PROFESSIONAL DOCTORATES

An exploration of female violence and anger

McBride, Erin

Award date:
2023

Awarding institution:
Bangor University

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PRIFYSGOL
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AN EXPLORATION OF FEMALE VIOLENCE AND ANGER

Erin McBride

North Wales Clinical Psychology Programme

Submitted in partial fulfilment of the requirements for the degree

of Doctor of Clinical Psychology

November 2022

Declaration

I hereby declare that this thesis is the results of my own investigations, except where otherwise stated. All other sources are acknowledged by bibliographic references. This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree unless, as agreed by the University, for approved dual awards.

Yr wyf drwy hyn yn datgan mai canlyniad fy ymchwil fy hun yw'r thesis hwn, ac eithrio lle nodir yn wahanol. Caiff ffynonellau eraill eu cydnabod gan droednodiadau yn rhoi cyfeiriadau eglur. Nid yw sylwedd y gwaith hwn wedi cael ei dderbyn o'r blaen ar gyfer unrhyw radd, ac nid yw'n cael ei gyflwyno ar yr un pryd mewn ymgeisiaeth am unrhyw radd oni bai ei fod, fel y cytunwyd gan y Brifysgol, am gymwysterau deuol cymeradwy.

Signed:

Erin McBride

Acknowledgments

Firstly, I would like to acknowledge and say thanks to my supervisors. Hannah, from being the first clinical psychologist I ever worked with in the National Probation Service to supervising my masters and now my thesis, thank you for always providing me with a professional role model of who I want to be “when I grow up”. You continue to believe in me and support my passion for research in female forensics despite being one of the busiest humans I know. Throughout the doctorate you have single handily held my passion for forensic services despite their challenges - Becca definitely owes you a drink for my return to this work post qualifying! Lucy, thank you for stepping in for the last few pivotal months and providing the best advice and encouragement early on a Wednesday morning. Bangor research team are lucky to have you, as was I to have you on board this project. Mike, thank you for seeing the project through the initial stages, proving poignant areas of reflection throughout data collection and analysis, and being the captain of our qualitative ship. Although not a supervisor, thanks to Chris for always being on hand for questions over email or a quick teams chat – your contributions have always seen me through confusing or unsure moments.

Secondly, I would like to thank the NWCPP course, particularly Michaela Swales and Carolien Lamers. Life has been tougher than I could have ever imagined over the past three years. Training through a global pandemic has not only had the “expected” impacts but a complete change to my identity after suffering long term health implications from covid-19. That, alongside losing and grieving significant others and supporting family members through significant health concerns has made for a challenging time. Thank you, Michaela, for offering calm but strong leadership, as well as support and flexibility when required. Carolien, although late to my training journey you have been pivotal in getting me through

these last few months and helping me find the silver lining in my new identity; your counsel has been invaluable.

Thirdly, I would like to thank my cohort for travelling on this journey with me, despite me being a little late at the end. Three people in particular have held my hand through this journey, metaphorically, and at times, physically. Laura, your compassion and ability to listen appears to be endless – thank you for being you. Erica, you were there at times when life has never felt darker and when my heart was broken. Thank you for always being up for a moan and allowing me to share such special moments with your new family ("hey Min") that have filled me with such joy. And Jess, words will never express the thanks and love I hold for you. You have provided me with a home for three years and a friendship that will last a lifetime. And despite becoming a new Mum to the beautiful Brody, I could still always call you for a thesis cry.

Fourthly, although you will never know this, thank you to Winnie for reminding me every day that there is a life beyond a thesis. You remind me that the simple things are often the best, like getting outside in nature and tasty treats. You have genuinely been the needed other heartbeat in my home. And thank you to my Mum and sister for their support with Winnie when work has unfortunately had to take priority.

Fifthly, to my friends and family for their patience - I'm ready to get my life back!

Table of contents

Thesis Summary

This thesis, *'An exploration of female violence and anger'*, consists of three chapters. Chapter one is a systematic review exploring risk factors associated with violence in female forensic populations. It is, to the best of our knowledge, the first review to look at the state of play of violence risk factors in women generally. Twenty-four papers were included in the review. Factors found to be associated with violence in female forensic populations fell into three domains: *individual clinical factors* (including personality, diagnoses, self-injurious behaviour, suicide attempts, substance misuse, and criminal and violence history), *social and familial factors* (including parental history, abuse, situation stress, gang membership, socio-demographic variables) and *biological factors* (including cortisol levels, traumatic brain injury, and age). Implications for the management of violent women are discussed. Chapter two is an exploration into how staff working with women on female forensic wards recognise, understand, and respond to patient anger. A qualitative study design interviewed six ward-based staff working on female forensic wards in a secure forensic hospital in the United Kingdom. Using thematic analysis, four superordinate themes (including subordinate themes) were extracted from the data: *'Perspectives on women's anger'* (including 'It's not what good girls do', 'Rage by the rules', and 'Nature vs nurture'), '*Anger expression'* (including 'Obvious anger', 'Hidden anger: isolation and withdrawal', and 'Internalised anger: self-harm'), *'Centrality of relationships'* (including 'Knowing you, knowing cues: recognising anger' and 'Knowing you, knowing what to do: responding to anger'), and '*The emotional impact'* (including 'Shock (horror)', 'Shhh – we're angry too', and 'The swan'). Implications on gender-informed policy and staff wellbeing are discussed. Chapter three discusses the implications for the systematic review and empirical research paper in further detail, particularly the clinical impact to forensic services, as well as providing personal points of reflection throughout the research process.

Chapter 1

Literature Review

Violence risk factors in adult female forensic populations: A systematic review.

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This paper has been prepared in adherence of the Journal of Forensic Psychology and Practice - https://www.tandfonline.com/action/authorSubmission?show=instructions&journalCode=wfpp21

Violence risk factors in adult female forensic populations: a systematic review

Understanding the factors associated with women's use of violence is critical for treatment and risk management, yet empirical evidence pertaining to male norms has often been applied to female populations, with questionable validity. This is the first systematic review to examine the state of play of risk factors in female forensic populations. A systematic search of six online databases from inception to May 2022 with keywords relating to "female", "violence", "risk factors", and "forensic" was conducted. Twenty-four studies met inclusion criteria. Factors found to be associated with violence in female forensic populations fell into three domains: *individual clinical factors* (including personality, diagnoses, self-injurious behavior, suicide attempts, substance misuse, and criminal and violence history), *social and familial factors* (including parental history, abuse, situation stress, gang membership, and socio-demographic variables) and *biological factors* (including cortisol levels, traumatic brain injury, and age). Implications for future research and clinical practice are discussed.

Keywords: female; violence; forensic; risk factors; adult; review

Introduction

Research specific to female forensic populations has lagged behind that with males, potentially due to women comprising a minority (10-15%) of forensic populations worldwide (Kennedy, 2022). Consequently, approaches to assessment, formulation, and management of violence risk are predominantly based upon research conducted with male populations (de Vogel et al., 2019). This is despite female-perpetrated violence and numbers of females in prison and forensic secure units rising (Miller et al., 2010; Moretti et al., 2005) and recommendations that gender-informed approaches should be used in forensic settings (Gobeil et al., 2016). Remarkably, ensuring risk assessment is suitably attuned to females is not widespread; His Majesty's Prison and Probation Service in the United Kingdom does not currently systematically employ *any* assessments purposely designed for women or consider factors associated with female violence from female-based research (de Vogel et al., 2019).

The Historical Clinical Risk-20 Management approach (HCR-20 v3; Douglas et al., 2013), the most commonly used structured professional judgement approach to violence risk globally (Singh, 2013), defines violence as the *"actual, attempted, or threatened infliction of bodily harm of another person"* (Douglas et al., 2013, pg.36). This definition of violence will be adopted in this review. The HCR-20 provides a robust empirically-based approach to assessing, formulating, and managing violence risk in men and whilst attempts have been made to adapt it to female populations by adding risk factors (Female Additional Manual [FAM]; de Vogel et al., 2014), this performs worse at predicting violent recidivism in females, with low overall predictive accuracy (de Vogel et al., 2019). Despite these limitations, mental health professionals have reported that a female-specific lens is valuable to hold awareness for gender issues in risk management and treatment (de Vogel & Louppen, 2017; Griswold et al., 2016).

Some known violence risk factors are valid for both genders (Rettinger & Andrews, 2010), particularly age of first violent offence, previous violent behavior, and substance misuse (Andrews et al., 2012); other factors have a greater effect on women, such as disruptions in social relationships (de Vogel & Nicholls, 2016), mental health problems and traumatic experiences (Blanchette & Brown, 2006; Brennan et al., 2012; Davidson & Chesney-Lind, 2009; Salisbury et al., 2016). Other violence risk factors seem pertinent to women exclusively: self-harm (Dolan & Völlm, 2009); sex work (Morgan & Patton, 2002); and pregnancy at a young age (Messer et al., 2004). Although men tend to commit more aggressive violent acts, in frequency and severity, women can show violence within the family home with equal frequency (Busch & Rosenberg, 2004). Indeed, women are more likely to commit less visible violence, for example domestic violence (Desmarais et al., 2012) and child abuse (May-Chahal & Cawson, 2005), as well as indirect forms of violence, like fire-setting (de Vogel & Nicholls, 2016), which often go under-reported. Women's violence within the home environment and against family members suggests female acts of violence are often relational or indirect in nature (Motz, 2008). Women are more likely to be exposed to some situations, such as sexual violence victimization, which may evoke violent responses (de Vogel et al., 2019). In addition, different protective factors are thought to be relevant for women's violence compared with men's, including positive social relationships, being religious, sound finances, and close family ties (Hart et al., 2007; Rodermond et al., 2016). Observationally, those working with women in forensic services have called for a better understanding of gender-sensitive risk factors to inform adequate assessment, treatments, guidelines/policy, and staff training (Adams & Freeman, 2002; Odgers et al., 2005).

Efforts have begun to account for gender differences in violence risk factors (e.g., in the FAM; de Vogel et al., 2014) and risk management (e.g., in the context of relational security; Edge et al., 2019; Janicki, 2009); however, progress has been limited by the lack of

systematic examination of general violence risk factors in female forensic populations. This is an issue given that predictive validity of six violence risk assessment tools[1] for female forensic populations was found to be low, suggesting the factors included in these assessments are not capturing the full picture (de Vogel et al., 2019).

Existing systematic reviews have focused on violence recidivism (Poels, 2011) or *specific* types of violence (e.g., female intimate partner violence; Mackay et al., 2018). This is illustrated in Farrington et al.'s (2017) systematic review of systematic reviews of risk factors for violence, wherein, of the 216 studies named, just 16 pertained to women's violence: 12 to intimate partner violence and sex work, three to delinquent adolescents, and one to female sexual offending. The void in systematic approaches to understanding risk factors for general violence perpetrated by women is clear to see (Farrington et al., 2017). This is problematic as it impedes the understanding and management of women with varied violent offence profiles. It also makes it difficult for professionals seeking to target risk factors when assessing, formulating, treating, and managing the risk of violence in women.

To our knowledge, this is the first systematic review that aims to comprehensively explore risk factors for general violence in female forensic populations.

Method

Eligibility Criteria

Eligible studies: (1) were published in peer-reviewed journals; (2) were written in English; (3) included an adult female forensic sample (or a mixed sample with female results

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[1] Historical, Clinical, Risk Management–20 (HCR-20), Historical, Clinical, Risk Management–20 Version 3 (HCR-20^{V3}), Female Additional Manual (FAM), Short-Term Assessment of Risk and Treatability (START), Structured Assessment of Protective Factors for violence risk (SAPROF), and Psychopathy Checklist–Revised (PCL-R) (Vogel et al., 2019)

reported separately); (4) reported quantitative data; and (4) included at least one measure of violence (e.g. self-report, observer-report, record/database). No time limits were imposed. Qualitative studies were excluded due to wanting to focus on risk factors that had a significant statistical relationship with violence.

Search strategy

This review followed 'Preferred Reporting Items for Systematic Reviews and Meta-Analyses' (PRISMA) guidelines (Page et al., 2021). On 9th May 2022 six electronic databases were searched: Web of Science, PubMed (including Medline), PsycInfo, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Criminal Justice Database, and Applied Social Sciences Index and Abstracts (AASIA). Four search sets of keywords were used: ("female*" OR "wom?n" OR "gender*") AND ("violen*" OR "aggress*" OR "assault*" OR "bodily harm") AND ("risk*" OR "risk factor" OR "risk factors" OR "predict*" OR "factor*" OR "correlat*" OR "associat*") AND ("offen*" OR "forensic*" OR "crim*" OR "convict*" OR "prison*" OR "patient*" OR "inpatient*"). The first set was searched within 'title, abstract and keywords', whereas the last three were searched only by title to prevent the exclusion of mixed gender sample studies at the initial search stage. Limits of 'English language' and 'peer-reviewed' were set. All eligible studies were cross-checked by the first and second authors against the inclusion/exclusion criteria prior to analysis. Forwards and backwards searching of references and citations were also completed by the first and second authors.

Quality assessment

All studies were quality assessed by the first author and a second appraiser (either the second or third author and two independent appraisers) as per the Joanna Briggs Institute's (JBI) robust two-marker appraisal system (Moola et al., 2017). The cross-sectional, cohort,

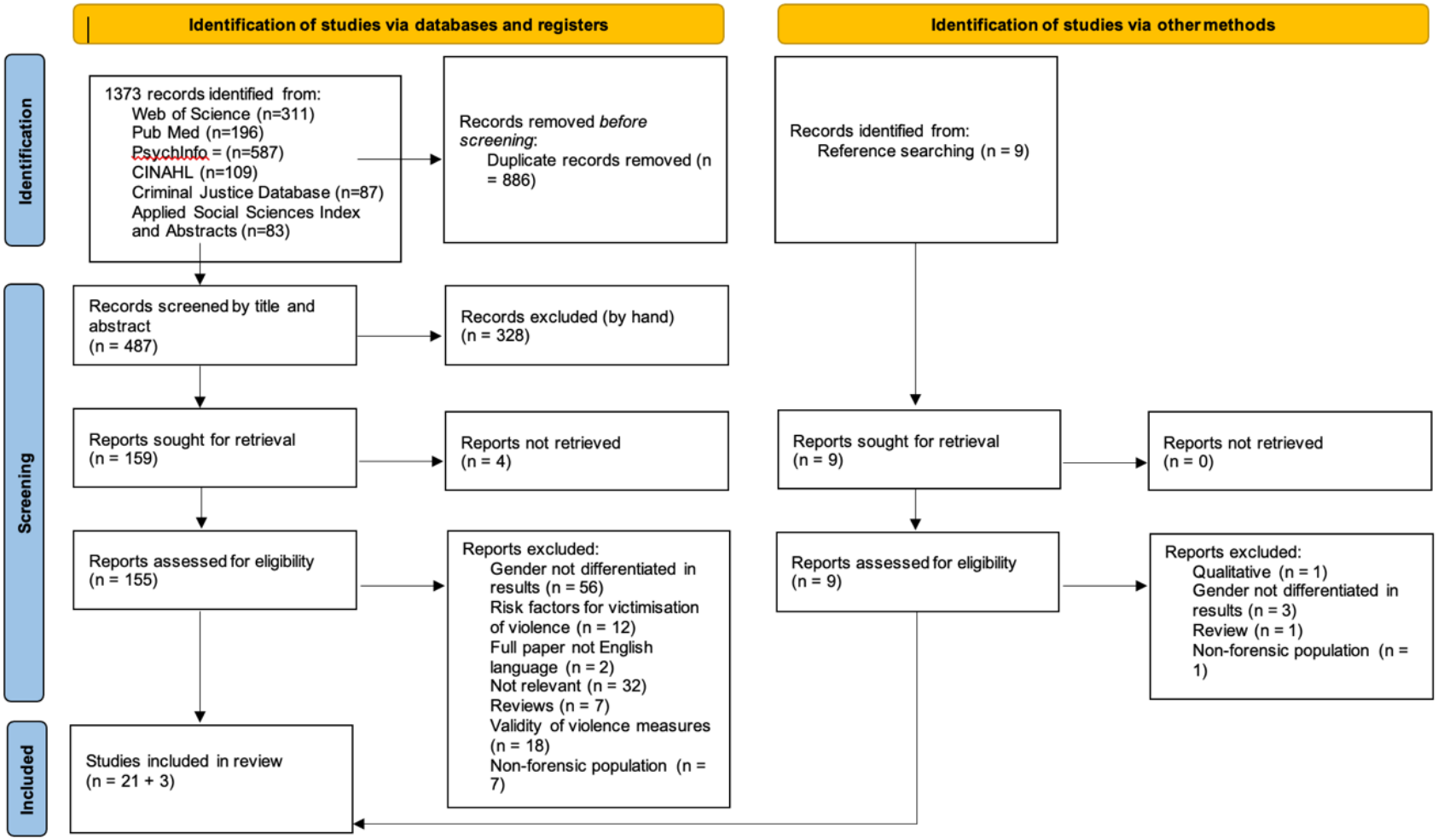
and case-control versions of the JBI appraisal tools were used for articles with corresponding designs (see appendix A).

Results

Study selection

Study selection and exclusion are summarized in Figure 1. Initial searches retrieved 1373 articles, which reduced to 487 when 886 duplicates were removed using RefWorks reference manager software. The first author screened titles and abstracts, removing 328 articles, leaving 159 for full review (four articles could not be retrieved). Next, 155 full texts were screened for eligibility by the first author, with 134 removed for not meeting at least one of the inclusion criteria, leaving 21 articles. An additional three papers were identified following review of the reference lists of the 21 papers, concluding the final article count as 24.

Figure 1. PRISMA 2020 flow diagram of study selection



Quality assessment

Overall, 17 of the 24 studies were matched in quality by the two appraisers; for the remaining seven, consensus was reached through discussion. The quality of cross-sectional studies (n=14) varied, with limitations mainly related to not accounting for confounding variables (n=5) and/or not using/reporting valid or reliable measures in a standardized way (n=5). Overall, cohort studies were of high quality; four of the seven were prospective. Of the three matched case-designs studies, two used the same data (Brewer-Smyth et al., 2004; Brewer-Smyth & Pohlig, 2017). However, the latter study did not report comparability of groups and omitted confounding variables. The other matched design was of good quality (Gower et al., 2022). See appendix B for further details.

Overview of studies

The following data was extracted from eligible studies: (1) study characteristics (authors, year of publication, country conducted, study design); (2) sample demographics (sample size, sample population); (3) measures used; and (4) summary of study findings. Table 2 summarizes included studies. Over fifty individual factors were identified as associated with violence across the 24 papers. All were published after the year 2000. The most common study design was cross-sectional (n=14), followed by cohort (n=7) and then matched case-control (n=3). Five longitudinal cohort studies included data collection for criminal conviction from the age of 15 (the age of criminal responsibly in that country); these were retained as the data expanded into adult age and the longitudinal lens was considered beneficial to identifying factors that could imply a causal relationship. Studies were conducted in the United States of America (n=11), Europe, (n=10), Asia, (n=2) and Australia (n=1). Violence was measured predominantly by violent conviction(s) (n=15) but psychometric measures of aggression were also used (n=2; Buss Perry Aggression Questionnaire [BPAQ] and Buss Perry Aggression Questionnaire – Short Form [BPAQ-SF])

as well as non-validated self-report narrative accounts of violence (n=2; e.g., *"Have you committed a violent offence?"*). Less common were psychometric measures of violence (n=1; Violence Risk Scale [VRS] and Violence Risk Scale-Short version [VRS-SV]), forensic treatment for violence (n=1), violent arrest without conviction (n=1) and forensic hospital records of violence (n=1). One study (Kalemi et al., 2019) used both violent convictions and a psychometric measure of aggression (BPAQ). Half of the studies had female-only samples (n=12); the other half reported mixed male and female samples but analyzed results separately (n=12). Fourteen studies had a population of women who had received a custodial sentence and were incarcerated in a prison (n=10), a correctional institution (n=3), or a carceral facility (n=1). These populations are named "incarcerated women/females" for the rest of the paper. One study that included women from a prison also included women from a secure forensic psychiatric hospital in their sample (Logan & Blackburn, 2009) and one other study used a secure forensic psychiatric hospital population only (termed "patient/s" in this paper). Other less common samples included community samples (n=3) comprising of community forensic outpatients (n=1), a US Army population (n=1), and booked arrestees (people arrested and booked in to police custody at a police station; n=1). Six more studies were population studies following a community sample until violent conviction.

