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EXAMINING THE PROTECTIVE ROLE OF SOCIAL SUPPORT IN FORENSIC MENTAL HEALTH

Section A: Reviewing the Protective Mechanisms of Social Support against Recidivism from Criminal Offending
7982 (69) words

Section B: Investigating the Protective Effects of Personal Support on Forensic Inpatient Admissions
7983 (105) words

Overall Word Count: 15,965 (174)

A thesis submitted in partial fulfilment of the requirements of Canterbury Christ Church University for the degree of Doctor of Clinical Psychology

MAY 2022

SALOMONS INSTITUTE
CANTERBURY CHRIST CHURCH UNIVERSITY

Acknowledgements

Thank you to my supervisors Rachel Holden and Jerry Burgess for your support and guidance in the completion of this project.

Thank you to my family for always believing in me and supporting me through my journey into clinical psychology.

Thank you to Elly for supporting me in the editing of this research project as well as listening to me talk about it at length.

Lastly, thank you to my lively friends for helping me to survive and thrive in clinical training.

Summary of Major Research Project

Section A

A literature review exploring the protective effects of social support in recidivism of criminal offending. A systematic literature search identified twelve studies which looked at the impact of the quality of social support, as well as different mechanisms of social support on recidivism. These are critiqued and synthesised using a review process focusing on quantitative methodology. Results are presented by looking at the different mechanisms of socially supportive relationships with family and peers, as well as other forms of support. Findings demonstrate the protective effects of family and peers in particular, however it remains unclear as to the most effective mechanisms of support. Clinical and research implications are discussed.

Section B

A quantitative study comprising of a secondary data analysis. Generalised linear models and proportional hazards modelling were used to examine the protective effects of social support received by service users during admission to forensic mental health secure services. A number of variables for the presence of different types of personal support were coded from clinician-ratings of personal support taken from structured risk assessments. Results demonstrated that both the presence of positive family and intimate partner support were associated with more desirable objective measures of recovery. How findings relate to current theory and research are discussed, and clinical and research implications are suggested.

Contents

List of Tables and Figures

List of Appendices

Section A

Reviewing the Protective Mechanisms of Social Support against

Recidivism from Criminal Offending

Word Count: 7982 (69)

Abstract

The protective role of social support in the mitigation of the onset of criminal offending is grounded in theory, however the mechanisms of how social support can play a protective role in recidivism remains unclear. To contribute towards a greater clarity, this review will therefore ask primarily whether social support reduces the risk of recidivism, but will ask the follow-up question of "what type of social support is beneficial for reducing recidivism?" A systematic literature search identified twelve studies which included measures of either the quality of social support or specific mechanisms of support, or specified members of one's social network. Studies were described, critiqued and synthesised, in which findings of the effects of family and peer support, as well as other types of support, were highlighted. Although the results of this review were mixed, they highlight the importance of the role of family and peers in recidivism from criminal offending. Implications of what this means for policy makers, as well as how we view recidivism research, is discussed.

Keywords: social support, recidivism, reoffending, reincarceration.

Introduction

Reoffending

At the time of this review there were more than 80,000 individuals detained in custodial settings in the UK (Ministry of Justice, 2022). Present data suggested that the overall reoffending rate of adults released from custodial settings or starting court orders in the UK was 31.8 percent, of which 25.4 percent of adults currently reoffended within one year (MoJ, 2021). Furthermore, data suggested that adults who were released from custodial sentences of less than 12 months had a proven reoffending rate of 57.5 percent (MoJ, 2021). Moreover, most recently, just under 75,000 proven reoffences were committed over the one-year follow-up period, by just under 21,000 adults. Those that reoffended committed on average 3.63 reoffences.

As it were the majority of detected crime is therefore committed by individuals who reoffend. As the bulk of individuals who are sentenced to prison will be eligible for release (Carson & Anderson, 2016), strengthening the rehabilitative influence of the criminal justice system (CJS) has the potential to substantially reduce crime rates and therefore protect the public. It is therefore of considerable relevance for policy-makers and academics to explore factors that may reduce the risk of reoffending, in order to tackle these high reoffending rates.

According to Bronfenbrenner's (1979) ecological systems theory, offending behaviour not only impacts the individual, victims and their surrounding systems, but will also have interdependent, reciprocal relationships with the wider environment of which people can have an impact on and be impacted by. This can include societal attitudes and changes (Strauss-Hughes et al., 2019). For policy-makers to address factors that can promote a decrease in the risk of recidivism is an economic,

interpersonal, intrapersonal, and moral issue that impacts on the whole of society, and is a government priority (MoJ, 2021).

There has been a vast amount of research to explore different factors that may promote successful re-entry into society after a prison sentence (e.g. Sampson & Laub, 1990, Lattimore & Visher, 2009). Re-entering society can be challenging for offenders, as demonstrated by high reoffending rates across Western countries (Durose et al., 2014). Research has identified a wide range of factors that can reduce the risk of recidivism, including but not limited to the presence of family ties (Bales & Mears, 2008; Martinez, 2008), being in employment (Bahr et al., 2010; Uggen et al., 2005), experiencing good mental health outcomes (Baillargeon et al., 2009), participation in offending behaviour programmes (Kroner & Yessine, 2013), reducing substance misuse (Dowden & Brown, 2002), entering into marriage (Sampson & Laub, 1990), as well as various individual personality factors such as reduced impulsivity (Schell et al., 2006; Martin et al., 2019).

One particular factor that is highlighted as important in successfully reintegrating into society following a custodial sentence is social support (Meyers et al., 2017). Social support is used as an umbrella term in the literature to encompass one's personal relationships, and personal ties to societal structures such as family and peer groups (Pearson, 1986).

Social Support and Reoffending

Cobb (1976) identified different components of social support such as the knowledge that one receives love and care from others; that one is recognised and respected; that one belongs to a network and has obligations to such networks. Social support can be gained from social participation across different groups, and has both

quantitative and qualitative aspects; it relates to the social network size as well as the length and complexity of different social relationships (Kaplan et al., 1977).

Social support differs from professional support in that relationships in one's own social network are dyadic, support and resources are reciprocated within the relationship. Relationships in one's own social network also have more of a capacity for emotional closeness than professional support, and can have more complexity as the relationship can serve a variety of functions such as offering a variety of emotional, practical and personal assistance (House et al., 1988). Although people released from prison routinely may have some form of professional support, reoffending rates are still high; therefore, professional support cannot tell the whole story. Furthermore, professional support may differ across individuals. Studies suggest that the quality of professional support received may be important in the context of reoffending (MoJ, 2013). One study in particular found that 30 percent of individuals who described their relationship with their offender manager as "excellent" reoffended, compared to 40 percent of individuals who described their relationships as "bad" or "not very good" (Wood et al., 2013).

The relevance of social support to offending behaviour was explored in social control theory (Hirschi, 1969). This theory posits that the four key factors of community involvement, commitments within society, beliefs about social norms and attachment to others (i.e., the social ties that someone has to significant others in their network, especially family and close peers), influence whether an individual will engage in offending behaviour. Attachment is proposed to be of particular importance as a protective factor against offending behaviour; such social bonds often include the reciprocation of feelings of warmth and affection and sensitivity to the feelings of others, which act as constraints against the development of offending behaviour.

Similarly, the differential coercion and social support (DCSS) theory (Colvin et al., 2002) hypothesises that having social support creates social bonds amongst individuals and their significant others, such as family and peers, that protect against the development of offending behaviour. Such social bonds instil prosocial coping strategies, such as regulating anger and impulsivity and building empathy for others, which can be maintained in the presence of adversity, of which adversity is strongly linked to increasing one's risk for engaging in offending behaviour (Weatherburn, 1992). Individuals who are in receipt of consistent support from significant others are therefore proposed to be less likely to engage in criminal behaviour.

Furthermore, when applied specifically to the context of re-entering society after serving a prison sentence, DCSS theory suggests that individuals who experience decreases in social support would be at greater risk of reoffending than those who maintain or increase their social support upon release into the community. The point of re-entry into society may be a particularly risky time of reoffending as individuals may be moving away from the particular support of a social network within prison who may be more understanding of their experiences. Furthermore, DCSS theory also hypothesises that having social ties that are coercive, or negative, can make an individual more likely to engage in deviant behaviour, which would include offending.

Both theories have some empirical evidence which supports them. Generally, the possession of strong bonds to conventional significant others are associated with lower levels of offending behaviour than people who do not possess strong social ties to others (e.g. Durkin et al., 2007; Sampson & Laub, 1990). Research into individuals coping with prison life and the re-entry process has demonstrated that individuals

often experience both support and coercion from significant others across a variety of social relationships (Day et al., 2015).

Specificity of Social Support and Reoffending

It appears that having social support may lead to more desirable outcomes after release from prison, such as reductions in reoffending. Individuals reporting social support tend to reintegrate more successfully into society after release from custody than those who lack social support (Visher & Courtney, 2007). However, the literature is not conclusive as to what mechanisms of socially supportive relationships produce the most positive outcomes. Among the most common proposed mechanisms proposed are:

- Emotional: Warmth and affection (Hirschi, 1969)

- Instrumental: Provision of material support, with finances or accommodation (Colvin et al., 2002)

- Informational: The provision of information that one can use to address problems (House, 1987)

It is also not clear whether the 'type' of relationship exerts an influence, and if so how much protection this provides from further offending behaviour. Nor is it clear whether the type of relationship is a sufficient condition to reduce offending behaviour. The quality of socially supportive relationships may also be important. We could hypothesise that positive social support would produce greater benefits, and that some types of social support may in fact produce negative consequences. Examples of negative support include inflicting emotional harm upon a person that may indirectly impact one's capacity for offending behaviour, such as increasing shame or lowering self-esteem (Tibbetts, 2003). Coercive social support from family and peers also heightens the risk of further offending behaviour, such as direct encouragement to

engage in criminal activity, or indirectly via activities that may impact upon offending such as substance use (Colvin et al., 2002). Although there is some research to suggest that negative peer relationships can impact upon recidivism (Cobbina et al., 2012), the influence of peers seems to decline with age. Therefore, research into the impacts of specific positive and negative social networks on reoffending is ambiguous and scarce.

Rationale of Review

Although the importance of having socially supportive relationships has been established in relation to recidivism, little research has investigated whether the type of social support, or the relationship within which it is offered and the valence of the support, is important in regard to reoffending. Moreover, there is not yet a systematic review of the literature which aims to investigate whether the quality of an individuals' social network or what mechanisms of social support are indicative of a decreased risk of reoffending. A review looking at the most advantageous types of social support would have the benefit of informing policy-makers to be aware of how services can best promote support to individuals during and after a custodial sentence. This is especially important given that being incarcerated likely constrains and restricts one's social network (Clear & Montagnet, 2022), and also because of limited time and resources of services to provide professional support.

This literature review will initially ask "does social support reduce the risk of recidivism?" and contribute towards addressing this evidence gap by asking the follow up question, "if so, what type of social support is beneficial for reducing recidivism?" In asking this follow-up question, this review will specifically focus on studies which measure the quality of socially supportive relationships, or measure specific types of support provided by these relationships.

Methodology

Literature Search

A search of online databases was conducted in November 2021. The databases searched included 'ASSIA', 'Web of Science' and 'PsycINFO'. To supplement this, a 'Google Scholar' search was also implemented, as well as an additional search of the reference lists of the papers selected following the full-text review.

No time limit was used in order to find all relevant literature. The search terms were as follows: (forensic* OR offend* OR secur* OR prison*) AND (protective* OR support* OR recidivism OR resilien* OR readmission* OR relapse* OR recall* OR desist* OR reincarcerate* OR rehabilitat*) AND (social* OR personal support OR family* OR personal relation* OR intimate relation* OR intimate partner* OR marriage* OR community* OR friend* OR peer*). All articles that were identified by the databases were at first screened based on their titles, then based on the eligibility criteria. Abstracts and then full texts were subsequently screened for the relevant papers. The full details of the progression of the systematic search are demonstrated in Figure 1. Twelve studies were deemed to have met the relevant eligibility criteria and are summarised in Table 1.

Figure 1

PRISMA Diagram of Systematic Literature Search
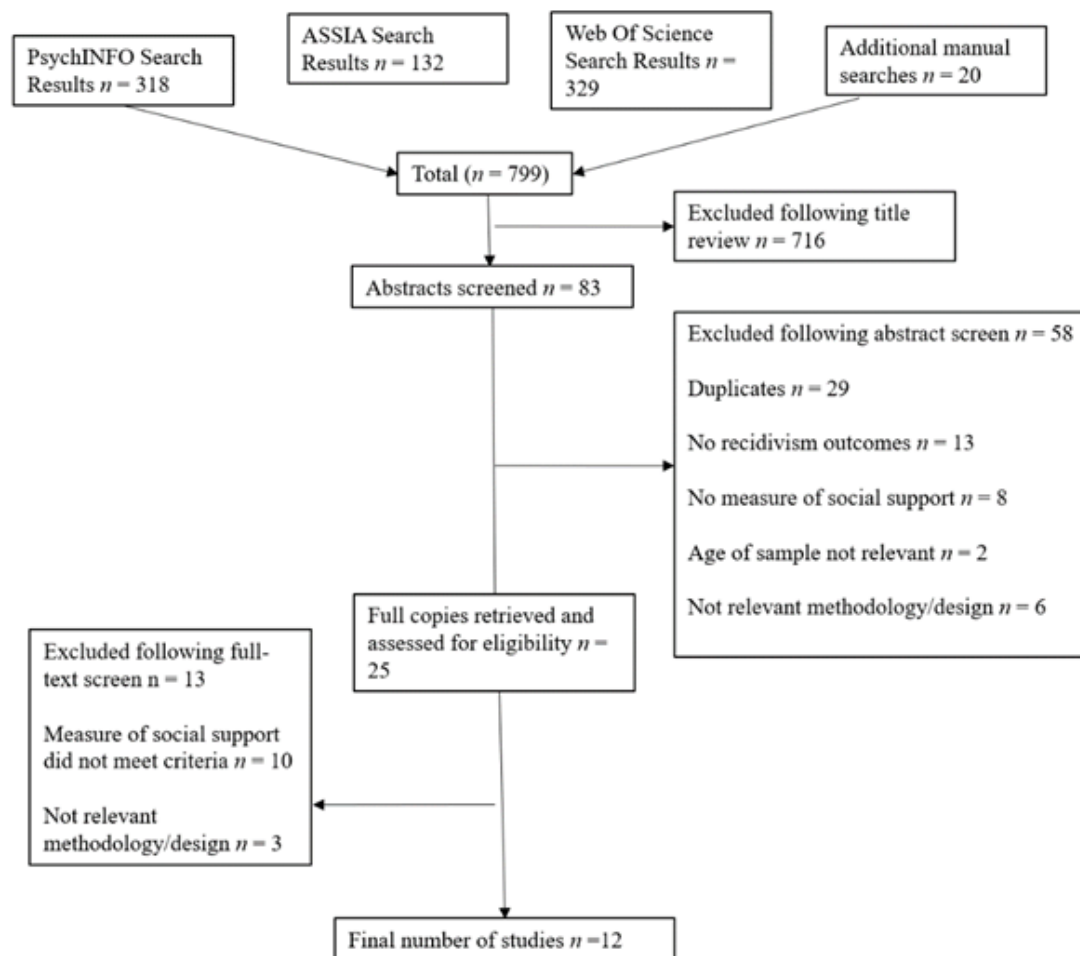
Eligibility Criteria

Studies were included if they were published in a peer-reviewed journal and permitted access to the full text document, and if they were available to be read in English. Inclusion criteria included an independent variable of social support, and studies were included if they had a measure of the type of social support, or quality of social support of its participants. Finally, studies were included if they measured a dependent variable of recidivism from offending behaviour.

