assurance:</u>	<u>Themes:</u> <i>1. Informing risk management</i> - all stated that the SOLS assessment had informed the risk management planning. <i>2. Confirms what is already known and gives credibility</i> <i>3. Understanding personality</i> - formulations used to consider interpersonal relationship processes <i>4. Treatment</i> <i>5. Usefulness and Limitations of the risk assessment</i> The users view formulation favourably and they use it to inform risk management – interpersonal management and communication with the offender.

	Study Characteristics		Findings relevant to Review Questions		
Author Year Country Quality Assessment Rating (%)	Setting and aim of study	Design of the study Participants Data source	Definition of risk formulation	<u>Implementation of risk formulation</u> - Framework/models - Completion - Collaboration - Communication - Quality assurance	<u>Outcomes of risk formulation</u> - Risk management - Other outcomes
Kirkland and Baron 2015 UK 31%	Community - Police, prison service and criminal justice social work. Assessment and consultation service “How the use of a CAT (cognitive analytic therapy) framework can be used to formulate a person with a complex case presentation in a multi-agency setting” (Pg. 395).	Illustrative case example of adult male offender being managed in the community – Registered Sex Offender, from the perspective of the report author. Author is CAT practitioner	Risk formulation “helps to understand the nature of risk on an individual level through identifying key triggers, underlying behaviours and motives” (Pg. 394).	<u>Framework:</u> Sequential Diagrammatic Reformulation (SDR) aka CAT map. Hypotheses generated within formulation, about future risk. <u>Completion:</u> Completed IPDE, PCLR, HCR-20 V3 and SAM, utilised historical written reports. SOLS uses “personality assessments and structured professional risk judgement tools to develop a psychologically informed risk formulation and to suggest risk management recommendations” (Pg. 399). <u>Collaboration:</u> Offender engaged at assessment stage Co-constructed, collaboratively shared understanding. <u>Communication:</u> Applied CAT informed thinking to his risk formulation, and used CAT map to communicate findings to professionals <u>Quality assurance</u>	SOLS assessment formed part of risk management case conference (RMCC) that fed into MAPPA meetings. Professionals felt valued in their opinions – co constructed formulation Professionals considered he posed an imminent and serious risk of harm to known adult – attacked him on release Formed basis of building therapeutic relationship Professionals used the map as a way of engaging in discussions Generated a collaborative shared language

Author Year Country Quality Assessment Rating (%)	Study Characteristics		Findings relevant to Review Questions		
	Setting and aim of study	Design of the study Participants Data source	Definition of risk formulation	<u>Implementation of risk formulation</u> - Framework/models - Completion - Collaboration - Communication - Quality assurance	<u>Outcomes of risk formulation</u> - Risk management - Other outcomes
Maltman and Turner 2017 UK 35%	<p>“To demonstrate how formulation can inform partnership working with women offenders” (Pg. 278).</p> <p>“To illustrate the learning from formulation led transition from custody” (Pg. 279).</p> <p>Aimed to influence “wider systemic working” (Pg. 278), unique resettlement needs, transition arrangements, continuity of relationship with OM.</p>	<p>Illustrative case example of female offender with arson convictions in custody serving determinate sentence for arson.</p> <p>Formulation to inform transfer from prison to AP. From perspective of psychologist and housing resettlement worker</p>	<p>“To better understand the function of an individual’s offending behaviour for the purposes of risk management, supervision and pathway planning” (Pg. 279).</p> <p>Formulation as a process and an outcome</p>	<p><u>Framework:</u> Trans-theoretical approach, eclectic mix of models (schema, attachment and cognitive behavioural). 5 P’s model.</p> <p><u>Completion:</u> Consultancy service, service user not necessarily involved. Screening process mentioned but not detailed. Formulation was developed between OM and psychologist – using OM descriptions and third party info</p> <p><u>Collaboration:</u> SU not involved – consistent with OPD strategy but also recognised as protective for SU</p> <p><u>Communication:</u> Shared with core team of SU’s workers to establish a ‘shared understanding’ of SU and the drivers behind risk behaviours</p> <p><u>Quality assurance:</u></p>	<p>Early successes noted – three months after release discharged from MAPPA, 28 recall rather than extended recall to maintain links and tenancy, enhancement of relationship between SU and OM</p> <p>Implications for practice stated</p>

Author Year Country Quality Assessment Rating (%)	Study Characteristics		Findings relevant to Review Questions		
	Setting and aim of study	Design of the study Participants Data source	Definition of risk formulation	<u>Implementation of risk formulation</u> - Framework/models - Completion - Collaboration - Communication - Quality assurance	<u>Outcomes of risk formulation</u> - Risk management - Other outcomes
Mannix and Bergin 2016 UK 31%	OPD pathway / Probation /Community One male offender To share “experiences and reflections of using case formulation to enhance the risk management of a service user on this pathway” (Pg. 11).	Illustrative case example of male offender in custodial setting. From perspective of psychologist and OM of the offender.	Case formulation “pivotal to supporting offender management to develop healthy and effective supervisory relationships and risk management plans” (Joseph & Benefield, 2012, Pg. 11). “A key aim of case formulation is to provide offender managers with a safe space to reflect on these complex processes...providing a framework for more informed decision making and risk management plans” (Pg. 11).	<u>Framework:</u> Guided by Ramsden framework: - description of the problem - predisposing factors - protective factors - Hypotheses about how and why the problematic behaviour(s) is functional for the service user. - Hypotheses about triggers and what maintains the problem and how the system respond. - Recommendations on ‘how best to work’ with the service user (Pg. 11). <u>Completion:</u> Meetings between psych and OM, file review <u>Collaboration:</u> Facilitated a ‘live’ team formulation. Shared with SU. <u>Communication:</u> The formulation was shared with key professionals in a multi-professional meeting and at parole board. Shared with the new staff group prior to relocation. <u>Quality assurance:</u>	SU became less aggressive and impersonal. Offender their working relationship had become more positive. Achieved ‘enhanced’ status due to his positive behaviour and a progressive move to a lower category prison.

	Study Characteristics		Findings relevant to Review Questions		
Author Year Country Quality Assessment Rating (%)	Setting and aim of study	Design of the study Participants Data source	Definition of risk formulation	<u>Implementation of risk formulation</u> - Framework/models - Completion - Collaboration - Communication - Quality assurance	<u>Outcomes of risk formulation</u> - Risk management - Other outcomes
Shaw, Higgins and Quartey 2017 UK 46%	Community / probation. OPD pathway “To investigate the impact of completing collaborative case formulations on the professional relationship between OMs and high risk offenders with PD” (Pg. 780).	Randomised, controlled post-test design OMs randomly allocated to formulation or control group, and then an offender was randomly selected from their caseload Formulation group OMs received half day formulation training OMs = 67, qualified probation officers N=40 control (n=32 at follow up) N=37 formulation (n=26 at follow up)	“Formulation and related pathway plan that targets both clinical and criminogenic needs of the offender and is sequenced to reflect the level of need and stage of sentence” (Pg. 778).	<u>Framework:</u> Level 1 – identifying triggers and patterns of problematic / offending behaviours Level 2 formulations – linking current problematic / offending behaviours to developmental background Level 3 – more comprehensive understanding, based on psychological theory and directing more sophisticated interventions (Pg. 778). <u>Completion:</u> <u>Collaboration:</u> Level 2 attempts to jointly construct the formulation and risk management plan with the offender <u>Communication:</u> <u>Quality assurance:</u>	DRI-I – dual role relationships inventory revised – assess qualities of OM and offender relationship PBRS = perceived benefits rating scale – assess benefits of formulation in context of OPD pathway Control group OM and offenders – no diffs on measures between those with and without level 1 formulation OMs in formulation group had higher total DRI-I scores than control, significant and small effect size Fair care subscale, higher for formulation OMs than control (perception of the quality of the relationship and working alliance)

		<p>Offenders due for release or already in the community, reporting at least fortnightly, and not to have a collaborative case formulation</p> <p>Offenders n = 13 formulation group n = 26 control group</p>			<p>Formulation OMs reported higher overall confidence in managing their cases than control.</p> <p>Formulation offenders higher scores on trust subscale than control</p> <p>No association between formulations and OMs perceptions of offender engagement, compliance and motivation to desist</p>
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	Study Characteristics		Findings relevant to Review Questions		
Author Year Country Quality Assessment Rating (%)	Setting and aim of study	Design of the study Participants Data source	Definition of risk formulation	<u>Implementation of risk formulation</u> - Framework/models - Completion - Collaboration - Communication - Quality assurance	<u>Outcomes of risk formulation</u> - Risk management - Other outcomes
Whitehead, Ward and Collie 2007 New Zealand 35%	Male high risk violent offender in the community. To “operationalise the theoretical concepts of the Good Lives Model (GLM) of offender rehabilitation by providing a step-by-step framework for assessment, formulation, treatment planning, and monitoring” (Pg. 578).	Illustrative case example of male offender in ‘forensic’ setting. Not clear who has provided the data		<u>Framework:</u> GLM and risk-needs framework 5 phases of delivery of GLM orientated treatment to structure therapy – formulation is one phase <u>Completion:</u> Clinical interview and assessment measures <u>Collaboration:</u> <u>Communication:</u> <u>Quality assurance:</u>	Reduction in drug use On university programme Diving course Conviction free except for driving conviction

Preliminary Data Synthesis

Study Aims. Two of the studies focused on demonstrating the use of risk formulation within a multi-disciplinary setting (Maltman & Turner, 2017; Kirkland & Baron, 2015). The aim of three of the studies was to demonstrate the application of a particular theoretical approach to the practise of risk formulation. For Connell (2015), it was to demonstrate the value of Occupational Therapy; Kirkland and Baron (2015) demonstrated the use of a cognitive analytic framework; and Whitehead et al. (2007) focussed on the application of the good lives model (GLM). Three of the studies aimed to share examples of risk formulation in practice; implementation of the HCR-20³ within a psychiatric hospital (Belfrage, 2015), of using case formulation within the Offender Personality Disorder (OPD) pathway (Mannix & Bergin, 2016), and of the issues raised by clients without forensic history presenting to services at risk of reoffending (Duff & Willis, 2006).

Two studies aimed to explore the outcomes of risk formulation practise. The study by Shaw et al. (2017) aimed to investigate the impact of completing collaborative case formulations on the professional relationship between Offender Managers and high-risk offenders with personality disorder. The study by Judge et al. (2014) aimed to explore whether risk formulation, as part of a structured professional judgement guidelines, influenced offender management strategies.

Hopton et al. (2018) aimed to evaluate the quality of risk formulations completed as part of structured professional judgement guidelines.

Study Settings. Eight of the included studies originated from the UK (Connell, 2015; Duff & Willis, 2006; Hopton et al., 2018; Judge et al., 2014; Kirkland & Baron, 2015;

³ HCR-20 – a set of structured professional judgement guidelines that assesses risk of violence

Maltman & Turner, 2017; Mannix & Bergin, 2016), one from New Zealand (Whitehead et al., 2007) and one from Sweden (Belfrage, 2015).

The included studies involved a range of settings: forensic psychiatric hospital (Belfrage, 2015; Hopton et al., 2018); custodial (Connell, 2015; Maltman & Turner, 2017); forensic outpatient (Duff & Willis, 2006); and criminal justice community (Judge et al., 2014; Kirkland & Baron, 2015; Mannix & Bergin, 2016; Shaw et al., 2017; Whitehead et al., 2007). Two of the included studies related to the NHS Lothian Serious Offender Liaison Service (SOLS), which had been developed to provide clinical input to sex offender management in the community (Judge et al., 2014; Kirkland & Baron, 2015). Three of the included studies were conducted within the Offender Personality Disorder Strategy, a national project jointly delivered by the Probation Service and the NHS (Maltman & Turner, 2017; Mannix & Bergin, 2016; Shaw et al., 2017).

Participant Characteristics. There were a range of participants within the included studies; data reported here relates to those completing the risk formulations and the participants who were the focus of the risk formulation. There were no participant characteristics reported in the study by Belfrage (2015).

There were 108 criminal justice professional participants in the included studies, these originated from two of the studies ($n = 31$, Judge et al., 2014; $n = 77$, Shaw et al., 2017). A total of 166 service user cases were included, across eight studies, the majority of these cases coming from two studies ($n = 39$, Shaw et al., 2017; $n = 121$, Hopton et al., 2018). Six studies were single service user illustrative case examples (Connell, 2015; Duff & Willis, 2006; Kirkland & Baron, 2015; Maltman & Turner, 2017; Mannix & Bergin, 2016; Whitehead et al., 2007).

Only three of the included studies provided details regarding the age of the service user participants. For two of the single service user illustrative case examples, the participants were aged between 20 and 28 years old (Duff & Willis, 2006; Whitehead et al., 2007). The mean age for the service user participants in one of the quantitative studies was 38.6 years (range 18–87) (Hopton et al., 2018).

Eight out of the ten included studies reported on gender (Connell, 2015; Duff & Willis, 2006; Hopton, et al., 2018; Kirkland & Baron, 2015; Maltman & Turner, 2017; Mannix & Bergin, 2016; Shaw, et al., 2017; Whitehead et al., 2007). The majority of the studies reported on the gender of the service user participants, these were predominantly male. Only the Shaw et al. (2017) study reported on the gender of the professional participants, reporting that 80% of the Offender Managers were female. For the single participant illustrative case examples, one participant was female (Maltman & Turner, 2017), the others were male (Connell, 2015; Duff & Willis, 2006; Kirkland & Baron, 2015; Mannix & Bergin, 2016; Whitehead, et al., 2007).

Ethnicity was reported in two of the included studies. From the quantitative studies, 90 (74.4%) of the participants were white British/Irish (Hopton, et al., 2018). The single participant in the Whitehead et al. (2007) was Maori descent.

The two quantitative studies reported the psychiatric diagnoses of the participants. In the Hopton et al. (2018) study, 23.1% of the participants ($n = 28$) were diagnosed with a personality disorder, and in the Shaw et al. (2017) study 77% of the participants ($n = 30$), met the cut-off for personality disorder. For the single service user illustrative case examples, four presented with personality difficulties (Connell, 2015; Kirkland & Baron, 2015; Maltman & Turner, 2017; Whitehead et al., 2007).

Offence categories of those subject to the risk formulations were indicated in all ten studies. Within the Shaw et al. (2017) study, the offence categories were sexual (n=4) and violent (n=29). Violent offences were also cited in three studies (Connell, 2015; Kirkland & Baron, 2015; Whitehead et al., 2007). Fire setting was a concern for two of the studies (Maltman & Turner, 2017; Mannix & Bergin, 2016). The study by Duff and Willis (2006) focussed on an individual at risk of sexual offending. Although not explicitly stated, the nature of the structured professional judgement tools are indicators of the offence category, violence for those studies utilising the HCR-20 (Belfrage, 2015; Hopton et al., 2018), and sexual offending for the study utilising the RSVP⁴ (Judge et al., 2014).

Job roles of the professional participants were reported in two studies. These included criminal justice social workers (n=6), criminal justice social work managers (n=4), police officers from offender management units (n=5), senior staff from a high risk sex offender hostel (n=1) (Judge et al., 2014), and Offender Managers (n=77) (Shaw et al., 2017).

Study Design. Eight of the included studies utilised a qualitative design, six of these were categorised as *single participant illustrative case examples*, whereby the authors had described formulation in relation to a case within a forensic practice setting (Connell, 2015; Duff & Willis, 2006; Kirkland & Baron, 2015; Maltman & Turner, 2017; Mannix & Bergin, 2016; Whitehead et al., 2007). Whereas Belfrage (2015) provides an illustrative case example of a service level implementation of risk formulation. In each of these illustrative case example studies, data were not elicited from the subjects of the risk formulation; the account provided is presented from the perspective of the research author/s. However, in one qualitative study, Judge et al. (2014) gathered data in relation to criminal justice professionals' views on risk assessment and management practices, via open-ended questions

⁴ Risk of Sexual Violence Protocol – a set of structured professional judgement guidelines that assesses risk of sexual violence

and semi-structured interviews, to which they applied a framework analysis. Explicit discussion regarding the epistemological positions of the research authors was not evident in any of the included studies.

Two of the included studies utilised a quantitative design, one involved the retrospective rating of completed risk formulations (Hopton et al., 2018), and one study within the review measured the outcomes of risk formulation (Shaw et al., 2017). This was in terms of quality of relationships and perceived benefits, from the perspective of Offender Managers and their offenders.

Participant Recruitment, Data Collection and Data Analysis. Judge et al. (2014) gathered data from 31 criminal justice professionals in SE Scotland utilising postal questionnaires (response rate n=15, from a potential 100) and face to face semi-structured interviews (n=16). The participants had previously made referrals to the SOLS (Serious Offender Liaison Service). The primary author, who was a representative of SOLS, conducted participant recruitment and data collection for the interview phase of the study. The primary author also conducted all components of the analysis; however, a secondary author reviewed five transcripts.

Shaw et al. (2017) conducted a randomised, controlled, post-test design, which involved randomly allocating Offender Managers to a formulation or control group, and then randomly selecting one of their caseload. At the pre-stage, there were 40 Offender Managers in the control group, and 37 in the formulation group. At the follow up stage there were 32 Offender Managers in the control group and 26 in the formulation group and the reasons for attrition were reported. There were 13 offenders in the formulation group and 26 in the control group. Offender Managers in the formulation group attended half day advanced

formulation training, designed and delivered by the researchers. Outcomes were measured by self-report questionnaires.

Hopton et al. (2018) randomly selected completed HCR-20 risk formulations that had been completed on inpatients within 20 secure psychiatric hospitals between 2013-2015, (n=121, Version 2=58, Version 3=63). Psychologists or trainee psychologists under supervision completed the formulations. The three assessors were the paper authors (two forensic psychiatrists and one forensic psychologist).

For the illustrative case examples (n=7), the decisions and criteria surrounding selection of the cases have not been documented within the research papers. Belfrage (2015) described the implementation of the HCR-20 (Version 3) in two forensic psychiatric hospitals. The information is from the perspective of the report author who is the Director or Research at the research sites; he also trained those conducting the HCR-20 assessments. There are no specific details provided regarding who the HCR-20s were completed on or who completed them. Connell (2015) described the contribution of occupational therapy to risk assessment and formulation for one adult male offender in a custodial setting. The offender in question is described as having a history of substance misuse, committing serious and violent acquisitive offences, unstable accommodation and employment, traits of borderline and anti-social personality disorder. The information provided is from the perspective of the report author; however, their role in relation to the case is not explicit. Duff and Willis (2006) present the case of an adult male who has been referred to a forensic outpatient service due to being at risk of committing sexual offences. The information provided is from the perspective of the report authors, however their role in relation to the case is not explicit. Kirkland and Baron (2015) describe the case of an adult male Registered Sex Offender (RSO), managed in the community, utilising a Cognitive Analytic Therapy (CAT) approach to formulate the case. The information is from the perspective of the report authors; the primary author of the

paper is a CAT practitioner. Maltman and Turner (2017) describe the case of a female offender serving a determinate sentence for arson, transitioning to a community setting. The paper outlines the provision of support to the Offender Manager, provided by the psychologist. The information within the report is from the perspective of the report authors, one of whom is the psychologist; the other is a housing resettlement worker. Mannix and Bergin (2016) present the case of an adult male offender in a custodial setting, the information provided is from the perspective of the report authors, who are the Offender Manager and psychologist for the case. The offender was described as a Category B prisoner, 21 years over tariff. Whitehead et al. (2007) describe the case of a high-risk adult male managed in a forensic setting. The case details describe a gang-affiliated individual with a history of convicted violent and un-convicted sexual offending. The information provided is from the perspective of the report authors, however, their role in relation to the case is not explicit.

None of the single service user illustrative case examples provide the perspective of the service user, the recipient/subject of the formulation, the information is from the perspective of the report authors, and the extent of their involvement with the case, if any, is not detailed within any of the papers.

Assessment measures. One study (Hopton et al., 2018) utilised the Case Formulation Quality Checklist Revised (CFQC-R, McMurrin & Bruford, 2016) to assess the quality of the risk formulations. The checklist assesses ten criteria, each scored between 0-10 (0=does not meet criterion, 10=meets the criterion exceptionally well). The criteria assessed were: narrative, external coherence, factual foundation, internal coherence, completeness, relates over time, simplicity, predictive, action orientated and overall comprehensiveness (in terms of logic, coherence, focus and informative). Hopton et al. reported a good level of overall agreement for the total CFQC-R score, between the three assessors using 15 cases

(ICC=0.65), noting that only one of the items on the checklist, simplicity, had a poor level of agreement (ICC=0.29). However, McMurrin and Bruford (2016) note that the psychometric properties of the CFQC-R have not been explored, and that further research to establish this is required. A study utilising an earlier version of the scale (Minoudis et al., 2013) reported on the psychometric properties of the scale, they found moderate to good interrater agreement (ICC=0.633, ICC=0.747), excellent test re test reliability (ICC=0.85, ICC=0.99) and excellent internal consistency (Cronbach's alpha, 0.92).

Shaw et al. (2017) utilised two assessment measures, the Dual Role Relationships Inventory (DRI-I, Skeem et al., 2007) and the Perceived Benefits Rating Scale (PBRS), developed by the researchers for use within the study. The DRI-I is a 30 item self-report inventory to assess the qualities of probation officer (offender manager) and offender relationships, divided into three sub-scales (Caring and Fairness; Trust; and Toughness). Each item is rated on a 7-point Likert scale. Internal consistency has been reported as between 0.75 and 0.95 by the scale authors. The PBRS assessed the motivation of the offender to stop offending and to engage with the sentence plan, compliance with the sentence plan, and confidence of the Offender Manager to manage the case. The measures were not included within the research article, however, the authors stated that the PBRS was available on request.

Judge et al. (2014) developed an open-ended questionnaire designed to gather information about the impact of the SOLS risk assessment, specifically whether it had influenced risk management planning; monitoring, supervision and treatment of the offender; and victim safety planning. The semi-structured interview schedule followed the format of the questionnaire (copies of the questionnaire and interview schedule were appended to the research article). A framework analysis was utilised to analyse the data.

There were no assessment measures reported in any of the illustrative case example studies.

Outcome of Quality Assessment of Included Studies. The quality scores of the quantitative studies ranged from 46% to 65% (see Appendix G). One of the included studies was a quantitative, randomised controlled post-test design (Shaw et al., 2017). Strengths of this study were that it utilised randomisation to allocate participants to the formulation and control groups, and that it gathered data from both Offender Managers and offenders, and the offenders within the formulation and control groups did not differ on relevant characteristics (offence type, personality disorder traits, and risk level). However, weaknesses were evident within the study. The details regarding participant recruitment were not explicit and therefore it was not clear whether the sample was representative of the target population. The researchers allocated the participants to the formulation and control groups, the researchers provided the training to the Offender Managers in the formulation group, and were engaged in creating the formulations, therefore blinding procedures were not implemented in this study. The study by Hopton et al. (2018) demonstrated strengths in the sample selection strategies, however bias may have been present as the assessors may not have been truly blind to the group allocation, as it may have been possible to identify which version of the HCR-20 had been completed. The measure used within the study demonstrated a good level of inter-rater reliability for the assessors within the study; however, the measure remains untested in terms of wider reliability and validity.

The quality scores of the qualitative studies ranged from 15% to 73% (see Appendix H). Seven of the eight included qualitative studies were classified as illustrative case examples. These were not considered to be case study designs, and therefore rating the quality of these studies did not require the use of case study design quality criteria (e.g. Reichow et al., 2018). Generally, the quality of the qualitative studies was low, due to the

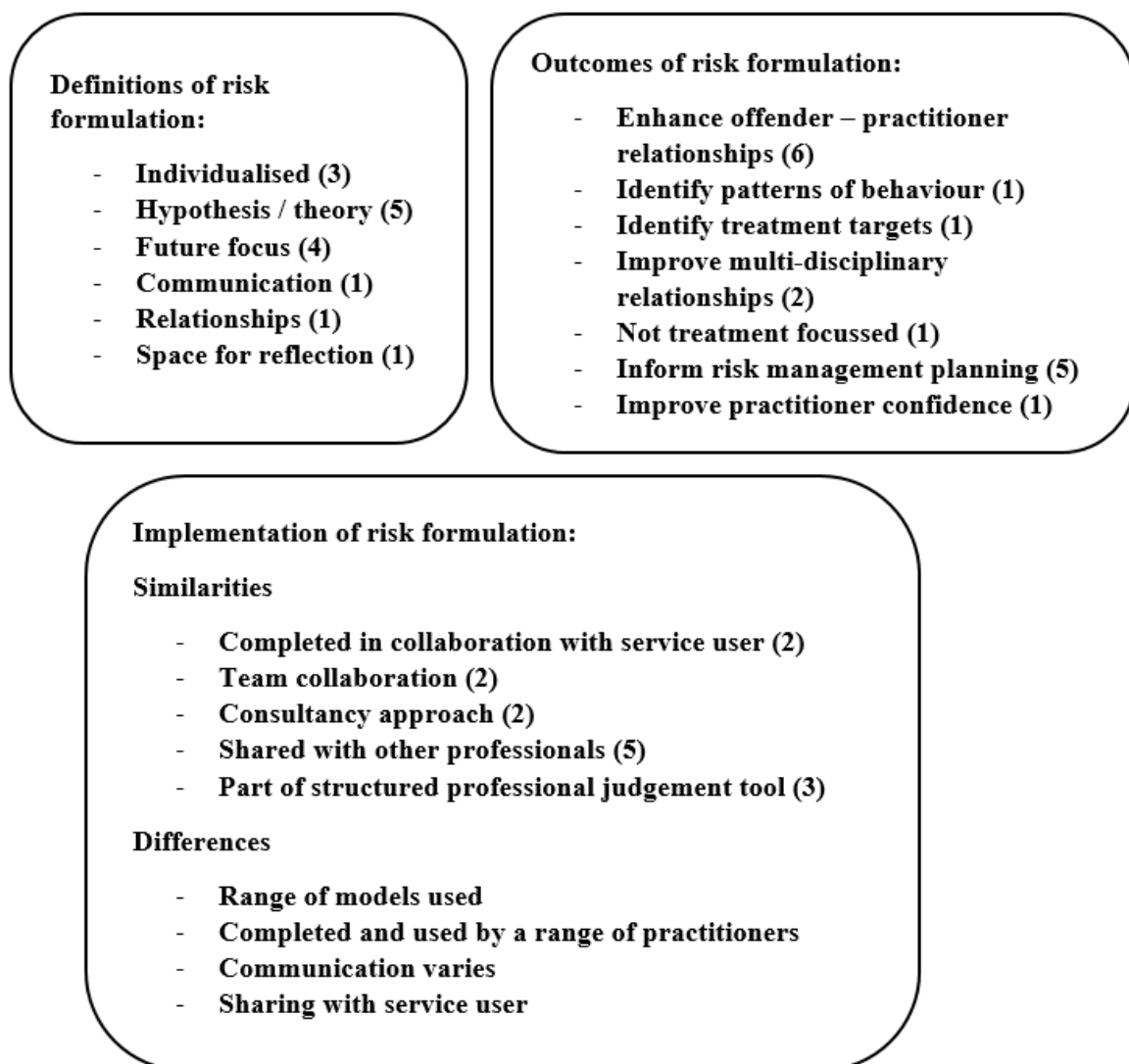
limited information provided within the illustrative case examples regarding selection and representativeness of the case; the role of the researcher within the intervention; and the lack of information regarding data collection and analysis. One qualitative study (Judge et al., 2014) gathered data from criminal justice practitioners, this was analysed using a framework analysis. Although this was the strongest of the qualitative studies, weaknesses were identified in terms of the approach to data collection, as the interviewer was a representative of the organisation to which the participants had previously made referrals.