Table 2. Summary of included studies

Authors (year of publication), country	Design	Sample Characteristics	Comparison Group Characteristics	Measures		Key Findings
				Violence	Other	
Baskin-Sommers, A., et al. (2013) USA	Observational study – cross-sectional	Female adult offenders from multiple correctional institutions located in Wisconsin (n = 1079).		Violent offence conviction	PCL-R, WAS, clinical interview, case file review	1. Black women were significantly more likely to commit violent crime than white women. Presence of antisocial personality disorder (APD) or psychopathy, regardless of race, explained more violent offending than having neither diagnosis. 2. Black females displayed greater prevalence for violence and violence versatility than white females, but to similar levels as white males. 3. Black females with psychopathy and APD were more likely to commit violent crime than similarly situated white males. 4. Black females with Aggressive Conduct Disorder (AGG-CD), when controlling for psychopathy, age, education, and level of anxiety were more likely to commit violent crime than white males with AGG-CD. 5. Results should be considered in relation to neighborhood disadvantage rather than race.
Bijlsma, A., et al. (2021) Netherlands	Observational study – cross-sectional	Female adult forensic outpatients who were referred for treatment for perpetrating domestic		In treatment for perpetrating domestic violence	RAF-MH	1. Being a victim of child maltreatment, being unemployed, having low job performance, being on unemployment benefit, and experiencing housing

		violence between 2014 and 2015 in a forensic care facility in the Netherlands (n = 87).				instability were significantly more prevalent in female outpatients than in male outpatients. 2. Although not a significant difference between genders, over 50% of the female sample had criminogenic risk factors for domestic violence of unreported offences, relationship instability, relationship difficulties with caregivers, relationship difficulties with family members and in-laws, availability of personal support, individual leisure activities, contextual leisure activities, lack of self-insight, impulsivity, stress factors, coping skills, anger management, Axis I diagnosis, and health care history.
Brewer-Smyth, K., Burgess, A., & Shults, J. (2004) USA	Modified case control design	Female adult inmates convicted of violent crime in minimum- and maximum-security sections of USA prison (in Mid-Atlantic region) (n = 27)	Adult females in same female prison/sections convicted of non-violent crime (n=86)	Violent index offence	Salivary cortisol sample, Menzenmaier's Scale, neurologic history and physical exam verified by medical records if available, BDI-II and history of suicide attempts	1. No significant differences in demographic variables between groups other than violent history, in which the violent index offence group was significantly higher. 2. Violent offenders suffered significantly more total childhood physical abuse, childhood sexual abuse by family member, mean total childhood sexual abuse before 18yo, and mean total physical and sexual abuse than non-violent offender respectively. 3. Women who had a violent index offence compared with non-violent were significantly more likely to have been locked in small spaces or stabbed/shot by an adult when under 18yo. 4. Women who were incarcerated for a current violent crime had a significantly higher mean number of hospital treatments for abuse-related injury predating current crime, lower mean years since last abuse and higher mean number of suicide attempts compared with women who were incarcerated for non-violent crime.

					5. Women in prison for a current violent crime had significantly lower diurnal cortisol levels compared with women with non-violent crime. 6. Violent women had a significantly higher mean number of TBILOC (Traumatic Brain Injury with Loss of Consciousness) than non-violent women. 7. Significant variables associated with currently being incarcerated for a violent offence in an adjusted logistic regression model were number of TIBLOC, morning cortisol levels, number of suicide attempts, and years since last abuse. 8. Adjusted odds ratios indicated that for every TBILOC the odds of being convicted of a violent crime (compared with non-violent crime) increased by 1.45. For every additional suicide attempt it increased by 1.25. Every year since last abuse decreased the chance by .896 and morning cortisol level was inversely related to violent conviction by .036.
Brewer-Smyth, K., & Pohlig, R. (2017) USA	Modified case control design	Female adult inmates in minimum- and maximum-security sections of USA prison (in Mid-Atlantic region) (n = 113)	Violent offence conviction	Substance misuse self-report corroborated with records, neurologic history and physical exam verified by medical records if available, Menzenmaier's Scale, salivary cortisol sample.	1. There was a significant difference between being under the influence of alcohol and being under the influence of other substances at the time of committing a violent offence. 2. Women committing a violent crime were five times more likely to be under the influence of alcohol compared with another substance (even when adjusting for previous significant variables in this sample, such as TBI's. familial childhood sexual abuse (CSA) and nonfamilial CSA). 3. Logistic regression predicting the conviction of a violent versus non-violent crime when under the

					influence of alcohol versus other substances was not significant when adjusting for TBI, morning cortisol, suicide attempts, and years since abuse. 4. Being under the influence of only alcohol at the time of the offence was significantly related to violent vs non-violent crime and remained significant when adjusting for TBI, suicide attempts, years since abuse and morning cortisol.
Byrd, P., & Davis, J. (2009) USA	Observational study – cross-sectional	Female adult incarcerated offenders in a Midwest correctional center (n = 151).	Violent offence and CTS-2	TAA	1. There was no significant difference between violent and non-violent offenders in terms of trauma history or self-reported violence. 2. Frequency of physical abuse had a strong significant relationship with violent behavior and significantly predicted violence conviction.
D Alper Camlibel, C., et al. (2021) USA	Observational study – Cross-sectional	Convenience female adult sample from eight minimum and medium security prisons in Wisconsin (n = 290)	9-item Physical Aggression subscale from BPAQ	UPPS, BPAQ, LLCS, SSFFS	1.Violence in women was significantly associated with younger age, more impulsivity, more internal locus of control, more stressors from correctional staff, and more stressors from family.
Gower, M., et al. (2022) Australia	Matched sample study design	Female adult offenders in prison who had been assessed using LS/RNR and VRS between 2014 and 2017 in Western Australia (n = 157) Matched sample = male violent offenders based on	VRS and VRS-SV	LS/RNR	1.Women incarcerated for violent offences had needs for 16 of 19 factors including violence lifestyle, criminal attitudes, work ethic, criminal peers, interpersonal aggression, emotional control, weapon use, insight into violence, substance misuse, stability of relationships, community support, release to high-risk situations, violence cycle, impulsivity, cognitive distortions, and compliance with supervision. Criminal personality, violence during institutionalization, and mental disorders were not considered as identified needs.

		year of birth, aboriginality, LS/RNR risk level.			
Hodgins, S. (2009) Sweden	Prospective cohort study.	Females aged 15 years or older who had been hospitalized two or more times for schizophrenia between 1973 and 2004. After second discharge participants were followed up until first violent conviction, death, emigration, or end of study (n = 4915)	Violent offence conviction	Hospital Discharge Register	1. After adjusting for age, past violent convictions, comorbid alcohol abuse and comorbid drug abuse were all strongly associated with violent convictions. 2. Exposure to parental violent crime was associated with increased risk of violent conviction. 3. Low education, immigration status and having children were associated with violence conviction.
Inseon, K., et al. (2022) Denmark	Nationwide register-based cohort study	All females aged 10 or over living in Denmark in 1980 to 2016. Violent conviction recorded from 15yo. (n = 3,833,579)	Violent offence conviction	TBI Data from National Patient Register, covariates from Civil Registration System, Psychiatric Central Research Register, Database for Integrated Labor Market Research.	1. Female incidence rates of violent crime were 180.0 per 100,000 person-years for those with a TBI compared with 59.8 of those without TBI. 2. Women with psychiatric illnesses before TBI were three times more likely to commit violent crime than those with TBI only. Those diagnosed with a psychiatric illness after the TBI were four times more at risk of committing a violent crime than those with just TBI. 3. Population Attributable Risks for violent crime of 5.6% was found for TBI exposed females, denoting the proportion of violent crimes that could be avoided if TBI incidents were reduced to zero, under the assumption the association is causal (and not confounding). 4. Then association between violent crime and TBI remained when restricting the sample to those with full data on background factors and when adjusting for

						parental background, such as socioeconomic status and criminal behavior.
Kalemi et al. (2019) Greece	Observational study – cross-sectional	Female adult inmates in Korydallos Female Prison, Greece, without a psychiatric history of psychosis or on psychiatric medication or illicit substances at the time of the offence (n = 157)	Female adults without criminal records randomly selected from population of Attica, Greece (n = 150)	Violent offence conviction and BPAQ	NPI-40, RSES, SPPA, semi-structured interviews	1. Within the group of total inmates, aggression negatively correlated with self-esteem, job competence, nurturance, morality, household management, and intelligence. Aggression positively significantly correlated with narcissistic personality traits. 2. In women who had committed violent crime, aggression positively significantly correlated with narcissistic personality traits and negatively significantly correlated with job competence, nurturance, morality, and household management. 3. In women who committed non-violent crimes, aggression negatively significantly correlated with self-esteem, job competence, morality, and intelligence. 4. No differences were found in aggression, self-esteem, or narcissistic personality traits between inmates convicted of violent or non-violent crimes. Inmates convicted for violent crimes compared to non-violent crimes presented statistically significantly higher mean scores in the five self-perception's subscales: adequate provider, morality, job competence, global self-worth, and intelligence. 5. Lower job competence, a history of childhood maltreatment, and higher narcissistic personality traits were associated with higher aggression independent of violent/non-violent crime. Offence type (violent or non-violent crime) on aggression remained statistically non-significant after adjusting for covariates.

Latvala, A., et al. (2022) Sweden	Register based cohort study	Females born between 1980-1991 in Sweden, followed up until 2013 (n = 599,383)	Violent offence conviction (age 15 upwards due to age of criminal responsibility)	HURPID, National Patient Register, National Census and Longitudinal Integration Database	1. Women with mild ID had 1.77, mild ID and ADHD had 6.31 and mild ID and ASD had 4.59-fold elevated risk of violent convictions compared with woman with no ID, ADHD or ASD. 2. Women with moderate/severe ID had 1.29, moderate/severe ID with ADHD 10.4 and moderate/severe ID with ASD had .64-fold elevated risk of violent convictions compared with woman with no ID, ADHD or ASD.
Lee, V., & Egan, V. (2013) Singapore	Observational – cross-sectional	Female adult inmates in Singapore prison (n = 114)	BPAQ-SF	IVE-7, NEO-FFI-R, LSRP	1. Impulsivity was significantly positively associated with physical and verbal aggression. 2. Agreeableness was negatively significantly associated with physical and verbal aggression. 3. Neuroticism and psychopathy were positively significantly associated with hostility. 4. Empathy was non-significant in all models.
Logan, C., & Blackburn, R. (2009) England, UK	Observational study – cross sectional	Female adults detained in two high secure prisons and three high secure forensic psychiatric hospitals in England (n = 95)	Violent offence conviction	SCID-I, SCID-II, PCL-R	1. No significant association between axis I disorders and violence. 2. Women with convictions of major violent crimes were four times more likely than women with minor violent crime convictions to be diagnosed with BPD. 3. Women convicted of major violence had the highest Hare factor 1 rating on the PCL-R. Ratings on the PCL-R Cooke facet 2 items (measuring deficient affective experience) accounted for this.

					4. Women convicted of major violent crime rating of deficient affect were significantly higher than those women convicted for minor violence.
Martin, S., & Bryant, K. (2001) USA	Observational study – cross-sectional	Female adults booked arrestees who were interviewed across 32 sites in USA (n = 6699)	Violent offence arrest	ADAM dataset, self-report of substances validated through urine sample.	1. Women under the influence of only alcohol were five times more likely to be arrested for violent crime. Women with cocaine and other substances were more likely to arrested for property crime. 2. Women who used both alcohol and cocaine were twice as likely to be arrested for violent crime compared to women who used neither substance. 3. Black women (but not Hispanic women) were significantly more likely to commit violent crime than white women.
McMillan, T., et al. (2021) Scotland, UK	Observational study – cross sectional	Female adult prisoners from four female prisons in Scotland from age 16 and above recruited from Feb 2018 to Sep 2019 (n = 109)	Violent offence conviction	Ohio State University Traumatic Brain Injury Identification Method, four cognitive tests, The Dysexecutive Questionnaire, GODS, HADS, TLEQ, PTSD checklist in DSM-5.	1. Women with a history of severe head injury (SHI) were significantly more likely to have a history of violent offending compared to those without a history of SHI. This effect remained significant after adjusting for current factors but was no longer significant when controlling for historical factors. 2. No other health factors were significantly associated with violence except adult abuse which was strongly associated with violent offending.

Mok et al. (2016) Denmark	Population-based prospective cohort study	Females born in Denmark to Danish-born parents during 1967 through 1997 and resided in the country on their 15th birthday. Cohort members followed up from 15th birthday (age of adult criminal responsibility) until an adverse outcome or until 2012 (n = 849,097)	Violent offence conviction	Psychiatric Central Research Register.	1. Associations for parental psychiatric disease and offspring violent behavior were significantly stronger for women than men, particularly when both parents were affected. 2. History of parental psychiatric disease in both parents was associated with double the risk of violent offending of a single parent with a psychiatric disease. 3. Female offspring were more strongly associated with violent offending compared to male offspring for all psychiatric disorders except dementia and OCD. 4. Association between female offspring and violent offending was stronger and significantly different to male offspring and violent offending for all substance misuse disorders, broadly and narrowly defined schizophrenia, mood disorders, single and recurrent depressive disorders, antisocial personality disorder and attempted suicide.
Pollock et al. (2006) USA	Observational study – cross-sectional	Female adult inmates in USA prison newly admitted in 1998 (n = 657)	Violent offence conviction	Texas Commission on Alcohol and Drug Abuse by Texas A&M Public Policy Research Institute.	1. Violent females were more likely to be younger, African American, and unemployed. 2. Violent offenders had been on adult probation significantly fewer times than non-violent offenders. 3. Violent offenders had higher reported rates for all offending behaviours but significantly higher for having purchased stolen goods, carrying weapons, stealing cars, damaging property, being publicly intoxicated, being a gang member, and engaging in shoplifting. 4. Violent women had significantly greater histories of childhood maltreatment. More than one third of the women who were violent reported having been beaten or

					seriously physically hurt by an adult. Nearly one half reported being sexually mistreated, abused, or raped while growing up. More than one half of the violent sample reported having childhood histories of abuse, compared to 41% of the nonviolent sample. 5. Violent women were twice as likely than nonviolent women to report having a mother with a psychiatric problem and a father with a psychiatric problem. 6. Five variables predicted violent offending. African American women were 2.25 times as likely to report violent behavior as White or Hispanic women. Inmates who reported receiving welfare assistance during the 6 months preceding incarceration were 50% less likely to be violent offenders. Early child physical abuse increased the odds of classifying as a violent offender by 60%. Adult sexual abuse increased the odds by more than 40%. 7. Three variables remained significant predictors of greater violent behavior and explained 14% of the variance: employed full- or part-time during the year before incarceration reported engaging in fewer violent activities, violent inmates that had been incarcerated in prison before was a significant predictor of engaging in greater levels of violent activity, and the strongest predictor for greater involvement in violent activities was whether the inmate reported having been physically abused in childhood.
Rosellini et al. (2017) USA	Retrospective register cohort study	Female adult US Army soldiers between 2004-2009 who had committed a first founded minor violent crime (n = 2728)	Violent offence conviction	Army STARRS	1. In the unpenalized model, demographics significantly associated with nom-familial minor violent crime were age, race/ethnicity (non-Hispanic black), and education (less than high school and completed high school but no college). Other crime related factors that were significantly associated were committing major violence in the past 12 months, committing any crime in the past

					24 months, and being a victim of major violent crime in the past 24 months. Clinical factors that were significantly associated with committing minor non-familial violent crime were any mental disorder in the past 3 or 12 months and marital problems in the past 12 months. 2. Several specific army career related factors (e.g. rank, deployment, demotion) were also significantly associated with committing minor non-familial violent crime.
Sahlin et al. (2017) Sweden	Population-based longitudinal cohort study	All female Swedish citizens born between 1982 and 1998 (n = 900,143)	Violent offence conviction	National Patient Register, Total Population Register, Education Register	1.Women with deliberate self-harm (DSH) had 6 to 7 times higher hazard of being convicted of a violent crime compared to women without DSH in the crude and adjusted model. This reduced to 2 times higher in a fully adjusted model. This was partially explained by SUD rather than BPD. Controlling for SUD within the model contributed to the greatest risk reduction of women with DSH committing violent offences.
Selenius, H., Ostman, S. L., & Strand, S. (2016) Sweden	Observational study – cross-sectional	Female adults admitted for inpatient care in a high security forensic psychiatric hospital in Sweden between 2002 and 2014. All patients had severe mental disorders and had been in care between 2-910 weeks (n = 130)	Observer-records	Medical records, forensic psychiatric investigations, and verdicts.	1. Aggression between staff and other patients was significantly associated. 2. Aggression towards hospital property was significantly associated with aggression towards staff and other patients. 3. The prevalence of aggression towards staff, other patients, and hospital property between women who had been sentenced/arrested and women who had not been sentences/arrested was not significant. 4. Self-harm before admission was not significantly associated with any form of physical aggression towards staff, other patients, or hospital interior.

					5. Self-harm during admission was significantly associated with physical aggression towards staff and hospital interior but not significantly associated with physical aggression towards other patients.
Slocum, L., et al. (2022) USA & Canada	Retrospective cohort study	Female adults in carceral facilities in Baltimore, Minneapolis, Ontario between 2001-2004 (n = 778)	Violent offence conviction	Data collected from the Women's Experiences with Violence Project.	1. There was a significant bivariate relationship between experiencing abuse in childhood and initiating violence in adulthood. 2. Each additional negative life event increases the odds of engaging in violence by 35% and a near violent conflict doubles these odds.
Thomson, D., et al. (2016) USA	Observational study – cross-sectional	Female adult offenders from women's correctional facilities (n = 182)	Violence offence conviction	LSRP, BIS-II, EQ, facilities official reports	1. Violent misconduct was significantly and positively correlated to antisocial psychopathic traits, having past violent crime, and being younger in age, but was not significant for empathy, impulsivity, egocentric or callous psychopathic traits. 2. Age and violent criminal history were significant in predicting total violent misconducts, as in, younger females with prior violent criminal history were more likely to have a greater number if violent misconducts. Age and violent history did not predict nonviolent misconduct. 3. Violent criminal history, callousness, and antisocial psychopathic traits were positive significant predictors in violent misconduct. Higher levels of antisocial psychotic traits predicted greater number of nonviolent misconducts. 4. Violent criminal history was the only significant predictor in the impulsivity and empathy model for

						violent misconduct, meaning age, impulsivity and empathy did not significantly predict violent misconduct.
Timchenko, K., et al. (2020) USA	Longitudinal cohort study	Nationally representative female sample of American youths attending one of 132 schools. Data collection started 1994-1995 and concluded in 2007-2008, when most participants would have been aged 24-32 (n = 7772)		Self-report account	Data from the National Longitudinal Study of Adolescent to Adult Health	1. Violent crime and delinquency in women were positively and significantly associated with gang membership, low self-control, criminal mother, criminal father, and black race.
Wang et al. (2017) China	Observational study – cross-sectional	Female adults convicted of a violent crime in Hunan women's prison who had a schizophrenia diagnosis prior to conviction and no history of substance misuse (n = 52)	Female adult offenders in Hunan prison who did not have a psychiatric disorder or substance abuse history selected through propensity score matching analysis (n = 104)	Violent offence conviction	Medical records, MINI.	1. Univariate analysis showed previous offence history, violent offence and homicides were all significantly higher in participants with schizophrenia compared to controls. 2. The percentages of violent offence and homicides were significantly higher in participants with schizophrenia than controls. 3. Having a diagnosis of schizophrenia, living rurally, being younger at age of first offence and lower education level were significantly associated with violent crime in univariate and multivariate analysis. 4. Diagnosis of schizophrenia and lower education level was significantly and positively associated with homicide at the univariate and multivariate level.