Studies were excluded if they did not use an adult population, and only merely captured the presence of social support (with no indication or measure of the type or

quality of support). Papers were excluded if they did not use suitable quantitative methodologies to provide an answer to the question "Does social support reduce the risk of reoffending?"

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Literature Review

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Description of Studies

The review used tools from the Critical Appraisal Skills Programme (CASP, 2018) as a guide to extract information, as well as to assess the quality of each study found. Because of the longitudinal and observational methodology of the papers selected, the most relevant tool chosen was the CASP Cohort Study checklist (see Appendix A). This approach was modified to also analyse the measures of social support included. Papers were analysed and synthesised so that the sample, social support and recidivism variables, methods, and main findings could be described and critiqued for each paper. Table 1 demonstrates summary descriptions of each study.

Table 1

Summary of Key Information

	Authors (year)	Sample Description	Social Support Independent Measure	Recidivism Outcome Variable	Control Variables	Analysis (Follow up length)	Main Findings
1	Mowen et al. (2019)	N = 1002 100% male M age=29.2 (SD=7.29), 53.3% Black, 34% White, 12.7% Other Used 4 waves of data from Serious and Violent Offender Reentry Initiative (SVORI) (USA)	Interactional family support (3 items e.g. talk about problems, feel understood); Instrumental support (4 items e.g. housing, employment, transportation, financial); Emotional support (2 items e.g. feels close to family and want them in his life); Family conflict (5 items e.g. the extent to which individuals fight and are criticised)	Reincarceration Self-reported measures of criminal offending: yes/no threatened to harm someone, physically harmed someone, carried a gun, sold any drugs or committed any property crimes.	Family contact during incarceration; Family criminal justice involvement history; Family conflict; Employment; Depression symptoms; Criminal peers; Race; Age; Type of crime; Number of prior arrests; Prior convictions and length of incarceration; Participation in treatment programmes; Religious Assistance.	Used a generalised nonlinear form of mixed-effects model. Models use assumption of equality – ran Hausman tests to compare mixed-effects to fixed-effects estimates for each model. Also implemented interaction effects of different forms of support. (15 months).	Emotional/interactional family support not sig related to reincarceration. On the other hand, instrumental support is significantly associated with lower odds of reincarceration and criminal offending (p=<.05). Moreover, people with comparatively low levels of interactional support report lower levels of offending when they have high levels of instrumental support.
2	Kras (2019)	N=72, 100% male M=41.03 (SD=13.01), Black 29%	Instrumental (e.g. financial or other tangible support); Expressive (e.g. emotional or support) for Family; Intimate Partner; Friend. Quality (positive or negative) coded.	Technical violations and reimprisonment taken from official records.	Age (time of release); Black ethnicity; number of prior.; in prison at time of interview; minor victim (under age of 17).	Concurrent embedded mixed methods design – quantitative data extracted from qualitative approach	No significant relationships between types of family, friend and intimate partner support and recidivism outcomes. Positive parole officer support linked to reduced recidivism (p=<.05).

		White 71% Official records of individuals convicted of sex offences and supervised on parole by Minnesota (USA) department of corrections.	Parole officer support coded as dichotomous measure of the perceived quality of the support relationship			interpretive interviews. Logistic regression models assess the relationship between the measures of social support and recidivism. (3 years).	
3	Jacoby & Kozie-Peak (1997)	N=27 89% male 11% female M=36 (range 23-54), White 48%, Black 52%, Ohio (USA) prison population	An "in prison social support score" based on answers to 8 questions (e.g. Having someone to help with financial/personal problems) Post-release social support based on frequency of contacts with family, frequency of activities engaged with friends, and range of contacts with mental health professionals.	Reincarceration based on official records of imprisonment and parole revocation for period after release. Supplemented by self-report reporting of arrest.	Rate of drop-out identified but non-significant and not included in final analysis.	ANOVA to measure outcome of recidivism as a dichotomous outcome, IV was mean support score. (18 months)	"In prison" social support scores were not significantly predictive of recidivism. Similarly, no significant relationship was found between post-release social support scores and recidivism.
4	Atkin-Plunk et al (2018)	N=205 80% male 20% female M=36.76(SD=10.03, range=19-61) 23% Caucasian, 54% African	Quality of pre-incarceration relationships with mother, father, romantic partner. Measured on 4-item scale that measured the importance of relationship, level of warmth and encouragement received, and overall level of satisfaction with	Recidivism data taken from Department of public safety criminal history records – rearrest within 2 years of being released from prison	Black ethnicity; Age at time of release; Length of incarceration; Number of prior arrests	Logistic regression models to measure whether quality of pre-incarceration relationships predict re-arrest. (2 years).	The quality of an individual's relationship with their mother, and not their father or intimate partner pre-incarceration, was significantly predictive of reduced recidivism. Visitation did not predict reincarceration in full

		American, 23% Hispanic Objective measure of visitation from mother, father or intimate partner from prison records.	relationship.				model.
5	Mowen & Boman (2019)	N=1,156 100% male M=26.6 (SD=7.5) 34% white, 66% non-white Used 4 waves of data from SVORI (USA).	Family coercion: 3 items (disappoint; fight; criticised by). 4-point scale. Peer coercion:3 items (peers were in prison; have assaulted someone or sell drugs). 4 point scale. Family social support – 5 items (e.g. find a place to live; a job; substance use support; transportation; financial support) Peer social support – 5 items same as family.	Reincarceration was the outcome variable. Objective.	Employment; Partnership status; Criminal offending, Substance use; Non-white (66%); Age; Parent; Length of incarceration; Criminal history; Primary conviction (violent, drug, property, sex crime); Programme participation	Generalized linear mixed-effects model Model 1 family and peer coercion and control; Model 2 replaced coercion with support; Model 3 all variables; Presented matrix of interaction terms.	Individuals with higher levels of family conflict report significantly greater odds of reincarceration (p=<.001). After accounting for the coercive family effect, peer crime does not significantly relate to reincarceration. Both family and peer support relate to a reduction in the odds of reincarceration, however in full model only peer support is linked to reduced recidivism (p=<.001). Supportive and coercive elements of family and peer relationships are independent.
6	Berg & Huebner (2011)	N=401 100% male	Level of Service Inventory-Revised (LSI-R) administered by parole officers.	Official agency records of reincarceration.	Race; Age; Pre-prison Substance use; Criminal History; Mental Health	Cox proportional hazards techniques used	Parental ties not significantly linked to recidivism, but ties to relatives had delayed times

		M=31.81 (SD=8.71) White 72% Non-White 28% Paroled from prisons in Midwestern USA states	Parental Ties and Ties to Relatives dichotomous measure of satisfaction, or unsatisfaction or non-existent relationship). Intimate partner relationship (Rating 0-3 on level of satisfaction).		Problems; Stable Living Arrangements; Antisocial attitudes.	to examine the occurrence and timing of recidivism. Logistic regression models to examine whether family ties moderate the effects of poor work history and education on job attainment. (46 months).	to recidivism (p=<.05). However, when post-release employment is added to the model, ties to relatives no longer significant. A history of frequent unemployment reduced post-release employment; however, this effect was moderated by good quality ties to relatives (p=<.05). No significant relationship between quality of intimate partner ties and recidivism, but intimate partner ties predict employment (p=<.05).
7	Mowen & Boman (2018)	N=1118 100% male M=29.47 years (SD= 7.34) Black 50.7% Other 12.1% White 37.2% 4 waves of SVORI data in USA	Peer crime: 4 items including friends who were incarcerated, assaulted someone, committed theft or sold drugs on 4-point likert scale (none to all). Peer support: 5 items on how much they thought they had a friend to provide accommodation, support with finding job, substance use, transportation, finance.	Criminal offending: self-reported 'yes/no' to items asking if they had committed any violent crime, crimes against the person, possession of a weapon, a crime involving drugs, or any other crime.	Employment; Black ethnicity; Age; Marital status; Parenthood; Length of incarceration Number of prior arrests, Programme participation.	A hierarchical generalized linear mixed model implemented to examine how peer crime and support relate to reoffending. Examine independent effects of peer crime and support to examine independent effects and then interaction term.	Peer crime is significantly related to higher rates of criminal offending (p=<.001). An increase in peer crime corresponds to a 31.2% increase in reoffending. Peer support is significantly related to reduced recidivism (p=<.05). An increase in peer support corresponds to a 4.6% decrease in the logged odds of criminal offending. The interaction term fails

							to reach significance, suggesting that peer crime and peer support exert independent, but not interdependent, influences on recidivism.
8	Bares & Mowen (2020)	N=894 100% male M=29.09 (SD=7.306) White 34.1%, Black 53.4%, Other 12.5%. 4 waves of SVORI data in USA.	Parole officer support. Combined all 7 questions which were on 4-point Likert scales. Professional support: acts professionally, treats with respect, provides correct info). Interpersonal support (helpful with transition, trustworthy, listened to them, made time for them).	Self-reported binary measure of reincarceration.	Post-release family support; Substance use; Marital status. Post-release substance abuse treatment; Parole compliance; Employment status. Age, Race; Legal cynicism; Length of incarceration; Level of education; Offense type.	Hierarchical generalised linear mixed effects model used to explore different parole officer relationships on reincarceration.	Overall parole officer support relates to significantly lower odds of reincarceration. P=<.001. Both interpersonal and professional support significantly predict recidivism (p=<.001). However, in full model when accounting for the effects of both forms of support, only parole officer professional support is significant (p=<.01). Parole officer interpersonal support only effective when professional support is also provided.
9	Boman & Mowan (2017)	N=625 100% male M=29.7 (SD=7.28) White 34.1%, Black 53.2%, Other	Family support: asked how much they agreed with statements about feeling close to family, want family involved in life and considered self a source of support to family and rated on 4-point Likert scale.	Offending behaviour: Binary items yes/no asked about a range of offending behaviour.	Employment; Income; Marital status; Parent; Black or Other race; Age; Length of incarceration; Offense conviction type (property, drug or violent crime vs other	Mixed-effects longitudinal model. First step examined how family support related to offending behaviour post-	Family support is negatively related to post-release criminal offending (p=<.01). Having higher numbers of criminal peers positively linked to criminal

		12.7% 4 waves of SVORI data in USA.	Criminal peers: asked on 4-point Likert scale to what extent their peers had engaged in offending behaviour e.g. assaulted someone, committed theft, been incarcerated.		crime), number of prior arrests and prior substance use.	release from prison. Second step introduced criminal peers. Then introduced interaction term between family support and criminal peers to determine if there is a conditional relationship. (15 months).	offending (p=<.001). Interaction term significant (p=<.05). Indicates that the protective factor of family support on criminal offending is weakened by the presence of criminal peers.
10	Taylor (2015)	N=1382 100% male M=30.92 (SD=7.10) 50% Black, 40% White, 10% Other 4 waves of SVORI data (USA)	Emotional family support was measured with a 10-item index of questions. On a 4-point scale. Instrumental family support – 5 items on a 4-point Likert scale.	Self-report of items asking if committed any type of criminal activity and any violent offenses	Employed; Criminogenic neighbourhood; Legal cynicism, Programme participation; Need for mental health or substance abuse treatment.	Logistic regression models to explore effects of family support on recidivism and if family support moderates effect of victimisation on recidivism. (15 months).	Higher levels of emotional support are associated with a 5%–9% reduction in the likelihood of recidivism across the three periods predicting any self-reported crimes (p=<.05). Did not predict self-reported violent crime. Instrumental support did not predict any type of reoffending. Moderating effect minimal in that even at greater levels of family support, greater victimization was still associated with an increase in reoffending likelihood.

| 11 | Rocque et al (2013) | N=199

100% male

M=23.27 (SD=4.04).

Black 85%, White 15%

Low-to-moderate risk male offenders in Maryland randomly assigned to therapeutic bootcamp or traditional prison environment for six-month sentence. | Social relationship change: Asked to what extent had relationships changed with significant others during incarceration. 7 items examined and averaged. 0-2 for worsened/no change/improvement.

Supportive attachment: battery of items to explore attachment to significant others at release e.g. friends, family to offer support when they leave prison. Likert 4-point scale. | Reincarceration: Used official records - binary arrested or not, and a count variable of number of arrests, and number of days to arrest. | Age; Black ethnicity; Age of first arrest; Prior arrests; Violent crime, Intensive parole; Boot camp or traditional prison. | Weibull proportional hazards regression to assess time to first arrest as a function of supportive attachment and changes in social bonds. Used binomial models to analyse the effects of support and the number of arrests upon release. (38 months). | Positive Social relationship change during incarceration significantly linked with likelihood of rearrest (p=<.05) and number of days until rearrest (p=<.05) but not number of arrests.

The level of attachment at release was not significantly related to recidivism. |
| 12 | Spjeldnes et al. (2012) | N=277

100% male

M=36

Black 49.5% White 50.5% Data from Alleghany County Jail Collaborative evaluation project completed in 2008. | Family social support: ordinal variable based on perceived level of social support offered by family. Scale ranged 0-8 for different items. Eight items.

Interviewed 1 month, 6 months and 12 months post-release. | Reincarceration: yes/no at each interview asking if they had been back in jail. Self-report. | Race; Age; Mental health status; Substance abuse involvement. | Multinomial regression analysis to explore whether family social support predicted rearrest (12 months). | Family social support was significantly negatively related to recidivism (p=<.01). A one-point increase in family social support was related to a reduced recidivism rate of about 14%.

After entering both family social support and perceived community helpfulness in the same model, only family social support remained significant (p=.02). |

Sample

The sample sizes used for analysis ranged from 27 (3) to 1382 (10). The mean age across studies ranged from 23.3 (11) to 41.0 (2). All studies included an all-male sample apart from two studies which included a 20 percent (4) and 11 percent (3) female sample. Most studies (1, 3, 4, 7, 8, 9, 10, 11) featured a population of majority Black ethnicity which ranged from 50 percent (10) to 85 percent (11) of the sample. Studies 2, 6, and 12 contained majority White samples which ranged from 50.5 percent (12) to 72 percent (6) of the total study sample. Study 5 described that 66 percent of the sample was 'Non-White' but did not specify the ethnicity of participants. Study 4 described 23 percent of the sample as being 'Hispanic', and studies 1, 7, 8, 9 and 10 described a minority of the sample being of 'Other' ethnicity.