All of the included studies were published within peer-reviewed journals.

Narrative Synthesis

Data relating to each of the review questions were synthesised into a concept map (see below). Numbers in brackets relate to the number of studies within which the factors were identified.

Figure 3. Concept map outlining data frequency relating to each of the review questions.



Definitions of Risk Formulation in Practice

How do practitioners define risk formulation in practice? Explicit statements clearly defining risk formulation were not evident within the included studies; therefore, the definitions were extracted from review of the paper. The definitions extracted included common elements across the studies. The individualised nature of risk formulation explicitly featured in three of the studies (Belfrage, 2015; Duff & Willis, 2006; Kirkland & Baron, 2015). Risk formulation as a hypothesis or theory to assist understanding was evident in five of the studies (Belfrage, 2015; Duff & Willis, 2006; Hopton et al, 2018; Kirkland & Baron, 2015; Maltman & Turner, 2017). The future focus of risk formulation, in terms future treatment, risk management or pathway planning was present in four of the studies (Duff & Willis, 2006; Maltman & Turner, 2017; Mannix & Bergin, 2016; Belfrage, 2015). Less common factors related to risk formulations as assisting communication (Hopton et al, 2018), supporting the development of healthy relationships (Mannix & Bergin, 2016), and providing a space for reflection (Mannix & Bergin, 2016). There was no clear definition stated in three of the included studies (Connell, 2015; Judge, et al., 2014; Whitehead et al., 2006). One study (Belfrage, 2015) described the elements that should be included within a risk formulation: offence history, risk factors, scenario planning, risk management recommendations, and risk relevant changes.

Implementation of Risk Formulation in Practice. This part of the review was interested in the implementation of risk formulation in practise, with a particular focus on the following aspects: frameworks/models utilised, completion, collaboration, communication, and quality assurance. For the single participant illustrative case examples it was not clear from the review of the papers whether the practise described is typical for that service/setting or whether it was a bespoke approach to working with a particular individual.

What models/frameworks are utilised in risk formulation practice in forensic settings? Three of the included studies specified that the risk formulation was completed as part of structured professional judgement guidelines, specifically the HCR-20 (Belfrage, 2015; Hopton, et al., 2018) and the RSVP (Judge et al., 2015). However only the paper by Belfrage (2015) further specified what would be included within the risk formulation generated as part of the structured professional judgement tool.

A range of models and frameworks were discussed within the included papers, encompassing a diversity of theoretical approaches and variety in terminology. Maltman and Turner (2017) described their approach as transtheoretical, incorporating a range of models (schema, attachment, cognitive behavioural, five p's). Belfrage (2015) specified the identification of motivators, destabilisers, disinhibitors. Mannix and Bergin (2016) discussed adhering to the Ramsden framework (problem, predisposing, protective, triggers, maintainers). Connell (2015) utilised multi sequential functional analysis (identifying antecedents, behaviour and consequences). Duff and Willis (2006) utilised the Finkelhor model, to identify factors that increase and decrease risk of sexual offending. Kirkland and Baron (2015) used a cognitive analytic approach (sequential diagrammatic reformulation). Whitehead et al. (2007) used the good lives model and risk needs framework. Shaw et al. (2017) described three levels of formulation, however, the specific nature of each level and the theoretical underpinnings were not explicitly outlined.

When and how is the risk formulation completed, and by whom? One of the studies stated that the risk formulation should be completed at admission/initial assessment (Hopton et al., 2018), and two studies indicated the frequency of reviews as six months (Belfrage, 2015; Hopton et al., 2018).

The job role of those completing the risk formulation included nurses and psychologists (Belfrage, 2015); psychologists and trainee psychologists (Hopton et al., 2018). Two of the studies describe the formulation being developed jointly between the Offender Manager and a psychologist (Maltman & Turner, 2017; Mannix & Bergin, 2016). However, both of these studies were completed within the OPD framework and so would be working towards the common outcomes as set out in the OPD Pathway Strategy (NOMS & NHS, 2015), therefore it is anticipated that similar systems would be present.

Data used to inform the risk formulation process were gathered from a range of sources across the studies. Four of the studies (Connell, 2015; Judge et al., 2014; Kirkland & Baron, 2015; Mannix & Bergin, 2016) explicitly specified conducting a file review, and three of the studies explicitly stated undertaking a clinical interview (Connell, 2015; Judge et al., 2014; Whitehead et al., 2007). It could be inferred that interviews would have taken place in the Kirkland and Baron (2015) study, given that the assessments listed require an interview with the individual. Three of the studies refer to the use of assessment measures (Connell, 2015; Kirkland & Baron, 2015; Whitehead et al., 2007), the specific details of the measures were only stipulated within one study (Kirkland & Baron, 2015).

Mannix and Bergin (2016) conducted a file review. Whitehead et al. (2007) utilised a clinical interview and assessment measures, however, the nature of these were not specified. Connell (2015) gathered data from occupational assessment, interview, psychometrics and file documentation. Judge et al. (2014) reviewed file information and conducted a clinical interview with the offender. Kirkland and Baron (2015) completed a range of assessments as part of the risk assessment and formulation process, including the International Personality Disorder Examination (IPDE), the HCR-20, the Psychopathy Checklist-Revised (PCL-R), and the Stalking Assessment Manual (SAM). Historical reports were also utilised. Maltman

and Turner (2017) refer to a screening process, utilising descriptions provided by the Offender Manager and third party information.

Two of the included studies did not specify who completed the risk formulation, when it was completed and what was reviewed to inform the process (Duff & Willis, 2006; Shaw et al., 2017).

Is the risk formulation completed collaboratively with the service user and/or other professionals? Two of the included studies documented collaboration with the service user when constructing the risk formulation (Kirkland & Baron, 2015; Shaw et al., 2017).

Two of the studies documented a team approach to completing risk formulations (Belfrage, 2015; Mannix & Bergin, 2016) and two studies described a consultancy approach (Judge et al., 2014; Maltman & Turner, 2017).

Six of the included studies did not specify whether the risk formulation was completed in collaboration with the service user (Belfrage, 2015; Connell, 2015; Duff & Willis, 2006; Hopton et al., 2018; Judge et al., 2014; Whitehead et al., 2007). One study stated that the service user was not involved, explaining that this was consistent with the OPD strategy (Maltman & Turner, 2017).

Is the risk formulation shared with the service user and/or other professionals? Only three of the included studies stated that the risk formulation was shared with the service user (Belfrage, 2015; Kirkland & Baron, 2015; Mannix & Bergin, 2016). One study stated that the risk formulation was not shared with the service user (Maltman & Turner, 2017).

Five of the studies discussed sharing the risk formulation with other professionals (Belfrage, 2015; Judge et al., 2014; Kirkland & Baron, 2015; Maltman & Turner, 2017; Mannix & Bergin, 2016). In each of these studies the risk formulation was shared with other professionals, usually a multi-disciplinary team; to establish a shared understanding

(Maltman & Turner, 2017); to transfer knowledge and share learning (Mannix & Bergin, 2016) or to explain the risk formulation (Belfrage, 2015). One study (Kirkland & Baron, 2015) emphasised the benefits of using the method of formulation, the CAT map, to facilitate communication between professionals from different disciplines.

However, there was no explicit evidence of whether the risk formulation was shared in four of the studies (Connell, 2015; Duff & Willis, 2006; Hopton et al., 2018; Shaw et al., 2017; Whitehead et al., 2007). Although Hopton et al. (2018) stated that a formulation facilitates effective communication about risk, the details of how this was achieved were not explicit.

Are there any quality assurance measures in place? There was no evidence of quality measures for risk formulations for nine of the included studies (Belfrage, 2015; Connell, 2015; Duff & Willis, 2006; Judge et al., 2014; Kirkland & Baron, 2015; Maltman & Turner, 2016; Mannix & Bergin, 2016; Shaw et al., 2017; Whitehead et al., 2007). Hopton et al., (2018) utilised CFQC-R (Case Formulation Quality Checklist- Revised) to assess the quality of the risk formulations, comparing those that had been completed within Version 2 of the HCR-20, with those that had been completed as part of Version 3 (Hopton et al., 2018). The Version 3 formulations were rated significantly higher than Version 2 on six of the Case Formulation Quality Checklist-Revised (CFQC-R) criteria (narrative, external coherence, factual foundation, internal coherence, events understood over time and overall quality), however overall the formulations were found to be poor to intermediate quality. Areas that were notably lacking within the formulations were testable predictions and planning/prioritising treatment. The word count was also examined in order to ascertain whether there was an optimal length for a risk formulation; the optimal length appeared to be between 400-800 words, however no significant difference was found in the mean word

count between risk formulations for Version 2 and Version 3. This study did not explore the benefits of increased quality of risk formulations.

Outcomes of Risk Formulation in Practice

The aim of engaging in risk assessment and management is to reduce the risk of harm that an individual presents to others, this can be assessed by observing changes in risk levels as measured by risk assessment tools, but ultimately the indicator of whether this risk formulation has successfully reduced risk is the reduction in harm to others. None of the included studies discussed whether risk formulation had any measurable impact on risk of harm to others.

Does the risk formulation inform risk management practices? Evidence of risk formulation informing risk management practises was detailed within three of the studies. Five themes were identified from the qualitative data gathered from the criminal justice professionals (Judge et al., 2014); one of which was *informing risk management*. The individualised and specific focus of the risk assessment was considered particularly beneficial to inform risk management planning, and formulation was viewed positively by the users. Another theme elicited was *treatment*. Participants highlighted how the risk assessment facilitated knowledge of, and access to, a wider range of treatment options, which influenced the risk management of the offender. Risk formulation was also cited as informing risk management within two other studies; in a risk management case conference and MAPPA⁵ (Kirkland & Baron, 2015), and to manage inpatient and discharge environments to reduce

⁵ Multi-Agency Public Protection Arrangements – a multi-agency approach to manage the risk posed by violent and sexual offenders in the community

risk (Connell, 2015). These studies evidenced a range of quality scores, 73%, 31% and 38% respectively.

Are there any other outcomes as a result of the risk formulation?

With regard to professional relationships, two of the studies stated that risk formulation had a positive impact within professional groups; Kirkland and Baron (2015) reported that as a result of engaging in the risk formulation process professionals felt valued; and Belfrage (2015) stated that risk formulations improved relations across professional groups. However, these findings were anecdotal and the quality ratings for these studies were low, 31% and 15% respectively.

Three of the studies (Maltman & Turner, 2017; Mannix & Bergin, 2016; Shaw et al., 2017) reported on the relationships between service-users and professionals. Two of the included studies cited improved relationships between the Offender Manager and the service user (Maltman & Turner, 2017; Mannix & Bergin, 2016), however these findings were offered by the report authors in the absence of supporting evidence; the quality scores for these two studies were no greater than 35%.

Shaw et al. (2017) (quality score 46%) investigated the impact of engaging in collaborative case formulation, by comparing a formulation and a control group, consisting of Offender Managers and their offenders. The Offender Managers in the formulation group engaged in a collaborative risk formulation with their offenders, and were found to have significantly higher total DRI-R⁶ scores than the Offender Managers in the control group. The formulation Offender Managers also scored significantly higher on one of the subscales of the DRI-R, the Caring and Fairness (FairCare) subscale, as compared to those in the control group. This is a measure of the perception of the quality of the relationship and

⁶ DRI-R = Dual Role Relationships Inventory Revised – assess the qualities of probation officer and offender relationships

perceived working alliance. The Offender Managers in the formulation group also reported significantly higher overall confidence in managing their cases than the control group Offender Managers. The offenders in the formulation group reported significantly higher scores on the Trust subscale of the DRI-R, than the offenders in the control group. Whilst these findings are positive, caution is needed in terms of over-stating the benefits of risk formulation based on this study. The Offender Manager sample had an overall 25.6% attrition rate at follow-up, with a higher rate of attrition within the formulation group (9.7% higher than that for the control group). Whilst the study authors note that the attrition in this study rate was within the acceptable limits for randomised designs, they highlighted that this could potentially be a source of bias if due to non-random processes, such as the Offender Manager/Offender relationship, or Offender Manager competence in managing high risk offenders with personality disorder. The authors of the paper provided the training to the Offender Managers in the formulation group and collaborated with them and their offenders to construct collaborative formulations, this could have potentially influenced the findings of the study.

One of the themes within the data gathered from the criminal justice professionals (Judge et al., 2014), *confirming what was known and giving weight*, highlighted how the SOLS risk assessments were respected by senior personnel responsible for risk management of offenders, and so the participants considered that their recommendations were taken more seriously when supported by the risk assessment. Another theme *understanding personality* described how formulations helped the practitioners to understand relationship processes and their responses to the offenders. These two themes highlight the positive impact of risk formulation on multi-disciplinary, and offender-practitioner, relationships. This study received the highest quality rating of the ten studies, at 73%.

Three of the illustrative case examples, with quality scores ranging from 31-35%, reported successful outcomes for the individual. These were, the individual being discharged from MAPPA management and variation in recall arrangements (Maltman & Turner, 2017); achieving enhanced status and progressive move to lower category establishment (Mannix & Bergin, 2016); and, reduction in severity of offending behaviour and reduction in substance use (Whitehead et al., 2007).

Discussion

The specific objective of the review was to understand risk formulation practise in forensic settings; specifically looking at the definitions of risk formulation, how risk formulation is implemented and the outcomes of risk formulation. A total of 108 criminal justice practitioners, and 166 service users, across a range of forensic settings were included within this review.

The search strategy to identify relevant studies was comprehensive, searching ten electronic databases. Ten studies that met the inclusion criteria, two quantitative and eight qualitative, were examined in relation to the review questions. Quality of the studies was assessed, and was found to be below 50% for eight of the ten included studies. Recruitment, data collection and data analysis processes influenced quality ratings, with the authors often being the practitioners involved in creating the risk formulations and then analysing and reporting on the research findings. The measures used to assess outcomes in the quantitative studies were not established measures, and in some instances were designed by the study authors for the purposes of the study. It is likely that a consensus in findings has not been achieved due the discrepancies and differences across the studies in terms of aims, design, population and setting. The numbers of participants involved in the included studies is low,

there may have been a response bias in terms of those that did participate, and it is likely that unsuccessful risk formulation practice has not been reported. This may explain why there are so few published studies on the topic, either because they are not being accepted for publication based on quality (as was evidenced in the quality assessment scores of the illustrative case examples), or because larger scale studies are difficult to implement due to the individualised nature of the activity. It may also be that risk formulation is not commonly practised and so the opportunities for research are limited. It is possible that the decision to publish the illustrative case examples were ad-hoc, taken after the successful intervention had been completed. Future single participant research should follow single case design methods guidance and should complete a research protocol prior to the commencement of the study (Yin, 2018). This would enable clearer articulation of participant recruitment, data collection and data analysis, rather than ad-hoc retrospective accounts.

It may be that formulation has received less research focus due to the incongruence of formulation with the diagnostic medical model that has prevailed within current healthcare systems. However, some would argue that formulation can provide a credible alternative to psychiatric diagnosis; empowering individuals to generate their own story by creating a narrative that draws on strengths to survive challenging situations (Johnstone, 2018). This is evident within the power threat meaning framework (PTMF) approach that has developed from the dissatisfaction with the prevailing diagnostic approaches to understanding individuals' experiences (Johnstone & Boyle, 2018), however the application of the PTMF to forensic practice is a developing field, and this may offer some explanation for the limited research attention thus far.

Risk formulation forms part of commonly used structured professional judgement guidelines, such as the HCR-20, and it has good face validity (Lewis & Doyle, 2009), indicating that academics and practitioners alike are invested in risk formulation. Whilst on

the one hand this would likely encourage a healthy research interest into the topic, the challenges with researching an activity that evidences discretion and professional judgment, could discourage research activity and/or the dissemination of unfavourable outcomes or perspectives.

There were variations in the models/frameworks used to structure the formulations, yet the frameworks often had common elements, albeit utilising different terminology. A common feature found within the definitions of risk formulation was the individualised nature and, interestingly, the majority of studies included within this review were single participant illustrative case examples. Other common features across the definitions were that risk formulation involves generating a hypothesis/explanation of why an individual presents as a risk, and that the purpose of completing the formulation is future focused, to guide treatment or management. This corresponds with the definition as stated by Doyle and Logan (2012). Therefore, a consensus does appear to be developing within the academic literature about what risk formulation is, so it would be interesting to explore practitioners' definitions of risk formulation to ascertain whether a consensus exists in practice. It would also be interesting to explore the similarities and differences within the formulation frameworks, to understand the rationale for utilising different frameworks in practice. Furthermore it would be of interest to explore whether risk formulation is part of a wider, more holistic approach to understanding the individual, such as within the PTMF.

No conclusions can be made regarding risk formulation in relation to forensic setting, professional roles of the assessors, or theoretical underpinnings due to the lack of comparison data. It has been suggested by the studies in this review, that perhaps risk formulation is beneficial particularly when working with personality disordered offenders, and those who have been convicted of more serious (violent/sexual) crimes. However, there is a lack of non-personality disordered, non-sexual/violent offender comparison groups included within the

research; therefore, it is not possible to generate any conclusions regarding the benefits, or otherwise, of risk formulation, with particular offender groups or forensic settings.

Relationships appeared to be a theme emerging from this review, discussed as an outcome in five of the included studies. In the randomised controlled post-test study (Shaw et al., 2017) favourable outcomes were described in terms of perceptions of relationship quality and trust, from the perspective of the Offender Managers and their offenders. However, the outcomes reported from this study should be interpreted with caution. The authors of this study conducted the risk formulation training with the participants and worked collaboratively with the Offender Managers and offenders to construct the formulations. Judge et al. (2014) reported the positive impact of risk formulation on multi-disciplinary and offender-practitioner relationships; however, the primary researcher conducting the interviews was a representative of the organisation providing the consultancy service to the participants. Similarly, the other studies reporting positive outcomes for relationships were single participant illustrative case examples, the findings were anecdotal and reported from the perspective of the report authors who, in some, if not all of the cases, were the professionals working with the case discussed. Enhancement of relationships, as an outcome of engaging in risk formulation, cannot be concluded from this review and further research is needed.

Strengths and Limitations of Current Review

A comprehensive search was undertaken, searching a large number of databases, in an attempt to retrieve relevant references for the review; a small number of studies met the inclusion criteria. A strength of this review is therefore the diligence with which the literature search was completed, and the strict adherence to the selection criteria.

One limitation of the search and selection process is that there was no verification of the application of the inclusion/exclusion criteria. The researcher did discuss the inclusion/exclusion criteria within supervision; however, an independent researcher rating a sample of the retrieved references would have strengthened this review, as the researchers own biases and opinions may have influenced the selection process. The researcher is a forensic practitioner with experience of completing risk formulations, therefore this could be considered a strength in terms of expertise. However, it may also be a limitation in terms of how the researcher chose to identify risk formulation within the search process.

Utilising a description of risk formulation (Doyle & Logan, 2012) upon which to base the inclusion/exclusion criteria may have framed the review to correspond with a particular theoretical standpoint; this is therefore a potential limitation of the review.

Inclusion of low quality studies is a further limitation of this review; however, the quality of the studies has been taken into consideration when interpreting the study findings. It has been difficult to generalise the findings within and between the included studies due to the heterogeneity and quality of the included studies, and the lack of comparison groups; acknowledging this and not over stating the findings is a strength of this review.

Implications for Practice and Future Research

Risk formulation is clearly an area that is lacking in research, potentially because the very nature of the activity is bespoke, individualised, with unspecified outcomes, and therefore, does not appear to easily lend itself to empirical investigation. The terminology within the field is evolving and this too may be impacting upon developing a solid evidence base to guide practise. Notwithstanding the challenges inherent in researching this topic, it is imperative that future research is carried out.

An important starting point for future research should be to examine what happens in practice, so exploring who is completing risk formulations, when are risk formulations being completed, what is included in a risk formulation, how is it generated and how is it being used. The experience of engaging in risk formulations, and the experience of the outcomes of risk formulation, from the perspective of the service users and the practitioners should be explored. Understanding and investigating the range of outcomes of risk formulation, such as but not limited to, the impact on risk management practices and risk of harm to others, to ascertain whether it is a worthwhile activity in the longer term, is vital.

In terms of implications for practice following on from this review, practitioners continuing to utilise risk formulation should be mindful of the limited evidence base exploring its use within forensic practise settings. Whilst there are research papers citing positive views from forensic practitioners and decision makers about risk formulation (for example, Shingler & Needs, 2018), the evidence base supporting the use of risk formulation in forensic practice has not been established. It is therefore important that those responsible for generating risk formulations provide clear information regarding the efficacy of risk formulation to service users and decision makers.

Conclusion

This review identified that there are very few empirical studies focussing specifically on risk formulation practises, and due to the quality and heterogeneity of the studies, it has not been possible to draw any conclusions about risk formulation in forensic settings. Future research is needed to establish a solid evidence base regarding the value and outcomes of risk formulation, to enable practitioners, decision makers and service users to make an informed, evidence-based decision regarding the benefits, or otherwise, of engaging in risk formulation.

CHAPTER 4

DOING RISK FORMULATION: A QUALITATIVE STUDY OF FORENSIC PRACTITIONER EXPERIENCES

Abstract

Risk formulation has gained currency within forensic practice in recent years, yet there is limited research evidence exploring this trend. This research sought to explore the experiences of forensic practitioners using risk formulation within forensic practice settings. Using purposive and snowball sampling, ten forensic practitioners were recruited, and remote semi-structured interviews were conducted to explore their experiences of risk formulation in forensic practice. Template analysis was used to analyse the data, with five themes identified: *Defining Risk Formulation, A Responsive Flexible Approach, Where's the Evidence for Risk Formulation, The Learning Journey, and Roles and Responsibilities*. The findings demonstrate that this sample of forensic practitioners view risk formulation as a key aspect of their role, and are operating within a framework of shared understanding; the process for developing practitioner skills and knowledge in risk formulation varies; and in the absence of established feedback channels or evidence base, practitioners are using informal feedback mechanisms to validate their risk formulations. The findings demonstrate that whilst there is some evidence of shared understanding and consistency in practise amongst the practitioners in this sample, this does not appear to be underpinned by a consistently implemented set of practitioner guidelines or supporting evidence base. Implications for forensic practice and further research areas are discussed.

Introduction

Formulation has been used within clinical practice for many years, being described as the critical process that links assessment and treatment (Persons, 1989) (as cited in Logan & Johnstone, 2010). Formulation provides an evidence-based explanation of a person's difficulties (Johnstone & Dallos, 2006), to facilitate an understanding of the underlying mechanism of their problems in order to inform interventions (Logan & Johnstone, 2010). Moving away from viewing problems through the disease model lens, formulation is considered an alternative to psychiatric diagnoses (Johnstone, 2018).

The process of formulation facilitates organisation of information to create an understanding that informs intervention, whilst also enabling communication (Hart & Logan, 2011). Jones (2020) has described formulation as an individualised causal model developed collaboratively with the individual. The idiographic nature of formulation facilitates individualised treatment design and decision-making (Hart et al., 2011), through engaging in collaborative empiricism with the client, over time, with a focus on identifying strengths (Kuyken et al., 2008). Formulation compliments the strengths-based recovery approaches that are increasingly popular within mental health settings. Providing a more holistic understanding of the individual as compared with behaviourist, functional analytical approaches (Gresswell & Hollin, 1992), such as the ABC model (antecedents, behaviour, consequences), common to forensic practice.