Note: ADAM dataset = Arrestee Drug Abuse Monitoring database; ADHD = Attention Deficit Hyperactivity Disorder; AGG-CD = Aggressive Conduct Disorder; APD = Antisocial Personality Disorder; Army STARRS = Army Study to Risk and Resilience in Servicemembers; ASD = Autism Spectrum Disorder; BDI-II = Beck Depression Inventory-II; BIS-II = Barratt's Impulsivity Scale-II; BPAQ = Buss and Perry Aggression Questionnaire; BPAQ-SF = Buss and Perry Aggression Questionnaire Short Form; BPD = Borderline Personality Disorder; CSA = Childhood sexual abuse; CTS-2 = The Revised Conflict Tactics Scale; EQ = Empathy Quotient; GODS = Glasgow Outcome

at Discharge Scale; HADS = Hospital Anxiety and Depression Scale; HURPID = Halmstad University Register on Pupils with Intellectual Disability; ID = Intellectual Disability; IVE-7= Impulsiveness and Venturesomeness and Empathy Scale; LLCS = Levenson Locus of Control Scale; LS/RNR = Level of Service, Risk, Need, Responsivity; LSRP = Levenson Self Report Psychopathy scale; MINI = Mini-International Neuropsychiatric Interview; NEO-FFI-R = NEO Five Factor Inventory-Revised; NPI-40 = Narcissistic Personality Inventory-40; OCD = Obsessive Compulsive Disorder; PCL-R = Psychopathy Checklist-Revised; PTSD Checklist = Post Traumatic Stress Disorder Checklist; RAF-MH = Risk Assessment Framework; RSES = Rosenberg's Self-Esteem Scale; SCID-I = Structured Clinical Interview I; SCID-II = Structured Clinical Interview II; SPPA = Self-perception Profile for Adults; SSFFS = Social Support from Family and Friends Scale; SUD = Substance Use Disorder; TAA = Trauma Assessments for Adults; TBI = Traumatic Brain Injury; TBILOC = Traumatic Brain Injury Loss of Consciousness; TLEQ = Traumatic Life Events Questionnaire; UPPS = Impulsive Behaviour Scale; VRS = Violence Risk Scale; VRS-SV = Violence Risk Scale Screening Version; WAS = Welsh Anxiety Scale

The results of risk factors addressed in the 24 included papers have been organised into three main categories: individual clinical factors, social and familial factors, and biological factors.

Individual clinical factors

Personality

Of the nine studies examining the link of personality to violence in female forensic populations, four focused on psychopathy. Cross-sectional studies found that women with psychopathic traits were more likely to be incarcerated for a violent conviction than those without psychopathic traits (Baskin-Sommers et al., 2013), whilst women convicted of major violence demonstrated significantly higher 'deficient affect' than women convicted of minor violence (Logan & Blackburn, 2009). Conversely, psychopathy, neuroticism, and empathy were not correlated with physical or verbal aggression in women incarcerated in Singapore (Lee & Egan 2013). Instead, physical (β=.23, p<.05) and verbal aggression (β=.23, p<.01) were positively associated with impulsivity and negatively with agreeableness (β=-.33, p<.01; β=-.33, p<.01). It is possible that facets of psychopathy allow for distinction between incarcerated and non-incarcerated women or highly violent and less violent women but are correlated to a lesser extent with less serious 'physical aggression' (Lee & Egan, 2013). In a sample of incarcerated women in the USA, observer-reported violent misconduct was positively correlated with antisocial psychopathic traits but not empathy, impulsivity, egocentric or callous psychopathic traits (Thomson et al., 2016). Antisocial psychopathic traits (B=0.18, *SE*=0.08, CI=.02, .35, p<.05) and callousness (B=0.15, *SE*=0.08, CI=.00, .30, p<.05) were positive *predictors* of violent misconduct (Thomson et al., 2016). However, antisocial psychopathic traits also predicted greater non-violent misconduct (B=0.35, p<.001; Thomson et al., 2016), so were not specific to violence. These studies provide a mixed picture regarding the role of psychopathy, its constituent parts, and violence in female

forensic populations. Not least because the cross-sectional design of studies (Baskin-Sommers et al., 2013; Logan & Blackburn, 2009; Lee & Egan, 2013; Thomson et al., 2016) preclude inferences being drawn about causality. In addition, all four studies failed to adequately consider the impact of potential confounding variables.

Impulsivity and locus of control were considered by four studies. Reduction in impulsivity was identified as a treatment need for 93% of incarcerated violent women in Australia (Gower et al., 2022) and a criminogenic factor to domestic violence perpetration in 79% of female forensic outpatients in the Netherlands (Bijlsma et al., 2021). D Alper Camlibel et al. (2021) reported that higher impulsivity (ß=.349, $p<.001$) and higher internal locus of control (ß=.145, $p=.015$) were positively associated with physical aggression. Timchenko et al. (2020) found contrasting results: violent crime was positively associated with lower self-control (ß=.060, $p<.05$). This study used self-reported accounts of violent crime, presenting issues of bias, accurate recollection, and impression management. Kalemi et al. (2019) accounted for this by using a measure of aggression with good psychometric properties (Buss Parry Aggression Questionnaire; BPAQ). They examined personality, violent conviction, and aggression, finding that for women convicted and incarcerated for violent offences in Greece, aggression was negatively correlated with nurturance ($r=-0.280$, $p=0.031$) and morality ($r=-0.289$, $p=0.002$) but positively correlated with narcissistic personality traits ($r=0.289$, $p=0.025$). When comparing women incarcerated for violent versus non-violent crimes, no differences were found in narcissistic personality traits, self-esteem, or aggression (Kalemi et al., 2019). Still, violent offenders had higher scores in self-perception subscales, including intelligence, morality, and global self-worth (Kalemi et al., 2019).

Mental and neurodevelopmental disorder

Two studies examined schizophrenia (Hodgins, 2009; Wang et al., 2017). A prospective cohort study in Sweden found that 5.6% of women hospitalized for schizophrenia on two or more occasions were convicted for violent offences (Hodgins, 2009). In a matched-sample study in China, women incarcerated with a diagnosis of schizophrenia had a higher rate of violent offences (79% vs 31%, $p<.001$) and homicides (44% vs 18%, $p<.001$) than incarcerated women without schizophrenia (Wang et al., 2017). A schizophrenia diagnosis was associated with violent crime and homicide in both univariate and multivariate models (Wang et al., 2017).

Two studies examined personality disorder diagnoses (Baskin-Sommers et al., 2013; Logan & Blackburn, 2009). Women in secure settings for major violent convictions were four times more likely than women with minor violent convictions to be diagnosed with borderline personality disorder (BPD; OR, 4.0, 95% CI, 1.36-11.77; Logan & Blackburn, 2009). Of women convicted of violence, 82% had a diagnosis of one of more personality disorders, with BPD (52%) and antisocial personality disorder (APD; 58%) being most prevalent (Logan & Blackburn, 2009). High rates of axis I disorders (80%; e.g., anxiety or PTSD) were also found in women receiving treatment for domestic violence (Bijlsma et al., 2021). Baskin-Sommers et al. (2013) found that women incarcerated with a diagnosis of APD were more likely to have committed a violent crime than women without the diagnosis, regardless of race (61% vs 46% respectively). This study also looked at aggressive conduct disorder, with results discussed in relation to race and gender, concluding that even when controlling for psychopathy, black women with aggressive conduct disorder appear more likely to commit violent crime than white female and male counterparts (Baskin-Sommers et al., 2013). However, this needs to be looked at in terms of neighborhood disadvantage of black and white women rather than race (Baskin-Sommer et al., 2013). Although both personality disorder studies found similar results supporting increased violence, both were

cross-sectional (Baskin-Sommers et al., 2013; Logan & Blackburn, 2009) limiting confidence in concluding causality.

In regard to neurodevelopmental disorders and intellectual disability (ID), Latvala et al. (2022) conducted a register-based cohort study and found women's risk of conviction for a violent crime elevated by 1.77 (HR=1.44-2.18) in those with a mild ID, by 6.31 (HR=4.56-8.71) in those with a mild ID and attention deficit hyperactivity disorder (ADHD), by 4.59 (HR=2.96-7.2) in those with a mild ID and autism spectrum disorder (ASD), by 1.29 (HR=.85-1.96) in those with a moderate/severe ID, by 10.4 (HR=5.93-18.4) in those with a moderate/severe ID with ADHD, and by 0.64 (HR=.21-1.99) in those with a moderate/severe ID with ASD compared with women with no ID, ADHD, or ASD. This study was of good quality; however, it did not make clear if data were collected prospectively or retrospectively and therefore assumptions about bias cannot be drawn. It is also recognized that people with ID are sometimes not convicted of crimes due to issues of capacity, therefore, it is unlikely that violent conviction captured the spectrum of violent behavior in this cohort.

Self-injurious behavior and suicide attempt

Two studies of different designs looked at self-harm and violence amongst women (Sahlin et al., 2017; Selenius et al., 2016). A national cohort study including all females in Sweden found that women who self-harmed had a 6 to 7 times higher potential of being convicted of a violent crime than those who do not (adjusted model HR, 6.3, 95% CI, 6.0-6.6; crude model HR, 7.6, 95% CI, 7.2-7.9; Sahlin et al., 2017). However, effect sizes were smaller in a fully adjusted model (HR, 2.1, 95% CI, 2.0-2.3). This was a particularly strong risk factor for women in comparison to men. Controlling for substance misuse disorder contributed to the greatest risk reduction of violent crime in women who self-harmed (Sahlin et al., 2017), suggesting a significant role for substance misuse for violence used in this population. A cross-sectional study exploring self-harm in relation to observer-rated physical

aggression in a forensic psychiatric hospital found that self-harm *before* admission was not associated with physical aggression towards staff (p=0.165), other patients (p=0.519) or hospital interior (p=0.776; Selenius et al., 2016). However, self-harm *during* admission *was* associated with physical aggression towards staff (p=0.002) and hospital property (p<0.001) but not towards other patients (p=0.166; Selenius et al., 2016). When comparing women who had self-harmed more than once to women who had never self-harmed, or only self-harmed once, no differences were observed between previous violent convictions or inpatient aggression (Selenius et al., 2016). However, this study was of poor quality due to no inclusion/exclusion criteria stated, no objective or valid measures, and no confounding variables measured. In terms of suicide attempts, women incarcerated for a violent crime compared with a non-violent crime had higher rates of suicide attempts (3.32 vs .56 respectively, p<.05). Furthermore, for every additional suicide attempt the odds of being convicted of a violent crime increased by 1.45 (95% CI, 1.086-1.939; Brewer-Smyth et al., 2004).

Substance misuse

One (Hodgins, 2009) of the three studies examining substance misuse employed a prospective design, so is likely to have fewer sources of bias and confounding factors than retrospective studies. It established that over a 31-year period comorbid alcohol abuse (HR = 4.52, 95% CI, 3.5-5.84) and comorbid drug abuse (HR=4.98, 95% CI, 3.88-6.40) were strongly associated with violent conviction when adjusting for age (Hodgins, 2009). Despite both alcohol and drugs contributing to risk of violence, Brewer-Smyth & Pohlig (2017) found a significant difference between being under the influence of alcohol compared to other substances at the time of committing a violent offence (30% vs 9% respectively, p = .007) in a modified case-control design study. However, when adjusting for morning cortisol, traumatic brain injury (TBI), number of years since last victimized by abuse, and suicide

attempts, this difference was no longer significant. The strongest substance misuse risk factor appeared to be alcohol; women committing a violent crime were nearly six times more likely than those committing a non-violent crime to be under the influence of alcohol than any other substance (OR = 5.974, 95% CI, 2.027-17.611), remaining significant when adjusting for the aforementioned factors (OR = 8.764, 95% CI, 1.532-50.138; Brewer-Smyth & Pohlig, 2017). However, the sample size of alcohol-only participants who committed a violent crime was small (n=20), potentially increasing type II error. Nevertheless, Martin and Byrant (2001) also found that women under the influence of only alcohol were nearly six times more likely to be arrested for a violent crime (OR=5.597, p=<.001), although other substances were still significantly likely to increase the chances of an arrest for a violent crime but to a much lesser degree (cocaine, OR=0.617, p=<.001; marijuana, OR=1.449, p=<.01; other drugs, OR=0.608, p=<.001; and cocaine and alcohol together, OR=0.579, p=<.05; Martin et al., 2001). 44% of women had been drinking alcohol prior to being arrested for a violent crime (Martin & Byrant, 2001).

Criminal history

Criminal and violence history were included in five studies, all as a confounding variable. Unsurprisingly, Brewer-Smyth et al., (2004) found that violent incarcerated female offenders had greater rates of violent conviction (p<.05) than non-violent counterparts. This was at odds with Pollock et al.'s (2006) findings that women incarcerated for violent offences had been on probation fewer times (M=0.8 vs M=1.1 respectively, p<.01) than those with non-violent offences; however, this might be explained by them having been on fewer but longer license periods. Meanwhile, in a sample of female US Army soldiers, committing a non-familial minor violent crime was associated with having committed a major violent crime (OR, 1.5, 95% CI, 1.2-2.0), committing any crime (OR, 1.9, 95% CI, 1.6-2.3), and being a victim of a major crime in the past 12 months (OR, 1.4, 95% CI, 1.0-2.1; Rosellini et

al., 2017). However, it is questionable whether these findings are transferable beyond the military populations as data was gathered retrospectively, thus open to selection bias. In addition to criminal and violent history impacting on violent conviction, having a violent criminal history predicted observer-rated violent misconduct in a correctional facility ($p<.05$) but did not predict non-violent misconduct (Thomson et al., 2016).

Social & Familial Factors

Parental history

Four studies considered parental factors associated with women's violence: three explored parental criminal history (Hodgins, 2009, Pollock et al., 2006, & Timchenko et al., 2020) and two parental mental health (Mok et al., 2016 & Pollock et al., 2006). Exposure to parental violent crime was associated with increased risk of violent conviction when adjusting for other risk factors (HR, 1.83, 95% CI, 1.11-3.01; Hodgins, 2009) and violent crime in women was weakly positively associated ($p<.05$) with having a criminal mother ($\beta=0.037$) and father ($\beta=0.057$, Timchenko et al., 2020). Whilst the retrospective cohort design (Timchenko et al., 2020) has increased risk of bias, the prospective cohort design (Hodgins, 2009) is likely to have fewer sources of biases and confounding factors, whilst being better able to confer causality. An incarcerated parent was also identified as a factor, with women who had committed a violent crime more likely to have a mother who had been to prison than women with non-violent convictions (11% vs 4% respectively, $p<.01$); parental mental health was also a factor, with women incarcerated for a violent conviction more likely to have a mother (8% vs 4% respectively, $p<.05$) and father (5% vs 2% respectively, $p<.05$) with psychiatric problems than women incarcerated for non-violent convictions (Pollock et al., 2006). Some noted that a history of psychiatric diagnosis in both parents (IRR, 6.62, 95% CI, 5.91-7.38), compared to a single parent (mother, IRR, 3.10, 95% CI, 2.88-3.34; father, IRR, 3.05, 95% CI, 2.81-3.30), doubled the risk of violent conviction (Mok et al., 2016).

Importantly, for the current review, these associations were stronger in women than men (p=.001) and female offspring were more strongly associated with violent convictions than men for 18 of the 20 parental psychiatric disorders measured (Mok et al., 2016). The strength of this study was its design, a national cohort study, with abundant statistical power and data collected prospectively, addressing potential recall bias.

Abuse

Abuse was the most widely studied factor in the familial and social factors domain. Abuse was typically that experienced in childhood but abuse in adulthood was also considered to some extent. Four studies considered childhood abuse (Bijlsma et al., 2021; Brewer-Smyth et al., 2004; Pollock et al., 2006; Slocum et al., 2022). Women incarcerated for violent crimes reported higher frequencies of childhood abuse histories than non-violent women across multiple areas: childhood physical abuse (36% vs 25% respectively, p<.01), childhood sexual abuse (42% vs 31% respectively, p<.01) and both childhood physical and sexual abuse (52% vs 41% respectively, p<.05; Pollock et al., 2006). Physical abuse in childhood increased the odds of violent conviction over non-violent conviction by 60% which remained significant in a multivariate model (β=.46, p=.046) and was the strongest predictor for violent offending over all other forms of abuse (B=2.26, p<.01, Pollock et al., 2006). Another study found similar results whereby violent convicted incarcerated women suffered more childhood sexual abuse (70%% vs 50% respectively, p<.05), sexual abuse by family members (56% vs 37% respectively, p<.05), and physical and sexual abuse together (93% vs 79% respectively, p<.05) compared with non-violent conviction incarcerated women (Brewer-Smyth et al., 2004). Women with violent index offences were also more likely to have been locked in a small space as a child (25% vs 6% respectively, p<.05) or stabbed or shot at by an adult as a child (15% vs 3% respectively, p<.05) than women with a non-violent index offence (Brewer-Smyth et al., 2004). Slocum et al., (2022) found a relationship

between experiencing abuse in childhood and initiating violence in adulthood for women ($F(3,774)=3.32, p<.05$). Women attending treatment after committing domestic violence were more likely to have suffered child maltreatment compared to male peers (57% vs 42% respectively, $p<.05$; Bijlsma et al., 2021). However, reports of childhood abuse in all studies were self-report and therefore could be misreported, skewing results.

Abuse suffered in adulthood was associated with women being incarcerated for a violent offence (OR, 6.3, 95% CI, 1.9-21.0; McMillan et al., 2021), with sexual abuse in adulthood increasing the odds of being a violent offender compared with non-violent by 40% (OR=1.42), remaining a significant predictor in a multivariate model (β=.35, $p=.043$; Pollock et al., 2006). A strong positive relationship between frequency of physical abuse (adult or child not specified) and self-reported, as well as convicted, violence was also noted ($r=.43$, $p<.001$; Bryd & Davis, 2009). Some found physical abuse predicted violent behavior, explaining 12.74% of the variance in an unadjusted model (Bryd & Davis, 2009). Further studies explored other abuse related factors. Women incarcerated for violent convictions had significantly higher numbers of hospital treatments for abuse-related injuries prior to committing the crime, compared with non-violent convicted incarcerated women (2.15 vs .94, $p<.05$; Brewer-Smyth et al., 2004) and violent women had lower mean years since they suffered abuse than non-violent women (3.83 vs 9.77; $p<.05$; Brewer-Smyth et al., 2004). This remained significant when adjusting for other variables ($p=.041$) and for every year since last abuse, the chance of being convicted of violent crime fell by around 10% (.896, 95% CI, .807-995; Brewer-Smyth et al., 2004).

Situational stress

Social stressors, including stress from correctional staff ($ß=.325$, $p<.001$) and stress from family ($ß=.124$, $p=.016$), were associated with self-reported violence in a sample of incarcerated females (D Alper Camlibel et al., 2021); however, stress from other inmates was

not associated (ß=.006, *p*=.919), suggesting something unique about the incarcerated female-correctional staff relationship. Despite all measures being self-reported, D Alper Camlibel et al. (2021) suggested that staff's observer-reports and incarcerated female's self-reports of violence showed strong agreement, reducing concern regarding misperception or misrepresentation.

Gang membership

A retrospective cohort study found that 17.2% of a national female adolescent sample indicated gang membership (Timchenko et al., 2020); when followed-up into adulthood, violent crime and gang membership were weakly positively associated ($p<.05$), revealing both cross-sectional and longitudinal effects across the four data collecting time points (ß*s*=0.038-0.063; Timchenko et al., 2020). However, there were several limitations to Timchenko et al.'s (2020) study, namely all narrative self-report measures, no official violent crime measure, sample recruited from youths/adolescents attending school, which might not be representative of those who are members of gangs, and it is unknown if the violence was gang related. Quality assessment also highlighted issues regarding attrition (around 25%); the loss of follow-up went unexplained, although statistical methods were changed to account for this. Pollock et al. (2006) supported this result in a mixed-quality cross-sectional study, finding gang membership as a woman associated with incarceration for violent offences (11%, $p<.01$).

Socio-demographic factors

Various socio-demographic factors were included in the studies, often as confounding variables; therefore, results must be interpreted with caution as they are conditional on the other variables included in their particular model and are not the chosen variable of study. Women in forensic treatment for committing domestic violence had four socioeconomic risk factors at higher rates than males: current unemployment (57% vs 39% respectively, $p<.01$),

low job performance (15% vs 5% respectively, $p<.05$), receiving unemployment benefit (55% vs 35% respectively, $p<.001$), and housing instability (42% vs 28% respectively, $p<.01$; Bijlsma et al., 2021); these factors could result in women feeling unable to flee domestically abusive relationships, potentially leading them to retaliate with violence. Quality assessment of this study highlighted that measures were not validated with adult populations (only youth) and confounding variables were not addressed. Pollock et al. (2006) found that women receiving welfare assistance in the six months preceding incarceration were 50% less likely to be convicted of violent than non-violent offences, contrasting the assertion that poverty predicts violence. In contrast, Pollock et al. (2006) found that women who were unemployed were more likely to be incarcerated for violent rather than non-violent offences ($p<.05$). In China, lower education levels in women were associated with violent crime, including homicide ($p<.05$), in univariate and multivariate models, as well as living rurally ($p<.05$; Wang et al., 2017). Hodgins (2009) also showed that lower education was associated with violent conviction in women with schizophrenia, as well as those who had immigrant status and had children. Minor non-familial violent crime was associated with education levels lower than high school (2.8, 95% CI, 2.3-2.4) and completing high school but not college (1.7, 95% CI, 1.5-2.1; Rosellini at el., 2017), in a US veteran sample. It therefore appears that lower education levels may be associated with violence cross-culturally, however, studies including education as an independent variable, rather than a confounding variable, would be needed to express confidence in this result.