All studies included in this review used a USA population. Six of the studies (1, 5, 7, 8, 9, 10) use a sample taken from the Serious and Violent Offender Reentry Initiative (SVORI), a USA government-funded initiative designed to examine how re-entry services impact upon individuals returning from prison. All individuals from these samples were convicted and imprisoned for what was classified as serious or violent offences. Study 2 used a sample of men who were supervised on parole after being convicted of sex offences. Studies, 3, 4 and 6 used data for individuals released from prison, of which in study 3 participants were defined as having mental health problems, and in study 6 participants were supervised under parole. Participants in study 11 were taken from a larger study in which participants were randomly assigned to a traditional prison environment or a therapeutic prison environment and were only incarcerated for six months. Finally study 12 used data from a County Jail evaluation project, where participants would have received maximum sentences of one year for

non-serious crimes. Similarly, in study 6 participants served sentences of a maximum of two years however details of offences were not stated.

Paper 11 was the only study that included drop-out data specific to the study in question, in which 15.7 percent of the initial sample did not complete the study.

Social Support Variable

All studies apart from four (3, 7, 8, 11) included some measure of family support specifically, of which study 4 had separate variables for mother and father support, and study 6 included separate measures for parental ties and ties to relatives (including siblings). Four studies (2, 5, 7, 9) included specific variables of peer support, and three studies (2, 4, 6) included separate measures of intimate partner support. Additionally, two studies (2, 8) included measures of support individuals received from their parole officers (POs), and two studies (3, 11) included measures which encompassed all significant others.

Three studies (1, 2, 10) included a measure of the construct of instrumental support. Although two of the studies (5, 7) didn't define the positive support measures as instrumental support, the items that made up the family and peer support measures appeared to describe instrumental support, such as providing assistance with finance, accommodation and transportation. Moreover, in study 3, six of the eight items appeared to describe instrumental support, without being defined as such.

Three studies (1, 2, 10) included separate variables which they categorised as either emotional or expressive support, encapsulated by items such as feeling close to others, or others providing emotional assistance. Study 1 additionally included a separate variable of interactional support, which encompassed three items relating to being able to talk about problems and feeling understood. Although study 3 included a general variable of social support, two of the items appeared to encompass

interactional support. Study 4 used measures to define the quality of the relationship, and study 6 used measures to define the satisfaction of one's social relationships.

Three studies (5, 7, 9) included measures of peer criminality as independent variables, and study 5 also included a measure purported to capture the level of family conflict. Two studies (9, 12) included measures of general levels of family support and one study (11) included a measure of one's attachment to significant others post-release as well as a measure of the change social support relationships since incarceration. Finally, study 8 included separate measures of PO professional support, such as acting professionally and being treated with respect, and PO interpersonal support such as being trustworthy and feeling listened to.

All studies included subjective data taken from semi-structured interviews, which were then coded into quantitative data. All studies except for three (2, 3, 12) used answers in the form of four-point Likert scales. Studies 2 and 3 used binary measures to capture support, and study 6 used a four-point Likert scale to capture intimate partner satisfaction but binary measures to capture satisfaction within family relationships. Study 11 additionally used a three-point scale to capture the change in the quality of support whilst incarcerated, and study 12 used an 8-point scale to capture levels of support. Study 3 additionally used a 7-point scale to capture social support post-release. Study 4 used the only objective measure by obtaining official records of visitation by one's mother, father or intimate partner.

Recidivism Outcome Variable

Most of the studies (1, 2, 3, 4, 5, 6, 8, 11, 12) measured as their dependent variable, whether subjects had been re-arrested or reincarcerated during the follow-up period. The remaining studies (1, 7, 9, 10) used dependent measures of offending behaviour, in which participants were asked to provide binary answers to whether

they had committed a range of crimes or any other crime. Study 11 additionally recorded the number of arrests as well as the number of days from release from prison to first arrest, and study 1 included both reincarceration and offending behaviour as outcomes. Recidivism outcomes were followed-up for a range of 12 months (12) to an average of 46 months (6). Five studies (2, 3, 4, 6, 11) used official records to objectively measure recidivism outcomes, with the remaining studies used self-report measures. Study 3 used both official records and self-reporting of incidences of arrest.

Control Variables

All studies apart from four (3, 10, 11, 12) controlled for ethnicity and age. All studies apart from five (3, 8, 10, 11, 12) controlled for prior criminal history, and half of the studies (1, 5, 7, 8, 11, 12) controlled for whether the individual was participating in a type of therapeutic programme. Four studies (1, 5, 8, 9) controlled for the type of offence the individual was convicted for, and five studies (1, 4, 5, 7, 9) controlled for the length of incarceration. Half of the studies in this review (1, 5, 7, 8, 9, 10) controlled for previous employment before being incarcerated, and five studies (5, 7, 8, 9, 10) controlled for partnership or marital status. Study 1 additionally controlled for family contact as well as family conflict and family CJS involvement. Two studies (5, 9) controlled for whether the participants had children, and two studies (6, 12) controlled for mental health diagnoses.

Analysis

All studies apart from one (3) used regression models to analyse the link between social support predictor variables and recidivism outcomes. More specifically, four studies (5, 7, 8, 9) used generalised linear mixed-effects models and one study (1) used generalised non-linear mixed-effects models to examine the effects of different types of social support predictor variables. All of these studies also

explored interaction effects between social support predictor variables. Three studies (2, 4, 10) used logistic regression analyses and one study (12) used a multinomial regression analysis. Two studies (6, 11) used Cox and Weibull proportional hazards regression models respectively to explore the effects of social support variables on the outcomes of the occurrence and timing of recidivism. Finally, study 3 implemented an ANOVA using the means of social support predictor variables and dichotomous outcomes of recidivism.

Main Findings

Family Support

Overall, the main findings for the papers including family support produced mixed results. Six of the studies included (1, 4, 6, 9, 10, 12) found that some form of family support had beneficial effects on recidivism, and five studies (2, 4, 5, 6, 10) found that specific forms of family support did not significantly reduce recidivism outcomes. More specifically, study 12 found that positive family support was significantly related to reduced odds of reincarceration, and study 9 found that family support was negatively related to criminal offending, and that strong family support reduces the risk of offending behaviour. Study 5 however found that family support did not significantly relate to reduced recidivism, yet family conflict related to significantly higher odds of reincarceration.

In regard to particular family members, study 6 found that strong ties to relatives had a negative effect on the timing of reincarceration, however this was no longer significant when controlling for post-release employment. Study 6 also found that strong parental ties did not have a significant effect on reincarceration outcomes. Moreover, study 4 found that only the quality of the participants' relationships with their mother prior to reincarceration significantly related to the likelihood of

reincarceration, and added that visitation from their mothers or fathers during incarceration were not linked to reduced recidivism.

In regard to specific types of support, study 1 found that family instrumental support had significant positive effects on offending behaviour and likelihood of reincarceration, whereas interactional support and emotional support did not, however those with low levels of interactional support reported reduced offending when they had high levels of instrumental support. Study 10 contrastingly found that high levels of emotional support were associated with a reduction in recidivism, however instrumental support did not significantly relate to offending behaviour outcomes. Study 10 added that high levels of emotional support reduced the likelihood of recidivism for people who had experienced victimisation, however not when individuals had experienced high levels of victimisation. Study 2 did not find any significant links between instrumental or expressive family support and recidivism.

Peer Support

The main findings for studies that included measures of peer support also produced mixed results. Studies 5 and 7 found that positive support received from peers was significantly linked with reduced reincarceration and offending behaviour respectively, and that these effects were exerted to be independent of other forms of support. However, study 2 did not find any significant relationship between instrumental or expressive peer support and re-arrest outcomes in a population convicted of sex offences.

In regard to the coercive impact of negative peer support, studies 7 and 9 found that higher ratings of peer crime were significantly linked to criminal offending. Moreover, in study 9 criminal peers weakened the protective factor of family support on criminal offending behaviour. Contrastingly, study 5 did not find a significant

relationship between experiencing negative support in the form of peer criminality and reincarceration outcomes.

Other Support

None of the three studies (2, 4, 6) that examined the influence of forms of intimate partner support found significant relationships with recidivism. More specifically, study 2 did not find any positive impact of expressive or instrumental intimate partner support on re-arrests, study 4 did not find any relationship between the quality of pre-incarceration intimate partner relationship on reincarceration rates, and study 6 did not find any positive impact of positive intimate partner support on reincarceration rates and how much time elapsed to reincarceration.

In regard to the studies that investigated PO support, study 8 found that although interpersonal and professional PO support was significantly linked to reduced reincarceration, interpersonal support only reached significance when moderated by the effects of professional support. Study 2 found that individuals who self-reported receiving positive PO support were four times more likely to be reincarcerated in the follow-up period.

In regard to the remaining studies (3, 11) which obtained measures of the quality of social support that encompassed all of one's significant others, study 3 found that higher levels of social support reported both in and post-release from prison were not significantly related to recidivism. Study 11 found that although the level of attachment to significant others post-release did not predict reincarceration, a positive change in social relationships with significant others during a six-month period of reincarceration significantly reduced the likelihood of rearrest during the follow-up period.

Critique of Studies

Sample

The papers included all-male samples apart from two which contained

majority-male samples (3, 4). Despite females typically being less than ten percent of

prison populations (Carson & Golinelli, 2010), most studies may not be generalisable

to a female population. Although most studies contained large sample sizes, studies 2

and 3 contained small sample sizes, of which study 3 in particular had a very small

sample size of 27. Furthermore, study 3 used a sample which were defined as

'mentally ill' by prison staff, and did not use official health records or diagnoses given

by mental health professionals, therefore generalisability to people experiencing

mental health difficulties is limited.

Although individuals who identified as White or Black ethnicity could be

generally represented by the sample descriptions, no papers included detailed any

other specific race or ethnicity apart from study 4 which included individuals

identified as Hispanic. Only five studies (1, 7, 8, 9, 10) made reference to 'Other'

ethnicity and studies 5 and 6 only included a 'Non-White' category, therefore not

describing data for any other specific ethnicity apart from White. People particularly

who may be identified as Mixed Race, Asian or Arab are not represented by the

sample. Ultimately, due to all studies including a USA population, there may be some

limits to relating findings to populations residing outside of the USA, and particularly

non-Western populations. Moreover, data on socioeconomic status or religious

affiliation was not included in any of the studies.

Study 2 only used a sample convicted of sex offenders, and studies 1, 5, 7, 8, 9

and 10 used a sample of individuals convicted for serious or violent offences,

therefore findings from these studies may be less generalisable to individuals

convicted of less serious crimes, who may serve less time in prison and experience less social stigma (Cubellis et al., 2019). Studies that included data from the SVORI included all participants with complete-enough data. Study 3 used opportunistic sampling of all prisoners identified as being 'mentally ill' by prison staff and 'about to be released.' Therefore, there may be an element of researcher bias as to who was included as a participant in the study as official mental health records were not involved in the recruitment. Study 4 recruited participants upon their arrival to prison whilst they were awaiting processing, therefore obtaining a convenience sample of those who were willing to sign up to the study at this time. It is possible that there is some bias in recruitment to signing up individuals who may have been more willing to engage at the time. Reasons could have included those who may have been more used to the prison environment, or be facing shorter sentences, for example.

Social Support Variable

All studies included in this review included subjective measures of social support. Despite socially supportive relationships and perceived levels of support being subjective in nature, using subjective measures could be open to social desirability bias in that participants could perceive themselves as receiving higher levels of support than they truly feel subjectively. This could be a manifestation of defence mechanisms as a result of being incarcerated, and the emotional pain of acknowledging the possession of limited social support (Wright et al., 2017).

Studies 1, 4, 5, 7, 8, 9, and 11 included acceptable or high alpha values for interitem reliability within each scale. Of the five studies (2, 3, 6, 10, 12) that did not include reliability statistics, only two studies (3, 6) included outcomes taken from validated questionnaires. Study 12 did not include reliability information but noted that the instrument used to collect data was developed and reviewed by a 'panel of

experts' (Visher et al., 2004), leaving studies 2 and 10 without any measure of validity or reliability for social support measures. Furthermore, study 2 only included dichotomous measures of positive and negative support to code participant responses within the outcomes of instrumental or expressive support for family, peers and intimate partners. The researchers used the same coding for the absence of support and negative or coercive support, which can be argued to fall within different constructs (Colvin et al., 2002). Therefore, it is possible that study 2 did not measure different forms of social support accurately.

Study 6 included binary measures to reflect whether relationships with family were satisfactory or unsatisfactory, and used a 4-point scale to reflect levels of satisfaction with intimate partner relationships. This could have caused differences in the way the relationships were measured, thus causing a difficulty in how family relationships can be compared to intimate partner relationships in this case. Moreover, studies 1, 8, and 9 only used three items to create distinct variables of different types of support. Despite demonstrating interitem reliability, so few items could fail to fully encapsulate such constructs of support, especially for study 9, which measured general social support rather than specific types of support such as emotional or instrumental support, and therefore may not have included a sufficient number of items to measure the social support that an individual may receive. Finally, although study 1 performed a factor analysis to determine the different constructs of support, items within the 'interactional support' construct could also fall within the 'emotional support' construct, such as talking about problems and feeling understood by others. As they only used three items to define interactional support and two items to define emotional support, results generalising these as two distinct measures of support should be interpreted with caution.

Recidivism Outcome Variable

Seven of the studies (1, 5, 7, 8, 9, 10, 12) used self-report measures to collect recidivism data. One of the limitations of this is that there is the possibility that recidivism data is under-reported due to social desirability bias. There may especially be instances of under-reporting for four studies (1, 7, 9, 10) of which relied on self-reporting for a range of offending behaviour rather than whether they had been arrested, and therefore participants could have potentially withheld from disclosing such information. Despite whether these studies had advised that confidentiality was assured, convicted individuals who may have experiences of victimisation may find it difficult to trust and self-disclose to authority figures (Barkworth & Murphy, 2021), and therefore may have withheld from reporting for fear of legal sanctions or returning to prison. Ultimately, only five studies (2, 3, 4, 6, 11) used objective measures to capture rates of reincarceration, in which there is minimal opportunity for bias.

In regard to the length of time in which recidivism outcomes were collected, many of the studies (1, 3, 5, 7, 8, 9, 10, 12) included in this review obtained recidivism measures for less than two years. Although a large proportion of people reoffended within one year (MoJ, 2022), a larger proportion of individuals who go on to reoffend do so after one year, therefore the outcomes measured may not capture true levels of recidivism if a sufficient length of time had not elapsed.

Control Variables

Study 3 did not control for any potentially confounding variables in their analysis, and study 11 only controlled for therapeutic programme participation, therefore it is possible the potential confounding variables such as age, number of prior convictions, employment and length of incarceration, amongst others, could

have caused the results to be less attributable to the social support predictor variables. Study 10 similarly only controlled for employment and relationship stability, therefore reducing the causal relationship link between social support and recidivism. It can be noted that studies 1, 5, 7, 8 and 9 used large datasets and controlled for a number of variables in their analysis, which is an indicator of variables that may potentially confound results.