Formulation is considered to be a core skill for practitioner psychologists (HCPC, 2018), and risk formulation has increasingly become part of forensic practice guidelines, as evidenced by it being a key feature underpinning the approach for working with personality disordered offenders (NOMS & NHS England, 2015; HMPPS & NHS England, 2020), which outlines the process for formulation based consultation. There are further examples within the

published literature outlining: the process of risk formulation (see Logan, 2014; Logan, 2016); the practice and outcomes of training professionals in risk formulation (see Covernton et al., 2019); and the communication of risk formulation (see Day, 2017). Yet there are no overarching professional practice principle that define and guide risk formulation practice for forensic practitioners, and a recent integrative review (Wheable & Davies, 2020) conducted on forensic case formulation since 2011, concluded that, “our understanding of the value, impact and outcomes of forensic case formulation remains limited” (p. 326).

The research literature indicates wide variations in definitions, approaches and practice with respect to formulation and terms such as formulation, case formulation, forensic case formulation and risk formulation are used interchangeably.

With regard specifically to formulation of violence risk, this has been defined as a:

the process of managing a client’s future risk of violence based on a collaborative understanding of their past conduct—what appeared to contribute to it and how the potential for violence developed over time—and the circumstances in which violence may recur. (Logan & Johnstone, 2010, p. 616).

The purpose of a risk formulation therefore, according to this definition, is to inform risk management, yet the link between risk formulation and risk management has not been demonstrated (Logan, 2014). This was highlighted in a recent study whereby key informants from 13 Canadian psychiatric inpatient units were interviewed about their risk identification, assessment and management practices (Watt et al., 2018). Findings indicated that there were variations in practice across the units with regard to risk identification, assessment, and management, and with regard to formulation specifically, none of the units reported communicating the violence formulation or future possible scenarios, therefore the link between formulation and risk management was absent. If formulation practices are

implemented as intended, assessors would develop an understanding of how and why an individual has been violent in the past and then apply this understanding to generate future possible scenarios of potential harm. A risk formulation should be the means by which the future potential for violence for that individual is explained, with risk management being based on the formulation (Logan & Johnstone, 2010).

Whilst the links between risk formulation and risk management are yet to be evidenced, authors have attempted to outline what formulation involves to provide some consistency to practice. Hart et al. (2011) described the common features of formulation within mental health as: inferential (i.e., goes beyond description to make predictions about the future using abductive inference); action-orientated; theory-driven; individualised; narrative; diachronic; testable; and ampliative (i.e. produces new knowledge). Jones (2020) outlines an approach to formulation, in response to the need for clinical accountability, framing this as a set of practitioner values. This involves following the scientist-practitioner framework to produce logical and coherent causal models that are accessible, co-produced, testable, and focus on strengths not just deficits.

A number of approaches exist to facilitate the organisation of information within a formulation. The four P model (Weerasekera, 1993) organises information into: predisposing factors; precipitating factors; perpetuating factors; and protective factors. This type of model has been described as a pragmatically grounded risk formulation (Douglas et al., 2013), as it is not tied to a particular theoretical approach as is the case for theoretically informed risk formulation models, common to clinical practice. Lewis and Doyle (2009) have outlined a five-step approach to risk management in mental health, the formulation aspect of the process involves analysing the information gathered to understand the nature, severity, imminence and likelihood of the risk behaviour, which then informs the risk management plan. Jones (2020) aligned the process of formulation to qualitative data analysis, in that it can be

approached either top down, using preconceived constructs, or bottom up, allowing the themes to emerge from the data.

Evident within the literature is the need for formulation to be collaboratively co-produced, or co-constructed with the client (Moore & Drennan, 2013). The client brings knowledge and understanding about their own life experiences, whilst the clinician has the knowledge about the theory and evidence base and the expertise in completing formulations (Johnstone, 2018). The collaborative working relationship with the client allows practitioners to evaluate their formulations, through the client demonstrating an insight into their risk, and engaging with the process of formulation and risk management (Logan & Johnstone, 2010). Working collaboratively alongside the client suggests that formulation is not a one-off event, but a dynamic and iterative process (Davies et al., 2013), that is tested and refined over time (Persons et al., 2013), with risk management interventions being modified through the feedback process (Logan & Lloyd, 2019). Not only has risk formulation been described as a process, it has also been described as a product (Hart et al., 2011).

In an attempt to inform the evaluation of forensic case formulations, Hart et al. (2011) outlined ten criteria with which formulations can be evaluated. These include: external coherence (consistent with theory); factual foundation (based on information about the case); internal coherence (assumptions are compatible); explanatory breadth (accounts for the critical evidence); diachronicity (ties together information from the past, the present and the future); simplicity; reliability; generativity (generates hypotheses); accuracy; and acceptability (extent to which it is accepted by consumers). The identification of these criteria led to the development of the Case Formulation Quality Checklist (CFQC) (McMurrin et al., 2012) (as cited in McMurrin & Bruford, 2016), and the revised Case Formulation Quality Checklist Revised (CFQC-R) (McMurrin & Bruford, 2016), which aimed to provide a structure to the assessment of quality of clinical formulations. One of the challenges with

evaluating risk formulation is the behaviour of interest. In a clinical setting with a case formulation of anxiety, for example, it is possible to observe and test hypotheses about the triggers of the phenomenon of interest. However, the focus of forensic case formulation is typically offending behaviour, which cannot be tested in the same way (Hart et al., 2011). Consideration is also needed with regard to the purpose of formulation within forensic contexts, as formulations have different functions depending on the setting. Within a therapeutic setting the formulation is likely to be focused on change, however, forensic risk formulations can serve to bring about control of an individual (Jones, 2020).

Davies et al. (2013) suggest that using a checklist might be helpful when learning to do formulation, but further suggest that, in practice, this could restrict individual creativity. The British Psychological Society (BPS, 2011) have published best practice guidelines for clinical psychologists, with regard to characteristics of the formulation and the clinician, in terms of formulation as an event and as a process. The guidance recommends that the formulation should be person rather than problem specific, with problem-based formulations being characterised at the skill level of trainee rather than qualified clinical psychologist status. Hopton et al. (2018) explored the quality of risk formulations completed by qualified and trainee psychologists, using the CFQC-R. They found that formulations were of poor to intermediate quality, and that making predictions about future potential harmful behaviour and informing interventions was limited. There was a significantly higher quality associated with those risk formulations completed as part of the HCR-20 V3 as compared with HCR-20 V2. The emphasis on formulation within Version 3, as compared with Version 2, may have contributed to this finding.

A more recent publication is the HMPPS and NHS England (2020) practitioner guide, *Working with people in the Criminal Justice System showing Personality Difficulties*, which outlines principles and standards for the formulation process, specifically relating to the

consultation process, the levels of formulation, and the communication process. This guide distinguishes between case, problem and risk formulations, and identifies risk formulation as a type of problem formulation, focused on future harm towards self or others.

With the shift to risk formulation within forensic practice it is interesting to explore how forensic practitioners have developed their skills and knowledge in this area. Case formulation necessitates “psychological sophistication” to organise information and generate hypotheses (Page et al., 2008, p. 89), with practitioners developing their understanding of formulation through training and practice (Mohtashemi et al., 2016). It has been suggested that formulation is a task for psychologists (as opposed to other professionals), due to their skills assessing complex behaviours and their knowledge of psychological models (Rusbridge et al., 2017). Jones (2020) states that those completing formulations need to have an “open minded sense of curiosity” (p. 17) alongside key competencies and skills, such as: acceptance of ambiguity and not knowing, being able to work with the client to co-produce the formulation, self-reflection and monitoring, the ability to reason and generate hypotheses, and knowledge of the literature on violent offending.

Rationale for Current Study

It is clear that formulation is becoming increasingly common within forensic practice settings, having been identified as a key activity for forensic practitioners. Yet despite the growing importance and popularity of formulation within forensic practice, the evidence base is limited (Sturmey et al., 2019; Wheable & Davies, 2020). Focussing specifically on risk formulation, chapter three of this thesis outlined how empirical literature exploring the use of risk formulation, such as when and how it is used, and practitioners’ experiences of using risk formulation, is scarce. Exploring what is happening from the perspective of those tasked with

undertaking risk formulation and, in so doing, understanding how practitioners are using risk formulations within forensic contexts, is the first step in beginning to understand whether there is parity in the knowledge and practice regarding risk formulation across forensic practitioners. The aim of the current study is therefore to explore forensic practitioners' experiences of risk formulation in forensic practice contexts.

The research questions are:

1. What do forensic practitioners understand about the concept of risk formulation?
2. In what way is risk formulation utilised by forensic practitioners?
3. What are the experiences of forensic practitioners when completing and using risk formulations in forensic practice settings?

Method

Methodology

The current study sought to understand the experiences and views of forensic practitioners, with regard to risk formulation in forensic practice. A qualitative methodology was deemed appropriate to facilitate the exploration of participants' experiences. Remote one to one semi-structured interviews were conducted with participants to elicit data on their experiences of risk formulation. The data were analysed using template analysis (King & Brooks, 2018). Template analysis has been described as existing somewhere in-between *bottom-up* and *top-down* approaches to data analysis (King et al., 2019), and is particularly suited to applied research (Brooks, et al., 2015).

As the research was interested in specific aspects of professional forensic practice, as informed by the research questions, and the participants were being asked about a specific

aspect of their role, it was anticipated that similarities would be observed across the data set. Forensic practice occurs within a framework of professional ethics, values and standards, the participants had been socialised into their profession through educational and employment experiences and were likely to be members of professional regulatory bodies. Therefore, their accounts of their professional experience are provided within the occupational framework into which they have been socialised.

The researcher is a forensic psychologist with a first-hand knowledge of risk formulation in forensic practice. The researchers' a priori knowledge about risk formulation has been constructed through professional socialisation experiences with other forensic practitioners. This relationship and experience was reflected within the data collection process, as such the data was considered to be a "joint production" developed through the interaction between the researcher and the participants (Packer, 2010, p. 46). The meanings inferred from the data have been constructed by the researcher, locating the research within a constructivist paradigm.

Participants and Recruitment

Purposeful and snowball sampling was employed within this study. A research advert (Appendix I) was placed on the researcher's professional networking accounts and a recruitment email (Appendix J) was distributed amongst professional forensic networks and companies by the researcher and research supervisors. The recruitment email and advert provided a brief outline of the research project, and where applicable, the participant information sheet was attached (Appendix K). Interested participants were asked to contact the researcher directly via the researcher's student email address. On receipt of an email expressing an interest to participate, the researcher provided a copy of the participant

information sheet and consent form (Appendix L), once the signed consent form was returned to the researcher via email, a date/time for the interview was arranged.

Participants were required to have experience of completing risk formulations within forensic contexts. Current HMPPS and NHS employees were excluded from the research due to time constraints and ethical approval not being sought from these organisations (see Appendix O for further discussion on sampling).

Fourteen forensic practitioners responded to the recruitment request, two of whom did not meet the inclusion criteria, and two of whom did not proceed to arrange an interview date, therefore ten forensic practitioners were interviewed (see Appendix O for further discussion of sample size). Employment history, years of experience, and current job role were the only demographic data collected from the participants, additional information was not gathered to maintain anonymity of the participants. Three of the participants were known to the researcher through prior professional activities (see Appendix O for further discussion).

Table 3

Summary of Participant Qualification Level and Experience

Name	Qualification Level	Relevant Experience	Years of experience
Janet	Forensic Psychologist	Independent practitioner; expert witness for parole boards and courts.	Five years post-qualification
Lewis	Forensic Psychologist	Independent practitioner; previously worked in prison and hospital settings.	18 years
Martin	Clinical Forensic Psychologist	Consultancy; behavioural units and secure hospital settings	30 years
Megan	Forensic Psychologist	Independent practitioner; previously worked in prison and hospital settings.	12 years post-qualification
Alice	Trainee Forensic Psychologist	Secure hospital settings.	2 years as a trainee with some prior experience
Sam	Forensic Psychologist	Secure hospital settings.	Three years post-qualification
Sophie	Forensic Psychologist	Prison and hospital settings	16 months post-qualification
Ian	Clinical Psychologist	Secure forensic hospital settings.	Newly qualified with 18mths experience
Lucy	Forensic Psychologist	Secure hospital settings.	Two years post-qualification
Martha	Forensic Psychologist	Independent practitioner; previously worked in prison settings.	16 years

Data Collection

The interview schedule (Appendix M) was developed taking into account the current, albeit limited, research on the topic and the research questions.

Ten interviews were conducted remotely (via Skype) due to the Government guidelines on social distancing that were in place at the time of data collection, between 5th May 2020 and 5th June 2020. Remote data collection is advantageous in terms of gathering a broader geographical spread of participants, and permitted scheduling of interviews around

the busy schedules of the participants, and not having to travel to a location for the interview reduced the burden on the participants (Hanna & Mwale, 2017). The researcher conducted all of the interviews from their own home. The duration of the interviews ranged from 36 minutes to 60 minutes ($M = 48.7$ minutes), the total sum of audio data was 487 minutes. Interviews were audio recorded using a recording device and on completion of each interview, the audio recordings were transferred to an encrypted USB drive, and were deleted once transcription was completed. Only the researcher and research supervisors had access to the research data, which was stored within the University of Birmingham Research Data Store in accordance with GDPR regulations. All recordings were transcribed by the researcher.

Ethical Considerations

Approval. Ethical approval was granted from the Science, Technology, Engineering and Mathematics Ethical Review Committee at the University of Birmingham (Ethical Review Number: ERN_20-0553). The British Psychological Society guidelines for Human Research Ethics (BPS, 2014), the BPS Code of Ethics and Conduct (BPS, 2018), and the Standards of Conduct, Performance and Ethics of the Health and Care Professions Council (HCPC, 2016) were adhered to.

Consent. Upon expressing their interest in participating in the research, participants were sent a participant information sheet and a consent form via email. The participant was asked to return the completed and signed consent form via email, notifying the researcher that they wished to participate in the study. Prior to commencing the semi-structured interview, the researcher verbally reviewed the Participant Information Sheet and Consent Form with each participant. The participant had the opportunity to ask questions of the researcher before

commencing the interview. No participants requested for their data to be withdrawn from the study.

The researcher remained mindful of the possibility that the research could highlight poor professional practice by the participants, in terms of professional guidelines or practice standards not being adhered to, however no concerns of this manner were raised during data collection.

Confidentiality. All written and audio data relating to the participants was stored on an encrypted USB drive. Interview data were transferred from the recording device within 24 hours of the interview. Electronic copies of the consent forms were stored in a separate file.

At the commencement of each interview the participants were asked to select a pseudonym, this was used to identify the participants' data throughout the project and within the final write up. A separate file was created that linked the pseudo-anonymised data with the participants, this was stored on an encrypted USB and then deleted once the withdrawal period had passed.

Data Analysis

The recorded interviews were transcribed by the researcher and template analysis (King & Brooks, 2017) was used to analyse the data. Template analysis is appropriate for interview data where a priori themes have been identified, based on theoretical concepts, the aims of the study or funder evaluation criteria (King et al., 2019). Five a priori themes were identified that reflected the broad research question areas, and these were used to frame the review of three interview transcripts to develop the initial template. The first three interviews were chosen as they were deemed to be a fairly representative cross-section of the sample, with a range of experience in forensic practice settings. This initial template was applied to

the remaining data, identifying both descriptive and interpretative themes and sub-themes, and was revised until it represented a thorough account of the data (see Appendix N for copy of template development).

Reflexivity. Reflexivity is an important aspect of qualitative research, permitting a critical lens through which the influence of the researcher on the research process and research outcomes can be explored (Gough, 2008). In order to facilitate this process, the researcher kept a journal documenting observations throughout the planning, data collection, analysis and write up of the research; this was revisited and reflected upon during the research process (see Appendix O).

Transcription. The audio recordings of the interviews were transcribed by the researcher. Adhering to Clarke and Braun's (2013) Orthographic Notation guidelines, all verbal expressions were transcribed as text. As the research was interested in the content of the data as opposed to the style of speech, it was not considered necessary to follow the detailed transcription guidance required for conversational analyses. Once transcribed, the transcript was re-read whilst listening to the audio recording to ensure accuracy.

Results

Five overarching themes were identified to answer the research questions: *Defining Risk Formulation; A Responsive Flexible Approach; Where's the Evidence for Risk Formulation; The Learning Journey; and Roles and Responsibilities*. Each theme consists of sub-themes, highlighting different aspects of each theme.

Table 4

Themes and sub-themes identified within the data set

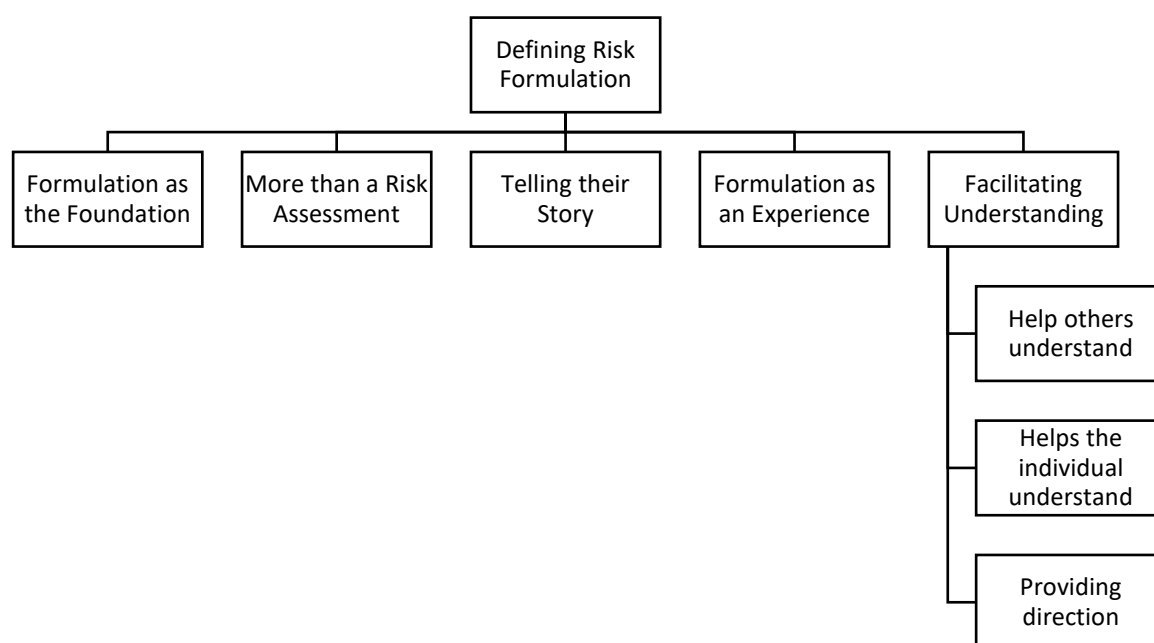
<p>1. Defining Risk Formulation</p> <ul style="list-style-type: none"> - Formulation as the foundation - More than a risk assessment - Telling their story - Formulation as an experience - Facilitating Understanding <ul style="list-style-type: none"> o Help others understand o Helps the individual understand o Providing direction
<hr/> <p>2. A Responsive Flexible Approach</p> <ul style="list-style-type: none"> - 4P's, 5P's and Beyond - Information is key - Collaboration with the service user - Sketching it out - Depends on the audience
<hr/> <p>3. Where's the Evidence for Risk Formulation?</p> <ul style="list-style-type: none"> - Evidence based practice? - Internal and external validation
<hr/> <p>4. The Learning Journey</p> <ul style="list-style-type: none"> - A lack of formal training - Learning on the job - Learning from others
<hr/> <p>5. Roles and Responsibilities</p> <ul style="list-style-type: none"> - It's our bread and butter - The skilled facilitator - Challenging teamwork <hr/>

Theme 1: Defining Risk Formulation

At the outset of each interview participants were asked to explain their understanding of risk formulation and to describe what they understood the purpose of risk formulation to be. Participants viewed risk formulation as critical in developing an understanding of an individual, as part of the risk assessment process. Whilst some participants described risk

formulation as a tangible product, something that is completed and delivered at the end of the process, others viewed risk formulation as the process rather than the end product, however the purpose for both was to facilitate understanding. Within this theme, five sub-themes were identified: *Formulation as the Foundation*, *More than a Risk Assessment*, *Telling their Story*, *Formulation as an Experience* and *Facilitating Understanding*.

Figure 4. Diagram of sub-themes within the theme: Defining Risk Formulation



Formulation as the Foundation. Participants described risk formulation as the basis or the foundation from which to work with someone, helping to inform decisions about future treatment and risk management for an individual:

I think it's the, it's almost the, it's the foundation really of what things should be built on, for me, so I think it's very, it's, I don't know it's it's really essential because in

order to understand how you interact, manage, go forward, treat, it it impacts on so many different areas I think – [Lewis]

“It’s fundamental to (.), to what we’re doing and why we do it really, particularly in this context, it’s it’s really important” – [Megan]

More than a risk assessment. Participants emphasised that risk formulation was part of, but in addition to risk assessment. That it was “*not just a list*” [Lewis] of risk factors, but rather a way of making sense of the information gathered about an individual, adding meaning to the risk assessment:

You’ve got the risk assessment part which is the pulling together of the factors, the risk formulation the making sense of it, and then the risk management, so it’s almost like the bit in-between the assessment and the management, the formulation part - [Sam]

“You know just having, just giving somebody a HCR-20 with no formulation or you know, no scenario planning, it means absolutely nothing...err, the the formulation side of it is almost the, the most important bit” – [Megan]

Telling their story. Participants described risk formulation as developing an understanding of the individual, making sense of and telling their story by assimilating the information into a narrative about the person.

“It provides the whole story of the individual” – [Alice]

“It’s about providing almost a story of the person, but something that makes sense in terms of how that person got to that presenting risk, risky problem or risky behaviour” – [Megan]

“It describes that person, it almost introduces that person and kind of creates a picture of who that person is” – [Lewis]

Formulation as an Experience. Whilst the story aspect of risk formulation created a sense of a tangible outcome amongst some participants, other participants described risk formulation as less tangible, emphasising the dynamic and ongoing nature of risk formulation, viewing it a process rather than an outcome:

“I don’t necessarily see formulation as a, like a tangible thing that you hold of, like a report or at the end of something, for me formulation is a process, an experience” – [Martha]

The idea of a formulation as a process rather than a product, that, you know, I've done my formulation, here it is, this is the thing I present you with, I think to formulate, the idea of it being a process that other professionals go through, that even the client themselves go through, that you use to inform the management strategies that you put in place, that is a dynamic, and it, yeah it's a process, that's ongoing –
[Sam]

Facilitating Understanding. There was a clear narrative around facilitating understanding within the participants' accounts, in terms of helping other professionals to understand the person, and also helping the individual to understand themselves, both with the aim of providing direction for the individual. Within this sub-theme three further sub-themes were identified, *Helps others Understand*, *Helps the Individual Understand* and *Providing Direction*.

Helps others Understand. Participants explained that the purpose of risk formulation was to help other professionals understand the individual through providing an explanation of their behaviour, which they may not have understood from simply knowing about the offence details. Participants perceived that providing this explanation of why someone has offended helped to change professionals' perspective or view about the individual and their problems. Participants highlighted this through providing examples within court and hospital settings:

All the court will see is the outcome which is their, their offending behaviour or their presenting problems, whereas your formulation will help the court better understand why those presenting problems have come about...so that's the value in the

*formulation to help the court to better understand how to support these people -
[Janet]*

“It can help other people understand how to work with people...it can help the professionals to understand the approach to take with someone and it helps build empathy for a person as well” - [Lewis]

I’ve got the the team of staff together and facilitated a formulation kind of process, discussion with that team, that I might not necessarily be the psychologist for that ward but I’ll help them through trying to understand a bit about what, understand the picture, and understanding, ok this is what we are seeing, actually what’s behind that and helping them to kind of grasp some concepts around that – [Martha]

Helps the Individual Understand. Not only was risk formulation seen as important in helping professionals understand an individual, participants also described risk formulation as important in helping individuals themselves develop an insight into their own functioning. This being necessary in order for them to be able to make changes to their behaviour, indicating that ownership and autonomy were important.

“It can develop somebody’s understanding and insight of themselves, to help them manage their own behaviour and understand their own triggers, and things that they need to work on” – [Lewis]

“To help them understand and reduce their risk really, take responsibility” – [Lucy]

It’s their formulation at the end of the day, I think that for them to be able to develop an insight, and I think the feeling when you share a formulation with somebody, the idea of that feeling of autonomy and understanding, gives them that sense of control over their behaviour, understanding why they may have behaved a certain way, and gives them that feeling of, it’s a horrible buzz word, but the feeling of empowerment to be able to make changes in the future... so that risk management isn’t something that’s done to them, it’s something that’s done with them – [Sam]

Providing direction. The aim of using risk formulation to develop understanding for the professionals and the individual, was to provide direction for the future in terms of treatment and risk management planning. One participant used the analogy of a compass *“that helps us know where the person has come from, err, where we are, where we are going” [Martin]* to describe this aspect of formulation.