All studies (n=4) that included race as a variable were from the USA. Women incarcerated for violent offences were more likely to be African American (50%, $p<.05$) and African American women were 2.24 times (OR=2.24) more likely to be violent compared with white or Hispanic women (Pollock et al., 2006). Black women were associated with self-reported violent crime (*Beta*=0.084, $p<.05$; Timchenko et al., 2020) and more likely to be

arrested for a violent crime than white women (p<.001). Non-familial minor violent crime in female US Army soldiers was associated with being non-Hispanic black (OR, 2.0, 95% CI, 1.8-2.1; Rosellini et al., 2017). Baskin-Sommers et al., (2013) looked specifically at race along with psychopathology and gender, finding similar results: black women were more likely to commit violent crimes (OR, 0.7, 95% CI, 0.5-0.93) and displayed greater versatility of violence than white women (Baskin-Sommers et al., 2013). This cross-sectional study was of methodological high quality, but its use of racialized language is outdated (published nearly a decade ago) and should be read with an understanding that its use of terminology is a cross-section of a cultural context that has since shifted. It is important to stress that the conclusions did not imply any intrinsic relationship between psychopathy, violence, gender, and race. Instead, these relationships are best understood in terms of intersectionality of these factors, alongside a hyper-concentration of the disadvantages that affect black men and women from other race-gender subgroups (Baskin-Sommers et al., 2013).

Biological Factors

Cortisol

In comparisons of incarcerated violent and non-violent matched female's salivary cortisol levels, women in the violent group showed lower diurnal levels (.117 vs .281 respectively, p<.05); however, both groups' results were lower than the mean for adult females (.603; Brewer-Smyth et al., 2004). In an adjusted model, only morning cortisol level was associated with being incarcerated for a violent crime, suggesting it was inversely related to violent conviction (OR, .036, 95% CI, .002-.533). Results were considered in the context of the populations exposure to emotional and physical trauma in childhood and included PTSD symptoms, chronic stress, and smoking (Brewer-Smyth et al., 2004).

Traumatic brain injury

All three studies of TBI concluded it to be a risk factor for violent conviction in women (Brewer-Smyth et al., 2004; Ineson et al., 2022; McMillan et al., 2021). One modified case-control study found number of TBIs with loss of consciousness to be high in all female offenders but significantly higher (p=<.05) in women convicted of violent offences (Brewer-Smyth et al., 2004). Moreover, the chances of being convicted of a violent offence increased by 45% (1.45, 95% CI, 1.086-1.939) for every TBI with a loss of consciousness (Brewer-Smyth et al., 2004). This was consistent with findings from McMillan et al. (2021), who reported that women with a history of violent convictions were more likely to have a severe head injury than those without violent conviction history (79% vs 54% respectively). More specifically, women were three times more likely to have a history of severe head injury if they had a violent conviction history than those with a non-violent conviction history (OR, 3.1, 95% CI, 1.2-8.1; McMillan et al., 2021) even when controlling for current factors (3.1, 95% CI, 1.1-9.0) – historical factors were not controlled for. Ineson et al.'s, (2022) Danish population cohort study found that incidence of violent crime for women with a TBI was 180 per 100,000 (95% CI, 175.6-184.4) compared with 59.8 (95% CI, 59.2-60.3) for those without a TBI; associations between violent conviction and TBI remained when adjusting for individual (IRR, 2.43, 95% CI, 2.31-2.55) and parental (IRR, 2.55, 95% CI, 2.46-2.65) background factors (Ineson et al., 2022). Further still, women with a psychiatric illness *prior* to sustaining a TBI were three times more likely to commit violent crime (IRR, 3.18, 95% CI, 2.96-3.41) than those with TBI only (Ineson et al., 2022) and women with psychiatric diagnoses *after* TBI were four times more at risk (IRR, 4.02, 95% CI, 3.77-4.27) of committing violent crime than those with TBI only.

Age

Five studies found that violence was associated with younger age. Women incarcerated for violent offences were more likely to be younger than women incarcerated for

non-violent offences (<30 years, $p<.01$, Pollock et al., 2006; *Beta*=-.211, $p<.001$, Bryd & Davis, 2009), observer-reported violent misconduct for incarcerated females was significantly associated with younger age ($r=-.22$, $p<.01$; Thomson at al., 2016), and being younger at first offence was significantly associated with committing a violent crime in women in China in univariate and multivariate models ($p<.05$; Wang et al., 2017). Being a female aged between 17-22 was significantly associated with committing minor violent crime in the US Army (OR, 1.3, 95% CI, 1.2-1.5; Rosellini et al., 2017).

Discussion

This is the first systematic review to examine potential violence risk factors in female forensic populations. It advances our understanding of violence by scoping risk factors for general violence, with the acknowledgement that many women in forensic settings have committed more than one type of violent act. The 24 studies reviewed revealed three domains of potential risk factors: individual clinical factors, social and familial factors, and biological factors. This emphasizes the importance of adopting a well-rounded biopsychosocial approach to assessing, formulating, and managing violence risk in female forensic populations. Studies examining individual personality and clinical factors highlighted associations between violence in female forensic populations and personality, mental and neurodevelopmental disorders, self-injurious behaviors, suicide attempts, substance misuse, and criminal and violence history. Social and familial factor research demonstrated links between violence in female forensic populations and parental history, abuse, stress, gang membership, and socio-demographic variables. The biological domain noted correlations with cortisol levels, TBI, and age.

Multiple risk factors identified in this review are established risk factors for violence in males, such as substance misuse, violent history, and younger age of first violent offence (Andrews et al., 2012). Findings identifying substance misuse, particularly alcohol, as a risk

factor for violence in female forensic populations was relatively strong, with this evidenced across three studies, including cross-sectional and longitudinal, conducted in both the USA and Europe (Brewer-Smyth & Pohlig, 2017; Hodgins, 2009; & Martin & Bryant, 2001). Suffering abuse in childhood and adulthood was also consistently found to be associated with violence in women, particularly physical abuse (Bryd & Davis, 2009; Pollock et al., 2006). This is especially relevant given estimates that 53% of women in forensic services have suffered emotional, physical, and/or sexual abuse as a child and/or domestic abuse as an adult (Prison Reform Trust, 2022); however, only one study examined abuse in a longitudinal design (Slocum at el., 2022) and this was retrospective. The lack of prospective longitudinal studies of abuse and violence makes inferring causality difficult. Conversely, two prospective longitudinal studies (Hodgins, 2009; Mok et al., 2016) demonstrated that parental factors, such as parental mental health and criminality, were particularly pertinent for women. Abuse was the cause of 89% of TBIs women sustained in McMillan et al's (2021) study, which is noteworthy given the strong associations illustrated between TBI and violence in three studies conducted across the USA, Europe, and the UK (Brewer-Smyth et al., 2004; Ineson et al., 2022; McMillan et al., 2021). Whilst the significance of TBI in terms of violent behavior has been recognized for three decades, referred to as the "silent epidemic" (Coburn, 1992), the fact that only three TBI studies were available for the current review, despite it being known a high percentage of women sustaining TBIs via domestic violence, suggests a greater research focus going forward would be warranted. Indeed, the presence of a TBI is not currently considered in any violence risk assessments for adult women or men.

The few studies reviewing psychiatric, neurodevelopmental, and intellectual disability diagnoses found these diagnoses were associated with greater rates of violence in women. This supports the inclusion of mental disorders (such as schizophrenia) and personality

disorders in current violence risk assessments (HCR-20 v3; Douglas et al., 2013); however, research remains limited.

Nine studies reviewed explored the role of personality in women's violence. Evidence for the relationship between personality traits and violence appeared inconsistent, potentially due to differing measures, populations, and study designs used. Despite the studies relating to psychopathy being relatively high quality, two neglected to account for confounding variables (Logan & Blackburn, 2009; Lee & Egan, 2013). Psychopathy appeared more useful when broken down into subcategories, as this highlighted differences between men and women in which aspects of psychopathy were associated with violence. The current review also found that impulsivity was generally associated with violent conviction (Bijlsma et al., 2021; D Alper Camlibel., 2021; Gower et al., 2022) but was not associated with observer-rated violent misconduct (Thomson et al., 2016). It is noteworthy that the two most prevalent personality factors in the studies (psychopathy and impulsivity) are the two already included in the HCR-20 v3 (Douglas et al., 2013), suggesting that despite it being designed for men, the personality factors contained within are relevant for women.

Certain demographic variables were also associated with violence alongside the aforementioned age and criminal history, such as lower education levels. Race was also illustrated as an area where differences in violence within women are seen; however, this was just one USA-based study in Wisconsin (Baskin-Sommers et al., 2013) and only considered age and education level as confounding variables, despite evidence to suggest that black American women are more likely to be subjected to daily discrimination and socioeconomic hardship than their white counterparts in Wisconsin (Surachman et al., 2021). Separating race in the analysis of violence has provided further understanding into how intersectionality effects the profile of female violence. However, if researchers are to continue to study race in this context, they must do it in a manner that accounts for the vast social disparities between

black and white women and the variables that affect people of various races differently, such as intergenerational trauma resulting from colonialism, racism, discrimination, and socioeconomic hardship (Barlow, 2018).

Whilst this review identified factors that are thought to directly relate to women, such as mental health diagnoses, trauma, abuse, and self-harm (Blanchette & Brown, 2006; Brennan et al., 2012; Davidson & Chesney-Lind, 2009; Salisbury et al., 2016; Dolan & Völlm, 2009), other factors, such as sex work and pregnancy at a younger age, were not addressed in the included studies. This may reflect a lack of association between sex work and pregnancy at a young age with violence or, alternatively, it may reflect poor methodology or a dearth of female-only sample studies, as consideration of sex work and pregnancy would unlikely be given to mixed sample studies. The current review summarizes factors associated with female perpetrated violence but the specific pathways linking each risk factor to violence are yet to be elucidated. Furthermore, study design and methodological quality varied, which limited the extent conclusions could be drawn. No single factor stood out due to the breadth of factors examined and even psychopathy and abuse, the most commonly examined, accounted for just four studies each.

Limitations

Limitations to this review are recognized. First, the inclusion of only peer-reviewed articles may have resulted in some relevant studies being excluded. It did, however, ensure a reasonable baseline standard for inclusion. Second, included articles were restricted to those written in English, which may have resulted in relevant studies being excluded, with findings leaning more towards Westernized, English-speaking populations. Third, the review predominantly focused on articles pertaining to women in forensic settings; whilst this allowed a clearer focus for the review, it also meant that violence perpetrated by women not in these settings was not explored and inferences regarding other populations cannot

necessarily be made based on the current findings. There are also limitations in respect to the difficulties inherent in researching this subject area: for example, it is possible that gaining consent to participate in research from violent women may have been challenging (Volavka, 2013), resulting in potentially biased samples that do not reflect the true variability of violence. In respect to the studies reviewed, most were cross-sectional (n=14) in design and causality cannot be inferred from these; several also did not control for potential confounding variables. Violence was defined and measured in numerous ways, making direct comparisons difficult. Violence was most often measured by violent conviction resulting in incarceration. Despite conviction and incarceration being valid measures that have the benefit of not being reliant upon self-report and allow for large sample studies, it misses women who have committed acts of violence for which they were not convicted or incarcerated. This is especially problematic when studying women as they are less likely to be incarcerated for violent offences and more likely to be given community or suspended sentences than men (Ministry of Justice, 2015). Furthermore, women are less likely to commit publicly visible acts of physical violence and instead commit relational violence that is less likely to cause serious physical injury (Odgers et al., 2005), such as domestic abuse (Desmarais et al., 2012) and child abuse (May-Chahal & Cawson, 2005), as well as indirect forms of violence, such as fire setting (de Vogel et al., 2016), which often go under-reported. Lastly, but importantly, some measures used appeared to conflate violence and aggression, a methodological issue which appears to persist despite others highlighting this previously (Rippon, 2000; Darrell-Berry et al., 2016).

Future directions

Recommendations relevant to improving methodological rigor can be offered. During the present systematic search, it was necessary to exclude 56 studies using mixed samples because results were not reported separately for men and women; this was the most common

reason, by far, for exclusion. In future research, where mixed gender samples are used it is recommended that results are analyzed by gender to maximize the degree to which findings can inform gender-sensitive service provision. In addition, there should be greater focus on the use of robust longitudinal designs to better identify causal links between risk factors and violence; more rigorous study design would also increase confidence in the reported results. As emphasized before (Rippon, 2000; Darrell-Berry et al., 2016), the research community would also benefit from a consensus on how violence is defined and measured, as this would improve the validity of study findings. For example, one study that used both official conviction data and self-report measures (Kalemi et al., 2019) found that women convicted of violent crimes and women convicted of non-violent crimes did not differ in self-reported violence (Bryd & Davis, 2009), suggesting that it may be erroneous to assume that non-violent comparison groups are indeed non-violent based on current convictions only. Future research may benefit from administering measures of violence in combination with the use of conviction data and not reducing samples to incarcerated populations.

This review exposed the thin spread of studies examining potential risk factors for violence in female forensic populations and the limited methodological quality of those studies. Research collaboratives could be helpful in systematically developing programs of research which focus, at any one time, on a smaller number of specific factors associated with female violence to strengthen the current evidence-base enabling stronger conclusions to be made. This is required before gender-sensitive violence risk assessment tools can be developed and validated. Nonetheless, the current review begins to guide clinicians towards important factors when assessing, formulating, and managing violence risk in women in forensic settings. Likewise, it begins to support more nuanced and gender-sensitive approaches to violence risk formulation by identifying factors contained in existing risk

assessments, such as the HCR-20 v3, which are especially pertinent to women, alongside those which are not.

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Appendices

Appendix A – JBI Quality Assessments

Appendix B – Table of results from the JBI quality assessments

Appendices A – JBI Quality Assessments

JBI CRITICAL APPRAISAL CHECKLIST FOR ANALYTICAL CROSS SECTIONAL STUDIES

Reviewer_____Date_____

Author_____Year_____Record Number_____

	Yes	No	Unclear	Not applicable
1. Were the criteria for inclusion in the sample clearly defined?	☐	☐	☐	☐
2. Were the study subjects and the setting described in detail?	☐	☐	☐	☐
3. Was the exposure measured in a valid and reliable way?	☐	☐	☐	☐
4. Were objective, standard criteria used for measurement of the condition?	☐	☐	☐	☐
5. Were confounding factors identified?	☐	☐	☐	☐
6. Were strategies to deal with confounding factors stated?	☐	☐	☐	☐
7. Were the outcomes measured in a valid and reliable way?	☐	☐	☐	☐
8. Was appropriate statistical analysis used?	☐	☐	☐	☐

Overall appraisal: Include ☐ Exclude ☐ Seek further info ☐

Comments (Including reason for exclusion)

JBI CRITICAL APPRAISAL CHECKLIST FOR COHORT STUDIES

Reviewer_____
Date_____

Author_____Year_____Record Number_____

	Yes	No	Unclear	Not applicable
1. Were the two groups similar and recruited from the same population?	☐	☐	☐	☐
2. Were the exposures measured similarly to assign people to both exposed and unexposed groups?	☐	☐	☐	☐
3. Was the exposure measured in a valid and reliable way?	☐	☐	☐	☐
4. Were confounding factors identified?	☐	☐	☐	☐
5. Were strategies to deal with confounding factors stated?	☐	☐	☐	☐
6. Were the groups/participants free of the outcome at the start of the study (or at the moment of exposure)?	☐	☐	☐	☐
7. Were the outcomes measured in a valid and reliable way?	☐	☐	☐	☐
8. Was the follow up time reported and sufficient to be long enough for outcomes to occur?	☐	☐	☐	☐
9. Was follow up complete, and if not, were the reasons to loss to follow up described and explored?	☐	☐	☐	☐
10. Were strategies to address incomplete follow up utilized?	☐	☐	☐	☐
11. Was appropriate statistical analysis used?	☐	☐	☐	☐

Overall appraisal: Include ☐ Exclude ☐ Seek further info ☐

Comments (Including reason for exclusion)

JBI CRITICAL APPRAISAL CHECKLIST FOR CASE CONTROL STUDIES

Reviewer_____Date_____

Author_____Year_____Record Number_____

	Yes	No	Unclear	Not applicable
1. Were the groups comparable other than the presence of disease in cases or the absence of disease in controls?	☐	☐	☐	☐
2. Were cases and controls matched appropriately?	☐	☐	☐	☐
3. Were the same criteria used for identification of cases and controls?	☐	☐	☐	☐
4. Was exposure measured in a standard, valid and reliable way?	☐	☐	☐	☐
5. Was exposure measured in the same way for cases and controls?	☐	☐	☐	☐
6. Were confounding factors identified?	☐	☐	☐	☐
7. Were strategies to deal with confounding factors stated?	☐	☐	☐	☐
8. Were outcomes assessed in a standard, valid and reliable way for cases and controls?	☐	☐	☐	☐
9. Was the exposure period of interest long enough to be meaningful?	☐	☐	☐	☐
10. Was appropriate statistical analysis used?	☐	☐	☐	☐

Overall appraisal: Include ☐ Exclude ☐ Seek further info ☐

Comments (Including reason for exclusion)

Appendix B – Table of results from the JBI quality assessments

Study	Joanna Briggs Institute Criteria Question Number										
	1	2	3	4	5	6	7	8	9	10	11
Cross-sectional											
Baskin-Sommers et al. (2013)	Y	Y	U	Y	Y	Y	Y	Y	-	-	-
Bijlsma et al. (2021)	Y	Y	U	U	N	N	Y	Y	-	-	-
Bryd & Davis (2009)	Y	Y	Y	Y	N	N	Y	Y	-	-	-
D Alper Camlibel et al. (2021)	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
Kalemi et al. (2019)	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
Lee & Egan (2013)	Y	Y	Y	Y	N	N	Y	Y	-	-	-
Logan & Blackburn (2009)	Y	Y	Y	Y	N	N	Y	Y	-	-	-
Martin et al. (2001)	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
McMillan et al. (2021)	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
Pollock et al. (2006)	Y	Y	N	N	Y	Y	Y	Y	-	-	-
Selenius et al. (2016)	N	Y	NA	N	N	N	N	Y	-	-	-
Slocum et al. (2022)	N	N	U	Y	Y	Y	Y	Y	-	-	-
Thomson et al. (2016)	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
Wang et al. (2017)	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-

Cohort											
Hodgins (2009)	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA	U
Ineson et al. (2022)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Latvala et al. (2022)	Y	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
Mok et al. (2016)	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y
Rosellini et al. (2017)	Y	Y	Y	Y	Y	N	Y	U	Y	NA	Y
Sahlin et al. (2017)	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y
Timchenko et al. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
Case Control											
Brewer-Smyth et al. (2004)	Y	Y	Y	U	Y	Y	Y	Y	U	Y	-
Brewer-Smyth et al. (2017)	U	U	U	U	Y	N	N	Y	Y	Y	-
Gower et al. (2022)	Y	Y	Y	Y	Y	Y	Y	U	Y	Y	-

Note: Y=Yes, N=No, NA=Not applicable; U=Unknown; Dash(-)=No question

Chapter 2

Empirical paper

Women's experience and expression of anger: forensic mental health ward staff reflect

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This paper has been prepared in adherence of the Journal of Forensic Psychology and Practice - https://www.tandfonline.com/action/authorSubmission?show=instructions&journalCode=wfpp21

Women's experience and expression of anger: forensic mental health ward staff reflect

It is incumbent upon forensic mental health staff to work to improve patients' well-being whilst reducing the risks they pose. To be successful, staff must be able to recognize emotional distress and know how to respond helpfully. Research has focused on the assessment and management of violence and self-harm but anger, a key determinant of violence towards self and others, has been relatively neglected. Understanding of women's anger is particularly lacking, which is problematic when women assault forensic mental health staff with greater frequency than men do. This study sought to examine how ward-based staff recognize, understand, and respond to anger expressed by female forensic mental health patients. Six ward-based staff members working in female secure mental health services were interviewed. Thematic analysis revealed four superordinate themes: '*Perceptions of women's anger*', '*Anger expression'*, '*Centrality of relationships*' and '*The emotional impact*'. Clinical implications are discussed.

Keywords: anger, women, forensic, staff, mental health, qualitative

Introduction

Relatively little research has explored experiences of anger in clinical forensic settings, despite anger being a recognized driver for violent offending, an activator for aggression and a risk factor for self-harm and suicide (Novaco, 2011; Chapman & Dixon-Gordon, 2007; Milligan & Andrews, 2005). This is surprising given that anger has long been identified as a salient problem in these settings (Novaco, 1997) and emerged as a leading cause of physical aggression and assaults on staff (Craig, 1982; Kay et al., 1988; Doyle & Dolan, 2006a).