Only one study (6) controlled for whether an individual had stable living arrangements, of which unstable accommodation is a known risk factor for reoffending (MoJ, 2021). Similarly, only one study (8) controlled for education levels and only one study (9) controlled for income. Although there may be limits as to how many confounding variables could be accounted for when conducting analyses, education and socioeconomic status are known to be predictors of reoffending (e.g. Ford & Shroeder, 2010; Reitzel, 2019). Furthermore, only five of the studies (1, 4, 5, 7, 9) controlled for length of incarceration. Length of incarceration could have an impact on social support variables if an individual were to be in prison for a long time and thus have difficulties maintaining social ties. This is particularly the case for studies 8 and 10 who did not control for such variables but included participants who had been convicted for serious or violent crimes, and therefore individuals who may have been incarcerated for longer time periods.

Analysis

The majority of studies appeared to use the appropriate methodology to analyse their data. Five studies (1, 5, 7, 8, 9) used mixed-effects models which was appropriate to allow for subjects to vary at random, and helped to correct for a lack of independence across time given that they were analysing longitudinal data. Study 12 used a multinomial regression analysis which would have been robust enough to

account for predictor variables which are categorical, ratio and ordinal level variables. It can be noted however that three studies (3, 5, 6) did not report effect sizes in their results sections. Furthermore, study 2 took qualitative data in the form of thematic analyses and turned it into quantitative data to be able to analyse data using logistic regression models. Therefore, there could be the possibility of bias in how the researchers interpretated data to code into the social support variables.

Main Findings

Family Support

Study 1 found that emotional and interactional support did not have a significant impact on recidivism, and only instrumental support had a significant impact on self-reported reoffending behaviour, however the effect size was modest. Although researchers used factor analysis to derive the differing constructs of support with good reliability, the emotional support construct that was derived only contained two items, and therefore this may not have been robust enough to capture the construct of emotional support, in comparison to instrumental support which contained four items. The construct of family conflict, which also contained four items, was also found to be significantly related to recidivism, therefore it could be argued that the constructs of interactional and emotional support may not have been robustly measured enough to have accurately captured the true nature of these forms of support. Similarly, study 5 found that family conflict significantly predicted reincarceration, and family support did not predict reincarceration. Upon exploration, the items used to define the family support construct appeared to fall within the construct of instrumental support, which contrastingly to study 1 did not predict recidivism. Therefore, findings of study 5 may be limited to instrumental, and not other forms of family support. Similarly, study 10 found that instrumental support did

not predict self-reported offending recidivism, whereas high levels of emotional support were associated with a reduction in reoffending. This finding can be taken with some caution however, as effect sizes were modest, and the researchers only controlled for employment and relationship stability as covariates. Furthermore, for study 10, along with the other studies using data from the SVORI (1, 5, 7, 8, 9), these only used serious or violent offenders and an all-male sample, therefore it may not be related to all offenders.

Study 12 found that positive family support predicted reduced rates of recidivism with a moderate effect size, however this is limited to only a 12-month follow-up, and the paper offered limited information as to what the family support items contained and therefore what type of family support would be most beneficial to impact recidivism. Moreover, study 9 found that high levels of family support was significantly related to reduced self-reported offending behaviour with a moderate effect size, however this was no longer significant when accounting for criminal peers, and this study also similarly only used three items in their construct of family support. It therefore cannot be determined which type of family support was most beneficial to negate offending behaviour. Moreover, study 6 only found modest links between quality ties with relatives and recidivism outcomes, however only used binary outcomes to capture satisfactory or unsatisfactory relationships and did not account for different constructs of negative or coercive influences or the absence of support. Finally, study 4 found that the quality of the relationship with one's mother, and not one's father before being incarcerated had an impact upon recidivism, with only modest effect sizes. It can be noted that a third of participations did not complete questionnaires related to the quality of relationship with fathers. This could be due to

an absence of father figures, or difficulties in relationships with father figures preventing responses. Regardless, this could limit the generalisability of these results.

Peer Support

Two studies (5, 7) found that positive peer support reduced the risk of reincarceration and criminal offending. Both effects were found at a level of significance of less than p=.001. Although both studies used large data sets and controlled for a number of confounding factors, there remains the issue that the study only involved the follow-up of serious and violent offenders for a 15-month period. The issues of potential self-report bias of rating friendships more positively as a defence against feelings of shame or isolation, especially if one does not have close ties with family members (Elliott, 2011), as well as the issue of under-reporting offending behaviours for social desirability bias and fear of consequences, could potentially have an impact upon results. This element of bias could also in part explain why some offenders would under-report peer criminality, for fear of consequences for others and fear of having the identity as an informant (Michalski, 2017).

Moreover, study 2, which did not find significant links between peer instrumental and expressive support, only included a population of people convicted for sex offences, a population of offenders who may experience the most stigma (Ricciardelli & Moir, 2013) and therefore may report friendships more negatively because of not only the stigma from others, but their own perception of stigma that others will attribute toward them (Evans & Cubellis, 2015).

Other Support

None of the studies which included intimate partner support (2, 4, 6) found significant links to recidivism. It can be noted however that study 2 used a population

of individuals incarcerated for sex offences and a relatively small sample, and only 71

percent of the sample claimed to be in a committed relationship at the time.

Furthermore, only 64 percent of respondents in study 4 answered all questions

regarding intimate partner support, and missing data were replaced with the scale

mean of those who did answer the questions. Moreover, intimate partner support in

study 6 was measured differently to other forms of support studied, using a Likert

scale for intimate partner support rather than binary measures. Overall, generalisable

claims about intimate partner support may be limited, and contrast literature regarding

the preventative effects of marriage on recidivism (e.g. Sampson & Laub, 1990).

Study 2 found that positive PO support had a harmful effect on recidivism. As

recidivism was captured by parole and technical violations as well as re-arrest, it is

possible that individuals who felt closer or more supported by their POs may have

been more likely to disclose parole violations. This could especially be the case given

that the sample of individuals committed for sex offences could have received less

support generally due to experiencing high stigma, and therefore may more likely

confide in a PO that offers support.

Study 3 found that higher quality of social support scores reported during

incarceration, and not levels of support obtained at post-release, predicted recidivism.

However, due to a small sample size, opportunistic sampling which included labelling

prisoners as 'mentally ill' without validated diagnostic tools, and a lack of control

variables in the analysis, limit the generalisability of the findings. Moreover, study 11

found that a positive change in relationships during incarceration, and not the level

attachment to others at release, was related to recidivism. However, it can be noted

that the level of significance was modest, and effect sizes were not reported.

Furthermore, a lack of control variables included in the analysis and including only

inmates that had six-month periods of incarceration, can limit the generalisability of findings.

Discussion

Summary

From studies which investigated family support specifically, results appear mixed. Four studies (1, 9, 10, 12), found family support to have positive effects on recidivism, fitting with Hirschi's (1969) theory that attachment to family members is protective against offending behaviour. However, study 1 found that only instrumental support was protective, and study 10 found that only emotional support was protective in a sample of individuals committed for serious and violent offences. Studies that included specific measures separating family members showed that parental support was not protective against recidivism (5, 6), and that only the quality of the bond with one's mother pre-incarceration reduced recidivism. Although strong parental relationships been demonstrated to be effective in reducing one's risk of offending in the first place (Johnson et al., 2011) parental support may not necessarily be protective against reoffending. Furthermore, ties to relatives only appeared protective before controlling for post-release employment (6).

Studies of serious and violent offenders showed that peer support was protective against recidivism and that peer coercion had the opposite effect (5, 7, 9), supporting the DCSS theory (Colvin et al., 2002). Only one study (5) found that peer coercion was not a risk factor. No studies demonstrated protective effects of intimate partner support on recidivism, which contrasts prior research into marriage and desistance (e.g. Sampson & Laub, 1990). No forms of support were found to be protective of recidivism in a sample of individuals convicted for sex offences, except that positive PO support predicted greater recidivism rates. This could in part be

explained by people convicted of sex offences experiencing increased stigma, which may provide additional barriers to maintaining supportive social relationships (Ricciardelli & Moir, 2013). In regard to particular types of PO support, only professional support appeared protective. This reflects studies that show that even strong relationships with offender managers are not enough alone to reduce against reoffending (Wood et al., 2013).

These mixed findings can be in part explained by Bronfenbrenner's (1979) ecological theory, in that the multiple systems in which individuals return to post-incarceration may create difficulties in being able to sustain a life without reoffending. Being exposed to criminal peers, having strained relationships with one's own social network, public stigma, and multiple barriers to employment are amongst the many factors that individuals face when returning from prison. Therefore, social support has a different role to play and more challenges to withstand when considering an individual's risk of reoffending, versus one's risk of offending in the first place.

Implications for Research

An alternative way of measuring the protective effects of social support is by putting the emphasis on desistance, rather than recidivism. Rocque (2021) explained desistance as not being an event, but being a process that occurs over a period of time. It can be argued that desistance can occur even if criminal behaviour, and contact with the CJS is present. Therefore, rather than research following only outcomes of reincarceration and criminal reoffending, additional measures of criminality should be taken in order to evaluate desistance. Other ways of measuring desistance have been proposed as being through social factors such as employment and community ties, a reduction in the frequency of criminal offending, or a reduction in the severity of criminal offending. (Kazemian, 2021). Therefore, a more helpful framework may be

to conceptualise desistance as focusing on successes, rather than failures (Kazemian, 2020).

Focusing solely on CJS involvement and criminal reoffending could in part explain the mixed results of effects of positive social support and recidivism. Incidences of recidivism may not be reflective of an individual's pathway to desistance that can be demonstrated by a variety of psychological and behavioural changes. It can also be noted that the studies included in this research included large non-White populations in USA populations, which may be more likely to be victimised or targeted by law enforcement (DeVylder et al., 2017), especially if they are already in possession of a criminal record. Therefore, solely looking at rearrest may not tell the whole story. Moreover, although a couple of the studies included followed-up participants for up to three or four years, most studies only followed-up desistance outcomes under two years. Although one-year follow-ups have been typical of government-funded research into desistance outcomes (e.g. MoJ, 2021), research studies may need more time for the positive effects of social support to manifest themselves.

Implications for Practice

There is an argument to be made for policy-makers to consider implementing shorter custodial sentences, and less punitive punishments for acts of criminal offending (Wildeman, 2021). Spending less time in custody would mean that there is less risk of individuals being disconnected from their social network, of which several of the included studies demonstrated some positive relationship with recidivism. Furthermore, research suggests that longer sentences do not decrease recidivism, and that even shorter prison sentences are more disruptive to the desistance process than non-custodial sanctions (Wildeman, 2021). Moreover, people who offend are less

likely to be able to gain employment or build prosocial community ties which may increase one's prosocial network (Best et al., 2017), which may help contribute to the desistance process.

Another implication for practice would be for custodial settings to be well-versed in promoting social support to individuals before they are released from prison. One way of doing this would be to offer information to families and peers regarding how to offer emotional or instrumental support particularly to returning individuals. Offering information to the social networks of returning individuals could also include information about known biosocial risk factors of reoffending such as substance use, or biological risk factors such as brain injuries or neurodevelopmental disorders (Wright & Boisvert, 2009) in order for social networks to advocate for individuals to receive the relevant assistance in the community.

Limitations

This review examined papers using quantitative methodologies to explore individuals' social supportive relationships, in which there are inherent limitations with measuring the complexity of social support objectively. Many papers only used few items to derive variables for different types of social support, and therefore do not include the richer accounts of experiences of social support that qualitative studies would include.

Methodological issues such as a lack of controls in some studies and small sample sizes with people who have committed certain types of offences would also impact on the validity of synthesised results. However, the majority of studies contributing to the summary of findings were found to be robust enough for clinical significance.

Conclusions

It can be surmised that the relationship between social support and recidivism is complex, in which the question of whether social support reduces reoffending cannot be determinately answered. The question of which specific types of social support are most protective against recidivism also offer mixed results. It appears as though the provision of emotional and instrumental support offered by family and peers alike could reduce the risk of criminal offending, however far more research is needed to identify more substantial conclusions in this area. Intimate partner support however, based on the studies included, did not appear to be protective. Methodological limitations, as well as the framework of how recidivism is viewed and what is framed as a 'success' or a 'failure', is to be given further consideration.

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Section B

Investigating the Protective Effects of Personal Support on Forensic Inpatient Admissions

Word Count: 7983 (105)

For submission to The Journal of Forensic Psychiatry and Psychology

Abstract

To date research investigating the role of socially supportive relationships on service users' recovery in the context of forensic inpatient admissions is scarce. This study aimed to explore the protective effects of socially supportive relationships on objective measures of recovery in the context of admissions to secure hospital. Personal support variables of family, peer and intimate partner support were constructed based on clinician ratings obtained from HCR-20 risk assessments of 330 service users. Secondary data analyses of NHS care records using generalised linear models and proportional hazards modelling were conducted to measure the impact of personal support on service users' length of stay in hospital, risk incidents during inpatient admissions, and total number of admissions to hospital. Clinician ratings of the HCR-20 personal support item were also scrutinised to explore whether perceptions of personal support differed by service user demographics such as gender and ethnicity. Results demonstrated protective effects of positive and intimate partner support on objective measures of recovery. Findings are discussed in relation to existing theory and research, and implications for practice and future research are suggested, with a focus on the unmet need for family intervention and outreach in forensic mental health services.

Key words: social support, forensic, secure hospital, service user, recovery

Introduction

Forensic mental health services (FMHS) in the UK assess and treat individuals detained under the Mental Health Act (MHA, 2007) who have either committed crimes or who are deemed at high risk of committing crimes and assessed to pose a significant risk to themselves and the public (Joint Commissioning Panel for Mental Health (JCPMH), 2013). Inpatient FMHS are organised into three different levels of risk, comprising low, medium and high secure services, with community FMHS offering support in the form of rehabilitation and risk monitoring in the community. There are currently approximately 700 beds in three high secure hospitals, and 3500 beds provided in around 60 medium secure hospitals in the UK, of which around 65% are provided by the NHS (Duke et al., 2018).

The aim of FMHS are to treat individuals for mental health problems, and to accommodate individuals and monitor risk in a way that is recovery oriented (JCPMH, 2013). The goal, therefore is for individuals to 'recover' to a point where it is believed that their risk to others and themselves is sufficiently minimised, that they can live the least restricted life that they can, ideally in the community. It is estimated that funding for FMHS is equal to approximately 1% of the NHS budget (Walker et al., 2012), with inpatient stay in medium secure units costing over 1.2 billion per year (Duke et al., 2018). On an interpersonal level, whilst there is an onus on the least restrictive practice in FMHS (CQC, 2017), service users are admitted under court order, and being an inpatient comes with reduced autonomy as well as other traumas such as being physically restrained and secluded (Muskett, 2014). Service users may be subjected to take medication against their will (Beckett et al., 2017), and are often housed away from their primary social networks (Nidjam-Jones et al., 2015).

Support and Recovery in FMHS

It is suggested that the support of social networks is important for facilitating recovery in the context of mental health difficulties (e.g. Thomas et al., 2016; Davis & Brekkie, 2016). Social support can encompass an individual's personal relationships and ties to individuals such as family, friends and intimate partners, and structures within the community such as spiritual and religious institutions (Pearson, 1986). There are multiple forms of social support that can be provided by others, such as emotional support including reciprocal feelings of love and affection (Hirschi, 1969) or instrumental support comprising the provision of material support or accommodation (Colvin et al., 2002). Socially supportive relationships appear to contain key components such as feelings of acceptance, mutual trust, and a sense of belonging (Gottlieb, 2000; Lindgren et al., 1990).