To inform treatment, a treatment plan, it would be to help other professionals work with that person and manage their risk on a daily basis or to get them to integrate and engage with professionals, it would be to inform err decisions about progression or release, erm it would be to (.) assist someone to cope or sort of if someone is struggling to cope in the prison maybe self-harm, suicidal behaviour, disruptive behaviour, it may be to inform a management plan or a review – [Lewis]

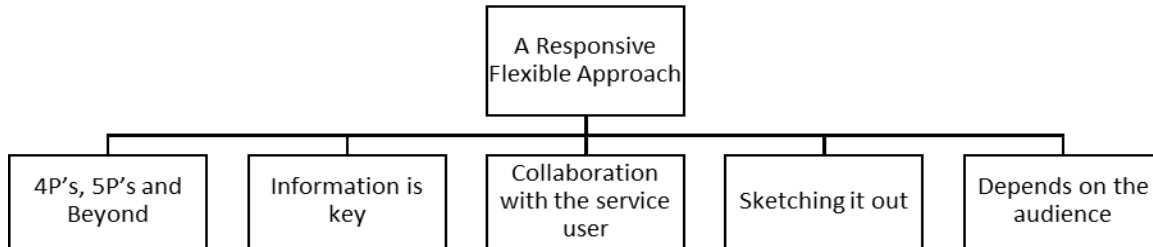
One participant acknowledged the potential benefits of using risk formulation for future planning in terms of identifying and managing current and future risks, yet highlighted that in his experience in practice, this hasn't always been the case:

I think in terms of the HCR-20 there's, they they very much get shoved in the file drawer so they, they are just not being used to actively inform decision making, so when it comes to things like leave, erm obviously leave is a potentially risky situation and it's very rare that say a HCR-20 will be used to inform that – [Ian]

Theme 2: A Responsive Flexible Approach

The research was interested in how participants completed risk formulation, to explore and understand what happens in practice. Within this theme, five sub-themes were identified, which reflected the stages of risk formulation. Participants described the four P model as the starting point for their formulations, due to the ease with which it facilitates communication. Participants described using a range of techniques to generate and communicate a formulation, and this was dependent on a number of factors including personal preferences and style, *"I've got my own style" [Sophie]*, and also the intended audience. Participants described being responsive to their audience, explaining that on some occasions they produced the same formulation in different ways for different audiences.

Figure 5. Diagram of sub-themes within the theme: A Responsive Flexible Approach



Four P's, Five P's and Beyond. All of the participants discussed using the four P approach to risk formulation, and this appeared to be the predominant starting point for risk formulation:

"I use the five p's...I like the p's" – [Martin]

"So what I tend to use in my line of work is the five p's" – [Janet]

Participants gave reasons why they used the P model, in terms of facilitating communication with service-users and professionals, even when this may not be their preferred model:

“I find that within our hospital it’s mainly using the 5 P model coz it’s something that can be easily understood by the patient that’s being assessed and by the individuals within the MDT as well” – [Alice]

So with risk formulation I tend to use, I sort of use sort of the 5 p’s as a general guiding, err, principle, I couldn’t, it wouldn’t be the one that I would prefer to use personally, I just find that a really useful one for when you need to communicate it to other people – [Sam]

However whilst participants found the five P framework helpful, they also described branching out from using this framework at times and using different approaches. Cognitive Analytical Therapy (CAT), Dialectical Behaviour Therapy (DBT) and schema approaches were discussed.

I became a lot more interested in the different models and approaches, because I was very 4 P, erm, and I sort of starting thinking about sometimes when I was doing the 4P’s that things just didn’t really fit coz it puts it into boxes...it’s not as easy to maybe link things so I started looking at different approaches, so schema approaches, CAT approaches, and how they can be a bit more linking, err, more formulating in a sense – [Sophie]

I do quite a lot of therapeutic work so I tend to use therapeutic models to inform my risk formulations as well, so I do tend to use clinical formulation models, so I would

*use the DBT model quite a lot and erm, I'd mentioned the CAT approach as well –
[Sam]*

Information is Key. Participants emphasised the importance of gathering depth and breadth of information as key to generating a good formulation. Other professionals were deemed to be important sources of information:

When you go through the process of formulation, you should be, to use the research phrase, triangulating your data, and you should be, you should be getting erm such a wealth of data from a variety of different places, whether that's with an individual around their risk for a parole board or whether it's with a team, erm, I think it's our absolute duty in order to get a multi-disciplinary teams, and perspectives, in order to make it holistic – [Martha]

*Aww everything and anything really, err everything that you can find within the dossier, so any kind of historical information, err from the hundreds of err documents that you can get from that, err evidence from them as an individual, what's their insight it's that kind of thing, staff members, anything and everything gives you lots and lots of bits of information, a bit like a jigsaw, you pull it all together and if all that information's there, that's what helps you develop a good risk formulation –
[Megan]*

Where others were used as an information source, the nature of the relationship between the informant and individual was seen as important in gathering meaningful information.

I think the people who day to day had more exposure to the patient usually had the more, more of the rich information, so a lot of the time the ward staff actually knew loads of stuff but the, you know the other disciplines like me didn't know because we are in an office somewhere not kind of interacting with the patient as frequently –
[Janet]

I think all those different perspectives are really helpful, I think particularly involving nursing staff and healthcare workers will be really helpful because they know the patients far more than say the psychologist or the psychiatrist or the social worker, and its I think, they are much richer when they are done that way – [Ian]

With the service user seen as a key informant for gathering that information, them being the expert on themselves:

I think they're the expert on their, their story...we need to understand them at the end of the day they're the expert on them in that sense, yes I may be the expert on the risk element of that but they're the expert on their experiences – [Martha]

“Whilst you’ve got the knowledge in terms of the research and the understanding of particular types of behaviours, it’s it’s essentially, you are talking about them and their functioning, and they are the best person” – [Lewis]

Collaboration with the Service User. Collaborating with the service user was important not only for gathering rich information, it was also seen as providing the individual with a sense of being understood and listened to. Participants viewed collaboration as an important requirement of the risk formulation process:

“A good risk formulation should involve the individual, the service user, their view, it should be collaborative” – [Martin]

Participants explained that collaborating with the service user to gather the information and develop the risk formulation also served to foster a working relationship with them, which in turn assisted with gathering the richness of information needed to develop a quality risk formulation:

“Undoubtedly it is much richer when you can spend more time with someone” – [Janet]

Participants described the benefits of working collaboratively with a service user to develop a risk formulation, in terms of developing that shared understanding:

Yeah you've demonstrated to your patient, yeah you understand what, why those things have happened or what's going on for me, err you can kind of create that shared understanding to then help plan future treatment or risk management strategies – [Alice]

For the majority of people they want to understand it and have never felt understood so it's an opportunity to sort of say well, let's understand it together...I wouldn't really initiate any treatment with someone until we've done some form of understanding around what's been formulated because then they are actually invested in what, what it is that they are doing, erm and I think it (.) it just provides an opportunity to develop a relationship with your patient – [Sophie]

So I fundamentally believe that if, in any way, shape or form, as much as you possibly can, it is absolutely essential that you involve in the individual that you are being asked to comment on their risk, erm, one because, I mean for all sorts of different reasons, err because I think collaborative working is key to erm building that kind of alliance with someone in order to be able to erm engage with someone, that human connection, is really important – [Martha]

Sketching it out. Once they had gathered the information from the informants, participants described the process of developing the risk formulation. For some, this was an

unstructured activity whereby they drew or sketched in order to make links between pieces of information, utilising this process both individually and within teams.

It feels like a really messy process... I normally just draw it out, I normally get flipchart paper and I draw it out, I start writing down all the sort of, get all the information and I write down the key points and stuff, and then I use my flipchart to then write my formulations into a written format - [Sophie]

“I’ve tended to draw stuff out with clients, service users, erm whether that be spider diagrams, columns, timelines whatever it may be” – [Martha]

“You’ve got flip chart paper everywhere and you are having some downtime to write stuff on, and do an ABCs, the multi-modal thing” – [Martin]

So I would usually come to the meeting with a skeleton formulation and we would draw it out and then we would talk through as a team the various elements to it and think about what we could add to it, and I guess the purpose of that was, was both to make it quite collaborative but also to help everyone understand how formulation works – [Janet]

This process of sketching out the formulation facilitated participants' understanding, and was a precursor to being able to produce a more user friendly version of the formulation to share with other people.

I tend to have like three big circles and lots of diagrams coming in and all kinds of arrows coming off the circles, err until you've got it clear in your head, and you've come back, you've sat, you've sat back, you've reflected on it, you've dwelled on it, is that because of that, does that link to that, and how does that link to that, when you've got it clear write it up – [Megan]

I sometimes draw it out, I do diagrams, err sometimes if it's quite a complex case that, you know, quite chaotic, I try and, I sometimes write out the four p's just to help me think about what's influencing what and which section I would think they would belong in, but I wouldn't necessarily write it up like that, err so that – [Lewis]

Depends on the Audience. Participants described being responsive to the needs of their audience when developing and communicating their formulations, being guided by the need to facilitate clear communication of the information. There appeared to be a distinction between the traditional report format within formal settings, such as for the courts or parole boards, whereas more creative and less structured approaches were used with service users. With the same formulation being presented in a variety of ways dependent on the situation.

I'd think about the audience that I am doing it for and it may be that I will do different versions of the same formulation so may be if I had to write a formal report I would do it in a more narrative form but then if I was then needing to explain it to a patient I might then draw it out in the session on the whiteboard and kind of make it more interactive – [Janet]

Typically in a written format, like in a report I suppose, so I mean I'm very, I am, I really thrive off visual, so with the patients we typically like visual things but then I will always write that up as a report to then hand over to professionals – [Sophie]

Creativity was particularly evident when working with service users, both when developing the formulation and presenting the formulation, with one participant described using a variety of media “*a piece of music or picture or an image*” [Martha].

I would say one of the ones that sticks in my mind ? (.)...sort of a shared formulation that we'd develop over eight weeks, and I shared it in the form of a letter...so I went away and I wrote up the formulation that we'd developed in a letter, it was almost like a questioning letter, so 'Dear whoever, I am wondering whether these difficulties are linked to this, and this connects maybe to this - [Sam]

The intended audience also informed decisions about the content of narrative risk formulations, with some participants explaining that their use of the research/evidence base

was dependent on the intended recipient of the risk formulation, emphasising the need for a risk formulation to be practically useful to others.

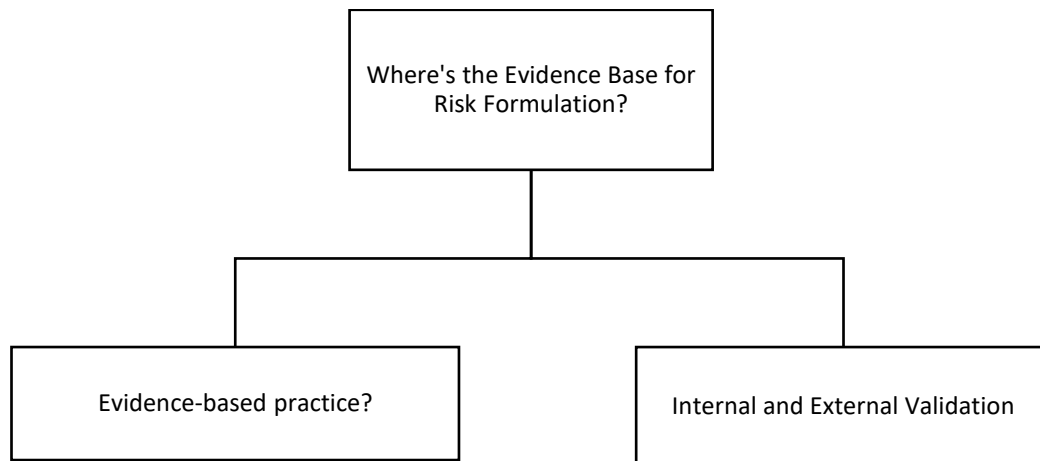
Obviously when I'm writing my formulations in the hospital they're still evidence based, like I still sort of research, and I still look at things but I don't necessarily put the references in....because parole boards still don't want me to do a literature review of like attachment theory – [Sophie]

Especially in court, and sometimes you know if you're writing for parole reports a lot of the research is kind of known about anyway so you might not fill a parole report full of research because people don't want to see that, they want you to be more, more practical – [Janet]

Theme 3: Where's the Evidence for Risk Formulation?

Participants were asked about their knowledge and understanding of the evidence base surrounding risk formulation, and how they determined whether their risk formulations were sound. Interestingly there was a limited awareness of the evidence base, with some participants acknowledging that the evidence was limited. To support their use of risk formulation, participants described having faith in the approach due to the research and knowledge of experts within the field. They also described their own mechanisms for checking the validity of their risk formulations, these being internal feelings and a sense of knowing; and also external feedback from others'. Within this theme, two sub-themes were identified: *Evidence-Based Practice?* and *Internal and External Validation*.

Figure 6. Diagram of sub-themes within theme: Where's the Evidence Base for Risk Formulation?



Evidence-Based Practice? Participants mostly expressed a vague or limited awareness of the evidence base in terms of risk formulation, and in some instances expressed never having considered the evidence supporting the use of risk formulation.

“Oooh, do you know I’ve never thought about that, err (.) I I genuinely have never thought about that question and I don’t know whether I’ve got an answer” – [Megan]

“If you asked me now what is the evidence base I probably wouldn’t be able to tell you” – [Alice 438-439]

“I don’t suppose, I wouldn’t really be able to like, recite any of that actually to you, I wouldn’t really know” – [Sophie]

One participant emphasised the lack of evidence base for the risk formulation aspect specifically, reflecting that the evidence base for the structured professional judgment approaches supports risk formulation, whilst also acknowledging that risk formulation involves clinical judgment:

I guess evidence base, the only evidence base I think you’ve got is if you’ve conducted something like an SPJ then you use that to inform your formulation, so the SPJ is evidenced based...so when you do a HCR-20 it’s not just the list of items, you know that those items have been tested, you know how they contribute, you know the literature about that...but I am not really sure about the evidence base for the actual formulation, I would imagine that that’s less rooted in evidence base, and coz it’s got a lot more around, you’re still putting your clinical judgment on I guess - [Lewis]

Yet despite the lack of awareness of the evidence base, the participants described having faith in the methods that they utilised to inform risk formulation due to this being underpinned by previous research and developments within the field.

You’ve got the sort of structured clinical judgment you are using, you’re using the data I suppose that’s been collected over years and years and years, to guide the

areas that you are focusing on....so it's almost like that trickle down approach of, this is all your research that's been done over how many years" – [Sam]

I mean there are these are people who can quote all the studies but what they are saying is that, that the structured professional judgment, which has a massive loading towards risk formulation, is as good as, and can outperform probably, some of the actuarial measures – [Martin]

The inclusion of risk formulation as a stage within structured professional judgement tools, confirming the validity of this as an approach for some participants.

"I suppose I've just been guided by the HCR-20, err version 3 and that kind of stuff and how much emphasis the formulations made within that, err, it kind of knows what it's talking about so I trust that – [Megan]

"When I think about all the gold standard sort of structured risk assessments we have, they all have formulation in, and they've all been updated to add formulation in as a positive addition so I'm assuming a good thing ((laughs)) – [Sophie]

Internal and External Validation. Participants described the signals or indicators they used to evaluate the validity of their formulations, some described using feeling and

intuition, in essence having a sense of knowing when their formulations were right as they made sense.

“I think when it just makes sense...when you’ve got it, and it just feels like you’ve nailed it” – [Megan]

I feel like, internally it feels like it makes sense, it clicks, it feels comfortable and there aren’t necessarily those, there are some unanswered questions, but all the pieces seem to fit together....there is definitely just feeling of it making sense, the pieces fitting together – [Sam]

None of the participants described formal feedback mechanisms for their risk formulations, they did however describe the informal feedback they relied upon as a measure of how good or valid their risk formulations were. This included the reactions or responses from other people to the risk formulation.

With staff on the wards, for example if I’ve done it with them and we’ve talked about some strategies they can use based on the formulation, then they’ll come back to me and they’ll say ‘oh I just went and spoke to so and so and I did it the way we discussed in the formulation and it actually really worked, and he engaged with me’, so when it’s quite practical and things like that – [Alice]

My team at the minute like are constantly asking for formulation meetings because they come out and go 'oh my god I didn't know that about that person, oh that makes sense' and opportunities, so I guess it's sort of face validity in the sense that it makes sense to make sense of something, erm, there is the, the feedback from people that when they read them or when they've got involved with, erm, that actually that was really helpful, and also, from patients as well- [Sophie]

This informal feedback from others, hearing about how the formulation makes sense to them, created a sense of satisfaction for participants, yet there was some acknowledgment however that validity should not rely on intuition and feelings:

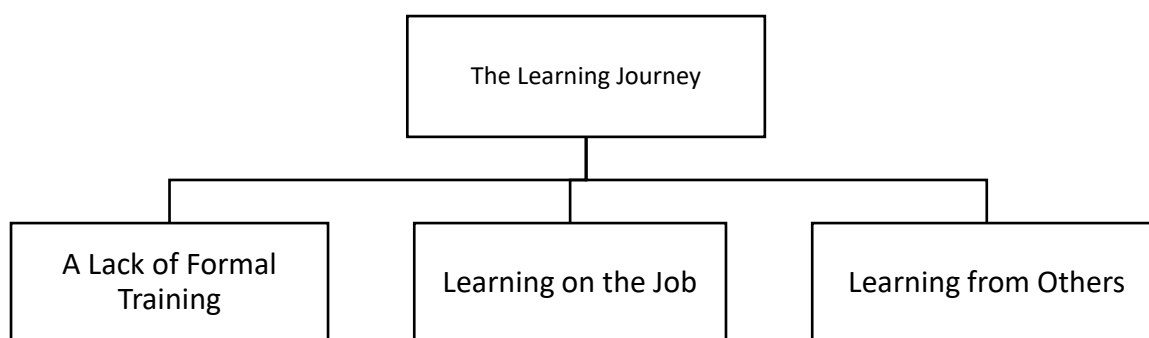
"So if I'm formulating somebody and people are sort of going 'ah that makes sense, so he's done that because of this' and they're putting the pieces together, that's a lovely feeling" – [Sam]

It's always really nice and it shouldn't depend on this but I've had this situation yesterday where someone said, 'I read that and oh my god yeah you've just got him'. That makes you feel like you have nailed it ... and I know that's not evidence based, that's more about people's intuition and feelings but actually I think that is quite important – [Lewis]

Theme 4: The Learning Journey

Participants described risk formulation as a skill that they had developed over time, as opposed to something acquired through isolated learning activities. They distinguished between formal and informal training, with the view that there was a lack of formal training. They described their learning as unstructured, and that they learned through practice, by making mistakes and learning from other people. Within this theme, three sub-themes were identified: *A Lack of Formal Training*; *Learning on the Job*; and *Learning from Others*.

Figure 7. Diagram of sub-themes within the theme: The Learning Journey



A Lack of Formal Training. Participants were asked what training they had received in risk formulation, and most described themselves as not having any formal training:

“No formal training, it’s been more through supervision really” – [Megan]

“The only sort of training you get in formulation, for me, has been experience of, so that a supervisor telling you to do it, and then they supervise it” – [Sophie]

Although there was an acknowledgement that they had received some risk formulation training as part of their training to use specific structured professional judgment tools, such as the HCR-20:

“Only what I’ve had at university and through training like HCR-20s and you do the risk formulation within those, err but no specific training just for risk formulation” – [Alice]

I think it’s all been pretty much informal, there’s been some, there’s been some formal training for example, you know HCR-20 training, for example, gives you a good understanding of right ok these are the sorts of things that you need to consider, this particular kind of risk, this is how it can be helpful to present it for example, in a very structured way, but to be honest my most valuable learning is all the stuff that’s been, the peripheral stuff that I’ve been involved in just in my practice and developing over the years as a trainee – [Martha]

Learning on the Job. Participants described a key element of learning about risk formulation was through the process of doing risk formulation in practice, whilst reflecting back to a time when they were less competent.

When I was learning about it I remember feeling like it was a very hypothetical concept and I couldn’t really grasp it until I’d done a few and I remember this

moment thinking 'oh that's what formulation is' and I didn't really get it until I was doing it...and I think the way it clicked was the literally the pragmatic process of just doing it with a real life client and seeing it drawn out - [Janet]

I guess the main learning came from trying to apply that, err, on your placements and that was very much around supervision, erm, so working with your supervisors to erm to develop formulations and drawing on their expertise and their experience around what makes a good supervision, err good formulation, what needs to be included, based on the sort of model you are working with, you know and so, it was quite, err I suppose it's kind of learning on the job quite a bit – [Ian]

Inherent within the learning process was the inevitable learning from mistakes, which the participants acknowledged was part of the learning process:

“Having a go, making mistakes, going back to it, getting feedback, that whole learning process I think has all been really helpful” – [Martha]

“Learn from bad mistakes and traumatic hearings ((laughs)) and just hope the next one's better” – [Megan]

Learning from Others. Participants discussed how they had developed their skills in risk formulation from other professionals, either through supervision, reading reports written by other psychologists or through observing others' practice:

“Reading psychologists’ reports that I respected and really can learn from has been helpful” – [Martha]

Sometimes I will look at it out of my own professional curiosity, so sometimes there have been times where I’ve thought I don’t really fully understand that, I wonder what that person thought of that...I am interested in their style as well...so it’s always interesting so see what other professionals are doing and whether actually that might work better – [Janet]

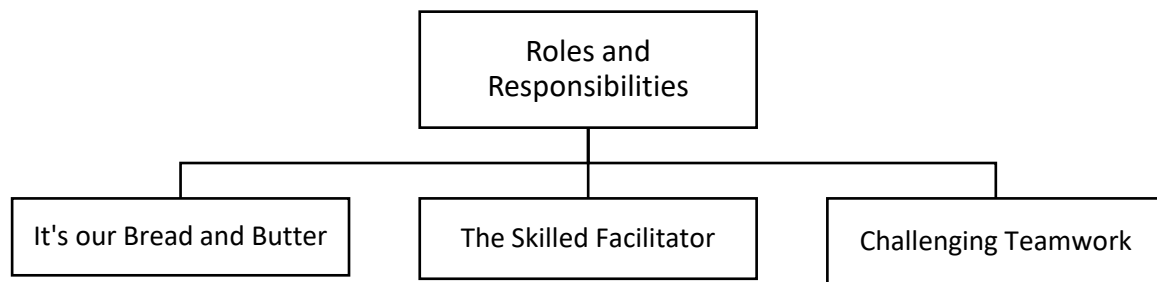
Observing and working alongside members of the psychology department, err sort of shadowing and then basing my practice on the existing practice of the team I was working with... having different experiences of supervision has allowed me to test and try different approaches - [Sam]

Theme 5: Roles and Responsibilities

This theme explored the role of psychologists within risk formulation. On the whole conducting risk formulation was seen as a key function of the role that required specialist skills and knowledge. Participants were also asked about their experiences of risk formulation within teams, which was seen as best practice, however achieving this was not without its

challenges. Three sub-themes were identified: *It's our Bread and Butter*; *The Skilled Facilitator*; and *Challenging Teamwork*.

Figure 8. Diagram of sub-themes within theme: Roles and Responsibilities



It's our Bread and Butter. Risk formulation was described as a crucial, if not, the most important part, of a psychologists' role:

"It's the bread and butter of our work really ... that's kind of the whole function of being a psychologist, that's your contribution" – [Janet]

"We understand the value of it and we understand it, and I suppose that's our job isn't it, we are there to make sense of things, I think that's what formulation does" – [Megan]

“It’s almost difficult to kind of question whether formulation is helpful or not...you’re almost questioning the use, the usefulness or the, the role of psychology then” – [Ian]

Whilst participants articulated the importance of risk formulation and this being a defining feature of a psychologists’ role, this did not appear to foster effective team-working. Whilst participants described risk formulation as the *bread and butter* of a psychologists’ role, they also expressed some dissatisfaction when completing risk formulations with multi-disciplinary teams, due to the lack of collaboration between the team members:

I would say it is collaborative with the patient and maybe with the staff working with them errm but not so much with the MDT, I think there can often be like, we’re together I think, yet separate doing our own things, so the social worker will do their bit, and the psychiatrist will do their bit, and psychology will do their risk formulation bit – [Alice]

I haven’t found an efficient way of doing a risk formulation with a multi-disciplinary team that I think works well, it tends to be, I will complete the risk formulation and the rest of the team will input into ...So I’ll do a lot of the legwork, I’ll do a lot of the background information gathering, pulling together salient factors, putting together a skeleton formulation, and then taking that to the team, getting everybody else’s input into it, and then putting that into something that’s a bit more coherent and workable, erm, it’s not as interdisciplinary as I would maybe like it to be, because I think they are always going to be psychology led, the way that we do them, erm, but I can’t think of another way to – [Sam]

The Skilled Facilitator. Participants reflected that risk formulation was more than simply following a process, it required specialist skills and knowledge in terms of specialist knowledge in understanding how the factors link together, but also skills in gathering that information from other people and communicating back to them. The psychologists' role in risk formulation involved bringing the information together, facilitating risk formulation as a process and communicating the risk formulation. Participants discussed specific skills such as listening, interviewing, communicating and perspective taking.

You can teach that process to anybody (.) but in identifying the factors that you need to put into the formulation and thinking about how that contributes and about, I think that kind of takes a bit more of a specialist background personally- [Lewis]

“The psychologists’ skill lies in being able to listen to everybody points, trying to knit them together into err a coherent narrative” – [Sam]

Interview skills obviously to get the richness of information you need from the client, I think you then also need to have erm (.) empathy basically, the capacity to think about how someone else might think or feel in that scenario...communication skills ((laughs)), so actually do a good enough job of explaining the formulation, both in written form and verbally” – [Janet]

“I think it’s that that more of the facilitator role in a lot of ways, but then drawing on you know, my training, my knowledge, my experience, to help” – [Ian]

Challenging Teamwork. Participants were asked about their experiences of working within teams and working with other professionals to complete risk formulations. The participants did not describe wholly positive experiences of team risk formulation, explaining this as due to the background knowledge of the other professionals, difficulties getting the team together or the risk formulations not being discussed within multi-disciplinary meetings.