There are established anger gender differences which are apparent in both secure services and the general population (Eatough et al., 2008; Thomas, 2005; Fernandez & Malley-Morrison, 2013; Shields & Shields, 2002). Whilst men and women are thought to experience anger internally to a similar degree (Bartz et al., 1996; Carlozzi et al., 2010), the outward expression is often different (Fabes & Martin, 1991). Women internalize anger more than men, attempting to minimize the outward expression by inflicting injury on themselves (Fernandez & Scott, 2009; Rosenfield, 2000). When they do externalize anger, women are more likely to direct it towards those closest to them, such as family members (Motz, 2008; Odgers, Moretti & Reppucci, 2005). Women in forensic settings are thought to experience higher levels of anger (Sutter et al., 2002; Spielberger, 1996; Novaco, 2003; 1997; Buss & Perry, 1992) and are more assaultive towards mental health staff than male patients (Convit et al., 1990; Larkin et al., 1988; Ionno, 1983; Novaco, 1997).

Anger can be a healthy, adaptive emotion which aids motivation and supports survival (Moeller, 2015; Novaco, 2010); however, in forensic mental health settings, high expressed anger is also commonly indicative of a trauma history, often involving rejection and abandonment, alongside psychological and economic impoverishment (Novaco, 2013). Dysregulated anger is a feature of many mental health disorders associated with harm to self

and others (Novaco, 2013); there is a risk, in this context, that experiencing or expressing anger becomes pathologized or viewed wholly negative in forensic services.

The needs of women in secure mental health services are different to men (NHS England, 2016) and staff training should emphasize the unique needs and experiences of both genders (McKeown et al., 2003). However, the lack of research on female forensic patients' anger restricts the ability to tailor training or practice. There is a paucity of research addressing how staff in forensic settings make sense of women's anger. Instead, research has focused on staff perspectives on self-harm (McKeown et al., 2003) or overt violence, aggression, and physical assault (Malda-Castillo et al., 2018). Whilst these behaviours can be associated with anger, they may be considered consequences of anger or expressions of it rather than studying the emotion itself. By focusing on overt expressions of anger, these studies have also added little to our understanding of how staff recognize signs of *internalized* anger, information that may offer insights for how to intervene before escalation to acts of violence.

Insight into staff perspectives on female anger in forensic services is vital to support gender-informed care (Women Secure Blended Service; NHS England, 2016), especially considering two significant policy initiatives in recent years: *trauma-informed care* (TiC) and *relational security* (NHS England, 2016). Women in forensic services present with especially high levels of trauma (de Vogel et al., 2016; Robertson et al., 2013), which has been linked to behaviours that represent invalidated anger (e.g., violence towards self or others; Kaplan et al., 1983). Women are also more likely to be given diagnoses that reflect complex emotional and relational difficulties resulting from early-life trauma (Kulkarni, 2017), and which have anger as a diagnostic criterion (e.g., borderline personality disorder [de Vogel et al., 2016], or, more recently, complex post-traumatic stress disorder [C-PTSD; Kulkarni, 2017]). Pathologizing anger in this way may encourage services, and staff, to

neglect alternative explanations and ways of understanding anger, including through a trauma-informed lens. In addition, strict regimes and physical restraints can mirror women's early experiences of trauma (Aiyegbusi, 2002). Common practices using such physical security measures are less effective and do not consider the therapeutic needs of women in secure services (Tolland et al., 2019). Instead, relational security is an organic process informed by attachment theory and based on staff knowledge and understanding of a woman and the environment (Dickinson et al., 2012). It is now understood that women respond and benefit from higher procedural and relational security, as opposed to physical approaches (Walker et al., 2017; Janicki, 2009). Staff's management of core emotions, including anger, may impact their relationship with patients or cause relational ruptures, with a likely impact on relational security. It would be helpful to understand more about how staff recognize, understand, and respond to anger so that training and practice can be adapted to promote these gender-informed policy initiatives.

It is essential that services and staff recognize the individual needs of women and base treatment and care on gender-specific research, rather than generalizing from male populations (Logan & Taylor, 2017). This is especially important with anger, which is experienced and displayed in gender-specific ways (Thomas, 2005; Fernandez & Malley-Morrison, 2013). It has been argued that a full understanding of anger cannot be reached by purely quantitative approaches (Eatough et al., 2008; Thomas, 2005; Fernandez & Malley-Morrison, 2013) and researchers are required to move beyond traditional measures to fully capture the lived experience (Eckhardt et al., 2002). It is offered that qualitative research can yield richer data, over quantitative methods, into the context of women's anger (Thomas, 2005). As such, this study aims to explore how ward-based staff working in secure female forensic wards recognize, understand, and respond to anger using qualitative methods. It is

intended that the results will support efforts to promote person-centered care, including TiC and relational security, for women when they are experiencing anger in forensic settings.

Method

Design

This study employed a cross-sectional qualitative design, undertaken in a medium-secure forensic hospital in the United Kingdom. Data were collected via semi-structured interviews completed on an individual basis.

Recruitment

Purposive sampling was used to recruit participants who had experience working on female forensic wards in a medium secure unit. Eligible participants were qualified or unqualified nursing staff with at least six months experience working on a female forensic ward. The study was advertised via posters in ward nursing offices and an e-mail sent to all staff across the female wards. Potential participants were invited to e-mail the lead researcher to receive a participant information sheet (see appendix A) and those who received this information were followed-up via e-mail 7-10 days later to ascertain if they wished to participate. If they did, an interview was arranged to take place using video conferencing software. Participants were made aware that they could withdraw at any time throughout the study until the data was anonymized and if distress occurred, a clinical psychologist was on site and available to be spoken to. It was also stated that if any concerns were raised throughout the interview (in relation to harm towards themselves or others), this would be discussed with the interviewer's research supervisors and confidentiality may need to be broken. Consent was recorded verbally at the start of each interview and the researcher completed a written consent sheet (see appendix B) on participants' behalf.

Participants

Six participants, aged between 25-55 years, self-selected and consented to be interviewed. Two further participants made contact but did not reply after being sent the participant information sheet. Participants had worked on female forensic wards for an average of six years (range 2-12 years). Five of the six participants identified as male and the sixth identified as female, resulting in a majoritively (83%) male sample. The specific type of ward staff included support workers (n=3), registered nursing associates (n=2), and nurse (n=1).

Data collection

Virtual interviews were conducted over Microsoft Teams and lasted between 90-135 minutes. Interviews were semi-structured, using an interview schedule (see appendix C) piloted on a trainee clinical psychologist with experience working on secure wards as a support worker. Questions were designed to elicit participants' views and experiences of working with female patients' anger, specifically how they recognized, understood, and responded to it. Interviews were audio recorded and transcribed verbatim; 603 minutes of data was recorded in total. Participants had no further involvement in the research once interviews were complete. Field notes were made after interviews to capture initial thoughts and impressions.

Analysis

Data were analyzed using reflexive thematic analysis, a qualitative method used to bring together patterns and themes in written data (Braun & Clarke, 2006; Clarke & Braun, 2022). Although other qualitative methods were considered (grounded theory and interpretive phenomenological analysis), thematic analysis was chosen due to the study being of an exploratory nature. The clinical lead of the female forensic service also believed this would provide the most useful conclusion of the data at this time, being that little is currently known about this topic. Due to its flexibility, thematic analysis can be approached from various

epistemological stances and acknowledges that the same data could be interpreted and reported in different ways depending on the researcher's stance (Clarke & Braun, 2022). The approach taken to here was epistemic contextualism; what is expressed and understood as knowledge is context dependent (Rysiew, 2007). The context of the staff (including their current working situation and history in forensic settings), being interviewed by an external researcher via videoconferencing, who has their own context in forensic settings and completing the research for an academic thesis, was therefore held in mind throughout the process.

The analysis was guided by Braun and Clarke's (2006) six stages of thematic analysis:

1. Familiarization with the data: the researcher became immersed in the data by listening to the audio recordings in full before starting to transcribe. All transcripts were anonymized and participants were given pseudonyms for anonymity. Once completed, transcripts were read in full once more and checked against the recordings for accuracy. The initial post interview field notes were reviewed, and any additional insights or initial analytic ideas were added.
2. Generating initial codes: coding was completed systematically by hand in two stages. First, transcripts were summarized in the left-hand margin to provide an overview of the data. Second, semantic codes were created from the summarized text and the data itself in the right-hand margin (see appendix D).
3. Searching for themes: codes were collated from each transcript on to post-it notes and combined in clusters to start organizing the data and answer the research question (see appendix E). Quotes relating to each code were compared against each other within their clusters to ensure the theme was consistent.
4. Reviewing themes: once an initial thematic map was created, transcripts were read again to ensure the overall narrative of the analysis fitted with the data.

5. Defining and naming themes: several changes and refinements of the themes and subthemes (and thematic maps) were made throughout the process (including the writing process), whilst continually referring to the research question, until themes were defined and named.
6. Producing the report: analysis was presented as a narrative account, with verbatim quotes embedded to promote transparency and demonstrate how data related to themes.

Ethics

Ethical approval for this study was granted by the Bangor University Psychology School Ethics Committee, NHS Health Research Authority, and site-specific NHS Research and Development Department.

Reflexivity statement

I am a white female in my early 30's training to become clinical psychologist. Prior to training, I had worked in several forensic settings, including the medium-secure hospital where the research took place. I therefore had to be aware of my own insights into working with women's anger in these environments. I had also previously undertaken qualitative research into women's anger from the perspective of women in the criminal justice system who had survived childhood trauma, women I have advocated strongly for in my professional career. With that in mind I had to be conscious of the "us vs them" positions that often occurs between staff and patients/advocates in forensic settings, attempting to align myself as neutral for the purpose of this research. Although I did not specifically state I had worked at the hospital (and I did not know any of the participants personally from that time), it is not inconceivable that they were aware of my previous employment. Even so, they were aware the research was being undertaken for a doctoral thesis and to be published in an academic journal, an undertaking that reflected my interest in the area. Despite this, staff spoke in detail

and explained things as if I was new to the field, wanting to get their day-to-day reality as a mental health professional in forensic services to be understood by a researcher. I reflected carefully on all of these "positions" in supervision throughout data collection and analysis, as well as during the writing process.

Results

This study aimed to explore how staff working with women on female forensic wards recognized, understood, and responded to patient anger. Participants' accounts, in the main, were coherent for recognizing anger, as well as how staff made sense of this anger, despite staff holding multiple perspectives regarding this. Staff's particular responses to managing women's anger was not as consistent, however, their own emotional response to patients' anger was. Commonality was also found in the importance staff placed on their relationship with patients. Although both male and female ward staff were interviewed, it cannot go without saying that the majority of data presented (due to having 5 out of 6 male participants) is from the male staff perspective. Four superordinate themes with subthemes were identified and are summarized in Table 1.

Table 1

Master table of superordinate themes and subordinate themes

Superordinate Themes	Subordinate Themes
1. Perspectives on women's anger	It's not what good girls do Rage by the rules Nature vs Nurture
2. Anger expression	Obvious anger Hidden anger: withdrawal and isolation Internalized anger: self-harm
3. Centrality of relationships	Knowing you, knowing cues: recognizing anger Knowing you, knowing what to do: responding to anger
4. The emotional impact	Shock (horror) Shhh - we're angry too! The swan

Perspectives on women's anger

Anger was described in markedly different ways; different perspectives brought different views on how it was recognized, understood, and responded to. These perspectives are represented through three subthemes: 'It's not what good girls do', 'Rage by the rules', and 'Nature vs nurture'.

It's not what good girls do

This subtheme, named after a participants quote, captured gendered aspects of anger. Although staff were only asked about female anger, they regularly compared it to male anger, which was deemed different in several ways. Time spent working on male forensic wards

was not seen as relevant or sufficient experience to understanding female anger. Working with women presented unique challenges that needed to be 'learnt'.

> *I had two years' experience on male acute before coming over to the females […] the way females display anger is different to males, very different, and I had to learn that, and I had to learn it quickly because it's different, it's really different.* (James)

The *reasons* men and women experienced anger were thought to be different, with women's anger linked more explicitly to perceived loss of control and threat. Kirsty explained: *"With men it generally, in my experience, ties itself more in terms of kind of low toleration threshold for frustration but I think with women it's when they're feeling out of control or under threat."* Staff also suggested that female anger appeared more *sustained* than male anger, which required a different response.

> *…with men, in my experience, it's very quick, there is an outburst, there is a consequence, it's dealt with… With women, my experience has been that it can be diffused but more often than not it takes a little longer. […] there is a level of rumination after anger as well so, even days later that anger is bubbling under the surface. […] So that's different than dealing with men.* (James)

As a result of these longer episodes, women's anger was seen as more "*emotionally taxing*" (James) for staff. During such episodes, women were also considered more likely than males to express anger through aggression, which resulted in staff reporting that they were physically assaulted more often on female wards. Although these assaults were more frequent, they were considered less physically harmful. Luke shared: *"What I have found is that as much as the women assault staff more than the men, the women's assault aren't as bad."*

Kirsty referred to anger as a trait, rather than an emotion, that belonged to males, positioning anger as transgressive in women. She placed anger in a cultural and historical context, recognizing the taboo of women's anger:

> *I think we're quicker to see anger as a male trait than a female trait […] I think it's about gender stereotypes really and kind of historical gender stereotypes […] little boys are angry and little girls are pretty […] I think it's just, it's not what good girls do, they don't get angry. […] So if we have a serious injury on site people are more outraged if it's on a female ward compared to a male ward. And I think that's about because "women don't do that kind of thing", which is wrong.*

In this way, there were differences in how anger was triggered and expressed but also in how expected and accepted it was perceived to be in a cultural context.

Rage by the rules

Despite focusing on anger, and not specifically asking about violence or assault, staff spoke about anger and violence almost interchangeably. Despite this conflation, it was also clear that there was a difference in how acceptable the staff considered anger and violence. Anger was seen as justifiable; staff often shared that they would feel similar emotions in the same situation, normalizing and validating the anger experienced by the female patients: "*I'd be angry if somebody promised me something and it's been there for… two weeks in the diary and then all of a sudden it wasn't going to happen. So, it's quite acceptable to feel angry.*" (Steve). Although anger was an understandable emotional response, some expressions were judged acceptable whilst others condemned. Verbal expressions of anger were allowed, if short and controlled, and, in some cases, this was encouraged; however, violence and physical assaults were not acceptable. As Rouben explained:

> *Anger in my opinion is a part of human nature. It depends how you control it. About shouting, some patients I encourage them. I say "Look, if you need to shout go ahead.*

> *Not all day, but just for a few seconds" because it's better to go outside and externalize your feelings but don't hit the staff.*

Despite some participants understanding anger in relation to a history of trauma and the forensic environment, physical assaults on staff resulting from anger were a hard line, not acceptable or justifiable under any circumstance: "*Attacks on staff are always unjustifiable […] I will take verbal abuse all day long, I'm made for that, that is not an issue, but physical attacks on staff, yeah, massive red line."* (Tom).

> *I can understand why they're angry, but what I can't understand is the actions of what they've done […] anger itself as an emotion, I have no issues with that. But acting on that anger and violence that is associated with the anger, that's what I have an issue with.* (Luke)

Despite these clear boundaries, there was a single exception outlined: staff appeared more accepting when significant mental health challenges were identified, which may have compromised capacity and/or control. As Rouben explained: "*Violence against staff should be minimized. I'm not saying it has to be stopped because you don't know the feelings in that moment, the frustration, hearing voices, and she doesn't know what she's doing because of the anger*". However, it is of note that Rouben did not condone assaults in other contexts, explaining: *"If someone came down the street and hit you it would be a trauma. You call the police. On the ward it's a trauma also. We shouldn't have the excuse, "well, it's mental health". We [staff] have to be supported."* This suggested a complex and moveable picture of acceptability depending on the perspective staff took. Despite staff stating assault was not an acceptable form of anger expression, they also anticipated, and seemingly accepted, that they would be assaulted as part of the job. According to Luke: "*…working within a mental health environment, chances are, you <u>are</u> going to be assaulted*".

Nature vs nurture

Understandings and explanations of women's anger varied between, and even within, staff accounts. At times, participants described a complex, nuanced picture of women's anger, whereas at other times it was reduced to a single explanation. Some factors were considered biological or medical in nature, such as mental health diagnoses, symptoms/side effects, and menstrual cycles, which were often put up against environmental factors, such as the physical parameters of the ward, relationships with staff, and personal histories. The opposing perspectives of nature and nurture led to staff attributing differing causes for anger, which seemed to influence the degree of empathy expressed towards the patient alongside how staff responded to anger.

Certain mental health diagnoses elicited different attributions of anger:

> *I tend to say as it is, "This patient is doing this because they've not been given this" for the personality disorder patients, whereas the floridly psychotic patients, the schizophrenic patients that we do have, they're angry because it's possibly a delusion that they've had*. (Luke)

It was considered that anger could result directly from symptoms of mental health problems (e.g. "*she's angry […] because she's so delusional"* Steve) or medication side-effects:

> S*ome patients get angry because I think the medication is not right, so we have one patient, paranoid schizophrenic, and she can be violent, really angry, and it can come from nowhere at all. She can be paranoid at the slightest thing but it makes her angry and it's because, because her medication's not been right, but now they've sorted her medication out she's absolutely fine. She's still unwell, but she's nowhere near aggressive or angry as what she used to be*. (Steve)

When viewed through the perspective of a medical model (mental illness) no further consideration was given to understanding potentially valid reasons for anger, such as the

person's circumstances. Anger was understood as a symptom of mental illness that needed treating or eradicating, rather than an emotional response that could be validated.

An alternative understanding of anger was that it related to the environment, past and present. The wards were described by Tom as "*very small*" and "*punitive environments*" where women are "*hemmed in*" and "*have very few liberties*". Although it was acknowledged that these spaces should serve a rehabilitative function, the reality was that they appeared untherapeutic, as Tom described: "*This place is like the worst version of Big Brother you'll ever be in*". Staff reported that patients regularly saw other patients being restrained or treated against their will and saw other patients attack or verbally abuse staff. Staff shortages led to patients being "*let down*" (Steve) with little to no ward activities, which also caused anger and frustration. Organizationally, staff acknowledged that it could take months for patients' personal property to be approved for ward use and there being a bad smell on a ward; all reasonable reasons for patients to feel and express anger. Even positive experiences, such as contact with family or interactions with staff, could result in anger where they reminded women of the challenging reality they were living in.

> *I've seen it where they've had a phone call with a family member, it's been a really positive phone call and they get angry because they realize "oh, I'm stuck in here". You know there's a bit of resentment, "I'm stuck here". I've seen anger where "well you're going home for your tea now and I can't leave.* (James)

Some staff acknowledged the trauma experienced prior to admission and the complicated interaction between the current environment and past experiences.

> *If someone's angry and the rage is already there, and let's be honest, the rage is always going to be there because nine out of ten women that I work with, there's been some trauma in the past, … that will trigger spasms of real, real visceral anger, so it could be anything from these big things like, you know, hospital just doesn't appear to*

*be meeting the need of the person to the fact that there's no f*****g staff at all to get you a brew …because everyone's sat on observations.* (Tom)

Anger expression

Participants described various ways they recognized how women express anger on female forensic wards. These are described in the subthemes of 'Obvious anger', 'Hidden anger: isolating and withdrawing', and 'Internalized anger: self-harm'.

Obvious anger

All participants described overt verbal and physical expressions of anger, often resulting in violence against others or property: "*It tends to be anger by shouting, storming off, slamming doors, throwing things, smashing things up, going into their room, smashing the room up, being violent towards members of staff*" (Steve). These overt expressions of anger were considered the most obvious, Tom described: "*obviously the first thing that jumps to mind is through aggressive behaviours, […] violent outbursts; hitting, punching, throwing*". There were also overt verbal expressions of anger, with raised voices and words used to hurt, threaten or intimidate staff. Luke explained: "*the way in which they're using their words, so there could be derogatory comments, they could be threats of violence, they could be, I don't know, just name calling in general*" and "*patients have been saying to a staff member that "I'm gonna kill your kids"*". Rouben shared that these verbal outbursts could be sustained for many hours. They could also be paired with intrusion into staff's personal space, as James explained: "*if somebody is really angry, they might shout in your face, they might get really, really close into your personal space. They may, um, be sort of quite menacing in their demeanor as well when they're angry*." At times, this could progress to physical assaults on staff, as Luke recalled: "*…really within your personal space, squaring up to you. …there is the element of actually assaulting an individual, which again I've had...*". Overt expressions of anger could also be recognized in facial expressions, gestures or body language, as Luke

described: "*they seem angry and quite aggressive just from the facial expressions or the mannerisms, whether it be the way that they are walking, or the things that they do*". In these instances, it felt clear to staff that anger was the underlying emotion being expressed.