The importance of social support to recovery has also been identified in the literature on desistance from offending behaviour (Bahr et al., 2010; Sampson & Laub, 1990). The origins of research examining social support and offending may stem from theories such as Hirschi's (1969) social control theory, which posits that offending behaviour is more likely to occur when individuals have weak social bonds with others in society. A lack of attachment to parents, family and peers is believed to be a risk factor of the development of offending behaviour due to the absence of feelings of affection that attachment relationships facilitate. Similarly, the Differential Coercion and Social Support theory (Colvin et al., 2002) proposes that the presence of social support facilitates the development of prosocial coping strategies, such as regulating anger and impulsivity, and building capacity for empathising with others. This protects individuals from developing offending behaviour in the face of risk factors such as socioeconomic adversity (Weatherburn, 1992). This theory further

suggests that the presence of social support alone is not protective; the presence of negative social support will increase one's risk for engaging in criminal acts. This has been demonstrated by research which found that social ties to peers (Akers & Jensen 2011) and intimate partners (Andersen et al., 2015) are only protective against offending behaviour when social ties are law-abiding.

The tenets of these theories are reflected in the forensic recovery model (Drennan & Alfred, 2013) which highlights the importance of strong social ties to recovery in the context of forensic mental health (Davidson et al., 2005). However, there is a lack of research examining the influence of social support on (re)offending in a forensic mental health setting. In addition, research indicates an unmet need for family intervention services in secure FMHS across the UK (e.g. Absalom et al., 2010; Ridley et al., 2014), despite the National Institute for Care Excellence (NICE, 2016) guidelines stating that interventions in FMHS should consist of physical, psychological and social interventions. This dearth of research is also despite the high prevalence of this population experiencing psychosis (Torrey et al., 2008), where family interventions are recommended as a first-line treatment (NICE, 2014). However, there are barriers to family involvement in FMHS that have been identified, including stigma, shame, family members being involved in the index offence, and practical barriers including geography (Foster & Bates, 2019). Therefore, it is imperative to demonstrate through research the importance of social support within the context of FMHS, in order to address these barriers.

Measuring Social Support and Recovery in FMHS

The forensic recovery model states that individuals go through a personal process to develop a sense of well-being, new goals and values, connection and meaning (Turton et al., 2011; Anthony, 1993). However, objective measures of

recovery typically do not account for this process, instead focusing on length of stay (LOS), progressing to step-down care, refraining from acts of violence and aggression to others and themselves, and readmission to inpatient FMHS. Qualitative research indicates that the absence of close relationships with others outside of the hospital setting is detrimental to recovery (e.g. Nijdam-Jones et al., 2015; Aga et al., 2019). Although quantitative research using a Malaysian population suggested that family support reduced LOS in inpatient FMHS (Fong et al., 2010), quantitative measures of the protective role of social support are sparse. Research examining LOS and inpatient violence in Western populations typically focuses on explanatory factors such as mental health diagnoses, substance use, past violence and treatment compliance (e.g. Andreasson et al., 2014; Viljoen et al., 2011).

The HCR-20 is a validated structured clinical risk assessment tool (Douglas et al., 2013) commonly used in forensic settings (Khiroya et al., 2009). It consists of 'historical', 'clinical' and 'risk' items, rated qualitatively, or on quantitative 3-point scales, pertaining to future risk of violence and has been demonstrated to predict inpatient violence (e.g. O'Shea et al., 2013). The HCR-20 is completed and updated as standard practice in FMHS (Royal College of Psychiatrists (RCP), 2019), typically by clinical psychologists in collaboration with multi-disciplinary teams (MDTs). Whilst historical items are rated statically, clinical and risk items are considered dynamic. As they represent adaptable factors, they can be targeted during the individual's stay in FMHS in order to minimise future risk.

One dynamic risk factor in the most recent HCR-20 version 3 (HCR-20v3), is future 'problems with personal support'. The HCR-20v3 operationalises 'personal support' as regular interpersonal contact with members of one's social network that is believed to be protective of future violence by facilitating social and psychological

adjustment (Douglas et al., 2013). The HCR-20v3 describes indicators of personal support that are problematic as the absence of a social network, social networks including people who have a negative impact on the person, or inaccessible social networks (Douglas et al., 2013). Despite barriers to remaining in contact with one's social network while in FMHS (Bates et al., 2019), around two thirds of service users do remain in contact with family members (Ridley et al., 2014). One study demonstrated that the personal support item predicts inpatient violence in women (O'Shea et al., 2014). However, the predictive power of the personal support item does not have much empirical support. The current study will use the personal support item as a source of information to investigate the relationship between social support and risk incidences of violence and aggression to others as well as self-harm, LOS, and number of inpatient admissions to FMHS.

Furthermore, in order to obtain a better understanding of the types of socially supportive relationships which may have a positive influence on an individual's experiences in FMHS, this research will aim to monitor the presence of specific types of social support from family, peers and intimate partners, mirroring recent research looking at recidivism (e.g. Boman & Mowen, 2017; Mowen & Boman 2019). To date, it does not appear that there has been an empirical investigation of the influence of specific types of social support in the context of FMHS. The present research aims to address this, by assessing whether such types of support are present, and additionally aiming to code the valence of any such socially supportive relationships. This follows recidivism research, wherein scores are given, indicating the quality of an individual's social support as well as its presence (e.g. Spjeldnes et al., 2012; Mowen et al., 2019).

Socially supportive relationships were assessed in the present research using the clinician ratings from the HCR-20. There may be extraneous factors that influence

clinician's perceptions of a service user's personal support. Reviews have found implicit bias regarding ethnicity and gender among healthcare professionals, which can correlate with lower quality of care (Fitzgerald & Hurst, 2017). One such implicit bias that has been demonstrated among the general population is that Black males are more readily associated with weapons, danger and hostility (e.g. Thiem et al., 2019). Furthermore, black men detained in criminal justice settings have been shown to be subject to harsher sanctions (e.g. Papalia et al., 2019) and are more likely to be detained in psychiatric services involuntarily in Western populations (Barnett et al., 2019). As black men are overrepresented in UK forensic services (Vollm et al., 2017), this could indicate that black men are subjected to more scrutiny, which could be extended to perceptions of their social network due to the influence of implicit bias. A recent review of cross-cultural reliability in forensic risk assessments has demonstrated that risk assessments are less predictive of future violence in Non-White individuals (Venner et al., 2021). If someone's personal support is perceived by clinicians to be absent or of low quality, it is less likely that a service user's social network will be incorporated into their care.

Research has also shown that diagnoses of schizophrenia and detention in secure hospital can create more stigmatising attitudes among healthcare professionals (Rao et al., 2009) who may then not follow best practice in incorporating family and other social networks into their treatment plans. These stigmatising attitudes may result in clinicians rating the service user as having fewer protective factors like personal support, and being at a higher risk of (re)offending, on the HCR-20 risk assessment. In this case, it may be less likely that service users will have sources of social support, outside of the hospital setting, involved care plan meetings. For this

reason, the present research sought to understand whether there are differing ratings of social support for service users with different demographics.

Aims

The aim of this research was to evaluate whether personal support received during an individual's stay in hospital predicts positive outcomes for forensic inpatient admissions. The qualitative clinician-ratings of personal support were used to develop measures of both the presence and quality of specific types of personal support. It was intended that this would be a more objective measure of the presence of a positive personally supportive relationship, as described within the qualitative HCR-20v3 text data, given the potential for implicit bias in clinician ratings. This project considers these aims as compatible with the NHS values of Working Together for Patients, Improving Lives and Everyone Counts by taking into account the wider networks of services users' who may be impacted by, as well as impact on service users' and current FMHS.

The specific research questions are detailed below:

a) Does social support, and positive socially supportive relationships (with family, peers or intimate partners), predict less frequent incidences of violence and aggression and self-harm during an individual's admission to FMHS?

b) Is social support, and positive socially supportive relationships, associated with fewer inpatient admissions to FMHS?

c) Is social support, and positive socially supportive relationships, associated with a shorter LOS in hospital during an inpatient admission?

d) Do clinician-rated HCR-20 scores for 'problems with personal support' vary by demographic variables such as gender or ethnicity?

Methods

Data

All data were extracted from an NHS trust database, in which anonymised electronic medical records are held. The catchment area represented in this database was approximately 1.2 million residents of a large metropolitan area, at the time of the following analyses. The database system enabled the anonymised extraction of data from structured and unstructured fields in medical records, correspondence and other assessments using General Architecture for Text Engineering (GATE) software (Cunningham, 2002).

Ethical Approval

In 2008 the database system referred to above and the relevant data contained within it were approved by the Oxfordshire Research Ethics Committee C (reference 08/H0606/71+5) to undertake manual searches and secondary data analysis of pseudonymized clinical information (see Appendix B for details of project approval).

Inclusion Criteria

All data extracted related to service users admitted to the NHS trust's forensic inpatient services from 2008 (when data collection began) to November 2021 (the time of extraction). Service users' HCR-20 records were extracted if they met the following inclusion criteria: HCR-20v3 completed during their admission (including the completion of relevant sections of personal support); completed fields relating to demographic information that were anticipated would be key control variables (e.g. date of birth, ethnicity, legal status, etc).

Additionally, analyses examining LOS excluded those service users who were transferred from hospital to prison or higher-security FMHS. These service

users' LOS would have confounded these analyses, as they might have been short, but would not have been indicative of a positive outcome.

Instruments

The HCR-20v3 is widely used in forensic settings and has been empirically tested in different countries and different settings (Douglas et al., 2014) through tests of interrater reliability, concurrent validity (with previous versions and similar risk assessment tools), predictive validity of risk factors, and summary risk ratings (Douglas et al., 2014). Clinicians are required to undertake HCR-20 training in order to be able to competently complete these risk assessments. HCR-20s are completed within three months of admission, and re-evaluated every six months thereafter (RCP, 2019). The HCR-20s analysed as part of this research were uploaded to the previously mentioned database, onto an individual's clinical record. All aspects of the HCR-20 were available on the database, and were extracted. Some HCR-20s in the database were known to be less complete, therefore affecting the amount of information that was known about particular patients. For this reason, the latest version of a service user's HCR-20v3 that coincided with their inpatient admission was used, so that only the most recent and relevant data was extracted.

Dependent Measures

Risk Incidents

The dependent measures related to risk were the number of incidences of violence and aggression, and the number of incidences of self-harm. These data were extracted from the database that held information regarding risk events, and a label of the type of risk event was described for each incident. Dates were provided for each incident. A frequency count was completed for risk events described as 'violence and aggression' or 'self-harm and suicide'. Afterward, a rate calculation was completed in

which the total number of days during the single admission in question was divided by the total number of risk incidents. The rate was calculated in this way, as the data for each service user would be portrayed as the number of days in hospital per incident. This was considered be more meaningful than having a range of potentially very small figures between 0 and 1 by dividing the number of days by the number of incidents. Separate, identical, calculations were performed for incidences of inpatient violence and self-harm.

Number of Admissions

The total number of admissions was calculated by a frequency count of individual inpatient admissions.

LOS

The LOS dependent measure was defined as the total number of days in hospital, calculated in relation to the most recent inpatient episode of each case for which there was a completed HCR-20v3. An inpatient episode was defined as an admission to hospital whereafter the individual was discharged to the community or a step-down service. Once the most recent inpatient episode was identified, the LOS was calculated by working out the total number of days between the admission and discharge dates.

Clinician Ratings

Quantitative clinician ratings of personal support acted as ordinal-level variables, with a '2' acting as the least favourable rating, and '0' acting as the most favourable rating of personal support, taken from the 3-point rating scales in the HCR-20v3.

Independent Measures

Ratings of personal support were calculated by using content analyses as a way of interpreting the level and type of social support received whilst in FMHS (Hsish & Shannon, 2005). The categories which data were coded into were derived from existing reoffending literature investigating the role of social support using different categories of family, peer and intimate partner support (e.g. Mowen & Boman, 2019; Boman & Mowen, 2017). Categories were then solidified by reading examples of HCR-20v3 personal support risk items in order to see if the data available would fit such categories, and to see whether there was scope to enhance these categories by providing extra information regarding the quality of one's personal support. Based off of the sample, the lead researcher decided to create separate categories for the presence of personal support, as well as the presence of positive personal support.

The qualitative component of each person's HCR-20v3 personal support risk item was therefore coded into six binary variables using '1' to represent 'yes' and '0' to represent 'no'. The binary variables represented the presence or absence of a type of support. These were: family, peer and intimate partner support, as well as positive family, peer and intimate partner support. The aim of coding these types of personal support as a binary variable was to increase objectivity by leaving less room for interpretation. A sample of data was coded by the author and a second researcher, and assessed for inter-rater reliability, to evaluate whether personal support and positive personal support binary variables were coded the same by two different raters, demonstrating high inter-rater reliability (Appendix C).

Family Support

Family support was defined as present if the qualitative text data indicated that there was face-to-face or telephone contact with family members within the current review period as recorded in the HCR-20. The second binary variable was whether any positive form of family support was present. Positive family support was coded as present if there was an indication that the individual received on-going emotional or instrumental support from a family member, or if contact with a family member appeared to have a positive effect on a person's mood or mental state as described by the clinician. Family support was also rated as positive if family members were currently in contact with the MDT or attended clinical meetings and appeared to be advocating in the best interests of the service user, as described by the clinician. For cases where there appeared to be a mixture of positive support received as well as neutral and negative or coercive support received, positive family support was still coded as present as there remained a presence of a supportive family relationship.

Peer Support

Peer support was defined as present if the qualitative text data indicated that there was face-to-face or telephone contact with friends or associates from the community. Positive peer support was defined as present if the qualitative text data included reference to a peer providing some form of emotional or instrumental support in the current review period, or if on-going contact with a peer appeared to have a positive effect on a person's mood or mental state as described by the clinician.

Intimate Partner Support

Intimate partner support was defined as present if the qualitative text data indicated that there was face-to-face or telephone contact with a person that was described as an intimate partner, such as a girlfriend/boyfriend or a husband/wife/civil

partner. Positive intimate partner support was defined as present if the qualitative text data indicated that under the current review period an intimate partner had provided some form of emotional or instrumental support, or had any contact which the service user had reported having a positive impact on their mood or mental state.

Control Variables

To control for the importance of mental health conditions, binary variables were created for whether each person had a diagnosis of a mood disorder, a psychotic disorder, a personality disorder, or a substance use disorder and added to all analyses as control variables. Additional, demographic variables of ethnicity, gender, and age were also included as control variables. Gender was coded as a binary variable, and age as a continuous variable, calculated by the time (in years) between date of birth and date of the most recent admission in which a HCR-20 was completed. For ethnicity, this was recoded as a binary variable in keeping with existing recidivism literature (e.g. Mowen & Boman, 2019), with individuals classified as 'White' and 'Non-White'. Although the experiences of Non-White groups were not presumed to be homogenous, it is suggestive that there would be differences in experiences of White and Non-White groups in Western settings (e.g. Misra et al., 2021). The final control variable used was a binary variable as to whether the service user was on a civil (sectioned under the MHA (2007) with no restrictions placed upon them by the Ministry of Justice [MoJ) or a criminal (being ordered by the court to be detained for treatment in hospital instead of received a prison sentence, with restrictions placed on them by the MoJ) section.