Sometimes it can be really hard to convince some, err professionals about the benefits of thinking about a case in a, in terms of case formulation....err (.) probably, well usually due to their professional background I guess...I've used formulation within multi-disciplinary teams, it depends what kind of err training or background the team have, you get different responses from different professionals, some are open to it, some are not – [Lewis]

Often the limitations of a team formulation is that it doesn't get cascaded more widely, it kind of reflects a snapshot of what's going on at the moment...in something like an MDT meeting or ward round, CPA, they're very rarely actually brought out and used to inform the discussions and decision making, and to look at how people have changed – [Ian]

So I know best practice is to get everyone involved as much as possible but realistically everyone is so busy you don't get a chance to meet with them all, erm sometimes I'll try and email people questions who are working nights and I never get replies so I don't get the nurses' perspectives sometimes – [Lucy]

Participants also discussed how psychologists were viewed by the staff on the wards, intimating that members of the multi-disciplinary team come onto the ward providing input when they are not the ones who work with the patients on a day-to-day basis, and this creates challenges working with the team:

Often as a member of the MDT you can be seen as someone who's just come onto the ward, you don't spend all that time there, how do you know all this and it's easy for you to say, err to being able to relate to staff and empathise with their difficulties and at the same time educate them or give them feedback that can be really tricky as well
– [Alice]

Discussion

In the absence of literature exploring the experiences of forensic practitioners completing risk formulations in practice, this study sought to explore this utilising a qualitative methodology. Five themes were identified: *Defining Risk Formulation, A Responsive Flexible Approach, Where's the Evidence for Risk Formulation, The Learning Journey, and Roles and Responsibilities*.

Participants' understanding of the concept and purpose of risk formulation has been addressed by the theme *Defining Risk Formulation*. The findings evidenced risk formulation as existing in two forms. As a tangible product, a written output to help inform risk related decision-making; and an experience, an activity or process, for service users to develop an understanding of themselves, or for other professionals to develop an understanding of the

service user. Evidencing risk formulation in practice as both a product and as a process, concurs with the BPS (2011) guidelines on psychological formulation.

The participants in this study viewed risk formulation as part of, but also a distinct stage within, risk assessment, that provides a narrative or story, with the purpose of understanding the individual. This then lays the foundation to help the individual and the professionals involved, have a clear(er) focus for future intervention. Supporting the notion that risk formulation is the link between risk assessment and risk management (Logan & Johnstone, 2010), a “springboard for intervention”, (Logan, 2014, p. 174), providing the necessary information and guidance about how an individual can move forward with addressing their risk related needs. The findings indicate therefore, that the participants are operationalising the theoretical understanding of risk formulation prevalent within the field, their descriptions containing some of the forensic case formulation criteria outlined by Hart et al. (2011) in terms of risk formulation being individualised, action-orientated, and a narrative.

Forensic practitioners’ experiences of how risk formulation is used in practice has been answered by the themes *A Responsive Flexible Approach* and *Where’s the Evidence Base for Risk Formulation*. The BPS (2011) has developed guidance for the use of psychological formulation within clinical psychology practice, however the guidelines pertaining specifically to risk formulation are somewhat tentative and less formalised. However, notable authors and practitioners within the field have provided frameworks and narratives relating to the practice of risk formulation, promoting consistency of practice amongst practitioners (e.g., Hart & Logan, 2011; Hart et al., 2011; Logan, 2014; Logan, 2016), which is reflected in the findings of this study. Despite the lack of an overarching set of professional practice guidelines, similarities were observed within participants’ risk formulation practices, suggesting they are operating within a framework of guiding principles.

In terms of approaches to risk formulation, the findings demonstrated that the P model (Weerasekera, 1993), was favoured by the participants for formulation activities, partly due to the ease with which it facilitates communication with others. The P model was seen as a useful starting point, or basis, for risk formulation, the use of other approaches is dependent on the needs of the situation and the skills and experience of the practitioner.

In addition to this, the findings demonstrated that gathering quality information was considered to be necessary in creating a good formulation (e.g., Lewis & Doyle, 2009), and this relied on developing quality relationships with informants. The participants described working collaboratively and responsively with service users and other professionals to develop an understanding of an individual to inform future treatment and risk management. Participants emphasised the importance of collaborating with service users to coproduce risk formulations to gather the rich information needed to develop the risk formulation (e.g., Jones 2020; Kuyken et al., 2008; Moore & Drennan, 2013). The process of collaborating to develop the risk formulation was considered fundamental in developing the individual's insight and self-management, and also fostering the therapeutic relationship, to facilitate future engagement with treatment and management planning. This corresponds with the clinical case formulation guidance and literature regarding the benefits of collaborative formulation (e.g., BPS, 2011; Kuyken et al., 2008), and the preliminary investigations into this within forensic settings (e.g., Shaw et al., 2017).

The findings demonstrated practitioner responsivity and flexibility in relation to how risk formulations are communicated, and this centred on the needs of the audience. Participants preferred to use structured written narrative risk formulations to communicate risk in formal settings, using more creative approaches in less formal situations and particularly when developing and communicating risk formulations with service users. Communication skills are therefore considered to be paramount in the processing and

production of the risk formulation, as this is the medium/framework through which risk relevant information is communicated (Lewis & Doyle, 2009; Logan, 2014), corresponding with the DoH (2009) recommendation of risk formulation as a means to understand and communicate risk.

The participants within this study demonstrated a limited awareness of the evidence base for risk formulation, instead evidencing that they draw on the evidence base for structured professional judgment approaches to assessing risk to support their risk formulation practise. The participants promoted the use of risk formulation, expressing confidence and trust in the experts within the field, rather than a detailed awareness of the supporting evidence base. A limited awareness of the evidence base supporting the use of risk formulation in practice is not unexpected given the paucity of published research on the outcomes of risk formulation specifically.

The findings highlighted a lack of means through which risk formulations are validated, with participants using intuition and informal feedback from others to judge the appropriateness of their risk formulations. This absence of validation methods for risk formulation has been highlighted within the forensic literature (Jones, 2020), and within the clinical case formulation literature (Mumma, 2011), therefore it is not unexpected that the participants within this study described informal approaches to validation. Given that risk formulations are communicated and used within formal settings to inform decision making about current and future risk, it is concerning that practitioners do not have a method through which they can review and evaluate their risk formulations. The use of a structured method for reviewing risk formulations that goes beyond intuition and informal feedback is needed, this could be through the use of checklists or frameworks specifically designed for risk formulation. Where risk formulations have been utilised to inform risk management decisions it would be beneficial to have a review or feedback process to provide practitioners with

objective feedback pertaining to the outcomes of risk formulation. However, it is acknowledged, that the opportunities for obtaining feedback on service user outcomes within forensic practice, particularly in the longer term, are limited.

None of the participants spoke of the recently published HMPPS/NHS England guidelines on working with personality difficulties (HMPPS & NHS England, 2020), however this may have been due to the time between publication and data collection, and the fact that none of the participants worked in HMPPS or the NHS at the time of data collection. Nor did they make reference to any of the literature published previous to this discussing risk formulation.

Understanding forensic practitioners' experiences of risk formulation in practice has been answered by the themes *A Learning Journey* and *Role and Responsibilities*. Participants viewed risk formulation as central to their role and requiring a set of specialist skills and knowledge, which they acquired and developed in an informal and varied manner through experiential employment opportunities and supervision, over an extended time period. With knowledge and skills in risk formulation being imparted from, and developed under the guidance of, experienced others. Training in structured professional judgment tools included risk formulation, but the participants described an absence of standalone risk formulation training. There has been a focus on developing case formulation skills within forensic practice settings, particularly in relation to the Offender Personality Disorder Pathway programme, however research has yielded mixed results with regard to the effectiveness of training programmes for Offender Managers and it has been documented that further research into this area is required (Wheable & Davies, 2020). The findings from the current study suggest that learning about risk formulation, for these participants, was an ongoing and continuous process of knowledge acquisition and skill development rather than a discrete learning activity. Experiential learning is dependent on the roles and settings that a

practitioner operates within. Given the importance placed on risk formulation, and this being a key activity for forensic practitioners, it is noteworthy that there are no formal guidelines outlining knowledge acquisition and skill development pertaining to risk formulation.

Supervised practice allows for the development of skills however the nature and direction of skill development will be framed by the knowledge and skills of the supervisor and the setting within which the learning is taking place.

The participants were somewhat contradictory in their view of professional responsibility for risk formulation. On the one hand they expressed that risk formulation was central to their role, a key task for psychologists, yet expressed dissatisfaction when they perceived other professionals looking to them to complete risk formulations. This is likely to be reflective of a lack of consensus and understanding about risk formulation amongst the various disciplines, which is understandable given the limited attention to risk formulation within the published literature.

This research has highlighted a lack of clarity on the nature of risk formulation and variability in how risk formulation is implemented in practice, which is not unanticipated given the limited evidence base regarding risk formulation. Establishing a more structured approach to the teaching, learning and practise of risk formulation, through the development of discipline specific guidance underpinned by research, would facilitate a clearer understanding of the nature, the processes, and the outcomes of risk formulation.

Limitations of the Study

One of the main limitations of this study is the sample. The population from which the sample was derived excluded those forensic practitioners currently employed within the HMPPS and the NHS, with HMPPS being the main employer for forensic psychologists. The

majority of the participants did have prior experience working within these settings, so it could be argued that the sample was not restricted by this exclusion criteria. However, those who have left the service may have differing views and experiences to those currently employed in those settings, particularly with the introduction of more formulation-based approaches within prison, probation and healthcare settings.

Whilst the majority of the participants were forensic psychologists (qualified or trainee), one of the participants was a clinical psychologist and one was dual trained (clinical-forensic). Psychological formulation is one of the nine core competencies for BPS accredited clinical doctoral programmes (BPS, 2019), therefore there is likely to be a difference in how clinical psychologists have developed their formulation skills and knowledge, due to them receiving formal training in formulation, as compared with the forensic psychologist participants (see appendix O for further discussion on sample).

The data collection took place when Government guidelines were in place restricting contact due to COVID-19. This impacted the mode of data collection as the data were collected remotely (via Skype) rather than face-to-face, and it also impacted the sample size due to time constraints (see Appendix O for further discussion). Whilst researchers have argued for the benefits of remote data collection, and for this study it did have the advantage of permitting a wider geographical spread of participants and flexibility in terms of timing of interviews, it is not known whether collecting data remotely impacted upon the quality of the data collected.

The researcher is a qualified forensic psychologist who has experience of completing risk formulations in practice, and is also responsible for delivering teaching to aspiring forensic psychologists in the early stages of their careers. The design, the data collection, and the data analysis have all been influenced by the knowledge and experience of the researcher

(Finlay & Gough, 2003), including conscious and unconscious biases and assumptions resulting from this (see Appendix O for further discussion).

During the data collection the researcher reminded participants that the focus of the study was risk formulation, however, with the somewhat vague and fluid notion of risk formulation, and the interchangeable use of the terms risk formulation, forensic formulation and forensic case formulation, participants may have been describing thoughts and experiences based on other types of formulation.

This research was based on the assumption that risk formulation is an aspect of forensic practice, and therefore only recruited those participants who have used risk formulation in practice; there may be other forensic practitioners who do not use risk formulation, and who would not volunteer for a study exploring experiences of using risk formulation in practice. Furthermore, there may be practitioners who did not volunteer for the study due to not wanting to explore their practise in an area where the evidence base is weak. The data may therefore reflect a particular subset of forensic practitioners who are using risk formulation and are open to discussing this.

Implications for Practice

This research explored a small subset of practitioners engaging in risk formulation in forensic settings, and as such, any implications for practice are preliminary and remain somewhat tentative until further research is completed. This research has identified that, for this sample of participants, risk formulation is an important aspect of forensic practice, in terms of both fostering collaborative working relationships and informing future risk related treatment and management, yet the evidence demonstrating the efficacy of risk formulation in relation to these outcomes is limited.

The findings from this study indicate that experiential learning opportunities were favoured by the participants as a means to develop their risk formulation skills, therefore it would be beneficial to include practice cases and opportunities for feedback from experienced others, within risk formulation learning opportunities. Educators and supervisors should be knowledgeable about the current evidence base and the academic discourse surrounding risk formulation, in order to facilitate reflection and critical engagement from the learners. Furthermore, agreement within the discipline regarding the threshold concepts pertaining to risk formulation could facilitate the development of core curriculum content that could be utilised across educational settings, to ensure that those aspiring to engage in risk formulation practise have the key knowledge upon which to develop their skills.

The research has demonstrated that, for this sample of participants, the mechanisms for determining validity and utility of their risk formulation practices is not formalised, rather it is based on feedback from others and intuition. Without a process for evaluating risk formulations, nor any clear feedback regarding the outcomes of risk formulation practises, this potentially limits the opportunities for reflection and professional development. It is recommended that practitioners engaging in risk formulation consider how to monitor and evaluate their risk formulation practices. This could be through the implementation of organisational and/or discipline-wide approaches, such as the adoption of monitoring and evaluation checklists based on formulation frameworks, supported by practice guidance from professional practice bodies, such as the BPS Division of Forensic Psychology (DFP). Given the significance placed on risk formulation in informing treatment and risk management decisions, to reduce the risk of harm to others, and without the mechanisms for validating risk formulations, forensic practitioners should remain mindful of the current knowledge and evidence base pertaining to risk formulation, and be transparent about this when using risk formulation in their practice.

Directions for Future Research

This study has explored the view of forensic practitioners, and as highlighted above, the data may be reflective of a particular subset of practitioners who have used risk formulation in practice, who generally are supportive of risk formulation and who are open to exploring their practice. It would be interesting to gather data more widely to understand the nature and extent of risk formulation practices across the discipline, with the inclusion of HMPPS and NHS employees, to understand whether the themes identified within this study are reflective of the wider discipline.

The participants within this study viewed risk formulation as being beneficial when working with other professionals and service users. It would therefore be valuable to explore the experiences and views about risk formulation from the perspectives of those professionals and service users who have experienced risk formulation in practice. This would be in order to incorporate their perspectives, as the results of this study indicate that they are crucial to the process and outcomes of risk formulation, and also to develop insight into whether the views of the practitioners within this study can be substantiated.

Furthermore, it would be interesting to explore the teaching, learning and supervision of risk formulation practices, to understand how knowledge about risk formulation is imparted, and how skills are developed. This would involve exploring how risk formulation is taught within education and practice settings, and also understanding how risk formulation skills are developed through experience and supervision.

Conclusion

The findings of the current study demonstrated that, in the absence of definitive guidance and evidence, forensic practitioners work within a framework of risk formulation, using skills and knowledge that they have developed cumulatively over time. Some agreement was noted amongst participants, in terms of the purpose of risk formulation, the value of collaboration with others to complete the risk formulation, and the importance of clear and effective communication of the risk formulation. There appeared to be a lack of formalised methods through which participants could receive feedback on their risk formulations; this could potentially restrict the developmental opportunities afforded by timely and relevant feedback. Forensic practitioners should remain mindful of, and transparent about, the current knowledge and evidence base for risk formulation, and further research is required to provide a basis upon which professional practice guidelines pertaining to risk formulation can be developed.

CHAPTER 5

THESIS CONCLUSION

The aim of this thesis was to explore risk assessment in forensic practice in terms of the process of assessing risk, through exploring and identifying what forensic practitioners do when they are engaging in risk assessment. This has been achieved by three interconnected pieces of work. The outcomes from each element of the thesis will be discussed, and conclusions will be drawn regarding the main findings of the thesis overall, highlighting strengths and limitations of the thesis, implications for practice, and areas for further research.

The field of risk assessment and management has developed considerably since the 1990s, and the assessment and management of risk is a core aspect of forensic practice. As part of this growth, structured professional judgment guidelines, such as the HCR-20, have been developed, with the intention of guiding assessors to generate an evidence-based, empirically supported, understanding of the future risks posed by an individual.

The findings from chapter 2 demonstrated that the HCR-20 (Douglas et al., 2013) is an internationally renowned violence risk assessment (Viljoen et al., 2018), used to inform clinical and legal decisions (Douglas et al., 2013), within a range of settings, and has received significant research attention. The HCR-20 is a set of structured professional judgment guidelines, and rather than a prescriptive set of instructions. As is often found with psychological assessment measures, the HCR-20 offers guidelines through which assessors can structure and evidence their decision making regarding the likelihood and management of future violence risk. As such, within each of the seven steps there is scope for assessors to exercise their professional judgment, permitting a more nuanced assessment of the individual, which facilitates the development of personalised and targeted risk management strategies.

The guidelines on who can use the HCR-20 to assess violence risk permit a degree of flexibility in terms of background knowledge and skills, which espouses the utility of the

HCR-20 across a range of settings and contexts. However, this flexibility hampers comparisons of outcomes across practice settings due to the variability in the background and skills of the assessors. Research studies do not routinely provide detailed information about the study participants, in terms of background, training, experience, or about the procedures within the study or how the HCR-20 was completed, yet the HCR-20 manual specifically highlights the need to state the qualifications of those administering the HCR-20, for research purposes (Douglas et al., 2013, p. 39). Therefore, it is not known whether this variability in assessor skills and experience has any influence on HCR-20 outcomes, and without this, conclusions cannot be drawn regarding whether there is a need for more definitive standards regarding the administration of HCR-20 assessments.

Review of the HCR-20 literature highlights that, whilst this is plentiful, the majority of this research focusses on the identification of the relevant risk factors, and the prediction of future violence. Arguably, this specificity is due to the ease with which these elements of the HCR-20 can be scrutinised, in terms of inter-rater reliability across assessors for the presence and relevance of risk factors, and the outcomes of the HCR-20 in terms of predicting future violence. The HCR-20 V3 guidelines inform assessor decision making in relation to the presence and relevance of risk factors, with clear definitions, indications and coding notes provided for each risk factor. Some degree of flexibility and professional judgment is permissible, and research has continued to demonstrate good levels of interrater reliability in terms of the presence and relevance of risk factors, and final summary risk ratings (e.g., Cabeldue et al., 2018; Douglas & Belfrage, 2014; Doyle et al., 2014). Yet IRR has been observed to be lower in some field based studies (Murrie et al., 2013), further supporting the need for more detailed information about the methods used to complete the HCR-20 in research and practice settings to enable appropriate comparisons to be made and conclusions to be drawn.

In terms of validity of the HCR-20, some evidence exists in terms of concurrent validity with the PCL-R, and between Versions 2 and 3 (e.g., Eidhammer et al., 2013; Smith & Edens, 2013). Predictive validity has been explored in a range of contexts, in terms of inpatient transfer (Cabeldue et al., 2018) and community violence (Doyle et al., 2014), for example; these studies evidence links between HCR-20 ratings and violence related behaviours. However, limited predictive validity of the HCR-20 in some field based studies has been noted (e.g., Jeandarme et al., 2017; Neal et al., 2015). This could be due to the impact of risk management efforts, or possibly the variability with which the HCR-20 is implemented in practice as compared with research settings.

However, there does appear to be an incongruence with the intended use of the HCR-20 in practice and the supporting evidence base. The HCR-20, when used in practice, provides an in-depth and nuanced understanding of an individuals' risk potential, which is used to inform risk management planning. However, the literature supporting the utility of the HCR-20 mainly focuses on the prediction of future violence in a range of settings, and whilst understanding the likelihood of future violence is an important starting point for the generation of risk management plans, the intention for the HCR-20 is to go beyond the prediction of future risk. As outlined within chapter 2, the elements of the HCR-20 that have received less research attention are those that arguably involve greater levels of discretion and professional judgment, which is a complex and inexact endeavour. Whilst this lack of research attention is understandable given the difficulties inherent in researching decision-making of this nature, it is important for users of the HCR-20 to recognise which elements of the HCR-20 are supported by the evidence base, and how they utilise the evidence base to support their use of the HCR-20 in practice.

Considering the discretionary aspects of the HCR-20, step one, gathering information, is rarely explored and variability in how assessors select information may influence the latter

stages of the assessment. Steps five and six, generating future risk scenarios and risk management strategies, have also not been explored within the literature, how assessors generate future violence scenarios and how this relates to future risk management planning is unknown. Step seven, conclusory opinions, has received some research attention, generally in relation to the predictive validity of final risk ratings, however, generation of these ratings has not been explored, and it is noteworthy that there is no agreed consensus regarding the meanings attached to risk categories (Scurich, 2018).

Step four, risk formulation, is the focus of chapters three and four of this thesis. Chapter 3 presents a systematic review of the literature concerning risk formulation in forensic practice settings, specifically looking at the definitions of risk formulation, how risk formulation is implemented and the outcomes of risk formulation. Within this review, risk formulation was conceptualised as “an organizational framework for producing a narrative description that explains the underlying mechanism involved in the generation of harmful behaviour and for proposing hypotheses regarding action to facilitate change” (Doyle & Logan, 2012, p. 413). Despite the inclusion of formulation within practice guidelines (e.g., BPS 2011; DOH, 2009; RCP, 2020; HMPPS & NHS England, 2020), empirical literature pertaining to *risk* formulation in practice is limited. This was supported by the findings from this review, which identified only ten empirical papers evidencing an exploration of risk formulation in forensic practice, from which it was not possible to draw any conclusory opinions about risk formulation.

The included studies had small sample sizes, heterogeneous research aims, and evidenced methodological weaknesses. Over half of the included studies were categorised as single participant illustrative case examples, wherein the decision making for case selection had not been documented, and the study data was from the perspective of the report authors, who have varying degrees of involvement in the study setting. The quality of the included

studies was deemed to be low due to approaches to data collection, data analysis and participant recruitment strategies. The quality ratings were below 50% for eight of the ten studies, ranging from 46% to 65% for the quantitative studies, and 15% to 73% for the qualitative studies. Quality of the research may have contributed to the lack of published literature on this topic.

The narrative synthesis of the included studies identified that risk formulation was not clearly or consistently defined. In terms of implementation within forensic practice, there was limited agreement across the studies in terms of the frameworks used to generate the risk formulation, and the information drawn upon to generate the risk formulations. Variation was also observed in terms of whether the service user (who was the focus of the risk formulation) was involved in the risk formulation process, and whom the risk formulation was shared with. In terms of quality assurance, nine of the ten studies did not evidence any quality assurance measures for their risk formulation processes. Interestingly, despite the purpose of risk formulation being to inform the assessment and management of risk, none of the included studies discussed whether risk formulation had any measurable impact on risk of harm to others, with only three of the studies discussing how the risk formulation contributed to risk management. There was some evidence of enhancement of relationships as an outcome of risk formulation, in terms of relationships between professionals and with service-users, however these findings were tentative.

Evident from this review of the literature (see chapter 3) is a general lack of published outcome data in relation to risk formulation. Furthermore, the literature that does exist, evidences a lack of clear definition and implementation of risk formulation within practice. It is not clear how risk formulation is undertaken and what the intended outcomes are, and it is not known how risk formulation contributes to risk management.

To address the limited research exploring risk formulation in forensic practice settings identified in chapter 3, chapter 4 presents an empirical study exploring practitioners' experiences of risk formulation in forensic practice settings. Data were gathered through semi-structured interviews with ten practitioners who had experience of completing risk formulations in forensic practice settings. Template analysis was used to analyse the data, and five themes were identified: *Defining Risk Formulation, A Responsive Flexible Approach, Where's the Evidence for Risk Formulation, The Learning Journey, and Roles and Responsibilities.*

Risk formulation was viewed as both a product and a process, laying the foundations for developing an understanding of the individual, to inform future decisions about treatment and risk management. All of the practitioners discussed using the P model (Weerasekera, 1993) as a basis for their risk formulations, with collaboration and co-production necessary in terms of gathering quality information, fostering engagement, and developing relationships. Yet challenges in terms of multi-disciplinary team risk formulations were highlighted. Creativity in response to individual need was evident, with participants demonstrating flexibility and responsiveness in their risk formulation practises. Risk formulation was considered to be a key aspect of the participant's role, with their skills and knowledge being acquired through a range of experiential learning opportunities in forensic practice settings. The absence of established feedback channels for risk formulation was notable, with practitioners utilising informal feedback mechanisms, such as intuition and feedback from others, and the evidence base for structured professional judgment approaches to validate and support their risk formulation practise. The lack of formalised feedback and review channels raised concerns, particularly given that risk formulations are used in clinical and legal decision making. Overall the findings evidenced a lack of clarity over the nature of risk formulation, and variability in how risk formulation is implemented in practice; this finding

was not surprising given the limited evidence base and professional guidance regarding risk formulation.

The outcome of this review highlighted that, within the published literature, risk formulation takes on a number of guises; adapting and changing in response to the needs of the situation, and perhaps, the skills and needs of the formulator. As evidenced within chapter four, practitioners' skills in risk formulation appeared to develop over time, through the process of professional supervision, and the accumulation of professional knowledge and experiential learning activities. Whilst practitioners' could not pinpoint when they learnt about risk formulation, they described their understanding and skill development being nurtured when implementing risk formulation in practice, to such a degree that they could confidently utilise risk formulation, adapting their practice dependent on the situation. The skills described for successful risk formulation were related to information gathering, information synthesis, and communication. It could be argued that these skills are not specific to risk formulation activity as such, but rather these skills could be evidence of their training as practitioner psychologists and a demonstration of their ability to exercise professional judgment. Which, when underpinned and supported by a respectable evidence base, may ultimately be the essence of professional practice within psychology.