Hidden anger: isolation and withdrawal

There were also less overt forms of anger expression identified by staff. Isolating and withdrawing was unanimously identified as a more covert type of anger displayed by women on forensic wards. This was seen as particular to women, making it harder to recognize without experience of working in these settings. Luke observed that women could withdraw physically but show no other changes to their demeanor:

> *…with women, certainly the ones that I've nursed, it's more difficult to pick up whether or not they're angry because their tone of voice hasn't necessarily changed. All they're doing that's different is that they just isolating in the bedroom, but you're not really picking up on it.*

There were various ways that women were observed to withdraw, each with different reasons. The main forms of withdrawal were physical (e.g., "*go off to their room",* Steve) and social (e.g., "*totally ignore you"* and "*won't engage in any group activities",* Steve). Isolating and withdrawing was sometimes seen as purposeful, a tactic to mask and hide anger from others. James shared:

> *There are times when it is missed and patients are very good at masking their anger […] they don't want to vocalize it, they don't want to share it, they don't want to discuss it, they just want to be angry and sit in that anger and they will avoid engaging with staff and peers. So it is that withdrawal*

Withdrawing and isolating could also be a warning sign of a verbal or physical eruption of anger to come. James recalled one such instance: "*She would just withdraw. She'd go really silent, not engage, wouldn't engage when you verbally tried to engage. …and then it would*

erupt into an incident of anger." Staff also thought that women withdrew or isolated to ruminate on their anger or even to plot revenge on others.

> *…women, when they isolate themselves or they remain really quiet. […] they will sit there angry and they'll even be quiet. We've had in the past where they've been plotting something continuously which is, on the surface, they look fine. They look absolutely normal and so, in reality, what they're thinking is, "well this person has wronged me, so I need to do this, this and this to get back at them".* (Luke)

Tom discussed the extreme end of withdrawal resulting from rage; a complete shutting down physically and emotionally resulting in non-compliance. He suggested that it could be sustained for longer periods of time than overt anger and may happen after a verbal or physical expression of anger. Tom suggested this form of withdrawal was part of longer-lasting experience of anger relating to patients' ongoing situation of being in a facility that uses restrictive practices, such as being isolated through seclusion, rather than reactionary to a specific trigger:

> *I don't want to use the term, like catatonia, but almost like shutting down, kind of like, an anger but in kind of a non-compliance with anything so you know, ADLs [activities of daily living] go out the window, […] not even speaking, not even moving in certain circumstances. We've had long-term seclusions that have gone like that. […] it's the rage of, of being there so that again is more of a long-term reaction rather than something that's just volcanic, […] we've had patients that have shut down for months, you know, and then it's almost like going on strike in many respects, going on strike from life.*

Despite withdrawal being seen as a form of anger that is easily missed, especially when starting to work with women, Kirsty believed that with time and experience on female wards it became an expression as recognizable as overt anger, explaining: "*It's almost as obvious*

when there is a lack of volume as when there is too much volume." What this might suggest is that experience of working in these setting encouraged staff to look for both overt and covert expressions of anger.

Internalized anger: self-harm

All participants considered self-harm to be a form of anger expression, this time directed inwards towards the self. As James explained: *"…patients can direct anger at themselves rather than at others, so they can internalize that […] and then that can manifest in various forms of self-harm."* Participants shared that self-harm was patients' "*way of releasing frustration and their way of releasing anger*" (Steve). Patients were sometimes open about this and, despite staff anxiety, in some cases use of safer self-harm was incorporated into care plans to promote safety and openness. Patients internalizing anger and hurting themselves was believed to prevent them externalizing anger and potentially hurting others. As Kirsty explained:

> *They are unable to tolerate their anger so they've cut themselves, […] staff are really worried she's going to end up dying but she's saying "This is how I cope with my pain, this is how I cope with my anger" […] its actually her way of not letting the anger get out of control and end up leading to violence directed outwards.*

Self-harm was also understood as a maladaptive coping strategy to help regulate anger and the emotions that followed an episode of anger. Anger was described as a "*high*" but that on the way down from that high patients' mental health could deteriorate, resulting in self-harm.

> *With anger, you […] have that high, then it has to come down, and especially with patients who have psychotic element to their illness, the voices can get worse and then target them and this is when we may see cutting behaviours, ligature behaviours, um, and that's the tail end of anger*. (James)

James also suggested that self-harm could represent attempts to regulate the emotions or negative self-talk that occur following an experience of anger:

> *Maybe it's been that they've felt […] sense of rejection and then they get really angry about that and then, and then they go boom, and then they go […] "I'm worthless. I'm this and that and the other". And then it leads from anger to these other behaviours [self-harm] because of the difficulty of them self-regulating emotions that lead on from anger.*

Staff were mindful that there were other forms of self-harm too, from eating disorders to the deliberate sabotage of relationships. Staff sought to explain self-harm in the context of anger, identifying the functions it served.

Centrality of relationships

Participants contextualized their understanding of anger within relationships. The significance of developing therapeutic relationships with female patients was noted by all participants. No interview question focused on the staff/patient relationship specifically, yet participants repeatedly spoke to the importance of relationships. Relationships were seen as more important by staff when working with women than with men, due to women's perceived need to feel safe.

> *That's a really important point, it's about relationships with women. …men don't really care who you are as a caregiver, they're not really interested it's just "Can you get me my medication, can you get me this?". Whereas women want to know "Are you safe?", you know, "Am I safe with you?" um "Will you keep me safe" and it's a lot more about the relationship, around their anger as well, so it's a lot more relational with women.* (James)

Having a relationship and knowing the individual was also seen as more important for risk management for female patients than for male patients.

> *With the men, most of their risk is historical or they'll punch someone and you can kind of see that coming. Whereas with the women if you don't know them you might think they've gone to their room to do some coloring and they're hanging off the bathroom door, so it is much more risky if you don't know them* (Kirsty)

Relationships enabled staff to get to know individual cues, which helped them to recognize signs of anger, respond effectively and manage risk. This is explored in the subthemes of 'Knowing you, know cues: recognizing anger' and 'Knowing you, knowing what to do: responding to anger'.

Knowing you, knowing cues: recognizing anger

Getting to know patients by building relationships with them was considered to assist staff to *recognizing* women's individual anger cues, whether that be facial expressions, changes in behavior or changes in physical appearance. Longstanding staff were valued for their experience and ability to recognize cues in individual patients quickly. Participants felt it was important to know the women on an individual basis, as cues were wide-ranging but personal to them.

> *It's about looking for them signs of "Oh my god, they've put that particular song on" or they've done that. […] They might be thinking "I'm really angry, I'm ready for a scrap" so they put on particular footwear or particular clothing… …it can manifest in a few different ways and from a nursing point of view it's about knowing your patient and knowing what's normal and abnormal for them. …you get to know people really well and they get to know you really well. […] you identify them patterns* (James)

Relationships built over time meant that staff felt they could spot anger quicker because they recognize anger from subtle cues without having an interaction with the person, just by observation. Tom explained:

> *I would go as far as to say some of the ladies that I work with […] and we've worked with them for seven or eight years, I can walk onto a ward and […] you can spot that [anger] without having any interaction with someone at all. So yeah, the time you spend with the person does give you the ability to spot anger quicker.*

Staff reported that once they got to know the patient, they were better able to understand personal triggers and could subsequently pre-empt decisions that they knew would make the patient angry. Staff felt this enabled them to be proactive and preventative in their approach. Luke explained that developing a "*therapeutic relationship"* made him feel like he had a "*sixth sense"* where he could "*understand when they were going to be angry"* and *"what's going to cause them to be angry*". Despite this knowledge, participants also recognized that understanding women's anger was not an easy task. There was a learning process to understanding patients' *"covert"* (Tom) expressions and reasons for anger, as well as to know the patient well enough to decipher between *"projected"* (James) or unprojected anger. This could make it challenging for staff who were new to working with women in this setting. Steve explained:

> *…when you first start, you think it's trivial, […] you think they've kicked off for absolutely no reason at all […] but it's only through time that you notice these trigger points […] with anger. So, working on the ward right in the beginning, it's sort of like a dream if that makes sense, as in it doesn't make sense, and then as time goes on, you get to know the people […] and have a better understanding*.

Not having individualized knowledge of patients was associated with an elevated risk of self-harm and with missing potentially life-threatening cues. There was, therefore, something potentially risky in having new staff on wards who did not know the patients, as these staff were more likely to miss covert signs of anger that could proceed significant incidents. Multiple examples of this kind of risk were given by participants.

Knowing you, knowing what to do: responding to anger

Relationships – and relational security – enabled anger to be recognized but was also advantageous when *responding* to anger. Being able to reduce anger and 'de-escalate' situations was a key focus for staff. As Luke explained that "*the longest standing members of staff have got a better rapport in order to get out why an individual is angry or deescalate the anger."* Being able to spot anger quickly and without direct interaction (e.g. via body language) meant staff could approach patients sensitively and appropriately. Knowing the patient aided communication and supported quicker and more effective de-escalation.

> *...if you've got that therapeutic relationship with the individual and you can go up to them and actually say "Look, what, what's going on, what's causing you to feel like this and why? What is it that's making you feel like this?".* (Luke)

Participants suggested that having established relationships made responding to anger less threatening for staff and made them feel more confident to handle the situation without fear of assault: "*If I know the patient… it wouldn't really matter what was behind the door… I'm pretty confident to run in and manage what's there. I think with patients I don't know…I feel more at risk for myself"* (Kirsty). This confidence also enabled staff to allow the patient to express anger without the need to contain or reduce it. Knowing the patient also meant that staff could take a least restrictive response to anger, using less restraint techniques and more bespoke strategies. However, when restraint techniques are needed, knowing the patient becomes important to provide person-centered responses. Participants distinguished between responding to a person and 'managing risk'. There was perceived to be greater risk involved when the patient was not known to the staff member. As James explained: "…*the less you know someone or the less information you have, the more restrictive, the more sort of, the more boundaried you are".* Not knowing the patient also seemed to amplify the anxiety experienced by staff in response to anger, with a sense conveyed that staff were deskilled in

some way. James continued: *"…we need to manage their anger. I don't know you, I don't know your triggers, I don't know what works for you. I'm just going to have to generically manage this…".* Ultimately, not knowing the patient meant relying more on generic techniques, which limited the opportunity for individualized care. James also considered a woman's history to be important when responding to anger or violent incidents, to minimize re-traumatization: "*We know that maybe they've been raped, maybe […] they've had sexual assaults, maybe even sexual exploitation and actually, do we need a load of men to turn up*". This highlighted the role of gender and of trauma but was also an example of staff thinking in terms of person-centered, trauma-informed care – again, knowing the individual was key.

The emotional impact

The anger felt and expressed by women on female forensic wards was felt to influence staff's emotions. Staff were open about the impact that managing anger had on them personally and professionally: "*there's lots of different emotions you have to manage after dealing with anger*" (James). These reflections are captured in the subthemes of 'Shock (horror)', 'Shhh - we're angry too', and 'The swan'.

Shock (horror)

Women expressing anger was seen as shocking, something that was not expected. Participants reflected that they had been unprepared for this when they first started working with women. Staff did not expect women to be angrier and more aggressive than men, as Steve reflected: "*I did not expect it to be honest. I didn't expect the level of anger. […] women are a lot more aggressive than what actually the men are.*" The two most shocking expression of anger were harm to self and violence towards others. Tom explained: "*Behaviours that shock me […] the big two in regard to anger were self-harm and, and how, how vicious things could get very, very quickly.*" This appeared especially shocking for staff who were new to mental health services. He continued:

> *So when I started everything was a shock really, […] So I was taken back at first. …I don't think I'd ever used the term self-harm previous to working at this at this job, so some of the things that I saw were unfortunately, will last me till my dying day, so that that was shocking.*

Staff who had previous experience working on the male wards anticipated women to internalize anger, expecting self-harm, but did not anticipate the externalized display of anger through violence:

> *My expectations at first were going to be the, the, the main method of showing their anger would be the self-harm aspect of it. But to come in and deal with the assaults, I think, because that was the big thing for me. The women tend to assault the staff more than the men at our place and I never expected that… I never thought that women would be as violent* (Luke)

Some of the reasons women had felt anger and acted violently were also shocking for staff. Patients could hold onto what appeared to staff to be trivial issues that had happened months before, which made it difficult to make sense of actions taken in anger:

> *The anger side […] some of it, you know it did at first take my breath away. Some of the, how things can go from 0 to 100 very, very fast and grudges can fester or, I've, I've seen unfortunately nurses get attacked and when […] we've resolved the situation […] and we've asked "What brought that on?". It might have been "Well, she looked at me funny and six months ago there was a decision made in CTM" and you're like, "That? Really?".* (Tom)

It was also surprising to staff that saving patients' lives could be a reason for anger to be directed towards them, which was unexpected and potentially traumatizing for staff:

> *the anger that comes from you trying to save someone else's life, that is really unexpected… I've had situations where I've had to intervene with lifesaving*

> *interventions and then people have then been angry, or even fought me afterwards and I didn't expect that. […] And sort of the logic in my head was going "This doesn't make sense".* (James)

Women's anger in society is seen as shocking, incongruent with traditional gender roles and stereotypes. However, women who are detained under the Mental Health Act (1983) and subject to the Ministry of Justice for violence towards others or themselves still shocked staff who work within the forensic environment. Despite staff knowing patients' histories of trauma and past anger and assaults, staff still did not appear to anticipate the extent of the expressions of anger they witnessed. This perhaps highlights the depth to which women's anger is unexpected; still shocking in a service where it is almost certain to be displayed.

Shhh - we're angry too!

Staff reported that they, or other staff, felt anger from dealing with female patients' anger, especially when they or colleagues suffered lasting effects (physically or psychologically). Anger was more common when staff did not know or understand the driving factors behind the anger, as this made it more difficult to empathize. Perceived inability to exercise self-control due to mental health difficulties often played a role in how angry some staff felt:

> *You can also feel anger in a situation where my colleagues have been hurt, or I've been hurt and I'm angry at that. I understand that someone's unwell, I understand that, but I'm still angry. It's easier if someone is psychotic and they don't have any control over what they're doing. If someone does it and they do have a level of control I struggle with that.* (James)

Anger felt by staff could linger and be felt for some time after incidents. It even crept into other areas of their lives; it effected Tom whilst he slept ("*I had quite vivid dreams of suffocating the patient, which is awful to say but you know, […] I was beyond angry")* and

when managing his daily home life, such as when he was with his children ("*the anger can kind of kick in latently. So, like, say, something will happen at work and I'll go home and then just want to smash my kids [laughs]…not literally").* Although once explored further these quotes did not warrant safeguarding concerns, it shows the extent to which staff are (shockingly) impacted by their anger outside of the work setting, underlining the traumatic environment in which staff might work. Staff often believed that patients had purposefully tried to illicit anger from them, and when felt, staff would then be angry at themselves for feeling anger. However, staff struggled to be open about this to other staff and felt a sense of shame for feeling angry at patients. This seemed to perpetuate a culture in which anger was seen as an emotion to be hidden. Most participants believed it was not productive to show or report anger to patients, which could be challenging: *"I think another one is trying not to show anger, so not showing anger if they've angered you*" (James). Staff feared that their anger would come across as aggressive and would escalate a situation in which they needed to demonstrate a calm exterior: "*I just have a gentler approach […] there is no use in being angry because […] if you pitch it wrong […] you're coming across as being aggressive"* (Steve). James reflected on a time when he had felt anger towards a patient and recognized that it may have impacted the professional therapeutic relationship. He had felt it important to speak to the patient retrospectively about this:

> *Patients say horrible things to you, you know, they can try and evoke anger or a response […]. I've had times when they've really angered me and I've had to speak to them about it afterwards and say "Look, I was quite angry then. That did make me angry". I'm only human you know, things can anger me.*

The swan

Participants acknowledged the internal anxiety and fear they felt when working with women's anger alongside the need to remain calm on the exterior: "*So it's like the swan*

analogy, so on the top being calm but underneath […] you're anxious and you're afraid" (James). Despite staff feeling anxiety and fear, they expressed the need to remain calm or at least portray a calm exterior:

> *I mean it's there but it's put to one side, so briefly put things into boxes for a short period of time to deal with what's happening. I'll deal with it, and from the outside I'll look confident, you know, very calm. Because if you're calm, people will tend to be calm too. ...you're calm and composed and a calming influence, they will happily deescalate. If you're anxious and you're afraid, that will exasperate the situation because the patients look to you for that sort of guidance. […] a lot of our patients aren't able to regulate their own emotions. You sort of by your demeanor and the way you conduct yourself, help regulate their emotions with them, sometimes for them.* (James)

Despite the swan-like facade staff felt they conveyed, there was considerable nervous energy below the surface:

> *I honestly believe working in this job, you're kind of walking in on a good day at like 40% [anxiety]. Anything could go on, your walking in, it's a tinderbox environment so it's not gonna take that much for it to crank up and be virtually unmanageable.* (Tom)

Episodes of patient anger could then trigger the fight and flight adrenaline response in staff: "*If there is a lot of screaming, shouting, my adrenaline off straight away, fight or flight response, so, physiologically everything pumps up"* (James). This resulted in feeling anxious, uncertain, and somewhat panicked, James continues:

> *…what's going to happen? Are we going to be able to deescalate this? Are they okay? What's going on for them? Is everything okay for the patient? Am I safe? Are they safe? Are my colleagues safe? What factors do I need to take into account in this*

> *situation? What are the things that could hurt me? Hurt them? What's happened today?* (James)

Staff identified that they experienced fear when dealing with women's anger, as Tom expressed: "…*it's a scary job when it comes down to it.*" Luke shared that starting the job was a particularly difficult time, especially with the preconceived ideas of the women service: "*The horror stories that come with the women service, be it the self-harm, the violence and aggression […] it was a difficult place to start working, […] I think it is a terrifying environment when you first start*". Despite recognizing that training can tell you that you will encounter such incidents, staff believed that nothing could prepare them for seeing and experiencing these events.

Some fear responses have been so high that they have caused trauma responses, especially around witnessing self-harm "*ligaturing in particular, I tend to flash back to it and feel quite, probably some kind of secondary trauma from it*" (Kirsty). When women use self-harm to manage or express anger, staff shared that they could feel even more frightened: *"When I very first started, working with women I mean, I'd never seen anybody with a ligature around their neck, it's quite frightening when you first see it. […] it's terrifying*." (Steve). Staff also talked about feeling vulnerable, under threat and at risk: "*Someone's screaming, someone's shouting, and in the back of your mind, old brain goes "I am at risk" […] you can feel under threat, like "What's going to happen here now?". You know, uncertainty*" (James). This feeling could also be heightened when staff felt unsure if they would receive support from other staff if they pulled their safety alarms, which could leave individuals feeling vulnerable. Steve explained:

> *We can feel scared. You can feel a bit vulnerable at times as well. Sometimes when you've not got […] the right staff on, if this patient is going to kick off, …you're worrying. You pull your pit [alarm] and you're waiting forever for people to turn up*

because there's not enough staff on other wards, and you're getting radio responses saying "We are unable to respond" because they've got no staff.

Discussion

This study aimed to explore how ward staff working with women on female forensic wards recognize, understand, and respond to patient anger through qualitative methods. Using thematic analysis, four superordinate themes, each with multiple subthemes, were extracted from the data: *'Perspectives on women's anger'* (including 'It's not what good girls do', 'Rage by the rules', and 'Nature vs nurture'), '*Anger expression'* (including 'Obvious anger', 'Hidden anger: isolation and withdrawal', and 'Internalised anger: self-harm'), *'Centrality of relationships'* (including 'Knowing you, knowing cues: recognising anger' and 'Knowing you, knowing what to do: responding to anger'), and '*The emotional impact'* (including 'Shock (horror)', 'Shhh – we're angry too', and 'The swan').

Summary of findings

It was striking that all of these aspects of anger were viewed as gendered, however, this was in the context of a sample that was primarily male. Women were felt to express their anger in less overt ways, such as via social withdrawal or self-harm, supporting Rosenfield's (2000) view that women internalize anger more than men. However, when anger was expressed through aggressive and violent behavior, participants reported that women sustained anger for longer and assaulted staff more often than their male counterparts, supporting previous research that women in forensic services are more assaultive (Convit et al., 1990; Larkin et al., 1988; Ionno, 1983; Novaco, 1997). Previous research suggests that women's externalized anger is often directed toward those relationally close to them (Odgers et al., 2005). In forensic inpatient settings, this may constitute staff and explain why participants noted women assaulted staff more than male patients did. It is certainly possible that forming closer relationships created conditions in which women felt safer to express their

anger, sometimes in the form of assaults. However, staff highlighted the importance and value of forming relationships that enabled them to better recognize anger. Having a good rapport enabled staff to feel confident delivering direct, personalized and least restrictive interventions to de-escalate anger. Understanding a woman's history was also considered pivotal to the delivery of person-centered care, minimizing the risk of triggering past trauma. Close relationships, therefore, allowed anger to be recognized and responded to in ways that enhanced risk management and provided additional opportunities for rehabilitation, supporting the use of relational security with women (Tolland et al., 2019). Not knowing patients was seen as a greater risk, highlighting the importance of consistent staffing in female services.