Missing Data

As data was entered for clinical purposes, and not for research purposes, missing data was expected. Missing data within large non-clinical data sets has been

demonstrated to be random, without key predictors of particular patterns of missing data (e.g. Boman & Mowen, 2018). As part of a strategy to analyse data with as much clinical validity as possible, cases with missing data in key areas of interest (e.g. for data relevant to the independent or dependent variables or key control variables) were excluded from the study. There were minimal missing data for the HCR-20v3 and the demographic variables included in the analyses. Any missing data found was suspected to be due to error only, or to do with individuals not remaining in hospital for long enough for staff to have documented information regarding demographics and HCR-20v3 outcomes.

Analytical Strategy

Data were first downloaded to Microsoft Excel where each variable was cleaned and recoded. Once this process had been completed, data were uploaded into SPSS statistical software version 27 (IBM Corp., 2020).

Risk Incidents

For the analyses regarding risk incidents, binary variables were created to identify whether an individual has been reported to have at least one risk incident during admission (1=yes, 0=no). A binary logistic regression was used to identify whether there was a relationship between personal support and the occurrence of risk incidents. Binary regression models account for relationships being non-linear (Pituch & Stevens, 2016) which in this case the probabilities were bounded by 0 and 1.

In separate analyses, negative binomial regression analyses were used. Negative binomial regression models, like Poisson models, measure outcome variables as count data. Negative binomial models can also be used for data which measures the rate of occurrence of some phenomenon, for example these can be used for measuring the count of events divided by the unit measure of exposure. In this

case, the number of risk incidents was divided into the total number of days of admission. Moreover, Poisson regression models assume that variance is similar to the mean. When variance is far greater than the mean, however, and this cannot be explained solely by outliers in the data, then the model has overdispersion. For the risk incident variables, overdispersion was present, therefore negative binomial models were used to investigate whether personal support predicted the rate of inpatient violence and self-harm. Analyses included all identified control variables.

Number of Admissions

A Poisson regression model was used to for analyses regarding the number of admissions. Poisson variables are count variables which are measured in the context of a period of time or observation. Poisson distributions can be used even when outliers are present, (Payne et al., 2018) which was the case for data obtained for this study regarding the count data for the number of admissions. In this case, personal support presence and positive personal support presence were measured to investigate their effect on the total number of admissions to date.

LOS

Cox regression models were used to investigate whether the presence of the six types of personal support were predictive of LOS. Cox regression models are a type of survival modelling analysis, which in this case provided a framework for censoring the impact of multiple variables on lengths of time elapsed (Allison, 2004). Survival analyses are methods for exploring the distribution of time between events. In this case, the Cox regression model was used to model time from an individual's inpatient admission until discharge.

Clinician Ratings

Finally, for the analysis that investigated whether clinician-ratings of personal support differed between individuals of different demographics, ordinal logistic regression models were used to explore whether a person's ratings of personal support differentiated by gender and ethnicity. Ordinal logistic regression models were used as they are preferable to other regression models when considering dependent variables that are ranked in order (Osbourne, 2015). In this case, personal support item ratings were ranked in relation to how much the personal support item is deemed a risk factor for future violence. HCR-20v3 quantitative ratings of presence and relevance of support were used as dependent measures of clinician ratings of personal support. Broad ethnicity categories used in the analysis included White British; White Other; Black; Asian; Mixed Race and Other, in order to explore more meaningfully differences between ethnicities, rather than using the binary control variable of White and Non-White.

Results

The mean age of the sample was 38.4 (SD=11.6). Table 1 demonstrates the remaining descriptive data for the sample, including the sub-sample of individuals within each demographic group who were coded as having personal support during their admission.

Table 1

Descriptive Data for Sample

Baseline Characteristics	Total *n* (% of overall sample)	Family Support	Positive Family Support	Intimate Partner Support	Positive Intimate Partner Support	Peer Support	Positive Peer Support
Total Sample	330 (100%)	273 (82.7%)	164 (49.7%)	45 (13.6%)	17 (5.2%)	118 (35.8%)	29 (8.8%)
Male	291 (88.2%)	244 (83.8%)	145 (49.8%)	35 (12.0%)	14 (4.8%)	104 (35.7%)	22 (7.6%)
Female	39 (11.8%)	29 (74.4%)	19 (48.7%)	10 (25.6%)	3 (7.7%)	14 (35.9%)	7 (17.9%)
Not Married	322 (97.6%)	266 (82.6%)	158 (49.1%)	38 (11.8%)	14 (4.3%)	116 (36.0%)	28 (8.7%)
Married	8 (2.4%)	7 (87.5%)	6 (75.0%)	7 (87.5%)	3 (37.5%)	2 (25.0%)	1 (12.5%)
White British	96 (29.1%)	76 (80.9%)	47 (50.0%)	16 (17.0%)	7 (7.4%)	38 (40.4%)	11 (11.7%)
White Other	18 (5.5%)	16 (80.0%)	8 (40.0%	1 (5.0%)	1 (5.0%)	6 (30.0%)	1 (5.0%)
Black	185 (56.1%)	155 (83.8%)	93 (50.3%)	21 (11.4%)	7 (3.8%)	64 (34.6%)	17 (9.2%)
Asian	14 (4.2%)	9 (64.3%)	8 (57.1%)	4 (28.6%)	1 (7.1%)	5 (35.7%)	0 (0.0%)
Mixed Race	15 (4.5%)	15 (100%)	7 (46.7%)	3 (20.0%)	1 (6.7%)	4 (26.7%)	0 (0.0%)
Other	2 (0.6%)	2 (100%)	1 (50%)	0 (0.0%)	0 (0.0%)	1 (50.0%)	0 (0.0%)
Civil Section	87 (26.4%)	78 (89.7%)	42 (48.3%)	6 (6.9%)	2 (2.3%)	25 (28.7%)	4 (4.6%)
Criminal Section	243 (73.6%)	195 (80.2%)	122 (50.2%)	39 (16.0%)	15 (6.2%)	94 (38.7%)	25 (10.3%)
Mood Disorder	67 (20.3%)	58 (86.6%)	34 (50.7%)	11 (16.4%)	4 (6.0%)	22 (32.8%)	5 (7.5%)
Psychotic Disorder	246 (74.5%)	204 (82.9%)	121 (49.2%)	33 (13.4%)	13 (5.3%)	84 (34.1%)	22 (8.9%)
Personality Disorder	60 (18.2%)	48 (80.0%)	29 (48.3%)	11 (18.3%)	4 (6.7%)	25 (41.7%)	5 (8.3%)
Substance Use Disorder	38 (11.5%)	27 (71.1%)	17 (44.7%)	5 (13.2%)	3 (7.9%)	15 (39.5%)	4 (10.5%)

Risk Incidents During Admission

To investigate if personal support was associated with whether or not someone had been reported to have engaged in a risk incident, binary logistic regression models were used. 70.3% (N=232) of the sample were reported to have engaged in at least one incident of violence and aggression. As Table 2 demonstrates, the presence of family support is a significant predictor of whether an individual will engage in an

incident of violence and aggression during an inpatient episode, indicating that where family are present the likelihood of an incident of inpatient violence increases by approximately 116% compared to the absence of family support. Contrastingly, the presence of positive family support during admission is significantly associated with a decreased likelihood of engaging in a violent or aggressive incident, decreasing the likelihood of inpatient violence by approximately 56.3%. No other personal support variables were significant predictors in this model.

Table 2

Relationship between Personal Support and Likelihood of Violence and Aggression

Variable	Coefficient	Standard Error	Exp(B)	Lower WCI	Upper WCI	p-value
Constant	1.566	.752	4.786			.037
Age	-.011	.011	.989	.967	1.1011	.317
Mood Disorder	.034	.317	1.034	.555	1.927	.915
Psychotic Disorder	-.509	.339	.601	.309	1.167	.132
Personality Disorder	-.001	.377	.999	.477	2.091	.998
Substance Use Disorder	.165	.407	1.179	.531	2.616	.686
Female	-.180	.390	.836	.389	1.794	.645
Non-White	.398	.268	1.489	.881	2.517	.137
Criminal Section	-.549	.314	.578	.312	1.069	.080
Family Presence	.770*	.392	2.160	1.003	4.653	.049
Positive Family Presence	-.827**	.309	.437	.239	.801	.007
Intimate Partner Presence	.543	.498	1.721	.649	4.567	.276
Positive Intimate Partner Presence	-6.18	.696	.539	.138	2.111	.375
Peer Presence	.158	.298	1.171	.654	2.099	.595
Positive Peer Presence	-.113	.487	.894	.344	2.321	.817

Note: Exp(B)=Incident Rate Ratio; WCI=95% Wald Confidence Interval; *p<.05, **p<.01, ***p.<.001

20.9% (N=69) of the sample were reported to have engaged in at least one episode of self-harm during admission. As Table 3 demonstrates, the presence of personal support was not associated with whether an individual was reported to have any incidents of self-harm. Table 3 demonstrates that being male, as well as being identified as being of Non-White ethnicity were found to be significant predictors of the occurrence of an incident of self-harm.

Table 3

Relationship between Personal Support and Likelihood of Self-Harm

Variable	Coefficient	Standard Error	Exp(B)	Lower WCI	Upper WCI	p-value
Constant	-1.356	.874	.258			.121
Age	-.004	.013	.996	.971	1.021	1.021
Mood Disorder	.027	.360	1.028	.507	2.083	.939
Psychotic Disorder	.210	.374	1.234	.593	2.568	.574
Personality Disorder	.374	.396	1.453	.669	3.156	.345
Substance Use Disorder	.065	.438	1.068	.453	2.517	.881
Female	.871*	.401	2.388	1.089	5.239	.030
Non-White	-1.070***	.294	.343	.193	.610	<.001
Criminal Section	.079	.345	1.083	.551	2.127	.818
Family Presence	.368	.462	1.445	.585	3.572	.425
Positive Family Presence	.100	.323	1.105	.587	2.079	.757
Intimate Partner Presence	-.089	.515	.915	.334	2.512	.863
Positive Intimate Partner Presence	.028	.768	1.028	.228	4.634	.971
Peer Presence	.217	.321	1.242	.662	2.329	.499
Positive Peer Presence	-.414	.560	.661	.220	1.981	.460

Note: Exp(B)=Incident Rate Ratio; WCI=95% Wald Confidence Interval; *p<.05, **p<.01, ***p.<.001

Zero-inflation negative binomial regression models were used to explore the effects of personal support on the overall number of risk incidents of violence and aggression, and involving self-harm. Zero-inflation models account for the number of zeros in the data, where zeros represented individuals who had not been reported to have engaged in a risk incident of either type. The Akaike Information Criterion (AIC) was smaller in the zero-inflated negative binomial model than in the negative binomial model, indicating better model fit and therefore greater reliability of the relationship between the variables (Green, 2021).

As Table 4 demonstrates, only the presence of positive family support was significantly associated with the overall number of risk incidents of violence and aggression. That is, the presence of positive family support was found to decrease the number of risk incidents of inpatient violence during admission. Said differently, the

presence of positive family support was found to increase the number of days before

an incident of violence occurred. No variables of personal support were found to be

predictive of the overall number of incidents of self-harm. However, being female

was found to significantly decrease the rate of self-harm incidents, and being

identified as Non-White in comparison to White ethnicity was found to increase the

rate of self-harm incidents.

Table 4

Impact of Personal Support on Number of Risk Incidents

Variable	Estimate for V&A	SE for V&A	p-value	Estimate for Self-Harm	SE for Self-Harm	p-value
(Intercept)	-1.566*	.763	.040	1.356	.876	.122
Family Presence	-.770	.398	.053	-.368	.462	.425
Positive Family Presence	.827**	.317	.009	-.100	.323	.747
Intimate Partner Presence	-.543	.505	.282	.089	.517	.864
Positive Intimate Partner Presence	.618	.705	.381	-.028	.770	.971
Peer Presence	-.158	.303	.602	-.217	.321	.500
Positive Peer Presence	.113	.493	.820	.414	.561	.460
Mood Disorder	-.034	.323	.916	-.027	.362	.940
Psychotic Disorder	.509	.343	.137	-.210	.375	.574
Personality Disorder	.001	.383	.998	-.374	.397	.346
Substance Use Disorder	-.165	.412	.690	-.065	.439	.882
Age	.011	.011	.328	.004	.013	.753
Female	.180	.398	.652	-.871*	.403	.031
Non-White	-.398	.271	.142	1.070***	.295	<.001
Criminal Section	.549	.323	.089	-.079	.346	.818

Note: *p<.05, **p<.01, ***p.<.001; SE=Standard Error; V&A=Violence & Aggression

Number of Admissions

A Poisson regression model was used to examine the effects of personal

support on the total number of admissions to inpatient FMHS. An omnibus test

demonstrated that the full predictor model represented a statistically significant

improvement of fit (p=<.001), therefore the null hypothesis (that personal support has

no impact on the number of admissions to inpatient FMHS) could be rejected. The

mean number of admissions for the sample was 4.32 (SD=4.25). As demonstrated in

Table 5, family presence had a significant negative association with the total number

of admissions. That is, the presence of family support resulted in approximately a

39.3% chance of having a higher number of admissions compared to the absence of

family support. Contrastingly, the presence of positive family support had a

significant protective effect and an approximately 12.7% reduction in the total number

of admissions. Positive intimate partner presence was also significantly protective and

reduced the overall number of admissions by a rate of 66.6%.

As for the control variables, having the diagnosis of a psychotic disorder,

being female, being identified as Non-White in comparison to White ethnicity, and

being on a civil rather than criminal section were significantly predictive of a greater

number of admissions to hospital.

Table 5

Relationship between Personal Support and Number of Admissions

Variable	Coefficient	Standard Error	Exp(B)	Lower WCI	Upper WCI	p-value	EM (absence of PS)
(Intercept)	.831***	.179	2.295	1.616	3.261	.753	
Age	.003	.002	1.003	.998	1.008	.209	
Mood Disorder	.052	.065	1.053	.928	1.195	.421	
Psychotic Disorder	.441***	.083	1.555	1.323	1.828	<.001	
Personality Disorder	-.024	.085	.976	.826	1.154	.778	
Substance Use Disorder	.025	.087	1.025	.864	1.217	.774	
Female	.466***	.073	1.594	1.382	1.838	<.001	
Non-White	.295***	.063	1.344	1.188	1.520	<.001	
Criminal Section	-.439***	.057	.644	.576	.721	<.001	
Family Presence	.332***	.089	1.393	1.171	1.657	<.001	2.53 (1.82)
Positive Family Presence	-.136*	.059	.873	.779	.979	.020	2.01 (2.30)
Intimate Partner Presence	.100	.093	1.105	.921	1.325	.284	2.26 (2.04)
Positive Intimate Partner Presence	-.931***	.206	.394	.263	.590	<.001	1.35 (3.42)
Peer Presence	-.054	.063	.948	.838	1.072	.394	2.09 (2.20)
Positive Peer Presence	-.224	.120	.799	.632	1.011	.061	1.92 (2.40)

Note: Exp(B)=Incident Rate Ratio; WCI=95% Wald Confidence Interval; EM=Estimated Marginal Mean; PS=Personal Support; *p<.05, **p<.01, ***p.<.001

LOS

A Cox regression was used to investigate the relationship between personal support and LOS. 229 individuals in the sample were included in the LOS analysis, as their admission led to being discharged to the community or step-down care. The omnibus test of model coefficients found that the full predictor model represented a statistically significant improvement of fit over the null model (where our predictor variables have no association with LOS) (p=<.001). Table 6 demonstrates that only the presence of intimate partner support was significantly associated with LOS. The presence of positive intimate partner support during hospital stay was found to reduce

the number of days in hospital by approximately 257.9% compared to those without

positive intimate partner support.