Formulation activities are an attempt to understand and make sense of a person, a behaviour or an event. It could be argued that this need to make sense and to understand, not only motivates the academicians and practitioners of psychology, it is also a characteristic of human nature. If this is the case, then how would we know when formulation begins and ends; do we (as psychologists, practitioners, human beings) contain our formulating to a specified particular activity, or is this something we instinctively engage in during our interactions with others? Perhaps when we take on a practitioner role, this desire to understand is reconceptualised as a feature of the profession, and when this professional

activity is underpinned by the knowledge base and experiential learning activities, this becomes what we term *professional judgment*.

Whether this need to understand is a natural, instinctive, human characteristic, or an endeavour for those with an interest in human behaviour, the challenges with defining, analysing and evaluating such an activity are complex, as has been evidenced within this thesis. However, notwithstanding these challenges, it is our duty as scientist-practitioners to meet these challenges in order to further develop the science of psychology, and to further our understanding of this evidently revered element of forensic psychology practice.

Areas for Further Research and Implications for Practice

This thesis has a clear emphasis on informing and developing forensic practice, however the implications are presented cautiously given the tentative nature of the findings from this thesis.

Considering some of the challenges and issues that researching risk formulation has provoked, it is suggested that forensic practitioners be encouraged to reflect upon their intentions, in terms of goals and outcomes, when engaging in risk formulation activities. If the intention is to reduce future harm potential, practitioners should consider how the risk formulation, whether this be process or product, contributes to this. Further to this, determining what constitutes a good formulation, and taking steps to evaluate one's risk formulations is essential. Thought should also be given to the other outcomes of risk formulation, such as, increased insight, greater understanding, and improved relationships, and whether these contribute to harm reduction. Reflecting upon the nature of professional judgment, and confidence within this, would be beneficial, as would developing an understanding of how professional experience and training contribute to the professional

judgment skills, and how this influences risk outcomes. Practitioners should be encouraged to engage with the evidence base and the debate around risk formulation, to stimulate discussion and reflection, in order to further develop their understanding.

To progress the knowledge and evidence base with regard to risk assessment in forensic practice, the following further specific recommendations are proposed:

- The process of completing a HCR-20, and the qualifications and experience of the assessors, should be clearly outlined in published studies to facilitate scrutiny and interpretation/comparison of research findings.
- The impact of the variations within the HCR-20 assessment process, such as assessor qualifications/experience, adherence to the guidance, for example, should be explored to ascertain whether this has any influence on assessment outcomes.
- Research should be conducted in practice settings to develop an understanding of how the HCR-20 is implemented in practice.
- Practitioners using the HCR-20 in practice should be transparent about the processes they have followed for each stage of the HCR-20.
- Whilst this thesis has focused on the HCR-20, the above recommendations may be beneficial for consideration in relation to other forensic structured professional judgment guidelines.

Specifically focusing on risk formulation, it is recommended that:

- Those engaging in, and/or overseeing, risk formulation practice should take responsibility for seeking out what has been written, thus far, regarding risk formulation, and work within these parameters, to ensure that their practice is informed and up-to-date.

- Practitioners using risk formulation in forensic practice be mindful of, and transparent about, the current state of the knowledge and evidence pertaining to risk formulation, to ensure that they practice within the parameters of this, and that others are aware of the limits of risk formulation, particularly when used to inform legal decisions.

Evidently further research to understand the efficacy and utility of risk formulation is needed, however, as has been highlighted within this thesis, research will not be the panacea unless it is underpinned by an agreement regarding what constitutes risk formulation, and adheres to research quality criterion. Specifying a profession-wide guiding framework for risk formulation in forensic practice, in line with structured professional judgment approaches, would facilitate the identification of methods and techniques through which risk formulation can be researched, validated, and advanced. It is therefore recommended that:

- In conjunction with experts within the field and professional regulatory and advisory bodies, professional practice guidelines for the use of risk formulation in forensic practice are developed. This can then form the basis of future research exploring risk formulation.

The development of discipline specific professional practice guidance on risk formulation would facilitate a more structured approach to teaching and the development of learning opportunities in order to nurture skills and impart knowledge.

Reflections and Limitations

The author of this thesis is a forensic psychologist with considerable experience conducting HCR-20 assessments and completing risk formulations, therefore the design,

analysis and conclusions of this research are a reflection of the author's background, training and experiences. The concept of risk formulation as presented in this thesis, therefore, is as interpreted by the author, other practitioner/researchers may conceptualise risk formulation differently.

The sample for the empirical project was limited in terms of size and scope. A larger sample, inclusive of forensic practitioners from NHS and HMPPS settings would have provided a more representative sample of those completing risk assessments and risk formulations in forensic practice settings.

The concept of risk formulation is loosely defined, therefore identifying instances and examples of risk formulation in forensic practice was not clear-cut. A definition of risk formulation was operationalised for the purposes of this thesis, however, the interchangeable terminology within the field may mean that some instances of risk formulation in forensic practice were not included.

Conclusion

Understanding what practitioners do when they are assessing risk has been relatively unexplored and this thesis sought to address the scarcity of evidence pertaining to risk assessment practices within forensic contexts. The findings have demonstrated variability in risk assessment practises.

The HCR-20 is a structured professional risk assessment, however the remit of the HCR-20 goes beyond the identification of a risk level, facilitating decision making with regard to the management of violence risk, with the aim being to reduce or eliminate that risk. The findings of this research have highlighted that whilst there is clear guidance and

empirical support for some elements of the HCR-20, this is not the case for the HCR-20 as a whole.

Risk formulation, as a stage within, but not exclusive to, the HCR-20, has limited empirical support, however the ambiguities and variations within risk formulation, with a lack of clear definitions and best practice guidance, hinders the development of an evidence base. Without a consensus about what risk formulation is, researchers are unable to advance the evidence within this field. It is therefore imperative for the advancement of knowledge and practice within this field, that professional practice guidelines are developed to permit the advancement of the discipline.

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APPENDICES

APPENDIX A

Database Searches: Search Terms and Results

All searches were conducted on 30th August 2019.

1.1 PROQUEST Databases

Six ProQuest Databases were searched using the following search strategy:

ab(formulat* OR "psychological formulat*" OR "psychological NEAR/3 formulat*" OR "case formulat*" OR "case NEAR/3 formulat*" OR "case conceptualisation" OR "structured professional judg*" OR "structured clinical judg*" OR SPJ) AND ab("psychiatric ward*" OR "psychiatric hospital*" OR "psychiatric unit*" OR "psychiatric setting*" OR "psychiatric facilit*" OR "psychiatric patient*" OR "psychiatric inpatient*" OR "psychiatric outpatient*" OR "special hospital*" OR "secure hospital*" OR "secure unit*" OR "secure setting*" OR "secure facilit*" OR "secure ward*" OR "secure service*" OR "secure patient*" OR "secure inpatient*" OR "locked ward*" OR "medium secure" OR MSU OR "high secure" OR "low secure" OR "mental health hospital*" OR "mental health ward*" OR "mental health unit*" OR "mental health setting*" OR "mental health facilit*" OR "mental health service*" OR "mental health inpatient*" OR "mental health outpatient*" OR "forensic unit*" OR "forensic setting*" OR "forensic hospital*" OR "forensic ward*" OR "forensic service*" OR "forensic facilit*" OR "forensic inpatient*" OR "forensic outpatient*" OR prison* OR offender* OR inmate* OR felon* OR parolee* OR criminal* OR "service user*" OR custod* OR corrections OR "correctional facilit*" OR "correctional service*" OR "correctional setting*" OR probation* OR "community supervision" OR "community management" OR "community NEAR/3 manag*") AND ab(risk)

The results for each database:

Criminal Justice Database (1992 to present)

Results before limits applied = 116

Language: Limit to English = 116

Source type: Exclude trade journals and conference papers and proceedings = 109

= 109

Psychology Database (1994 to present)

Results before limits applied = 135

Language: Limit to English = 135

Source type: Exclude trade journals and wire feeds = 130

= 130

Social Science Database (1988 to present)

Results before limits applied = 57, date range 1988 – 2018,

Language: Limit to English = 54,

Source type: Exclude trade journals = 52

= 52

ProQuest Dissertations and Theses Global (1981 to present)

Results before limits applied= 180, date range 1981 – 2018,

Language: Limit to English = 158,

Source type: Limit to full text = 128

= 128

National Criminal Justice Reference Service (NCJRS) Abstracts (1972-present)

Results before limits applied = 111, date range 1972 – 2016,

Language: Limit to English = 107

Source type: Exclude conference papers and proceedings, books, reports and other sources = 56

= 56

Applied Social Sciences Index & Abstracts (ASSIA) (1997 to present)

Results before limits applied = 119

Language: Limit to English = 119

= 119

1.2 Web of Science

Three Web of Science citation indexes were searched:

- Science Citation Index Expanded (SCI-EXPANDED), 1900 – present
- Social Science Citation Index (SSCI), 1900 – present
- Arts and Humanities Citation Index (A&HCI), 1975 – present

The following search terms were used:

- #1** (TS = risk) *AND* LANGUAGE: (English) = **2,504,185**
- #2** (TS = (formulat* OR "psychological formulat*" OR "psychological NEAR/3 formulat*" OR "case formulat*" OR "case NEAR/3 formulat*" OR "case conceptualisation" OR "structured professional judg*" OR "structured clinical judg*" OR SPJ)) *AND* LANGUAGE: (English) = **572,201**
- #3** (TS = ("psychiatric ward*" OR "psychiatric hospital*" OR "psychiatric unit*" OR "psychiatric setting*" OR "psychiatric facilit*" OR "psychiatric patient*" OR "psychiatric inpatient*" OR "psychiatric outpatient*" OR "special hospital*" OR "secure hospital*" OR "secure unit*" OR "secure setting*" OR "secure facilit*" OR "secure ward*" OR "secure service*" OR "secure patient*" OR "secure inpatient*" OR "locked ward*" OR "medium secure" OR MSU OR "high secure" OR "low secure" OR "mental health hospital*" OR "mental health ward*" OR "mental health unit*" OR "mental health setting*" OR "mental health facilit*" OR "mental health service*" OR "mental health inpatient*" OR "mental health outpatient*" OR "forensic unit*" OR "forensic setting*" OR "forensic hospital*" OR "forensic ward*" OR "forensic service*" OR "forensic facilit*" OR "forensic inpatient*" OR "forensic outpatient*" OR prison* OR offender* OR inmate* OR felon* OR parolee* OR criminal* OR "service user*" OR custod* OR corrections OR "correctional facilit*" OR "correctional service*" OR "correctional setting*" OR probation* OR "community supervision" OR "community management" OR "community NEAR/3 manag*")) *AND* LANGUAGE: (English) = **592,278**
- #4** #3 *AND* #2 *AND* #1 = **508**
- #5** (#3 *AND* #2 *AND* #1) *AND* LANGUAGE: (English) *AND* DOCUMENT TYPES: (Article) = **429**

1.3 PsycINFO (OVID) 1967 to August week 4 2019

1. risk [mp=title, abstract, heading word, table of contents, key concepts, original title, tests and measures, mesh] = **357842**
2. (formulat* or "psychological formulat*" or "psychological adj3 formulat*" or "case formulat*" or "case adj3 formulat*" or "case conceptualisation" or "structured professional judg*" or "structured clinical judg*" or SPJ) [mp=title, abstract, heading word, table of contents, key concepts, original title, tests and measures, mesh] = **43189**
3. ("psychiatric ward*" or "psychiatric hospital*" or "psychiatric unit*" or "psychiatric setting*" or "psychiatric facilit*" or "psychiatric patient*" or "psychiatric inpatient*" or "psychiatric outpatient*" or "special hospital*" or "secure hospital*" or "secure unit*" or "secure setting*" or "secure facilit*" or "secure ward*" or "secure service*" or "secure patient*" or "secure inpatient*" or "locked ward*" or "medium secure" or msu or "high secure" or "low secure" or "mental health hospital*" or "mental health ward*" or "mental health unit*" or "mental health setting*" or "mental health facilit*" or "mental health service*" or "mental health inpatient*" or "mental health outpatient*" or "forensic unit*" or "forensic setting*" or "forensic hospital*" or "forensic ward*" or "forensic service*" or "forensic facilit*" or "forensic inpatient*" or "forensic outpatient*" or prison* or offender* or inmate* or felon* or parolee* or criminal* or "service user*" or custod* or corrections or "correctional facilit*" or "correctional service*" or "correctional setting*" or probation* or "community supervision" or "community management" or "community adj3 manag*") [mp=title, abstract, heading word, table of contents, key concepts, original title, tests and measures, mesh] = **213519**
4. 1 and 2 and 3 = **498**
5. Limit 4 to English language = **469**
6. Limit 5 to journal article = **276**

1.4 MEDLINE (OVID) 1946 to August week 4 2019

1. risk [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] = **2105960**
2. (formulat* or "psychological formulat*" or "psychological adj3 formulat*" or "case formulat*" or "case adj3 formulat*" or "case conceptualisation" or "structured professional judg*" or "structured clinical judg*" or SPJ) [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] = **169997**
3. ("psychiatric ward*" or "psychiatric hospital*" or "psychiatric unit*" or "psychiatric setting*" or "psychiatric facilit*" or "psychiatric patient*" or "psychiatric inpatient*" or "psychiatric outpatient*" or "special hospital*" or "secure hospital*" or "secure unit*" or "secure setting*" or "secure facilit*" or "secure ward*" or "secure service*" or "secure patient*" or "secure inpatient*" or "locked ward*" or "medium secure" or msu or "high secure" or "low secure" or "mental health hospital*" or "mental health ward*" or "mental health unit*" or "mental health setting*" or "mental health facilit*" or "mental health service*" or "mental health inpatient*" or "mental health outpatient*" or "forensic unit*" or "forensic setting*" or "forensic hospital*" or "forensic ward*" or "forensic service*" or "forensic facilit*" or "forensic inpatient*" or "forensic outpatient*" or prison* or offender* or inmate* or felon* or parolee* or criminal* or "service user*" or custod* or corrections or "correctional facilit*" or "correctional service*" or "correctional setting*" or probation* or "community supervision" or "community management" or "community adj3 manag*") [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] = **155216**
4. 1 and 2 and 3 = **203**
5. Limit 4 to English language = **181**
6. Limit 5 to journal article = **179**

1.5 EMBASE (OVID) 1974 to 2019 August 30

1. risk [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating sub-heading word, candidate term word] = **3598652**
2. (formulat* or "psychological formulat*" or "psychological adj3 formulat*" or "case formulat*" or "case adj3 formulat*" or "case conceptualisation" or "structured professional judg*" or "structured clinical judg*" or SPJ) [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating sub-heading word, candidate term word] = **340809**
3. ("psychiatric ward*" or "psychiatric hospital*" or "psychiatric unit*" or "psychiatric setting*" or "psychiatric facilit*" or "psychiatric patient*" or "psychiatric inpatient*" or "psychiatric outpatient*" or "special hospital*" or "secure hospital*" or "secure unit*" or "secure setting*" or "secure facilit*" or "secure ward*" or "secure service*" or "secure patient*" or "secure inpatient*" or "locked ward*" or "medium secure" or msu or "high secure" or "low secure" or "mental health hospital*" or "mental health ward*" or "mental health unit*" or "mental health setting*" or "mental health facilit*" or "mental health service*" or "mental health inpatient*" or "mental health outpatient*" or "forensic unit*" or "forensic setting*" or "forensic hospital*" or "forensic ward*" or "forensic service*" or "forensic facilit*" or "forensic inpatient*" or "forensic outpatient*" or prison* or offender* or inmate* or felon* or parolee* or criminal* or "service user*" or custod* or corrections or "correctional facilit*" or "correctional service*" or "correctional setting*" or probation* or "community supervision" or "community management" or "community adj3 manag*") [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating sub-heading word, candidate term word] = **212210**
4. 1 and 2 and 3 = **454**
5. Limit 4 to English language = **425**
6. Limit 5 to journal article = **424**

APPENDIX B

Selection and Screening Tool

	Inclusion Criteria	Exclusion Criteria
Sample	<input type="checkbox"/> Forensic practice setting/service that works with adult service users who are at risk of offending / reoffending / harming others	<input type="checkbox"/> Non forensic setting OR <input type="checkbox"/> Non forensic population OR <input type="checkbox"/> Juvenile population
Phenomenon of Interest	<input type="checkbox"/> Formulation in relation to service user risk to others / risk of reoffending. AND <input type="checkbox"/> Risk formulation conceptualised as a process of understanding the underlying mechanisms in the risk behaviour. Completed as part of an assessment process to inform risk management	<input type="checkbox"/> Solely focussed on risk assessment or risk prediction <input type="checkbox"/> Formulation not in relation to service user risk to others and instead in relation to general functioning, mental health, personality, cognitive functioning <input type="checkbox"/> Focus solely on risk of suicide / self harm <input type="checkbox"/> Risk assessed by actuarial measures
Design	<input type="checkbox"/> questionnaire OR interview OR focus group OR survey OR case study OR observation OR illustrative case studies/examples	<input type="checkbox"/> No empirical data collection methods used
Evaluation	<input type="checkbox"/> Qualitative – themes, experiences, attitudes, perceptions, descriptions <input type="checkbox"/> Quantitative – outcome of assessment measures	<input type="checkbox"/> No empirical data analysis methods used No application to real life setting/data
Research type	<input type="checkbox"/> Quantitative <input type="checkbox"/> Qualitative <input type="checkbox"/> Mixed	<input type="checkbox"/> Narrative reviews <input type="checkbox"/> Discussion/opinion papers

APPENDIX C

Table of References to which Selection and Screening Tool Applied (criteria in bold indicates reason for exclusion)

	REFERENCE	How the reference was identified	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Decision
1	<p>Arsuffi, L. (2010). Homicide by an older adult offender: Assessment, formulation and treatment. <i>The British Journal of Forensic Practice</i>, 12(3), 45-53.</p> <p>RefWORKS ID: 5558</p>	Electronic database search	Adult male offender	<p>Formulation relates to understanding the offence – no explicit links made in paper to future risk</p> <p>Clear evidence that paper is focussed on risk formulation in practice X</p> <p>OR</p> <p>Explicit link between the concept of formulation and future risk X</p>	Illustrative case example	Descriptive account	Qualitative	Exclude
2	<p>Belfrage, H. (2015). Upgrading the practical use of the historical clinical risk management-20 in forensic psychiatric treatment: The process of going from version 2 to version 3 at two forensic psychiatric hospitals. <i>Journal of Threat Assessment and Management</i>, 2(1), 33-39.</p> <p>RefWORKS ID: 5411</p>	Electronic database search	Forensic psychiatric hospital setting	<p>Clear evidence that paper is focussed on risk formulation in practice ✓</p> <p>OR</p> <p>Explicit link between the concept of formulation and future risk X</p>	Illustrative case example	Descriptive	Qualitative	Included

	REFERENCE	How the reference was identified	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Decision
3	Bishop, A. J., & Henry, J. C. (2008). The assessment and treatment of a man with mild learning disability, violent behaviour and chronic low self-esteem: A case study. <i>Advances in Mental Health and Learning Disabilities</i> , 2(1), 38-44. RefWORKS ID: 5612	Electronic database search	Forensic setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Illustrative case example	Pre/post measures	Quantitative	Excluded
4	Bjorkly, S., Eidhammer, G., & Selmer, L. E. (2014). Concurrent validity and clinical utility of the HCR-20(V3) compared with the HCR-20 in forensic mental health nursing: Similar tools but improved method. <i>Journal of Forensic Nursing</i> , 10(4), 234-242. RefWORKS ID: 4917	Electronic database search	Forensic setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk ✓	Quantitative	Statistical analysis of data pertaining to ratings not risk formulation	Quantitative and qualitative	Excluded
5	Bonta, J., Rugge, T., Scott, T., Bourgon, G., & Yessine, A. K. (2008). Exploring the black box of community supervision. <i>Journal of Offender Rehabilitation</i> , 47(3), 248-270. RefWORKS ID:6350	Electronic database search	Forensic setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Review of recorded supervision session	Themes	Qualitative	Excluded

	REFERENCE	How the reference was identified	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Decision
6	Bowers, A. (2011). Clinical risk assessment and management of service users. <i>Clinical Governance</i> , 16(3), 190-202 RefWORKS ID: 6182	Electronic database search	Not forensic setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Cross sectional audit	Numerical data	Quantitative	Excluded
7	Brown, S., Beeley, C., Patel, G., & Vollm, B. (2018). Training probation officers in case formulation for personality disordered offenders. <i>Criminal Behaviour and Mental Health</i> , 28(1), 50-60. RefWORKS ID: 4791	Electronic database search	Forensic setting	Focus of paper is training OMs in case formulation. Assessed using vignettes, not evidence of what is done in practice. Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Pre/post measures and focus group	Rating and themes	Mixed	Excluded
8	Brown, S., & Voellm, B. (2013). Case formulation in personality disordered offenders: Views from the front line. <i>Criminal Behaviour and Mental Health</i> , 23(4), 263-273. RefWORKS ID: 4944	Electronic database search	Forensic setting	Not about risk formulation but about views of working with PD offenders. Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Focus groups	Themes	Qualitative	Excluded
9	Brown, S., & Voellm, B. (2016). The implementation of case formulation by probation officers: Service user and carer views. <i>Journal of Forensic Psychiatry & Psychology</i> , 27(2), 215-231. RefWORKS ID: 4859	Electronic database search	Forensic setting	Not about formulation being done in practice, concerns from others about it being done in the future. About role of Offender Managers in case formulation. Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Focus groups	Themes	Qualitative	Excluded

	REFERENCE	How the reference was identified	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Decision
10	Campbell, M., & Chaplin, R. (2001). Improving the assessment of risk of violence: A clinical audit of case note documentation. <i>Psychiatric Bulletin</i> , 25(7), 250-252. RefWORKS ID: 5701	Electronic database search	CMHT	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Retrospective audit	Numerical	Quantitative	Excluded
11	Carroll, A. (2008). Risk assessment and management in practice: The forensic risk assessment and management exercise. <i>Australasian Psychiatry</i> , 16(6), 412-417. RefWORKS ID: 5055	Electronic database search	Forensic setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk √	Discusses process of implementing an assessment framework	No data evaluation	Discussion paper	Excluded
12	Caveney, D., Wassall, S., & Rayner, K. (2018). In search of a family: The contribution of art psychotherapy to a collaborative approach with a man residing in a forensic learning disability setting. <i>British Journal of Learning Disabilities</i> , 46(1), 17-23. RefWORKS ID: 4790	Electronic database search	Forensic setting	Formulation not discussed – focus is on therapy Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Case study	Experience	Qualitative	Excluded

	REFERENCE	How the reference was identified	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Decision
13	Cheng, J., Haag, A. M., & Olver, M. E. (2019). Predictors of historical clinical risk management-20 version 3 (HCR-20:V3) summary risk ratings. <i>Psychiatry, Psychology, and Law: An Interdisciplinary Journal of the Australian and New Zealand Association of Psychiatry, Psychology and Law</i> , 26(4), 682-692. RefWORKS ID: 6397	Electronic database search	Forensic setting	Uses phrase risk formulation to refer to the summary risk rating (high / medium / low) Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Retrospective cohort design	correlations	Quant	Excluded
14	Connell, C. (2016). Forensic occupational therapy to reduce risk of reoffending: A survey of practice in the united kingdom. <i>Journal of Forensic Psychiatry & Psychology</i> , 27(6), 907-928. RefWORKS ID: 4840	Electronic database search	Forensic settings	Discusses formulation but the outcomes are not necessarily the result of formulation – it is about contribution of OT to reducing reoffending Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Survey	Themes	Mixed methods	Excluded
15	Connell, C. (2015). An integrated case formulation approach in forensic practice: The contribution of occupational therapy to risk assessment and formulation. <i>Journal of Forensic Psychiatry & Psychology</i> , 26(1), 94-106. RefWORKS ID: 4904	Electronic database search	Forensic setting	Clear evidence that paper is focussed on risk formulation in practice ✓ OR Explicit link between the concept of formulation and future risk ✓	Illustrative case example	Descriptive	Qualitative	Included

	REFERENCE	How the reference was identified	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Decision
16	Courtney, J., Rose, J., & Mason, O. (2006). The offence process of sex offenders with intellectual disabilities: A qualitative study. <i>Sexual Abuse: Journal of Research and Treatment</i> , 18(2), 169-191. RefWORKS ID: 6266	Electronic database search	Forensic setting	Data is not about completing a formulation, no mention of risk. Formulation discussed as a recommendation Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk ✓	Interviews	Grounded theory	Qualitative	Excluded
17	Craig, L. A., & Rettenberger, M. (2018). An etiological approach to sexual offender assessment: CAse formulation incorporating risk assessment (CAFIRA). <i>Current Psychiatry Reports</i> , 20(6), 43. RefWORKS ID: 5738	Electronic database search	Not practice setting	Clear evidence that paper is focussed on risk formulation in practice ✓ OR Explicit link between the concept of formulation and future risk ✓	No empirical data collected	No data evaluation	Review / discussion / theoretical paper	Excluded
18	Croft, A. (2014). Exploring the collaborative development of cognitive analytic therapy (cat) sequential diagrammatic reformulations (sdrs) with patients in a high secure hospital: Implications for understanding and managing risks (D.Clin.Psy.). Available from ProQuest Dissertations & Theses Global. (1827508185). Retrieved from https://search-proquest-com.ezproxyd.bham.ac.uk/docview/1827508185?accountid=8630 RefWORKS ID: 4615	Electronic database search						Unavailable