Anger in women was portrayed as transgressive, pushing the boundary of what it means to be a feminine "good girl" experiencing an emotion perceived to be inherently male. This supports the notion that although society views emotional expression as a feminine quality, anger is still seen as masculine (Shields, 2002). When viewed in this way, it is not surprising that women attempt to hide or internalize anger. Viewing female anger as transgressive shaped staff reactions to the emotion. Staff who had worked on male wards, even after hearing "horror stories" of women's services, were as shocked at the displays of women's anger as staff who had never worked in mental health or forensic services before. Women's anger was especially shocking in how it was displayed: violence to self (self-harm) and others (assault). Staff reported that generic training had not prepared them for what they encountered, suggesting a need for further tailored training. Being victim or witness to violent displays of anger caused anxiety, fear, and even trauma responses in staff. Despite experiencing these strong, and often automatic, reactions, staff suggested the need to maintain control and put on a calm façade, so as to not escalate patient's anger. As well as controlling these emotions, staff subjugated their own feelings of anger and often felt shame

for feeling the emotion. Staff could feel anger in the moment with patients and also latently but there was often no avenue for expressing this. This perpetuated a staff culture in which anger must remain hidden, which, interestingly, highlighted a mirroring behavior between staff and patients: both were attempting to hide anger in an environment they were either working in (staff) or living in (patients) in close proximity. This suggests that staff, as well as patients, may need to feel contained and supported to reflect, feel, and deal with their reactions to experiences in services.

Different expressions of anger were conferred with differing levels of 'acceptability'. It was acknowledged that anger should be expressed; however, this was only considered acceptable if done verbally and controlled. Physical expressions towards others, particularly staff, were unacceptable. One exception to this emerged when anger was viewed through the lens of the medical model: understanding anger as a symptom of mental illness resulted in staff looking no further to understand the personal and situational context of woman's anger. When viewing anger outside the medical model, staff could reflect on the impact of environmental and historical factors – including past trauma.

Clinical Implications

The results of this study support current gender-informed drives promoting TiC and relational security (Women Secure Blended Service Plan; NHS England, 2016). Trauma-informed services should consider the environment women are held in, the practices of the service (e.g., restraints), and previous life-experiences (including likelihood of childhood trauma; Elliott at al., 2005); asking "*What has happened to you?*" rather than "*What is wrong with you?*" (Menschner & Maul, 2016). Being aware of the connection between these factors and women's experience of anger is vital for the delivery of TiC. When staff viewed anger as a symptom of mental illness it became a problem located within the individual ("*What's wrong with you*?"; Menschner & Maul, 2016). However, when staff adopted a more

formulation-driven approach they could hold a holistic view of the patient's current and past context ("*What's happened to you?*"; Menschner & Maul, 2016). When viewing anger through this perspective, staff became more empathic to women's needs and could deliver person-centered responses that held a woman's life experiences in mind. Staff require further training on the impact of trauma on patient's emotions, including anger, to be able to provide TiC. As well as being trauma-informed regarding the patients, staff could also become trauma-informed regarding their own experiences, and colleagues' experiences, on the ward.

This study highlights the need for staff support to help them process and manage emotional responses to their day-to-day experiences. Staff reported a need to hide or subjugate their own emotions, whereas, if staff were aware that other professionals struggled with what they too were witnessing and experiencing, it could support them to feel validated, have their internalised experience normalised, and possibly encourage them to seek support (in each other as a team or externally). When wards are understaffed and staff are worried about their own safety (e.g., due to lack of available back up), it is understandable that capacity to hold such complexity in mind is reduced. In this context, positioning anger as part of mental illness that can be treated through medication, may feel easier. Instead, staff should be supported physically on the ward (e.g., by there being enough staff) and emotionally (e.g., with time to reflect, training, and emotional support) to be able to deliver the best possible person-centered care, manage risk, and rehabilitate. Staff portrayed having a professional relationship with the women as essential to being able to provide person-centred care and manage risk of harm to self or others, supporting the drive for relational security. However, they also noted that low staffing numbers and high staffing turnover impeded this. This study could therefore be used to highlight the importance of having consistent staff teams on female wards. This would not only support patient/staff relationships but could also increase team psychological safety. In addition, staff are likely to benefit from further training before

starting on women's wards, in preparation for what they might experience, to reduce the shock and anxiety described. This may also support staff retention.

Emotionally, staff are likely to benefit from spaces where they feel safe to express their emotions; with this, an openness in communicating their feelings appropriately might follow, providing a model for how the female patients can do the same. This study also provides the wider multidisciplinary team with an insight into how staff on wards are managing anger. Staff providing opportunities for reflective practice on female wards can hold an awareness of the experiences staff are having whilst managing anger – including the personal impact.

Finally, this study provides a potential outline as to how anger could be considered in care-planning or advanced directives – an absence noted by staff. Patients could be asked to contribute to a plan that inform staff regarding how to recognise their anger and how they would like staff to respond.

Limitations

This study aimed to explore experiences in a purposive sample, highlighting elements of experience related to the question of how staff recognize, understand, and respond to anger in female forensic services through qualitiative methods. Although it was not intended to generate a definitive account, it is recognized that results are limited in generalizability. Our sample was small, self-selecting, recruited from a single hospital within a tight time window, and it is notable that most participants were male, which was unexpected given that the majority of staff within in the unit were female. This poses questions as to why more female staff did not volunteer and whether, if they had, the results might have been different. Although determing why more female participants did not come forward can only be speculated, some ideas generated from what the participants spoke about include: 1) many of the long term female staff members were currently off on sick leave; 2) staff were facing burn-out post the covid-19 pandemic; 3) female anger was a phenomenon male staff had

learnt about, whereas female staff knew about it from their own personal experience, potentially making it a harder/more vulnerable topic to talk about; 4) anger was considered shameful to experience by staff and hidden, which could have been heightened for women considering societies view of them as caring, nurturing and maternal; 5) male staff felt they were sent to incidents of anger as they were perceived physically stronger and fitter to carry out physical restraints, potentially resulting in them encounting more of these events; 6) male staff spoke about feeling humbled and priviledged to have built relationships with these women despite the majority of their trauma being caused by men, leading them to want to do what they can to help them, including participating in this research.

A further limitation included conducting the research during the covid-19 pandemic. This resulted in limited access to attend the wards for recruitment and virtual tele/video-conference interviews. Despite particiapnts appearing to be extremely open about the personal impact working with women's anger has had on them, it is uncertain if face-to-face interviews would have yielded a different narrative. Additionally, opportunities to attend the ward to meet and talk to the staff about the research could have yielded larger smaples or more female staff engagement.

Future research

Additional research is needed to further our understanding. Firstly, although not intended, this research provides an almost exclusively male perspective on women's anger and therefore, gaining more female staff members' perspectives would be beneficial. Secondly, completing this research in other hopsitals across other areas of the UK, and the world, would provide a deeper insight into whether this result was purely situational. Thirdly, the covid-19 pandemic was also likely to have impacted how staff felt, worked, and perceived patients. Replicating the research at a time when this is no longer present could be beneficial. Fourthly, future research could focus on what specific support staff feel they require to

progress towards female drives within forensic services in relation to anger: especially in relation to TiC and relational security. It would be beneficial to know how services can best support staff in looking after their own emotional wellbeing, and whether this impacts on patient care and outcomes.

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Appendices

Appendix A – Participant information sheet

Appendix B – Consent form

Appendix C – Interview schedule

Appendix D – Example of analysing/coding transcripts

Appendix E – Pictures of code clustering/theme development

Appendix F – Confirmation of ethical approval

Appendix A – Participant information sheet

Participants Information Sheet

How staff working with women in forensic services recognise, understand, and respond to anger.

You are being invited to take part in this research project conducted by Miss Erin McBride and Dr Mike Jackson from the School of Psychology at University of Bangor, and Dr Hannah Darrell-Berry from [redacted]. Your participation would be entirely voluntary. Before you decide whether you wish to take part, it is important you understand why the research is being conducted and what it involves. Please take time to read the following information carefully and discuss it with others if you wish. Please feel free to ask the researcher if anything is unclear or if you would like more information. You may take time to decide if you wish to take part.

What is the study about?

Research into women's anger, even in forensic services, is very limited. This means that our knowledge of how best to support women with problematic levels of anger is also limited. Likewise, our understanding of mental health staff's experiences of working with female patients who are angry is limited too. This study aims to better understand how mental health staff experience, think, and feel about anger displayed by women in forensic mental health services. Participants' views will be listened to during one-to-one interviews.

Who can take part?

You can take part in this study if:

- You currently work on a female forensic ward as a nurse or support worker
- You have worked on a female forensic ward for AT LEAST 6 months
- You have access to a computer and WIFI or telephone to complete the interview virtually

What will happen if I take part?

You will be interviewed (have a conversation) by the researcher, specifically looking at your experiences, thoughts, and feelings around women in forensic services anger. This will take place virtually over Microsoft Teams or by telephone. This will be recorded on a password protected Dictaphone and then transcribed into writing so it can be analysed. The interview should last no longer than an hour and a half and you will be compensated £20 for taking part. Some example questions you will be asked:

- Why do you think women in forensic services get angry?
- What behaviour do you see when women in forensic services feel anger?

Do I have to take part?

It is up to you if you would like to take part – participation is completely voluntary. If you do decide to take part, you are able to keep a copy of this information sheet and you will indicate your agreement to participate by giving verbal consent before the interview commences. You can withdraw at any time throughout the study, without giving a reason, up until the point the interview transcripts are anonymised. It will not be possible to withdraw once the interview has been anonymised. If you were for some reason to lose capacity prior to the interview being anonymised, your interview would be removed from the study.

What do I have to do to take part now?

You can contact Erin McBride by email (details at the bottom of this sheet) or contact Dr Hannah Darrell-Berry (Principal Clinical Psychologist [redacted]) to express your interest.

What are the potential advantages and disadvantages of taking part?

Talking about occasions where patients have felt strong emotions, such as anger, could possibly feel uncomfortable. Some participants may feel a bit upset or angry themselves at points. If this does happen, you will be free to take a break if that helps. The researcher will check whether you would like to withdraw or are happy to continue. The advantages would be that you are sharing your experiences and contributing to a field in research that is not well understood at present. This means, this research could contribute to better support for staff and patients in female forensic services. Some people also enjoy taking part in research and find it empowering to contribute.

How will we use information about you?

We will need to use information from you for this research project. This information will include your:

- Name
- Initials
- Contact details
- Job role/title
- Length of time working in female forensic services
- Ward currently working on/previously worked on
- Age
- Ethnicity
- Gender

This data will only be stored for 6 months. People will use this information to do the research or to check your records to make sure that the research is being done properly. People who do not need to know who you are will not be able to see your name or contact details. Your data will have a code number instead. We will keep all information about you safe and secure. Once we have finished the study, we will keep some of the data so we can check the results. We will write our reports in a way that no-one can work out that you took part in the study.

What are your choices about how your information is used?

- You can stop being part of the study at any time, without giving a reason, but we will keep information about you that we already have.
- We need to manage your records in specific ways for the research to be reliable. This means that we won't be able to let you see or change the data we hold about you.

Where can you find out more about how your information is used?

You can find out more about how we use your information:

- at www.hra.nhs.uk/information-about-patients/
- by asking one of the research team (details below)
- by sending an email to the sponsor (Huw Roberts; details below)

What if I have questions or want to complain about the study?

You can contact the researcher using the e-mail below if you have any questions. If you have a concern about any aspect of this study you can also contact the researcher, or the researcher's two supervisors (details also below) who will do their best to answer your questions. If we are unable to resolve your concern or you wish to make a complaint regarding the study, please contact the researcher's sponsor and the data controller for this study at his organisation, Bangor University, at huw.roberts@bangor.ac.uk or :

Huw Roberts
School of Psychology Manager,
School of Psychology,
Brigantia Building,
Penrallt Road,Bangor
Gwynedd,
LL57 2DG

Will my details remain confidential?

All information in this study will be kept confidential. Any data will be stored in a password protected electronic file and details such as your name will be anonymised, so you are not identifiable.
Data generated by the study must be retained in accordance with the University's policy on Academic Integrity. All data will be kept electronically by Bangor University for 10 years after the study has concluded.

Who has approved this study?

This study has been approved by Bangor University School of Psychology Ethics Committee, the Health Research Authority and [redacted] Research and Innovation Department.

Contacts for further information

Researcher: Miss Erin McBride - rnm19rkk@bangor.ac.uk

Clinical Research Supervisor: Dr Hannah Darrell-Berry – Hannah.darrell-berry@[redacted].nhs.uk

Academic Research Supervisor: Dr Mike Jackson – mike.jackson@bangor.ac.uk

North Wales Clinical Psychology Programme
The School of Psychology
Brigantia Building, Bangor University
Penralt Road, Bangor
LL57 2AS

Appendix B – Consent form

CONSENT FORM

How staff working with women in forensic services recognise, understand, and respond to anger.

Researcher: Erin McBride – rnm19rkk@bangor.ac.uk

Please read/listen to the following statements and consent for the researcher to initial the boxes if you agree.

	Please initial box
I confirm that I have read and understand the information sheet for the above study and have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	☐
I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason, until the point where my data is anonymised.	☐
I understand that participating in the study involves taking part in an interview and agreeing for it to be audio-recorded.	☐
I agree that my data gathered in this study may be stored (after it has been anonymised) for up to ten years and may be used for future research.	☐
I understand that specific quotes from their interviews may be included in the final report and that they will be anonymised and carefully selected to ensure they cannot be identified through the quotes.	☐
I agree to take part in this study.	☐

		YES NO
Name of Participant	Date	Verbal Consent (circle)
Name of Researcher	Date	Signature

Appendix C – Interview schedule

Interview Topic Guide

To be read to participant before commencing:

I'm going to be asking you about how staff in female forensic services recognise, understand, and respond to anger. Your answers will be anonymised and written up into a research project for my thesis and published. I am to remind you that this conversation is going to be recorded. Participation is voluntary and you can withdraw from the study at any point throughout this interview without reason or consequence. You can pass any questions you do not want to answer, and you can take a break at any time. Do you have any questions before we begin?

Questions/prompts to ask participants:

1. How do female patients show they are angry?

Possible follow-up/prompts: what do you pick up/notice? Any less obvious/less explicit ways? Do any expressions get missed? Ability to recognise change over time?

2. What reasons do women on female forensic wards experience anger?

Possible follow-up/prompts: Do opinions differ? Do they match patients understand? What has helped you reach these conclusions? How has your understanding changed over time?

3. How do you and the staff team respond to a patient when they are angry?

Possible follow-up/prompts: Noticed any that work particularly well/not well? Have you ever wanted to respond differently, if so, what got in the way? Any factors influence how you respond? How have your responses changed over time?

4. What do you experience when a patient is angry?

Possible follow-up/prompts: What do you notice at the time (thoughts, feelings, behaviours. Physiology)? How do you feel after? How do you manage how you feel? Do you get support, if so where from? How does this impact your personal/professional life?

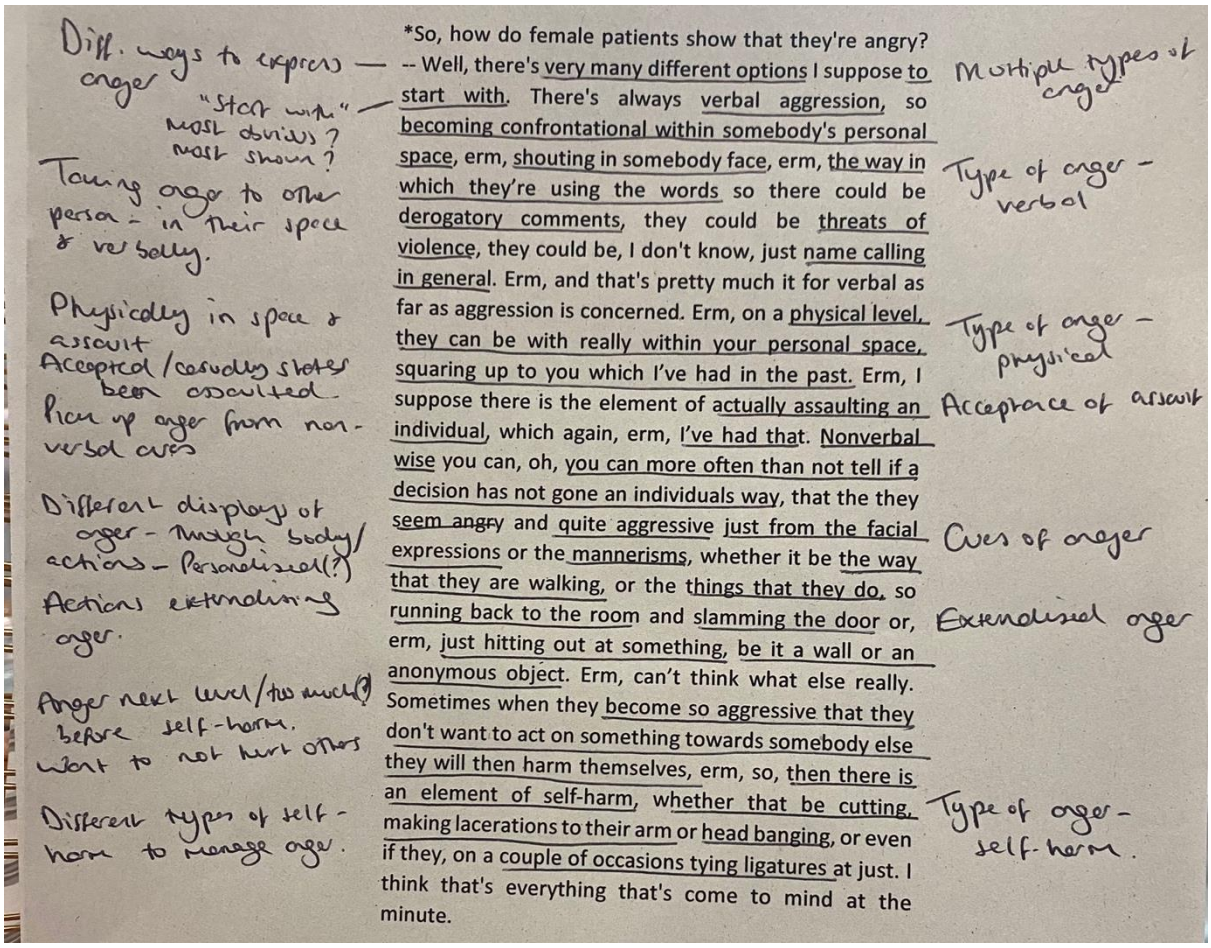
5. What further support from the service do you feel you, and your fellow colleagues, might need to support you working with patients when they are angry?

Possible follow-up/prompts: what training/support have you already done that feels relevant? What might be important to know more about? How can staff be supported on

wards physically and emotionally? Challenges to receiving the support? How possible to hold in mind support/training when working on the ward?