Of the control variables included in the model, only being on a civil section as

compared to a criminal section was found to be significantly associated with a shorter

LOS, as expected given the nature of the restrictions imposed upon individuals under

a criminal section.

Table 6

Relationship between Personal Support and LOS

Variable	Coefficient	SE	Wald	Exp(B)	Lower WCI	Upper WCI	p-value
Family Presence	.073	.215	.114	1.075	.705	1.640	.736
Positive Family Presence	.027	.162	.029	1.028	.748	1.412	.866
Intimate Partner Presence	.169	.225	.439	1.184	.719	1.950	.508
Positive Intimate Partner Presence	.947*	.388	5.971	2.579	1.206	5.513	.015
Peer Presence	.019	.159	.014	1.019	.746	1.393	.905
Positive Peer Presence	-.208	.284	.532	.813	.465	1.419	.466
Mood Disorder	.229	.166	1.897	1.257	.908	1.740	.168
Psychotic Disorder	.306	.210	2.115	1.357	.899	2.049	.146
Personality Disorder	.048	.202	.057	1.049	.706	1.559	.812
Substance Use Disorder	.156	.218	.515	1.169	.763	1.791	.473
Age	-.006	.007	.851	.994	.981	1.007	.356
Female	.206	.228	.818	1.229	.786	1.921	.366
Non-White	.034	.151	.052	1.035	.770	1.392	.820
Criminal Section	-1.154***	.169	46.469	.315	.226	.440	<.001

Note: Exp(B)=Incident Rate Ratio; SE=Standard Error; WCI=95% Wald Confidence Interval; *p<.05, **p<.01, ***p.<.001

Clinician Ratings

To explore whether demographic variables were associated with variations in

clinician ratings of the HCR-20v3 personal support item, ordinal logistic regression

models were imputed. Table 7 demonstrates the regression coefficients for both the

personal support item scores for 'Presence' and 'Relevance' which were ranked from

'0' to '2', with '2' being the least desirable score, for example indicating the absence of or the negative impact of personal support. An omnibus test showed that the regression models for both ratings of Presence ($X^2(6)=1.840$, p=.934) and Relevance ($X^2(6)=3.152$, p=.790) were non-significant, therefore the models did not show greater goodness-of-fit than the null models in which clinician ratings did not differ by demographics of race and gender. 'White British' ethnicity was used as a reference category in the models when exploring the associations between ethnicity categories, as it was expected that based on the literature, implicit bias would be least likely present towards individuals of White British ethnicity, as compared to White minority groups as well as people of other ethnicities. No variables were significantly associated with personal support item ratings.

Table 7

Relationship between Gender, Ethnicity and Clinician Ratings of Personal Support

Demographic	Presence			Relevance		
	Coefficient	Standard Error	Wald Chi-Square	Coefficient	Standard Error	Wald Chi-Square
Female	.242	.331	.534	-.087	.336	.066
White British						
White Other	-.030	.462	.106	.344	.491	.491
Black	-.145	.243	.354	-.047	.245	.849
Asian	.336	.555	.545	.540	.583	.860
Mixed Race	-.196	.518	.143	.642	.576	1.245
'Other' Race	.487	1.351	.130	.155	1.313	.014

Discussion

The primary aims of this research were to identify whether the presence of personal support received in hospital had protective effects on objective outcomes of individuals' inpatient admissions to forensic mental health services (FMHS). Conducting secondary data analyses using case records from the NHS, this research has achieved these aims in several ways.

Risk Incidents

Regarding risk incidents reported during inpatient stay, the presence of positive family support, that is, positive support received from at least one family member during admission, was significantly associated with a reduced likelihood of an individual having engaged in an episode of violence and aggression, and having fewer overall incidents of violence and aggression. This supports previous research which demonstrated that clinician-ratings for the personal support item of the HCR-20 predicted inpatient violence in women (O'Shea, 2014), as well as research suggesting that positive family support can counteract risk of violence through fostering feelings of warmth, and instilling positive self-affirmations (Labella & Masten, 2018). This is also supported by research suggesting that the absence of affirming relationships during inpatient FMHS admission can perpetuate feelings of sadness and frustration (Nidjam-Jones et al., 2015). In a forensic population, this could manifest as externalised expressions of violence and aggression, rather manifesting as an internalised expression through an episode of self-harm. Therefore, this may, in part, explain why positive family support was predictive of violence and aggression but not self-harm.

Contrastingly, the presence of family support, and not the absence of support, was associated with an individual engaging in at least one episode of violence and aggression. It can be hypothesised that the absence of positively rated support with the presence of family support meant that such feelings of warmth, and other positive self-affirmations that are associated with reduced violence, were not fostered, therefore such contact with family members was not protective. This finding can also in part be explained through the idea that interactions with significant others could in fact have a coercive impact, such as normalising violence (Colvin et al., 2002), or that

negative interactions with family members could foster negative feelings such as rejection or a lack of warmth (Hirschi, 1969), both of which could lead to greater incidents of violence. Research also demonstrates that positive family support can help to prevent relapses in people who experience psychosis, in comparison to negative family interactions being a risk factor for relapse (Camacho-Gomez & Castellvi, 2020). This could also possibly have an impact on violent behaviour in hospital, particularly if an individual perceives others, including staff, to be a threat (Muskett, 2014).

Intimate partner support and peer support did not appear to be significantly associated with reduced violence and self-harm during inpatient admission. There is some prior research which suggests that visits from friends did not have a positive impact upon incidents of violence within inpatient admission (Belfrage et al., 2000). The absence of a finding that positive intimate partner support had protective effects on incidents of violence and self-harm could be in part explained by the restrictive context of interactions within inpatient FMHS. Service users may not have opportunities for face-to-face contact, for example, and the positive emotions that positive intimate partner support may instil may not have the opportunity to manifest themselves during day-to-day living in the hospital, where reported incidents of violence and self-harm would have manifested. Ultimately, the barriers to receiving support such as perceived stigma and shame (Livingston et al., 2011), as well as reduced contact and increased reliance on virtual communication given the restrictive setting of FMHS hospitals, could explain why peer and intimate partner support were not significantly associated with reduced violence and self-harm.

Number of Admissions and LOS

Similar to the findings regarding incidences of inpatient violence, positive family support was associated with having fewer admissions to hospital, even when controlling for age and other demographic variables. Although there is little research that demonstrates the impact of positive family support on the number of admissions to inpatient FMHS, some research on offending has demonstrated that family support is predictive of reduced reincarceration rates (e.g. Mowen et al., 2019; Spjeldnes et al., 2012) and reduced readmissions to psychiatric inpatient services (Suzuki et al., 2003).

In keeping with the findings for inpatient violence, the presence of family support, but not positive family support, was associated with a greater number of inpatient FMHS admissions. It is possible that experiencing family support as negative or coercive could be detrimental to one's mental health and well-being on return into the community, leading to a greater likelihood of future admissions to hospital. There is research to suggest that individuals returning to the community from inpatient psychiatric services are more likely to be readmitted to hospital if their family functioning is described as maladaptive (Mercer et al., 1999) or returning individuals feel criticised or rejected by family members (Sullivan et al., 1995). It is also possible that support from family members that are more actively involved in one's care could help facilitate and promote engagement in community activities, which has been linked with fewer admissions to FMHS (Viljoen et al., 2011).

The presence of positive intimate partner support was also associated with fewer overall admissions to inpatient FMHS, as well as significantly predict a reduced length of stay (LOS) in hospital. This finding is supported by literature which demonstrated that marriage and intimate partner support could have protective effects

on an individual's mental health and well-being (Coombs, 1991) and desistance research which demonstrated protective effects of marriage on recidivism (Sampson & Laub, 1990). The presence of positive intimate partner support, rather than the presence of intimate partner support of any valence, having protective effects on FMHS admissions, begs the question as to what the elements of a positively supportive intimate partner relationship are. Recent qualitative research with service users who experienced psychosis described romantic relationships in which one's partner provides greater emotional support, offers validation regarding one's self-worth and self-esteem, and where there is mutual trust, as having a positive impact on well-being (White et al., 2021). Intimate partner relationships that were not considered supportive were ones where stigmatising attitudes were held by the partner regarding psychosis, leading to the subsequent perception by the service user of being 'undesirable', due to experiencing mental health difficulties (White et al., 2021).

The presence of peer support from the community was found not to significantly associated with the total number of admissions to FMHS, LOS nor risk incidents during admission. There are a number of possible explanations. Firstly, it is possible that the restrictive nature of FMHS meant that service users were not able to keep up close contact with peers in the community, which includes a lack of access to communication devices. Secondly, service users on criminal sections may have to wait for long periods of time before being permitted to have escorted or unescorted leave from hospital, which could be to the detriment of keeping up peer relationships in the community. Thirdly, many service users may have either cut ties or have reduced contact with peers where coercive relationships were present which might have otherwise increased their risk of offending, LOS or readmission to FMHS (Sijtsema, 2022).

Moreover, it is possible that service users may not disclose peer relationships in the community which they may perceive the clinical team to have negative opinions of (Drennan, 2021). There is evidence that more formal peer support programmes in which an individual is assigned a peer mentor have been found to reduce the number of readmissions to psychiatric hospital (e.g. Sledge et al., 2011), as well as reduce recidivism in a sample of individuals released from prison (e.g. Duwe & Johnson, 2016). This, as well as the finding that positive peer support approached significance for reducing the number of admissions to FMHS, suggests that positive peer support, or formalised peer support, may have a protective role.

Clinician Ratings

No significant differences were found between categories of gender and ethnicity regarding clinician ratings of personal support, contrary to literature suggesting that implicit bias may play a role in FMHS given the social intersections of incarceration, mental health and race (West et al., 2014). Nevertheless, the findings suggested that there were effects of marginalisation in regard to FMHS admissions.

Firstly, being from a Non-White background was significantly associated with a greater number of admissions to FMHS. Reasons may include, on the one hand, people from Non-White backgrounds being less likely to seek support for mental health difficulties (Clement et al., 2015). This could be due to high levels of public stigma as well as self-stigma in service users from Non-White backgrounds (Misra et al., 2021), with family stigma being particularly prevalent in regard to psychosis (Loch, 2012). Diagnoses of psychosis were associated with a higher number of admissions in this study, supporting this idea. On the other hand, mental health services may be less equipped to support people from Non-White backgrounds, which may be reflected by the over-representation of people from Non-White backgrounds

detained in hospital (Cummins, 2018), and their under-representation among those offered psychological therapy in the community (Germain & Yong, 2020). Services being unable to address the emotional needs of those from non-White backgrounds could be in part the reason for non-White ethnicity being significantly associated with incidences of self-harm during admission in this study.

Implications

The clinical implications regarding the findings of this research are mainly around the unmet need for family intervention services in FMHS, as well as the unmet need within FMHS to facilitate family and intimate partner contact for service users during their admission. There is research to suggest that few FMHS offer formal family intervention services (Gatherer et al., 2020). Reasons for this include the limited time and resources of FMHS, a lack of trained staff, and geographical distances of families from the hospital (Davies et al., 2014). Other barriers include family members being a victim of the service user's index offence (Absalom et al., 2010). FMHS offering outreach to socially supportive community ties of service users could have wider benefits of reducing stigmatising attitudes towards forensic mental health (Absalom-Hornby et al., 2012), as well as instil greater perceptions of hope and belonging in FMHS service users (Aga et al., 2019). The nature of the social support in the community of forensic services users is likely to be restricted (Barksy & West, 2007), therefore offering formal support to families and key relationships of service users is imperative in order capitalise on the potential protective benefits indicated both in this project as well as in the wider literature. Formal peer support programmes could be a way to build the bridge between professional and peer relationships, in which the shared experiences of peer mentors could enable positive socially

supportive relationships in which greater understanding is present (Adams & Lincoln, 2020).

As this is the first project known to the author which has investigated the role of different forms of social support in a FMHS context, more research is needed into the protective benefits of family, peer and intimate partner support and objective outcomes of FMHS. Furthermore, recent recidivism literature (e.g. Mowen et al., 2019), has differentiated between emotional and instrumental social support, and replicating this in a FMHS context could have the benefits of demonstrating which mechanisms of social support would be most beneficial to service users. Such research could inform work within FMHS to help families and other individuals from one's network support service users in the most meaningful way. This is especially important given the finding that the mere presence of family support (which included that which was not rated as positive) was actually predictive of a greater number of admissions to hospital and more incidents of violence and aggression. Therefore, facilitating positive interactions and offering more support to families would be advantageous for service users, their families, as well as other staff and service users on the wards, not to mention implications for public safety, economic costs and overall community well-being.

Limitations

A confounding factor that was not controlled for in this project was service users' therapeutic engagement, for example with psychological therapy or other programmes which could have facilitated greater levels of peer support within hospital, which could have protective effects on our objective measures of recovery. This project also did not control for the seriousness of index offences, that is, the primary conviction for those individuals who had been convicted of a crime.

Therefore, we did not take into account whether someone within the service users'

social network was a victim of the index offence, which could have provided barriers

to service users receiving support or maintaining personally supportive relationships.

This project also did not take into account the potential differences between

individuals who were excluded from the LOS analysis, who were transferred back to

prison or higher secure services. This may be a unique group with different

characteristics, which may in turn effect socially supportive relationships. Moreover,

due to the nature of the secondary data analyses used, this project relied on data

extracted from archival NHS care records. Missing data were present, for example

particularly in regards to demographic variables of religion and sexuality, which

meant that such variables were not included in our analyses. It is possible that social

networks from different religious backgrounds for example could have barriers rooted

in religious beliefs, or have increased stigma to showing support for individuals who

may have committed serious crimes or who are detained in forensic inpatient settings

(Glorney et al., 2019). It is also possible that the social networks of some people of

minority sexual orientations being impacted by other factors such as stigma and other

prejudices (Arlee et al., 2019).

Moreover, a key limitation to this project is that data were analysed cross-

sectionally, and not longitudinally. Measures of support were not necessarily taken

before outcomes of risk incidents and overall number of admissions were known,

therefore there is a chance that personal support relationships had changed before and

after FMHS admissions or risk incidents had occurred, and some service user's family

relationships may have improved or deteriorated during their admission. However,

personal support during inpatient FMHS admissions have been shown to be stable

over time (Olsson et al., 2013), and the presence of positive family and intimate

partner support in this case was associated with fewer overall admissions to hospital, which could be indicative of the stability of such support over time. Ultimately, cross-sectional analyses are inherently not implicative of causation, and that engagement in risk incidents and having mental health difficulties requiring admissions to FMHS can be predictive of poor social support, as well as be predicted by poor social support.