	REFERENCE	How the reference was identified	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Decision
19	Dickens, G. L., & Laura E O'Shea. (2017). Use of the HCR-20 for violence risk assessment: Views of clinicians working in a secure inpatient mental health setting. <i>Journal of Forensic Practice</i> , 19(2), 130-138. RefWORKS ID: 4303	Electronic database search	Forensic setting	Formulation about risk level not psychological formulation Authors discuss impact on formulation practices in discussion. Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Survey	Rating scales	Quantitative	Excluded
20	Douglas, K. S. (2014). Version 3 of the historical-clinical-risk management-20 (HCR-20(V3)): Relevance to violence risk assessment and management in forensic conditional release contexts. <i>Behavioral Sciences & the Law</i> , 32(5), 557-576. RefWORKS ID: 4920	Electronic database search	Not practice setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk ✓	No empirical data collected	No data evaluation	Discussion paper Review / discussion / theoretical paper	Excluded
21	Doyle, M., & Dolan, M. (2002). Violence risk assessment: Combining actuarial and clinical information to structure clinical judgements for the formulation and management of risk. <i>Journal of Psychiatric and Mental Health Nursing</i> , 9(6), 649-657. RefWORKS ID: 5690	Electronic database search	Not practice setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk ✓	No empirical data collected	No data evaluation	Discussion / theoretical paper	Excluded

	REFERENCE	How the reference was identified	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Decision
22	Doyle, M., & Logan, C. (2012). Operationalizing the assessment and management of violence risk in the short-term. Behavioral Sciences & the Law, 30(4), 406-419. RefWORKS ID: 4982	Electronic database search	Not practice setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk ✓	No empirical data collected	No data evaluation	Discussion paper	Excluded
23	Duff, S., & Willis, A. (2006). At the precipice: Assessing a non-offending client's potential to sexually offend. Journal of Sexual Aggression, 12(1), 43-51. RefWORKS ID: 5661	Electronic database search	Forensic outpatient setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk ✓	Illustrative case example	Descriptive	Qualitative	Included
24	Dunn, B. D., & Bolton, W. (2004). The impact of borderline personality traits on challenging behaviour: Implications for learning disabilities services. The British Journal of Forensic Practice, 6(4), 3-9. RefWORKS ID: 5673	Electronic database search	Forensic setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Illustrative case example	Experiences	Qualitative	Excluded
25	Gerace, A., Curren, D., & MuirCochrane, E. (2013). Multidisciplinary health professionals' assessments of risk: How are tools used to reach consensus about risk assessment and management? Journal of Psychiatric and Mental Health Nursing, 20(6), 557-563. RefWORKS ID: 5491	Electronic database search	General hospital setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Interviews	Content and descriptive analysis	Qualitative	Excluded

	REFERENCE	How the reference was identified	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Decision
26	Gough, K., Richardson, C., & Weeks, H. (2015). An audit of service-user involvement and quality of HCR-20 version 2 risk assessments on rehabilitation and low secure wards. <i>Journal of Psychiatric Intensive Care</i> , 11,2-8. RefWORKS ID: 5405	Electronic database search	Forensic setting	Developing standards for HCR20 implementation – not about formulation Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Audit / file review	Numerical	Quantitative	Excluded
27	Green, B., Carroll, A., & Brett, A. (2010). Structured risk assessment in community forensic mental health practice. <i>Australasian Psychiatry</i> , 18(6), 538-541. RefWORKS ID: 5017	Electronic database search	Forensic setting	About implementation of HCR-20 V2 not risk formulation. Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Survey	Numerical	Quantitative	Excluded
28	Gu, Y., Singh, J. P., Yun, L., & Hu, Z. (2014). A review of violence risk assessment for mentally disordered patients in mainland of china. <i>Criminal Justice and Behavior</i> , 41(12), 1398-1405. RefWORKS ID: 5437	Electronic database search	Not practice setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	No empirical data collected	No data evaluation	Discussion paper	Excluded
29	Guy, L. S., Packer, I. K., & Warnken, W. (2012). Assessing risk of violence using structured professional judgment guidelines. <i>Journal of Forensic Psychology Practice</i> , 12(3), 270-283. RefWORKS ID: 5002	Electronic database search	Civil psychiatric	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Case example	Observations	Qualitative	Excluded

	REFERENCE	How the reference was identified	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Decision
30	Heffernan, S., Brennand, D., & Jellicoe-Jones, L. (2016). Development and experiences of a prison-based personality disorder treatment unit. <i>Clinical Psychology Forum</i> , (282), 26. Retrieved from https://search-proquest-com.ezproxye.bham.ac.uk/docview/1790471393?accountid=8630 RefWORKS ID: 6423	Electronic database search	Forensic setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	No empirical data collected	No data evaluation	Discussion paper	Excluded
31	Heffernan, S., Brown, A., Chidambaram, A., Burns, D., & Nathan, R. (2016). Assessment, formulation and care pathways for individuals on the autism spectrum who have violently offended. <i>Clinical Psychology Forum</i> , (282), 22. Retrieved from https://search-proquest-com.ezproxye.bham.ac.uk/docview/1790472449?accountid=8630 RefWORKS ID: 6421	Electronic database search	Not practice setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk ✓	No empirical data collected	No data evaluation	Discussion paper	Excluded
32	Hopton, J., Cree, A., Thompson, S., Jones, R., & Jones, R. (2018). An evaluation of the quality of HCR-20 risk formulations: A comparison between HCR-20 version 2 and HCR-20 version 3. <i>International Journal of Forensic Mental Health</i> , 17(2), 195-201. RefWORKS ID: 4800	Electronic database search	Forensic setting	Clear evidence that paper is focussed on risk formulation in practice ✓ OR Explicit link between the concept of formulation and future risk ✓	Questionnaire	Psychometric outcome measures	Quantitative	Included

	REFERENCE	How the reference was identified	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Decision
33	Huddy, V., Roberts, A., Jarrett, M., & Valmaggia, L. (2016). Psychological therapy for at risk mental state for psychosis in a prison setting: A case study. <i>Journal of Clinical Psychology</i> , 72(2), 142-151. RefWORKS ID: 4864	Electronic database search	Forensic setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Case study	Outcomes measures	Quantitative	Excluded
34	Judge, J., Quayle, E., O'Rourke, S., Russell, K., & Darjee, R. (2014). Referrers' views of structured professional judgement risk assessment of sexual offenders: A qualitative study. <i>Journal of Sexual Aggression</i> , 20(1), 94-109. RefWORKS ID: 4928	Electronic database search	Forensic setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk ✓	Questionnaire and interviews	Themes	Qualitative	Included
35	Kirkland, J., & Baron, E. (2015). Using a cognitive analytic approach to formulate a complex sexual and violent offender to inform multi-agency working: Developing a shared understanding. <i>Journal of Sexual Aggression</i> , 21(3), 394-405. RefWORKS ID: 4906	Electronic database search	Forensic setting	Clear evidence that paper is focussed on risk formulation in practice ✓ OR Explicit link between the concept of formulation and future risk ✓	Illustrative case example	Descriptive	Qualitative	Included

	REFERENCE	How the reference was identified	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Decision
36	Kitchenham, N. (2017). Applying aspects of the 'offender personality disorder' strategy to a secure female psychiatric ward. <i>Clinical Psychology Forum</i> , (300), 20. Retrieved from https://search-proquest-com.ezproxye.bham.ac.uk/docview/1970620972?accountid=8630 RefWORKS ID: 6407	Electronic database search	Forensic setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Questionnaire	Numerical	Quantitative	Excluded
37	Maguire, N. (2006). Cognitive behavioural therapy and homelessness: A case series pilot study. <i>Behavioural and Cognitive Psychotherapy</i> , 34(1), 107-111. RefWORKS ID: 5076	Electronic database search	Non-Forensic Community setting	Formulation to inform CBT intervention, not specifically about risk. Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Case study	Outcomes and experiences	Mixed	Excluded
38	Maltman, L. J., & Turner, E. L. (2017). Women at the centre – using formulation to enhance partnership-working: A case study. <i>Journal of Forensic Practice</i> , 19(4), 278-287. RefWORKS ID: 4302	Electronic database search	Forensic setting	Clear evidence that paper is focussed on risk formulation in practice ✓ OR Explicit link between the concept of formulation and future risk ✓	Case example	Descriptive	Qualitative	Included

	REFERENCE	How the reference was identified	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Decision
39	Mannix, K., & Bergin, S. (2016). Using psychological formulation to 'dance in synch' with your client. <i>Clinical Psychology Forum</i> , (282), 11. Retrieved from https://search-proquest-com.ezproxye.bham.ac.uk/docview/1790471432?accountid=8630 RefWORKS ID: 6422	Electronic database search	Forensic Setting	Clear evidence that paper is focussed on risk formulation in practice ✓ OR Explicit link between the concept of formulation and future risk X	Illustrative case example	Descriptive	Qualitative	Included
40	Marks, E. R. (2011). Assessing risk and outcomes in offenders detained in intellectual disability and mental health medium secure units in the united kingdom (Foren.Psy.D.). Available from ProQuest Dissertations & Theses Global. (1124341341). Retrieved from https://search-proquest-com.ezproxyd.bham.ac.uk/docview/1124341341?accountid=8630 RefWORKS ID: 4645	Electronic database search						Unavailable
41	Megargee, E. I. (2011). Using the algebra of aggression in forensic practice. <i>British Journal of Forensic Practice</i> , 13(1), 4-11 RefWORKS ID: 6184	Electronic database search	Not practice setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	No empirical data collected	No data evaluation	Discussion paper	Excluded

	REFERENCE	How the reference was identified	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Decision
42	Moore, E., & Drennan, G. (2013). Complex forensic case formulation in recovery-oriented services: Some implications for routine practice. <i>Criminal Behaviour and Mental Health</i> , 23(4), 230-240. RefWORKS ID: 5463	Electronic database search	Not practice setting	Clear evidence that paper is focussed on risk formulation in practice ✓ OR Explicit link between the concept of formulation and future risk ✓	No empirical data collected	No data evaluation	Discussion paper	Excluded
43	Morey, L. C., & Quigley, B. D. (2002). Use of the personality assessment inventory (PAI) in assessing offenders. <i>International Journal of Offender Therapy and Comparative Criminology</i> , 46(3), 333-349. RefWORKS ID: 6362	Electronic database search	Forensic setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Case example	Descriptive	mixed	Excluded
44	Murphy, D. (2013). Risk assessment of offenders with an autism spectrum disorder. <i>Journal of Intellectual Disabilities and Offending Behaviour</i> , 4(1-2), 33-41. RefWORKS ID: 6451	Electronic database search	Not practice setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Screening study	No data evaluation	Descriptive / conceptual paper	Excluded
45	Nathan, R., Cramond, L., Brown, A., McEllin, B., & Whittington, R. (2012). Approaches to personality disordered offenders: Experiential and empirical lessons from the forensic personality disorder assessment and liaison service. <i>The British Journal of Forensic Practice</i> , 14(4), 281-291. RefWORKS ID: 5507	Electronic database search	Forensic setting	Description of referrals to a service Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Demographic	Numerical	General review	Excluded

	REFERENCE	How the reference was identified	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Decision
46	Nezu, C. M., Greenberg, J., & Nezu, A. M. (2006). Project STOP: Cognitive behavioral assessment and treatment for sex offenders with intellectual disability. <i>Journal of Forensic Psychology Practice</i> , 6(3), 87-103. RefWORKS ID: 5077	Electronic database search	Not practice setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	No empirical data collected	No data evaluation	Discussion paper	Excluded
47	Ng, L., Zeng, I., Kalinowski, C., & Watson, P. (2019). Documenting psychiatric risk: More than ticking boxes. <i>Australasian Psychiatry</i> RefWORKS ID: 5922	Electronic database search	Acute adult mental health	Clear evidence that paper is focussed on risk formulation in practice ✓ OR Explicit link between the concept of formulation and future risk ✓	Audit	Descriptive	Quantitative	Excluded
48	O'Rourke, S., & Grewer, G. (2005). Assessment of deaf people in forensic mental health settings: A risky business! <i>Journal of Forensic Psychiatry & Psychology</i> , 16(4), 671-684. RefWORKS ID: 5079	Electronic database search	Not practice setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	No empirical data collected	No data evaluation	Discussion paper	Excluded
49	Radcliffe, K., McMullan, E., & Ramsden, J. (2018). Developing offender manager competencies in completing case formulation. <i>Probation Journal</i> , 65(1), 27-38. RefWORKS ID: 4299	Electronic database search	Probation service	About training in case formulation. OPDOMs trained in formulation demonstrated increased competence in case formulation than GOMs. Assessed using vignettes. Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Outcome measures /ratings	Statistical analysis of outcome measures	Quantitative	Excluded

	REFERENCE	How the reference was identified	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Decision
50	Ramsden, J. (2018). "Are you calling me a liar"? clinical interviewing more for trust than knowledge with high-risk men with antisocial personality disorder. <i>International Journal of Forensic Mental Health</i> , 17(4), 351-361. RefWORKS ID: 4792	Electronic database search	Not practice setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	No empirical data collected	No data evaluation	Discussion paper	Excluded
51	Ramsden, J., Joyes, E., Gordon, N., & Lowton, M. (2016). How working with psychologists has influenced probation practice: Attempting to capture some of the impact and the learning from the offender personality disorder pathway project. <i>Probation Journal</i> , 63(1), 54. RefWORKS ID: 4315	Electronic database search	Forensic setting OPD pathway	Focus is on OM experiences of the OPD pathway, formulation mentioned but not in detail. Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Focus groups	Themes	Qualitative	Excluded
52	Reynolds, K., & Miles, H. L. (2009). The effect of training on the quality of HCR-20 violence risk assessments in forensic secure services. <i>Journal of Forensic Psychiatry & Psychology</i> , 20(3), 473-480. RefWORKS ID: 5041	Electronic database search	Forensic setting	Focus is on HCR-20 training Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	File review	Numerical data Quality	Quantitative	Excluded

	REFERENCE	How the reference was identified	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Decision
53	Rusbridge, S., Tooze, O., Griffith, E., & Wilkinson-Tough, M. (2018). Clinical psychologists' perceptions of barriers and facilitators to engaging service users in index offence assessment and formulation within a medium secure unit. <i>Journal of Forensic Psychiatry & Psychology</i> , 29(1), 106-123. RefWORKS ID: 4806	Electronic database search	Forensic setting	Asking clinical psychologists about barriers encountered when engaging service users in index offence assessment and formulation – about difficulties faced Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Focus groups	Themes	Qualitative	Excluded
54	Russell, K., & Darjee, R. (2013). Practical assessment and management of risk in sexual offenders. <i>Advances in Psychiatric Treatment</i> , 19(1), 56-66. RefWORKS ID: 6111	Electronic database search	Not practice setting	Clear evidence that paper is focussed on risk formulation in practice ✓ OR Explicit link between the concept of formulation and future risk ✓	No empirical data collected	No data evaluation	Discussion paper	Excluded
55	Sen, P., Lindsey, S., Chatterjee, N., Ramalier, R., & Picchioni, M. (2015). An audit of the quality of HCR-20 violence risk assessments in a low secure service. <i>Journal of Psychiatric Intensive Care</i> , 11, Art e-9. RefWORKS ID: 5404	Electronic database search	Low secure service	Aim of paper it to validate quality assessment tool for HCR-20 Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Audit	Quality checklist	Quantitative	Excluded

	REFERENCE	How the reference was identified	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Decision
56	Shaw, J., Higgins, C., & Quartey, C. (2017). The impact of collaborative case formulation with high risk offenders with personality disorder. <i>Journal of Forensic Psychiatry & Psychology</i> , 28(6), 777-789. RefWORKS ID: 4826	Electronic database search	Forensic setting	Clear evidence that paper is focussed on risk formulation in practice ✓ OR Explicit link between the concept of formulation and future risk ✓	Randomised controlled post- test design	Psychometric measures	Quantitative	Included
57	Storey, J. E., Watt, K. A., & Hart, S. D. (2015). An examination of violence risk communication in practice using a structured professional judgment framework. <i>Behavioral Sciences & the Law</i> , 33(1), 39-55. RefWORKS ID: 4900	Electronic database search	Forensic setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	File review	Numerical data	Quantitative	Excluded
58	Trundle, G., Craig, L. A., & Stringer, I. (2017). Differentiating between pathological demand avoidance and antisocial personality disorder: A case study. <i>Journal of Intellectual Disabilities and Offending Behaviour</i> , 8(1), 13-27. RefWORKS ID: 4308	Electronic database search	Forensic setting	Formulation as the methodology to assess symptomology Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Case study	Comparison of formulations - checklist	Qualitative	Excluded
59	Vess, J. (2008). Risk formulation with sex offenders: Integrating functional analysis and actuarial measures. <i>The Journal of Behavior Analysis of Offender and Victim Treatment and Prevention</i> , 1(4), 29-41. RefWORKS ID: 5626	Electronic database search	Not forensic practice setting	Clear evidence that paper is focussed on risk formulation in practice ✓ OR Explicit link between the concept of formulation and future risk ✓	No empirical data collected	No data evaluation	Discussion paper	Excluded

	REFERENCE	How the reference was identified	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Decision
60	Vess, J., Ward, T., & Collie, R. (2008). Case formulation with sex offenders: An illustration of individualized risk assessment. <i>The Journal of Behavior Analysis of Offender and Victim Treatment and Prevention</i> , 1(3), 284-293. RefWORKS ID: 5627	Electronic database search	Setting not stated	Clear evidence that paper is focussed on risk formulation in practice ✓ OR Explicit link between the concept of formulation and future risk ✓	No empirical data collected	No data evaluation	Discussion paper with examples	Excluded
61	Voellm, B. (2014). Case formulation in personality disordered offenders - A delphi survey of professionals. <i>Criminal Behaviour and Mental Health</i> , 24(1), 60-80. RefWORKS ID: 4927	Electronic database search	Forensic settings	Surveyed practitioners about what they think should happen but isn't evidence of what does happen Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Delphi Survey	Themes / numerical data	Mixed	Excluded
62	Whitehead, P. R., Ward, T., & Collie, R. M. (2007). Time for a change. <i>International Journal of Offender Therapy and Comparative Criminology</i> , 51(5), 578. RefWORKS ID: 4377	Electronic database search	Forensic setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk ✓	Illustrative case example	Descriptive	Qualitative	Included
63	Wood, H., & Brown, G. (2014). Psychoanalytically-informed clinical supervision of staff in probation services. <i>Psychoanalytic Psychotherapy</i> , 28(3), 330-344. RefWORKS ID: 5442	Electronic database search	Forensic setting	Focus was on supervisors of offenders – not about risk formulation in practice Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Survey / questionnaire	Themes	Qualitative	Excluded

	REFERENCE	How the reference was identified	Sample	Phenomenon of Interest	Design	Evaluation	Research type	Decision
64	Wright, P., & Webster, C. D. (2011). Implementing structured professional judgment risk assessment schemes: An example of institutional change. <i>The International Journal of Forensic Mental Health</i> , 10(1), 1-6. RefWORKS ID: 5556	Electronic database search	Not practice setting	Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	No empirical data collection	No data analysis	Discussion paper	Excluded
	Covernton, E., Moores, A.& Lowenstein, J. (2019). Changing clinicians' perceptions of the role that risk formulation and the HCR-20v3 play in the assessment and management of violence. <i>The Journal of Forensic Practice</i> , Vol. 21 (4), 212-227.	Electronic database search	Mental health trust (not specified)	Focus is on changing perceptions of risk formulation through training, not evidence of formulation in practice Clear evidence that paper is focussed on risk formulation in practice X OR Explicit link between the concept of formulation and future risk X	Questionnaire	Numerical and themes	Quantitative and qualitative	Excluded
	Snowden, R., Holt, J., Simkiss, N., Smith, A., Webb, D., & Gray, N. (2019). WARRN – a formulation-based risk assessment process: its implementation and impact across a whole country. <i>The Journal of Mental Health Training, Education and Practice</i> , 14 (6), 399-410.	Electronic database search	Mental health services (not specified)	Clear evidence that paper is focussed on risk formulation in practice ✓ OR Explicit link between the concept of formulation and future risk X	Survey / Questionnaire	Numerical and themes	Quantitative and qualitative	Excluded

APPENDIX D
Data Extraction Form

Author/s	
Title	
Year of Publication	
Country of study	
Study design	
Aims / research question/s	
Participants and sample size	
Data source	
Method of data collection	
Data analysis	
Findings relevant to review questions:	
Definition of risk formulation	
Implementation of risk formulation <ul style="list-style-type: none"> - Models/frameworks used - Completion - Collaboration - Communication - Quality assurance 	
Outcomes of risk formulation <ul style="list-style-type: none"> - Risk management - Other outcomes 	
Conclusions of study	
Limitations of study	
Strengths of study	
Applicability of findings to wider forensic practice	

APPENDIX E

Quality Appraisal Tool for Quantitative Studies

	Yes	Partial	No	Can't Tell	Comments
1. Are the individuals selected to participate in the study likely to be representative of the target population?					
2. Was the study described as randomised?					
3. If yes, was the method of randomisation described?					
4. If yes, was the method appropriate?					
5. Were there important differences between the groups prior to the intervention?					
6. Were the outcome assessors aware of the intervention status of participants?					
7. Were the study participants aware of the research question?					
8. Were data collection methods shown to be valid and reliable?					
9. Were withdrawals and drop-outs reported in terms of numbers and/or reasons per group?					
10. Was the consistency of the intervention measured?					
11. Is it likely that participants received an unintended intervention that may influence the results?					
12. Are the statistical methods appropriate for the study design?					
13. Is the research valuable?					

Total Score: / 26

Percentage:

APPENDIX F

Quality Appraisal Tool for Qualitative Studies

1. Was there a clear statement of the aims of the research? <i>- What is the goal of the research?</i> <i>- Why is it important?</i>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unsure		
2. Is a qualitative methodology appropriate? <i>- Does the research seek to interpret or illuminate the actions and/or subjective experiences of research participants?</i> <i>- Is qualitative research the right methodology for addressing the research goal?</i>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unsure		
Is it worth continuing?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unsure		
Questions				Can't tell	Comments
	Yes	Partial	No		
3. Was the research design appropriate to the aims of the research? <i>- Has the researcher justified the research design?</i> <i>- Has the researcher discussed how they decided which method to use?</i>					
4. Was the recruitment strategy appropriate to the aims of the research? <i>- Why the participants selected were the most appropriate?</i> <i>- Are there any discussion around recruitment e.g., why some chose not to take part?</i>					
5. Has the researcher explained how the participants were selected?					
6. Was the data collected in a way that addressed the research issue? <i>- Was the setting for data collection was justified?</i> <i>- Has the researcher justified the methods chosen?</i> <i>- Are the methods explicit (how were interviews conducted, did they use a topic guide?)</i> <i>- Were the methods modified during the study?</i> <i>- Is the form of data clear?</i> <i>- Has the researcher discussed saturation of data?</i>					

	Yes	Partial	No	Can't tell	Comments
7. Is it clear how data were collected?					
8. Has the relationship between researcher and participants been adequately considered? <i>- Has the researcher critically examined their own role, potential bias, and influence during: formulation of research questions; data collection, including sample recruitment, and choice of location?</i> <i>- How did the researcher respond to events during the study, and did they consider the implications of any changes in the research design?</i>					
9. Have ethical issues been taken into consideration? <i>- Are there sufficient details of how the research was explained to participants for the reader to assess whether ethical standards were maintained?</i> <i>- Has the researcher discussed issues raised by the study (informed consent, confidentiality, how they handled the effects of the study on participants during and after the study)?</i> <i>- Was ethical approval sought from an ethics committee?</i>					
10. Was the data analysis sufficiently rigorous? <i>- If TA used is it clear how the themes were derived from the data?</i> <i>- Does the researcher explain how the data presented were selected from the original sample to demonstrate the analysis process?</i> <i>- Are sufficient data presented to support the findings?</i> <i>- To what extent contradictory data were taken into account?</i>					
11. Is there an in-depth description of the analysis process?					

	Yes	Partial	No	Can't tell	Comments
<p>12. Is there a clear statement of findings?</p> <ul style="list-style-type: none"> - Are the findings explicit? - Is there adequate discussion of the evidence both for and against the researcher's arguments - Has the researcher discussed the credibility of their findings (triangulation, respondent validation, more than one analyst)? - Are the findings discussed in relation to the original research questions? 					
<p>13. How valuable is the research?</p> <ul style="list-style-type: none"> - Does the researcher discuss the contribution the study makes to existing knowledge or understanding? - Do they identify new areas where research is necessary? - Has the researcher discussed whether/how the findings can be transferred to other populations or considered other ways the research may be used? 					

Quality Score: /26

Percentage:

APPENDIX G

Summary of the Quality Assessment of the Included Quantitative Studies

Article	Quality Assessment Criteria													Total Score	Quality %
	1	2	3	4	5	6	7	8	9	10	11	12	13		
Hopton et al. (2018)	Y (2)	Y (2)	Y (2)	Y (2)	N (2)	P (1)	N/A	P (1)	N/A	N/A	P (1)	Y (2)	Y (2)	17	65
Shaw et al. (2017)	CT	Y (2)	Y (2)	N (0)	CT	Y (0)	CT	P (1)	Y (2)	N (0)	P (1)	Y (2)	Y (2)	12	46

(1) Are the individuals selected to participate in the study likely to be representative of the target population? (2) Was the study described as randomised? (3) Was the method of randomisation described? (4) Was the method of randomisation appropriate? (5) Were there important differences between the groups prior to the intervention? (6) Were the outcome assessors aware of the intervention status of participants? (7) Were the study participants aware of the research question? (8) Were data collection methods shown to be valid and reliable? (9) Were withdrawals and drop-outs reported in terms of numbers and/or reasons per group? (10) Was the consistency of the intervention measured? (11) Is it likely that participants received an unintended intervention that may influence the results? (12) Are the statistical methods appropriate for the study design? (13) Is the research valuable?