6. Is there anything that you feel you haven't said today that you feel would be beneficial or important for me to know?

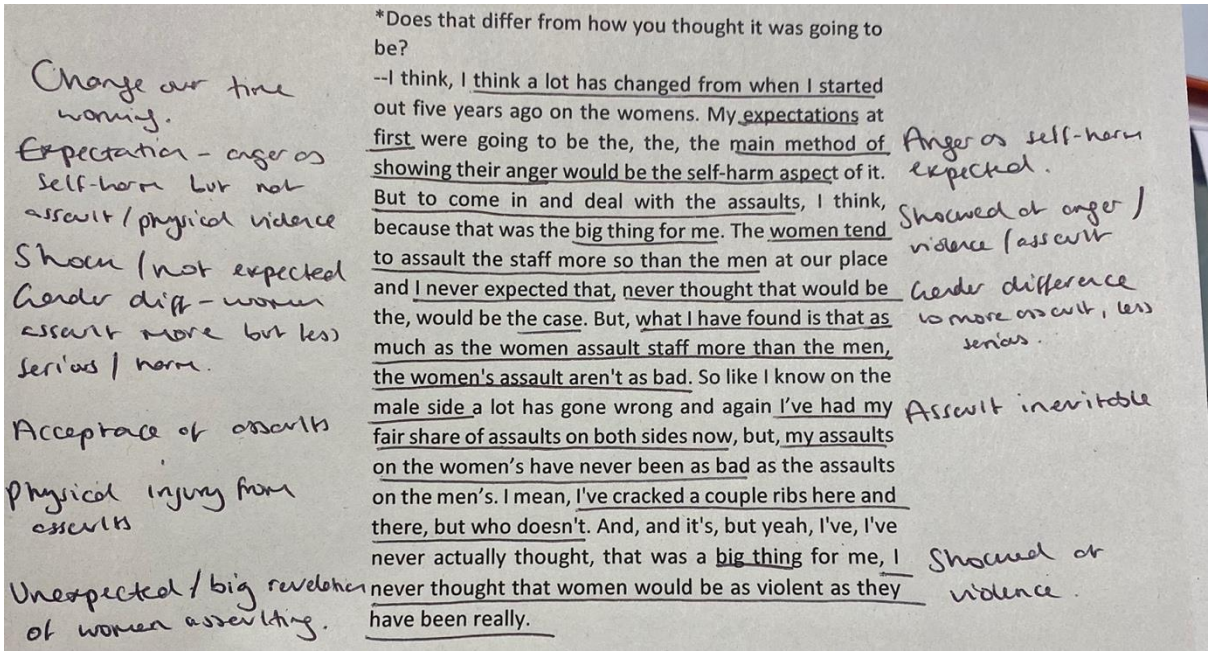
Appendix D – Examples of analysing and coding transcripts (three exerts)



Diff. ways to express anger
"start with" most obvious? most shown?
Taking anger to other person – in their space & verbally.
Physically in space & assault
Accepted / casually states been assaulted
Pick up anger from non-verbal cues
Different displays of anger – through body/actions – Personalised(?)
Actions externalising anger.
Anger next level/too much? before self-harm.
Want to not hurt others
Different types of self-harm to manage anger.

*So, how do female patients show that they're angry? -- Well, there's very many different options I suppose to start with. There's always verbal aggression, so becoming confrontational within somebody's personal space, erm, shouting in somebody face, erm, the way in which they're using the words so there could be derogatory comments, they could be threats of violence, they could be, I don't know, just name calling in general. Erm, and that's pretty much it for verbal as far as aggression is concerned. Erm, on a physical level, they can be with really within your personal space, squaring up to you which I've had in the past. Erm, I suppose there is the element of actually assaulting an individual, which again, erm, I've had that. Nonverbal wise you can, oh, you can more often than not tell if a decision has not gone an individuals way, that the they seem angry and quite aggressive just from the facial expressions or the mannerisms, whether it be the way that they are walking, or the things that they do, so running back to the room and slamming the door or, erm, just hitting out at something, be it a wall or an anonymous object. Erm, can't think what else really. Sometimes when they become so aggressive that they don't want to act on something towards somebody else they will then harm themselves, erm, so, then there is an element of self-harm, whether that be cutting, making lacerations to their arm or head banging, or even if they, on a couple of occasions tying ligatures at just. I think that's everything that's come to mind at the minute.

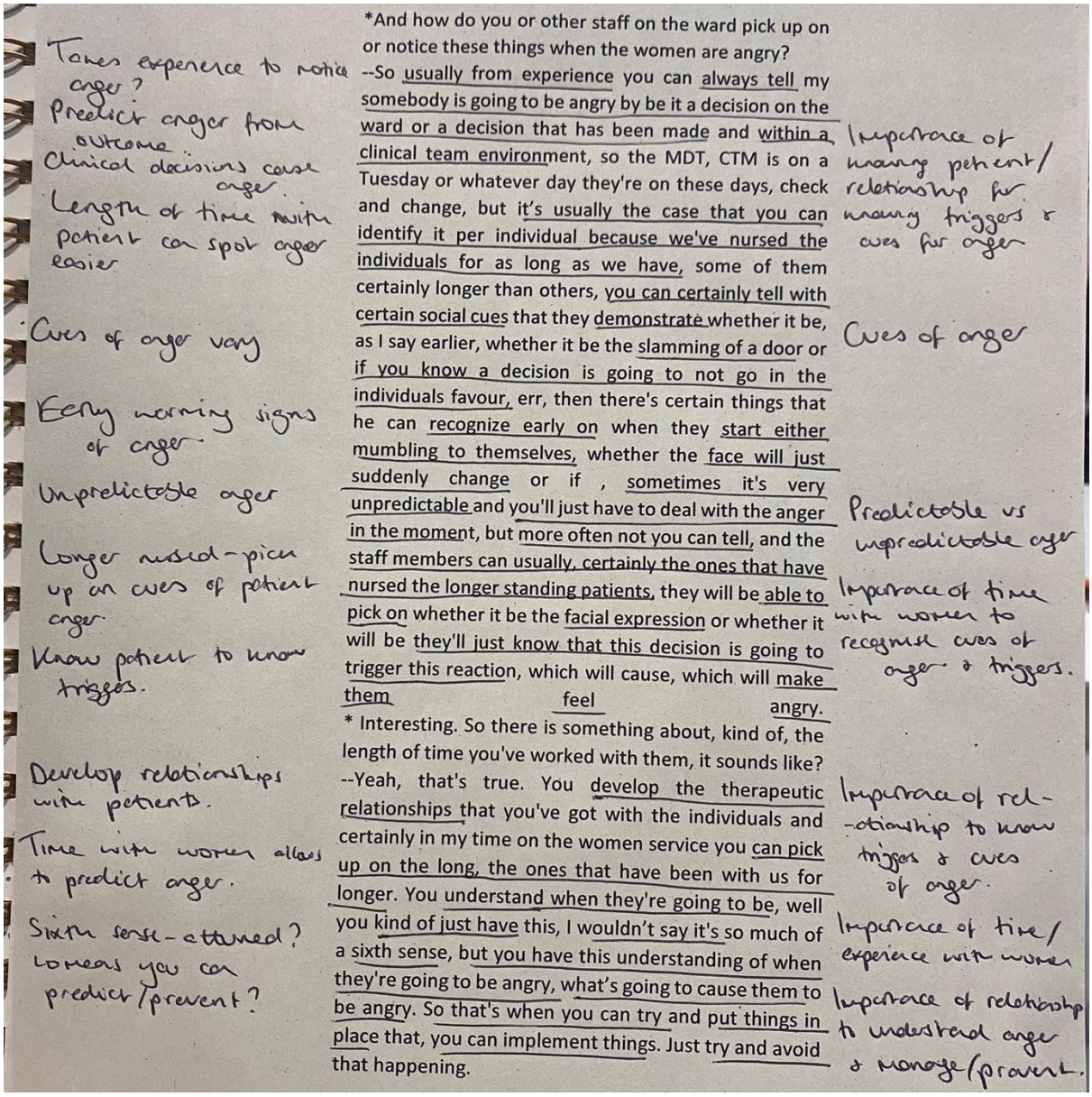
Multiple types of anger
Type of anger – verbal
Type of anger – physical
Acceptance of assault
Cues of anger
Externalised anger
Type of anger – self-harm.



Change over time working.
Expectation – anger as self-harm but not assault / physical violence
Shown / not expected
Gender diff – women assault more but less serious / harm.
Acceptance of assaults
Physical injury from assaults
Unexpected / big revelation of women assaulting.

*Does that differ from how you thought it was going to be?
--I think, I think a lot has changed from when I started out five years ago on the womens. My expectations at first were going to be the, the, the main method of showing their anger would be the self-harm aspect of it. But to come in and deal with the assaults, I think, because that was the big thing for me. The women tend to assault the staff more so than the men at our place and I never expected that, never thought that would be the, would be the case. But, what I have found is that as much as the women assault staff more than the men, the women's assault aren't as bad. So like I know on the male side a lot has gone wrong and again I've had my fair share of assaults on both sides now, but, my assaults on the women's have never been as bad as the assaults on the men's. I mean, I've cracked a couple ribs here and there, but who doesn't. And, and it's, but yeah, I've, I've never actually thought, that was a big thing for me, I never thought that women would be as violent as they have been really.

Anger as self-harm expected.
Shocked at anger / violence / assault
Gender difference to more assault, less serious.
Assault inevitable
Shocked at violence.



Takes experience to notice anger?
Predict anger from outcome
Clinical decisions cause anger
Length of time with patient can spot anger easier

Cues of anger vary

Early warning signs of anger

Unpredictable anger

Longer nursed - pick up on cues of patient anger

Know patient to know triggers.

Develop relationships with patients.

Time with women allows to predict anger.

Sixth sense - attuned? Means you can predict/prevent?

*And how do you or other staff on the ward pick up on or notice these things when the women are angry?
--So usually from experience you can always tell my somebody is going to be angry by be it a decision on the ward or a decision that has been made and within a clinical team environment, so the MDT, CTM is on a Tuesday or whatever day they're on these days, check and change, but it's usually the case that you can identify it per individual because we've nursed the individuals for as long as we have, some of them certainly longer than others, you can certainly tell with certain social cues that they demonstrate whether it be, as I say earlier, whether it be the slamming of a door or if you know a decision is going to not go in the individuals favour, err, then there's certain things that he can recognize early on when they start either mumbling to themselves, whether the face will just suddenly change or if , sometimes it's very unpredictable and you'll just have to deal with the anger in the moment, but more often not you can tell, and the staff members can usually, certainly the ones that have nursed the longer standing patients, they will be able to pick on whether it be the facial expression or whether it will be they'll just know that this decision is going to trigger this reaction, which will cause, which will make them feel angry.
* Interesting. So there is something about, kind of, the length of time you've worked with them, it sounds like?
--Yeah, that's true. You develop the therapeutic relationships that you've got with the individuals and certainly in my time on the women service you can pick up on the long, the ones that have been with us for longer. You understand when they're going to be, well you kind of just have this, I wouldn't say it's so much of a sixth sense, but you have this understanding of when they're going to be angry, what's going to cause them to be angry. So that's when you can try and put things in place that, you can implement things. Just try and avoid that happening.

Importance of knowing patient/relationship for knowing triggers & cues for anger

Cues of anger

Predictable vs unpredictable anger

Importance of time with women to recognise cues of anger & triggers.

Importance of relationship to know triggers & cues of anger.

Importance of time/experience with women

Importance of relationship to understand anger & manage/prevent.

Appendix E – Pictures of clustering codes together to create themes

Appendix F – Confirmation of ethical approval

Ymchwil Iechyd a Gofal Cymru
Health and Care Research Wales

NHS
Health Research Authority

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LL57 2AS

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02 November 2021

Dear Miss Erin McBride

HRA and Health and Care Research Wales (HCRW) Approval Letter

Study title:	**How staff working with women in forensic services recognise, understand, and respond to anger.**
IRAS project ID:	**303608**
REC reference:	**21/HRA/4447**
Sponsor	**Bangor University, School of Psychology**

I am pleased to confirm that **HRA and Health and Care Research Wales (HCRW) Approval** has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications received. You should not expect to receive anything further relating to this application.

Chapter 3

Contributions to theory and clinical practise

Contributions to theory and clinical practice

In this chapter, implications for both papers are explored in relation to theory and clinical practice, context is given to the two papers, and reflections from the research process are offered.

> *…women working in the criminal justice system need to realize their role as agents of change. […] If we are to hope for fair, effective and efficient criminal justice systems for all, they must respond to all – including by addressing women's unique needs. (United Nations, 2022).*

Implications for future research, theory development, and clinical practice

Female forensics is a neglected area of research and any contribution that progresses our understanding is to be welcomed. I hope these two papers inspire others to complete female-focused research within this field. Both papers presented here highlight the ways in which women's needs can differ to those of their male peers: in how anger is experienced and expressed, in the empirical paper, and the risk factors associated with violence in the systematic review. Collectively, this thesis emphasises the importance of gender-specific research and theories in forensic services. Further implications will be explored separately below.

Literature review

Women managed by forensic services (e.g., prison, forensic secure units, probation service) deserve equality in service provision; they should be assessed, managed, and treated in female-informed ways derived from female research. Violence risk can keep women detained for significant periods if not treated or considered manageable in society; however, we are still unsure of exactly what factors women should be assessed and treated by. Women are also being released back into communities without potentially relevant risk factors being addressed – a potential risk to themselves and the public. The systematic review goes some

way in providing professionals working with violence risk a clearer sense of what factors they should be holding in mind when assessing women in forensic services; however, we are still some way from giving women the same opportunities as men to be assessed using gender appropriate risk assessments.

To progress the current picture, researchers must engage in research that enables us to understand where experiences may be gendered and thus where gender-specific responses are needed. It is a well-established view amongst professionals working in forensic services that women present differently and have different (and potentially more complex) needs than men (Forensic Network, 2019); researchers must keep up with an evolving clinical landscape. As quoted above, a call for women (although I would argue for all professionals) to realise their role in progressing female research and service provision is still present in 2022. As female service users only make up 10-15% of the forensic estate (Kennedy, 2022), thus are a small community of professionals, it leaves me to ponder if women's services should have a role in designating specific clinician time to research. Furthermore, those working with violence risk (across genders) also have a responsibility to reach consensus as to how violence should be defined and measured. That way, research that is completed will be of more use to practitioners.

Empirical study

The results of the empirical paper require further context. Interviews gained far more data than the current paper was able to present. Data gained regarding what further support or training staff felt would be beneficial is instead being fed back to the service through consultation, with the aim of supporting: 1) staff wellbeing services, 2) the progression of women service staff training and 3) an increasing focus on psychology provision within wards. This relates to one of the main clinical implications from this study: the need for further staff support.

If read widely amongst the female estate, my belief is that this study could support multiple professionals, and thus the women detained, in various ways:

- Firstly, participants (staff members) reported a need to hide or subjugate their own emotions. If staff were aware that other professionals struggled with what they too were witnessing and experiencing, it could support them to feel validated, have their internalised experience normalised, and possibly encourage them to seek support (in each other as a team or externally).
- Secondly, results could guide what further input staff require to manage anger in line with gender-informed policies. For example, staff portrayed having a professional relationship with the women as essential to being able to provide person-centred care and manage risk of harm to self or others, supporting the drive for relational security. However, they also noted that low staffing numbers and high staffing turnover impeded this. This study could therefore be used to highlight the importance of having consistent staff teams on female wards. This would not only support patient/staff relationships but could also increase team psychological safety.
- Thirdly, although trauma was mentioned by some participants, it is my opinion after conducting the research that staff require further training on the impact of trauma on patient's emotions, including anger, to be able to provide trauma-informed care. As well as being trauma-informed regarding the patients, staff could also become trauma-informed regarding their own experiences, and colleagues' experiences, on the ward.
- Fourthly, staff are likely to benefit from further training before starting on women's wards, in preparation for what they might experience, to reduce the shock and anxiety described. This may also support staff retention.
- Fifthly, results could provide the wider multidisciplinary team with an insight into how staff on wards are managing anger. Staff providing opportunities for reflective

practice on female wards can hold an awareness of the experiences staff are having whilst managing anger – including the personal impact.

- Sixthly, this study provides a potential outline as to how anger could be considered in care-planning or advanced directives – an absence noted by staff. Patients could be asked to contribute to a plan that inform staff regarding how to recognise their anger and how they would like staff to respond.

Reflective commentary

Context to the research

Prior to joining the North Wales Clinical Psychology Programme, I worked for the National Probation Service (NPS; five years) and in a medium-secure forensic hospital (one year). Throughout this time, I held a strong passion and interest in working with women. My approach to research as a clinician is one of pragmatism, using whichever research method best suits the question at hand. For this thesis, I consulted female forensic services to understand what research would be helpful to progress current female forensic practice, alongside reflecting on my own experiences as a staff member in these systems. It is no surprise to me, in retrospect, that I wanted to explore staff's experiences of working with anger in a secure ward setting. My experiences had also shocked me to my core, resulted in me struggling to sleep, visiting patients regularly in my dreams, made me intensely angry at the system, resulted in me feeling burnt out and detached most days, and left me stating before starting my clinical training: "I will never work in forensic services again". However, I felt drawn back to it every time the prospect of the thesis was mentioned and surprisingly (or maybe not), I'm going back into the forensic world post qualifying. As my personal and professional development therapist has told me, which resonates deeply, "you're doing this research and going back to resolve something".

Current forensic picture: Panorama and this research

A poignant point of reflection throughout writing the thesis was the timely exposure of the BBC Panorama documentary, “Undercover Hospital: Patients at Risk” (Plomin, 2022). The documentary exposed mis-practise and abuse of patients by ward staff in a forensic secure hospital in Manchester, UK. Practises that are used regularly in services and spoken about by participants in this research, such as the use of seclusion, were bought into question. A particular quote for reflection is when a participant refers to women shutting down out of rage from long term seclusion - but why are we/services keeping women in long term seclusion? Alongside the results in the empirical paper, it leaves me questioning if segregating women, who benefit from relationships with others, is an appropriate or effective form of risk management. Even if deemed necessary for risk, what consequence is this having on women’s rehabilitation and what efforts are being made through research and practise to find alternative management strategies? In addition, if women are being secluded, what risk factors are deemed unmanageable or untreatable in ward environments? This again highlights the need for clarity regarding female risk of violence.

Although nothing excuses the abuse of others, the research provides important context into the current emotional wellbeing of staff. Staff may be struggling with anxiety, fear, and anger in an environment where they feel they must suppress these strong emotions. Participants spoke about there not being enough staff to leave the ward to access support, as well as a deterioration in the use of debriefing after incidents, which was a big loss. Inconsistent staff teams also meant that staff did not know each other personally to be able to “check-in” on each other. It is understandable that this might create an environment in which staff do not feel contained or nurtured; we can ask, therefore, how and why we expect them to have the resources to contain and nurture patients.

Overall, what was shown on the documentary was beyond shocking, findings from this research show that staff can find women’s displays of anger shocking, and some parts of

staff's accounts given in this this research have been shocking. It leaves me pondering how far into the future the thought of locking people away to rehabilitate them will become shocking enough to stop/change such practises, especially for women who end up in forensic services without any criminal justice involvement (e.g., due to the risk to self).

The gendered response

An element of the research that was unexpected was the gendered response from participants, with primarily male staff volunteering to take part. Completing a gendered piece of research (women's anger) in gendered services (female forensic wards) that are staffed by majoritively female staff members, I was surprised to get an 83.3% (5 out of 6) male response. Although answering the question as to why this was the case could be a research question in itself, I can only speculate from what participants and potential participants said. Firstly, staff commented that a lot of the permanent female staff members from the service were currently off on sick leave. This fed into the second point, that staff commented on the current burn-out they were facing post covid, causing staff sickness but also an unwillingness to do anything above and beyond their daily tasks. Thirdly, the men that participated all stated that women's anger was something they had learnt by working on female forensic wards, becoming a topic they were now confident about. Whereas the one woman who participated reported that she already knew about women's anger from her own personal experiences of the emotion. Consequently, men may have felt more comfortable talking about something that they had learnt, compared with women talking about a personal experience. Fourthly, staff experienced anger towards patients, which was already considered shameful and something to be hidden; this could have been an experience heightened for female staff due to female confessions or displays of anger going against societies' view of women being maternal and caring. What's more, staff are there to care for patients, so a disclosure of anger towards them could feel threatening to this. It is therefore not surprising that women may

have been more reticent to come forward to talk about a topic that they knew about personally and that is considered taboo or transgressive and viewed in a negative light. If staff disclose having similar thoughts and feelings as the women detained on these wards, will they also be considered "mad or bad" and need to be "locked up"? Fifthly, the male participants talked about being specifically sent to violent incidents due to them being stereotypically bigger and stronger and better able to restrain the patients. Therefore, as males, they may have had more experience in dealing with the more extreme anger/violent incidents. Sixthly, some of the male participants spoke about being humbled and privileged that women had felt safe to express and show their emotion to them, as their trauma had often been caused by significant males in their life. They valued their relationship with the women and wanted to contribute towards anything that would support better care for them, thus coming forward for the research.

Conclusion

I hold hope that positive change can occur in female forensic services through the scrutiny it is currently facing, continued research, and the passion I and other professionals hold. I will certainly take what I have learnt from the two papers into my future clinical practice, and my ambition is that I too can stand up and deliver on the recommendations in this chapter.

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Word Count

Thesis Summary (must be under 300) - 296

Chapter 1 total – 14,696
Main text (excluding title pages, tables, figures, references, appendices) - 7857
Tables – 3800
References - 2029
Appendices - 951

Chapter 2 total – 14,022
Main text (excluding title pages, tables, references, appendices) – 10,760
Tables - 67
References - 1245
Appendices - 1873

Chapter 3 total - 2237
Main text (excluding title pages, references) - 2135
References - 94

Exclusive total – 7857 + 10760 + 2135 = 20,772 (post corrections)
Inclusive total – 32,171