Y = Yes (2), P = Partial (1), N = No (0), CT = can't tell (0)

Maximum score is 26

Total score = sum of criterion ratings

Reversed score items = 5, 6, 7, 11

Quality = score/max possible x 100

APPENDIX H

Summary of the Quality Assessment of the Included Qualitative Studies

Article	Quality Assessment Criteria													Total Score	Quality %
	1	2	3	4	5	6	7	8	9	10	11	12	13		
Belfrage (2015)	Y	P	N	N	N	N	N	N	N	N	N	N	P	4	15
Connell (2015)	Y	Y	Y	CT	N	CT	N	N	N	CT	P	Y	P	10	38
Duff & Willis (2006)	Y	Y	N	CT	N	P	N	N	N	CT	N	P	P	7	27
Judge et al (2014)	Y	P	P	P	P	P	Y	Y	N	Y	Y	Y	Y	19	73
Kirkland & Baron (2015)	Y	Y	Y	CT	N	CT	N	N	N	CT	N	P	P	8	31
Maltman & Turner (2017)	Y	Y	Y	CT	N	CT	N	N	N	CT	N	P	Y	9	35
Mannix & Bergin (2016)	Y	Y	Y	CT	N	CT	N	N	N	CT	N	P	P	8	31
Whitehead et al (2007)	Y	Y	Y	CT	N	CT	N	N	N	CT	N	P	Y	9	35

(1) Was there a clear statement of the aims of the research? (2) Is a qualitative methodology appropriate? (3) Was the research design appropriate to the aims of the research? (4) Was the recruitment strategy appropriate to the aims of the research? (5) Has the researcher explained how the participants were selected? (6) Were the data collected in a way that addressed the research issue? (7) Is it clear how the data were collected? (8) Has the relationship between researcher and participants been adequately considered? (9) Have ethical issues been taken into consideration? (10) Was the data analysis sufficiently rigorous? (11) Is there an in-depth description of the data-analysis process? (12) Is there a clear statement of findings? (13) How valuable is the research?

Y = Yes (2), P = Partial (1), N = No (0), CT = can't tell(-)

Maximum score is 26

Total score = sum of criterion ratings

Quality = score/max possible x 100

APPENDIX I

Recruitment Advert

Forensic practitioners' experiences of risk formulation

Are you a forensic practitioner with experience of completing risk formulations? Would you be willing to participate in an online interview discussing your experiences of completing risk formulations? If you are interested in participating in this study or you would like more information before making a decision then please contact me, Emma Tarpey, on [REDACTED]

The interview will last between 45 minutes and an hour, and you will be offered a £20 amazon voucher for your time.

NHS and HMPPS employees are not eligible to participate in this study.

This study has ethical approval from the University of Birmingham, and is being completed as part of the CPD Doctorate in Forensic Psychology Practice.

APPENDIX J

Recruitment email

Dear

I am a student on the CPD Doctorate in Forensic Psychology Practice at the University of Birmingham. As part of my studies I am undertaking a research project exploring forensic practitioners' experiences of completing risk formulations in forensic contexts. The will involve conducting interviews with forensic practitioners who have experience of completing risk formulations. The attached information sheet outlines more details about the study.

The study will involve participating in an online interview with myself via skype/adobe connect. If you are interested in participating in this study or you would like more information before making a decision then please contact me on [REDACTED] NHS and HMPPS employees are not eligible to participate in this study. The interview will last up to an hour, and you will be offered a £20 amazon for your time.

The use of email to recruit participants for this study has been approved by the UoB Research committee.

Please circulate this email to others who you think may be interested in participating in this research.

Kind regards,

Emma Tarpey (Student)

CPD Doctorate in Forensic Psychology Practice

Richard Barker (Supervisor)

Lead Psychologist MSU Services, and Consultant Clinical & Forensic Psychologist

APPENDIX K

Participant Information Sheet

Forensic practitioners' experiences of risk formulation

My name is Emma Tarpey and I am conducting this research as a student on the CPD Doctorate in Forensic Psychology Practice programme, at the University of Birmingham.

What is the study about?

This research is interested in risk formulation, and more specifically forensic practitioners' experiences of completing risk formulations in forensic contexts. This will be explored by interviewing forensic practitioners who have experience of completing risk formulations.

Why have I been approached?

You have been approached because the study requires information from people who have completed risk formulations in forensic contexts, and whose current employer is not the NHS or HMPPS.

What will I be asked to do?

If you decide you would like to take part, then you will be invited to a one-to-one skype/adobe connect interview with the researcher to discuss your experiences of completing risk formulations, the interview will be audio recorded and will last between 45 minutes to an hour.

Do I have to take part?

No. It's completely up to you to decide whether or not you take part. If you decide to take part and then change your mind you have the right to do so prior to, during, or within two weeks from the day of the interview, without providing any reasons and without your rights being affected in any way. All your research data collected until this point will be deleted.

Will my data be Identifiable?

The primary researcher will listen to the audio recordings of the interview and type the discussions into a text format on a secure computer. Any identifying information relating to names (of you or others) and location, will be removed. You will be referred to by a pseudonym, however it may be necessary to identify you by job role within the transcript, analysis and write up. Anonymised quotes taken from your interview will be used in the final write up of the project, and this may be shared at conferences, within publications and will be subject to review by examiners of the degree.

Further details regarding the confidentiality of your data can be found towards the end of this document.

The research data collected for this study will be stored securely and only the researcher conducting this study and their supervisor/s will have access to these data:

- Audio recordings will be destroyed and/or deleted once they have been transcribed into a text format.
- The files will be encrypted (that is no-one other than the researcher will be able to access them) and the computer itself password protected.

- At the end of the study, hard copies of consent forms (which contain personal sensitive data) will be scanned. The electronic files will be saved on the University of Birmingham computer network for 10 years. At the end of this period, they will be destroyed.
- The interview transcription will be made anonymous by removing any identifying information including your name. Anonymised direct quotations from the interview may be used in the reports or publications from the study, but your name will not be attached to them.

What will happen to the results?

The results will be summarised and a written report of the findings will be submitted as part of the primary researchers' doctoral study programme. The research findings may be submitted for publication in an academic or professional journal, and presented at conferences.

Are there any risks?

There are no risks anticipated with participating in this study. However, if you experience any distress following participation you are encouraged to inform the researcher.

If what is said during the interview makes me think that you, or someone else, is at significant risk of harm, I will speak to my supervisor about this. If possible, I will tell you if I have to do this. The appropriate authorities may be informed if serious issues are raised.

Are there any benefits to taking part?

You will be offered a £20 amazon gift voucher for participating in the project. This will be emailed to you, two weeks after the interview has taken place.

Who has reviewed the project?

This study has been reviewed and approved by the University of Birmingham Ethics Committee.

Where can I obtain further information about the study if I need it?

If you have any questions about the study, please contact the main researchers:

Emma Tarpey


Academic Supervisors:

Richard Barker


Zoe Stephenson


Data Protection

In order to carry out the research project described above, we will need to collect information about you, and some of this information will be your personal data. Under data protection law, we have to provide you with very specific information about what we do with your data and about your rights. We have set out below the key information you need to know about how we will use your personal data.

More information on how the University processes personal data can be found on the University's website on the page called 'Data Protection - How the University Uses Your Data' (<https://www.birmingham.ac.uk/privacy/index.aspx>).

Who is the Data Controller?

The University of Birmingham, Edgbaston, Birmingham B15 2TT is the data controller for the personal data that we process in relation to you.

What data are we processing and for what purpose will we use it?

We will collect and process your personal data to conduct the research project, as explained in the Participant Information Sheet.

What is our legal basis for processing your data?

The legal justification we have under data protection law for processing your personal data is that it is necessary for our research, which is a task we carry out in the public interest.

Who will my personal data be shared with?

We will not share your data with any third party.

Sometimes, external organisations assist us with processing your information, for example, in providing IT support. These organisations act on our behalf in accordance with our instructions and do not process your data for any purpose over and above what we have asked them to do. We make sure we have appropriate contracts in place with them to protect and safeguard your data. If your personal data are transferred outside the European Union (for example, if one of our partners is based outside the EU or we use a cloud-based app with servers based outside the EU), we make sure that appropriate safeguards are in place to ensure the confidentiality and security of your personal data.

How will my personal data be kept secure?

The University takes great care to ensure that personal data is handled, stored and disposed of confidentially and securely. Our staff receive regular data protection training, and the University has put in place organisational and technical measures so that personal data is processed in accordance with the data protection principles set out in data protection law.

The University has an Information Security Management System based on ISO27001 with a range of controls covering the protection of personal information. Annual security awareness training is mandatory for staff and the University is accredited under the NHS Information Governance Toolkit, the Payment Card Industry Data Security Standard and is in the process of gaining Cyber Essentials Plus for defined services.

In relation to this project, only the primary researcher, project supervisor and data custodian will have access to the dataset.

How long will my personal data be kept?

Your data will be retained for 10 years after the publication of the research outcomes.

Your rights in relation to your data

You may have the following rights in respect of your personal data:

- The right to access to your data (often referred to as a Subject Access Request).

- The right to rectification of inaccuracies in your data.
- The right to erasure of your data (in certain circumstances).
- The right to restrict processing of your data (in certain circumstances).
- The right to object to the processing of your data (in certain circumstances).
- The right to ask for your personal data to be transferred electronically to a third party.

However, your rights to access, change or move your information are limited, as we need to manage your information in specific ways in order for the research to be reliable and accurate. If you withdraw from the project, we will keep the information we have already obtained but, to safeguard your rights, we will use the minimum personally-identifiable information possible.

If you would like more information on your rights, would like to exercise any right or have any queries relating to our processing of your personal data, please contact:

The Information Compliance Manager, Legal Services, The University of Birmingham, Edgbaston, Birmingham B15 2TT

Email: dataprotection@contacts.bham.ac.uk Telephone: +44 (0)121 414 3916

If you wish to make a complaint about how your data is being or has been processed, please contact our Data Protection Officer.

Mrs Carolyn Pike, OBE, The Data Protection Officer, Legal Services, The University of Birmingham, Edgbaston, Birmingham B15 2TT

Email: dataprotection@contacts.bham.ac.uk Telephone: +44 (0)121 414 3916

You also have a right to complain to the Information Commissioner's Office (ICO) about the way in which we process your personal data. You can make a complaint using the ICO's website.

APPENDIX L

Forensic practitioners' experiences of risk formulation**INFORMED CONSENT FORM****Fair Processing Statement**

This information is being collected as part of a research project concerned with Risk Formulation by the Department of Psychology in the University of Birmingham. The information which you supply and that which may be collected as part of the research project will be entered into a filing system or database and will only be accessed by authorised personnel involved in the project. The information will be retained by the University of Birmingham and will only be used for the purpose of research, and statistical and audit purposes. By supplying this information you are consenting to the University storing your information for the purposes stated above. The information will be processed by the University of Birmingham in accordance with the provisions of the Data Protection Act 2018. No identifiable personal data will be published.

Before you consent to participating in the study we ask that you read the participant information sheet and mark each box below with your initials if you agree. If you have any questions or queries before signing the consent form please contact to the principal researcher, Emma Tarpey.

***Please initial
inside each
box***

1. I confirm that I have read and understood the information sheet, dated _ / _ / _ _ _ _ version number _____ for the **Forensic practitioners' experiences of risk formulation** 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 during the data collection process and up to two weeks after the data has been collected, without giving any reason and without my legal rights being affected. I understand that data collected up to my time of withdrawal will be destroyed.
3. I understand that the interview will be audio recorded and then made into an anonymised written transcript. The audio recordings of the meeting / interview will be deleted following transcription.
4. I understand that once my data have been anonymised and incorporated into themes it might not be possible for it to be withdrawn, though every attempt will be made to extract my data, up to the point of publication.
5. I understand that the information from the interview will be pooled with other participants' responses, anonymised and may be published, and used within reports, conferences and training events.
6. I consent to the University of Birmingham keeping written transcriptions of the interview for 10 years after the study has finished.

7. I understand that my personal data will be processed for the purposes detailed above, in accordance with the Data Protection Act 2018 and the General Data Protection Regulations.

8. I agree to take part in the forensic practitioners' experiences of risk formulation study.

Name of Participant

Date

Signature

Name of Person taking Consent

Date

Signature

APPENDIX M

Semi-structured Interview Schedule

Thank participant and explain format of session will be reviewing the PIS and consent, followed by interview questions on risk formulation.

Summarise PIS and consent form and confirm verbal consent.

Example questions:

- What do you understand by the term risk formulation?
- How long have you been completing risk formulations?
- What training have you received in risk formulation?
- What would you say is the purpose of a risk formulation?
- When are risk formulations completed?
- Who completes risk formulations?
- What would you say a typical risk formulation looks like? How it is presented?
- What information contributes to, and is included within, a risk formulation?
- Can you give me some examples of when you have completed risk formulations?
- Can you describe the process you follow when completing a risk formulation?
- What is your experience of completing risk formulations in multi-disciplinary teams?
- What is your experience of completing risk formulations with clients / patients / prisoners?
- What do you think are the benefits to completing risk formulations directly with clients / prisoners / patients?
- Can you describe a successful risk formulation that you have completed?
- Can you describe a not so successful risk formulation that you have completed?
- Once you have completed a risk formulation, what do you do with it?
- Do you revisit completed risk formulations? If so, how and why?
- Has your risk formulation practice changed at all? If so, how and why?
- How do you think risk formulations relate to practice?
- How useful do you think risk formulations are to forensic practice?
- What value do you see risk formulations being to other professionals?
- What awareness do you have of the knowledge and evidence base around risk formulation?

APPENDIX N

Template Development

Initial Template (prior to analysis)
<ul style="list-style-type: none"> • Purpose of risk formulation • Process • Accuracy • Evidence base • Training
Template after 3 interviews
<ul style="list-style-type: none"> • Purpose of formulation <ul style="list-style-type: none"> ○ Help others <ul style="list-style-type: none"> ▪ Teams ▪ Communication ○ Help us <ul style="list-style-type: none"> ▪ Treatment ▪ Communication ▪ It's our job ○ Help patient • Process <ul style="list-style-type: none"> ○ Flexible methods ○ Depends on audience ○ Revisit, revise, disclose • Learning <ul style="list-style-type: none"> ○ Skills and Knowledge ○ Learn by doing ○ Learn from others • Is it right? <ul style="list-style-type: none"> ○ Do others understand? ○ Self-assessment ○ Evidence base • Information <ul style="list-style-type: none"> ○ Quality <ul style="list-style-type: none"> ▪ Patient as expert ▪ Collaboration <ul style="list-style-type: none"> • Relationships

Practitioner Interview Coding Table / Template		
Theme	Sub-Theme	Codes
Defining Risk Formulation	Formulation as the foundation	Foundation. Fundamental. Importance
	More than a risk assessment	Importance. In-between.
	Telling their story	Story. Narrative. Making sense. Picture. Holistic.
	Formulation as an experience	Dynamic. Process. Experience.
	Facilitating Understanding <ul style="list-style-type: none"> - Help others understand - Helps the individual understand - Providing direction 	Understanding. Help others. Empathy. Insight. Self-management. Responsibility. Autonomy Future. Planning. Engagement. Decision making. Treatment
A Responsive Flexible Approach	4P's, 5P's and Beyond	Models. 4P. 5P. Framework. Approaches. Communication. Flexible. Problem solving. Systematic.
	Information is key	Information. Importance. Range. Perspectives. Data. Relationships. Time. Expert. Collaboration. Accuracy. Richness.
	Collaboration with the service user	Relationship. Collaboration. Shared. Connection. Therapeutic.
	Sketching it out	Draw. Diagrams. Writing. Revise. Versions.
	Depends on the audience	Audience. Communication. Report. Creativity. Pragmatic. Research. Disclosure. Perspectives.
Where's the Evidence for Risk Formulation?	Evidence based practice?	Evidence base. Research. SPJ. Trust. Assumptions. Scientific. Assumptions.
	Internal and external validation	Makes sense. Feeling. Intuition. Knowing. Feedback. Self-assessment. Accuracy.
The Learning Journey	A lack of formal training	Skills. Knowledge. Training. Unstructured.
	Learning on the job	Supervision. Practice. Learning. Process. Mistakes. Time. Repetition. Experience

	Learning from others	Other professionals. Observation
Roles and Responsibilities	It's our bread and butter	Purpose. Function. Role. Contribution. MDT working. Expectations.
	The skilled facilitator.	Skills. Trained. Specialist. Background. Facilitate.
	Challenging teamwork	MDT. Other professionals. Background

Final Template of Themes

6. Defining Risk Formulation

- Formulation as the foundation
- More than a risk assessment
- Telling their story
- Formulation as an experience
- Facilitating Understanding
 - o Help others understand
 - o Helps the individual understand
 - o Providing direction

7. A Responsive Flexible Approach

- 4P's, 5P's and Beyond
- Information is key
- Collaboration with the service user
- Sketching it out
- Depends on the audience

8. Where's the Evidence for Risk Formulation?

- Evidence based practice?
- Internal and external validation

9. The Learning Journey

- A lack of formal training
- Learning on the job
- Learning from others

10. Roles and Responsibilities

- It's our bread and butter
- The skilled facilitator
- Challenging teamwork

Appendix O

Researcher Reflexivity

I am a qualified forensic psychologist, I began working within the prison service over twenty years ago, and I am now responsible for overseeing stage one of forensic psychology training at a local university. I wanted to complete this qualification to develop my research skills.

I had originally planned to explore risk formulation in practice within a hospital setting, for which I needed HRA approval. I review ethics applications on a regular basis in my academic role, so I did not anticipate that my awareness of ethical issues would be challenged, and in the main it wasn't, however the issue of seeking patient consent was complicated. As can often be the case with ethical issues, there was no clear-cut answer. Personally I was concerned about conducting research that was about patients without hearing their voice on the matter. I was aware that to include this element within the research would have led to an even more prolonged and complicated process, however in hindsight the issue of not interviewing them but them being present for the data collection was the issue that caused the most debate.

After a lengthy review process I was granted ethical approval, but what had been gaining greater significance in the lead up to this time was the spread of COVID-19. I was granted ethical approval for a study I could no longer undertake, due to the significant demands placed on the NHS, the declaration of a pandemic and the eventual lockdown of the country. On reflection it is probably a good thing that the project hadn't commenced, as being part way through data collection would have potentially been a more difficult problem to resolve in comparison with not having started the project at all. I had resigned myself to waiting until the pandemic was over and then being able to resume the project, now that

ethics were finally in place. I had not really considered there could be an alternative course of action, such as coming up with a new project.

It did not take me too long at all to generate a new research project and the ethics process was quick and without any problems. I worried that because it had been quite straightforward, it meant that the project was not as valuable or worthwhile as the original plan. I wondered how I had managed to come up with something so quickly when the previous idea had taken so long, and whether it was going to be of a good enough standard. I wrangled with this worry throughout the data collection and analysis. What I did not recognise was that the learning and development that had occurred during the design of the original project was reflected in the new idea. I had already explored the literature, I had completed the SLR, I had been through the ethics process already, so I had taken this knowledge and experience into the design of the second project. Unfortunately, the time-frame for completing the new project meant that the sample was restricted and the interviews were conducted remotely; a larger number of participants using face-to-face interviews would have been preferable, however this was not possible due to COVID-19. Yet conducting the interviews remotely did facilitate a wider geographical spread of participants, and there was flexibility when scheduling the interviews as myself and the participants were not restricted by having to be in a particular location at a particular time.

During the data collection I became acutely aware of the different and competing roles that I moved between, as a forensic psychologist, as a student, as a course leader, and as a researcher. There were a number of times during the interviews, particularly when discussing training, that I thought ‘how can I add this to the MSc?’, demonstrating the competing demands of the different roles, even though at the time of interviewing I considered myself to be in the role of ‘researcher/student’. This led me to consider my motivations for exploring this research topic, and also my investment in the topic as a teacher

of forensic psychology and as a forensic practitioner with experience of completing risk formulations in practice. I reflected on my role as a forensic psychologist as being part helpful, part hampering. I was mindful that I was not a neutral observer in this research. I am a forensic psychologist, I am interviewing other forensic psychologists about risk formulation, an activity I had undertaken on many occasions. On the one hand I was able to ask questions from an informed position, I was interviewing people from my profession, I could relate to what they were talking about; however, on the other hand this could have led to me making assumptions about what they were saying, or not saying, and also influencing how I interpreted the data. My role as a forensic practitioner, being part of the profession, is also likely to have influenced what the participants discussed. This was especially pertinent for me when discussing their knowledge of the evidence base, as I worried that the participants may have felt I was testing them. I discussed this in supervision and from this changed the delivery of the question slightly, to reflect that the evidence base is limited.

At the start of the data collection I was surprised how nervous I felt prior to the interviews. I am an experienced forensic psychologist with a wealth of experience interviewing offenders, so I hadn't anticipated feeling nervous interviewing the participants. At the time I wondered whether it was because the data collection was key to my progression with the research and also I think there was a worry about getting it wrong, asking the wrong questions and the data not being 'good enough'. I definitely relaxed over the course of the interviews and I noticed that my level of worry was dependant on what I viewed as the level of experience of the participant, the more experienced they were the more I thought I may be 'exposed' as not knowing what I was doing. This led me to wonder whether the participants had preconceived ideas of me as a student; perhaps the 'newly qualified' participants were expecting a 'younger student' similar to them, with limited experience in forensic practice, and this may have influenced how they responded during the interviews.

Three of the participants were known to me through prior professional activities, I had a good understanding of their background and experience within risk formulation. It is possible that these existing relationships influenced their decision to participate, the data collection and the analysis. In hindsight it would have been helpful to ‘de-brief’ with them after the interviews to gather their thoughts and perceptions about the research process and me as a researcher, in terms of how they felt about the interview and whether they would have offered different information in a different setting. Yet at the time of the data collection I was trying to remain in a neutral position and worried that having this debrief would blur the roles somewhat, so I missed the opportunity to understand their perspective on this.

Due to time constraints I did not seek ethical approval to include current NHS / HMPPS employees within my research sample, whilst I was aware that this limited the scope of the project, it was only towards the end of data collection that I wondered whether the exclusion of current NHS / HMPPS employees had influenced the participants’ decision to participate. This reflection was triggered by the comments from one participant, who perhaps had interpreted the criteria as an indication of this research being undertaken from a particular standpoint with regard to risk formulation practises within those settings. This participant favoured risk formulation but presented negative views of risk formulation in one of the settings, intimating that this was my view too. I think I could have explained the rationale for the inclusion/exclusion criteria more clearly within the information sheet.

Once the data were collected and transcribed, I began the analysis. This was an interesting yet challenging activity. I began by reading through the first two transcripts, and I couldn’t pick out codes. I was unsure if I was looking for words, or statements or underlying meaning. I also found myself analysing the text as a whole, so rather than pulling out themes and codes I was generating an overall view of the participant. Similar to what I would do when working as a forensic practitioner. As a practitioner I would take an idiographic

approach to analysing the individual, and this is what I started to do with the transcripts. It felt like I was formulating the participants, talking about formulation! This led me to reflect on the process of formulation in more depth and think about how I approach formulation.

The participants work within a professional framework of ethics, values and standards, they had been socialised into their profession through educational and employment experiences, therefore their accounts of their professional experience were provided within this professional framework (which is also my professional framework). This led me to reflect on how my decisions during the research process, choosing the topic of interest, what to include or not include, served to strengthen my professional identity and that of other professionals, through highlighting the importance of risk formulation as an area of expertise, thus maintaining the status quo and our position as experts.

Throughout the study, and particularly in the write-up and drawing together of the findings of the thesis as a whole I have been thinking about the nature of risk and whether risk assessment practices can be subject to rigorous empirical scrutiny. Within chapter two I have referred to the authors of the HCR-20 stating that “risk for violence is not a characteristic of the physical world that can be evaluated objectively, but a subjective perception – something that exists not in fact, but in the eye of the beholder” (Douglas et al., 2013, p. 4). The ontological nature of risk, how risk is understood by those who research and practice in this area, influences how risk is operationalised. Whilst it is acknowledged that the concept of risk is shaped by social and political ideologies, working with individuals to manage their risk to reduce harm to others, appears to place the responsibility for risk within individuals, the individual deemed to be ‘at risk’, and also perhaps within the individual responsible for assessing and managing that risk. These contrasting, and possibly conflicting perspectives on risk, reflected my struggle when trying to locate my epistemological position, as I tried to untangle my professional practice on formulation and my research position. In

my experience this discussion is rarely heard within forensic psychology, the task of forensic psychologists is to assess the risk and provide advice on how this it to be managed, often in situations where failures have significant consequences. Therefore, philosophical debates on the nature of risk, the nature of individuals and their behaviours, may be viewed as indulgent and unnecessary when there is a job to be done. However, conducting this research has brought these questions to the fore, and I now intend to continue this exploration of my assumptions on the nature of risk in an attempt to understand how this influences me as a practitioner and as a researcher.