Furthermore, the multitude of barriers to FMHS being able to perform outreach to families and facilitate supportive family engagement (Foster & Bates, 2019) could mean that it is less likely that the positive support recorded in this project could be attributable to outreach from staff resulting in positive changes during admission.

Regardless of inter-rater reliability regarding the coding of personal support variables, the subjective nature of coding qualitative data into quantitative measures runs the risk of researcher bias and differences in interpretation. For this reason, we attempted to minimise this by being as objective as possible with our methods of coding, for example coding positive personal support as present if at least one personal support relationship was described as positive, rather than coding positive support as present if the 'majority' of support they received was positive (as majority is a more subjective concept).

Conclusion

This research indicates that social support, particularly supportive family and intimate partner relationships, can be a protective factor for users of FMHS. Given the identified unmet need for FMHS to promote family and carer support (Foster & Bates, 2019), there should be consideration given to how services could promote and facilitate interactions with supportive significant others in the community during hospital admission. The promotion of such support could also reduce barriers to social

network involvement such as stigma regarding forensic mental health. This could lead

to more positive outcomes for both service users and their wider social networks.

Ultimately, this research supports the notion that feeling connected to others is a

fundamental process (Clarke et al., 2016) in an individual's recovery journey in

FMHS.

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Appendices

Appendix A: Summary of CASP Findings

CASP Checklist Questions		Mowen et al (2019)	Kras (2019)	Jacoby et al (1997)	Atkin-Plunk et al (2018)	Mowen & Boman (2019)	Berg & Huebner (2011)
A: Are the results of the study valid?	Did the study address a clearly focussed issue? The population studied/risk factors/clear whether study tried to detect a beneficial or harmful effect/outcomes considered	Yes Attempted to explore which types of family support have benefits for different outcomes in ex-prisoners including recidivism.	Yes Explored whether different forms of social support reduced risk of recidivism in a sex offender population.	Yes Explored whether different types of personal support had positive outcomes including recidivism on ex-prisoners who had been defined as having mental health difficulties.	Yes Investigated in a prison population whether the quality of prior relationships and prison visitation had a beneficial effect on later recidivism.	Yes Attempted to detect a beneficial or harmful effect of family and peer support and coercion on recidivism.	Yes Investigated whether strong familial ties have a direct negative effect on recidivism, and whether this relationship is mediated by effects of employment.
	Was the cohort recruited in an acceptable way? Look for selection bias. Was cohort representative of defined population? Something special about cohort? Was everybody included who	Yes Data taken from SVORI. Only included male sample because small sample of youth/women and high rate of attrition. Used all available data. Cohort representative of	Yes Data taken from larger dataset. Non-probability quota sampling to obtain equal number of respondents from each location. Had to be on probation, parole or prison	Can't tell Selection bias – relied on prison staff identifying prisoners that appeared 'severely mentally ill' or who were currently in MH treatment	Can't tell Convenience sample of inmates taken who were awaiting standard intake processing. Possible selection bias in that those who were willing to agree in paper and pencil survey when first arrived	Yes Used 4 waves of SVORI longitudinal data collected in 4 waves face-to-face and computer-assisted interviews. Used all available data relevant for study.	Yes Took a random sample of 401 males paroled from prisons in a single Midwestern state.

	should have been? Yes/no/can't tell	defined population.	for a sex offence.		to prison.		
	Was the exposure accurately measured to minimise bias? Look for classification bias. Subjective/objective measurements? Do measurements reflect what you want them to (validated?) were all subjects classified into exposure groups using same procedure?	Yes Subjective measurement, questions reporting support rated on Likert scales. However, used orthogonal varimax rotated factor analysis to produce separate constructs of support. However few items to define emotional support and interactional support as separate constructs.	Can't Tell Subjective qualitative interview data coded into positive or negative support for family, intimate partners, friends and parole officers. Developed based on validated social support measures (Zimet, et al., 1988). However coded negative for absence of support and negative support, which could measure different constructs.	Can't tell 8 subjective qualitative questions about social support pre-release and computed into an overall score (appeared to contain both questions regarding instrumental and interactional support but did not define these). Post-release social support was based on frequency of contacts with family, frequency of activities engaged with friends, and range of contacts with professionals (did not measure the quality of	Yes Subjective measurement of pre-incarceration relationships with significant others measured on Likert scales. Reliability tests demonstrated strong internal validity for these scales, however. Objective data on prison visitation obtained from records.	Yes Family conflict scale and peer coercion scale derived from 3 items on Likert scales. Both indicated acceptable levels of reliability. Peer and family support scales derived from 5 items. Strong reliability of .881 and .842 for family and peer support, respectfully.	Yes Took information from the Level of Service Inventory-Revised (LSI-R). a tool with high predictive validity, administered by parole officers. Subjective dichotomous measures rated satisfactory or unsatisfactory for parents and relatives. Intimate partners rated 0-3 however for satisfaction with relationship.

					support).			
	Was the outcome accurate measured to minimise bias? Subjective/objective? Validated? Has reliable system been established for detecting all cases? Measurement methods similar in different groups? Subjects or outcome assessor blinded to exposure?	Yes State departments of corrections and National Center for Crime Information (NCIC) provided official measures of recidivism and criminal history. Also included subjective reporting of offending behaviour.	Yes Desistance taken from objective official records 3-years post-release. Included technical violations of reimprisonment.	Yes Objective measures of reimprisonment and arrest record from Ohio department of rehabilitation and correction and state wide law enforcement database searched, as well as self-report.	Yes Recidivism data taken from Department of public safety criminal history records.	Yes Reincarceration was the outcome variable. Objective measure from official records.	Yes Official agency records and department of corrections databases approx. 4 years post-release. Also collected data on time to first arrest post-release in number of days.
	Have the authors identified all important confounding factors? List the ones that	Yes Family contact, family criminal justice system involvement, family conflict,	Yes Age (time of release), black, number of prior imprisonments. Also being in	No Checked for length of time served in prison on current sentence,	Can't tell Male, Black ethnicity, Age at time of release, Length of incarceration,	Yes Employment, Partnership status, Criminal offending, Substance use,	Yes Race, Age, Pre-prison substance use, Criminal history, Mental health problems,

you think might be important? And ones the author missed?	employment, depression symptoms, peer influence, race, age, violent/drug/property crime, number of prior arrests/convictions and length of incarceration, treatment, religious/spiritual assistance	prison at the time of the interview. Minor victim (over age of 17).	distribution of conviction offenses, number of prior prison terms, age of onset of mental illness, mental health diagnosis, or number of hospitalizations for mental illness and found no significant differences. But did not identify known predictors of recidivism.	Number of prior arrests. Did not include other established risk factors such as unemployment, mental heath problems, programme participation, etc.	Non-white, Age, Partner, Length of incarceration (in days). Used natural logarithm for skew. Criminal history (total number of prior convictions) and primary conviction (violent, drug, property, sex crime); Participation in treatment programme.	Stable living arrangements, Antisocial attitudes. Didn't control for length of incarceration or programme participation.
Have they taken into account of the confounding factors in the design and/or analysis? Controlled or adjusted for variables in analysis?	Yes Controlled for confounding factors in multivariate mixed effects models. Type of crime.	Yes Controlled for variables in analysis.	No Did not control for variables, just did not see any significant differences in variables between participants.	Yes Controlled for variables identified as confounding factors.	Yes Controlled for variables of significance in analysis.	Yes Controlled for variables identified as confounding factors.

	Was the follow up of subjects complete enough? The good/bad effects should have had long enough to reveal selves? Persons lost to follow up may have different outcomes?	Yes 4 waves of data from 30 days prior to release to 3, 9 and 15 months post release.	Yes Followed up with official records for all participants.	No Ranged in time up to 18 months post-release but mean follow-up was 8 months.	Yes Followed up data for all participants.	Yes 4 waves of data from 30 days prior to release to 3, 9 and 15 months post release.	Yes Followed up with official records for all participants.
	Was the follow up of subjects long enough? 	Can't tell 15 months	Yes 3 years	Can't tell 18 months (but less for some participants).	Can't tell 2 years	Can't tell 15 months	Yes 46 months
B: What are the results?	What were the results of this study? Bottom line results? Ratio/rate difference? How strong is association between exposure and outcome? What is the absolute risk	Emotional/interactional family support not significantly related to reincarceration. High levels of instrumental support are significantly associated with decreased criminal	No significant relationships between types of family, friend and intimate partner support and recidivism outcomes. Positive parole officer support linked to reduced recidivism (p=<.05).	Social support scores before release from prison were not significantly different between those that did or did not recidivate. No significant relationship was found between post-release social support and	Significant relationship between quality of relationship with mother predicted recidivism (p=<.05), but not quality of relationship with father or intimate partner. Also found that	Individuals with higher levels of family conflict and peer support report significantly greater odds of reincarceration (p=<.001). Family support and peer crime do not significantly relate to reincarceration in	Parental ties and intimate partner relationships not significantly linked to recidivism, but ties to relatives had delayed times to recidivism (p=<.05). However, when post-release employment is added to the

	reduction?	offending and reincarceration (p=<.05). An increase of one unit on the family instrumental scale is associated with a 13 percent decrease in the odds of reincarceration both between-individuals and within-individuals across time.		recidivism.	visitation by romantic partner had significantly lower odds of recidivism however in full model was not significant. No significance between mother and father visitation and recidivism.	the full model.	model, ties to relatives no longer significant. A history of frequent unemployment reduced post-release employment; however, this effect was moderated by good quality ties to relatives (p=<.05).
	How precise were the results?

Look for the range of confidence intervals if given | R=.233 shows modest effect but includes full model and confounding variables. | Effect size of R2=.196 | No effect sizes given. | Effect size of R2=.20. | 95% confidence levels given. | Confidence intervals and effect sizes not given. |
| | Do you believe the results?

Big effect hard to ignore
Due to bias, chance or confounding?
Designs/methods sufficiently flawed to make | Yes

Confounding variables taken into account. Performed sensitivity analysis and found that results of study are not impacted by | Yes

Small sample size but power analysis determined sample size appropriate power. | Can't tell

Small sample size – doesn't fit with more updated research with larger sample sizes. Sample selection procedures flawed and high attrition. | Can't tell

Convenience sample. Measure of change of quality of relationships throughout duration of incarceration not applied. Also – | Yes

No significant interaction terms, suggests that supportive and coercive elements of family and peer relationships are independent. Controlled for | Can't tell

Relative ties only significant at p=<.05 level. Only binary measures for parental ties may not have captured differing constructs of |

	unreliable?	patterns of missingness.		Did not measure for distinct measures of support.	sample incarcerated for small amount of time. Only approximately two thirds answered questionnaires regarding father and intimate partner relationships fully.	confounding variables. Appeared to encompass only instrumental support items, indicates that missing data were not biasing results.	support. It is possible that employment, family ties, and recidivism are all symptoms of an underlying unobservable trait, including low self-control, sensation seeking, or risk tasking.
C: Will the results help locally?	Can the results be applied to the local population? Cohort study appropriate measure? Subjects covered could be sufficiently different from your population to cause concern? Local setting likely to differ? You can quantify local benefits and harms?	Yes Subjects only violent and serious offenders and all male sample, however can be applied to many offender populations.	Can't tell Results can be applied to sex offender population but may have limited generalisability outside of this.	No Subjects only 'mentally ill' offenders defined by prison staff and small sample size, and types of support not measured.	Can't tell Small sample size however demographic can be applied to other Western populations.	Yes Study included serious or violent offenders only and all men but can be applied to many prison populations. Only appeared to account for instrumental support, did not appear to include emotional support construct.	Yes Can be applied to Western populations and followed up for a substantial length of time.

	Do the result of this study fit with other available evidence?	Can't tell This work does support other research which shows that emotionally based family support fails to reduce recidivism for returning men (see Mowen and Visher 2015). However, findings differ from other findings reported by Taylor (2016) using the same data to determine impact of family support.	Can't tell Contrary to literature that demonstrates positive effects of social support, but in sex offender population relationships with significant others may cause support to be received differently due to complexity of relationships, stigma and legal systems (Ward et al., 1997).	Can't tell Doesn't fit with theories of support as protective of offending e.g. (DCSS and Social Control theory) but did not define types of support measured in separate constructs.	Can't tell Does not consist with visitation research but consistent with findings from Duwe and Clark (2013) on visitation. Quality of relationship with mother having a predictive effect of reincarceration is in line with theories of quality of attachment in social control theory.	Can't tell Peer criminality usually associated with increased recidivism (Colvin et al., 2002). However, suggests that family conflict has the most coercive effect, csupported in literature (e.g. Mowen & Visher, 2015). Peer social support has been demonstrated to be a predictor of reduced recidivism (e.g. Grieb et al., 2014).	Can't tell Some evidence to suggest that reentering offenders commonly turn to non-parental relatives because their parents become unwell or are deceased (Braman, 2004). However, opposes research suggesting that parental and intimate partner support influence recidivism.
	What are the implications of this study for practice? One observational study rarely provides robust	Findings suggest an onus on outreach and support to families focusing on instrumental assistance. Important that	Potential role for community support in order help reduce future recidivism. Also being aware that individuals	Non-significant results but enabling social networks to correspond and visit inmates and be involved in planning for post-	Potential role for services to focus on assisting with quality of relationship with mother and providing support to mothers of	Attempt to provide services to offender populations attempting to reduce family conflict and promote positive	Findings highlight the need for broad family support programs that include parents, spouses, and extended family members. Also

		Mowen & Boman (2018)	Bares & Mowan (2020)	Boman & Mowen (2017)	Taylor (2015)	Rocque et al. (2013)	Spjeldnes et al. (2012)
	evidence to recommend changes for clinical practice Recommendations always stronger when supported by other evidence	families be informed of support resources available.	committed of sex offences may need more social support monitoring due to complexity of social relationships as a result of stigma.	release e.g. housing, employment may foster greater social support and be more protective of recidivism.	incarcerated individuals if applicable.	peer support in order to reduce recidivism risk.	highlights the impact of wider family members on gaining and sustaining employment which is linked with reduced recidivism.
CASP Checklist Questions		Mowen & Boman (2018)	Bares & Mowan (2020)	Boman & Mowen (2017)	Taylor (2015)	Rocque et al. (2013)	Spjeldnes et al. (2012)
A: Are the results of the study valid?	Did the study address a clearly focussed issue? The population studied/risk factors/clear whether study tried to detect a beneficial or harmful effect/outcomes considered	Yes Explored how peer criminality and peer support relates to criminal reoffending, and whether peer support will reduce the criminogenic effect of peer criminality.	Yes Explored whether specific forms of parole officer support relates to re-entry success including reincarceration.	Yes Sought to explore the effects of family support and peer criminality on re-entry outcomes including recidivism.	Yes Explored family support as a protective factor against experiences of victimisation and recidivism.	Yes Explored the potential benefits of higher quality of social bonds and positive change in social bonds during prison sentence on recidivism.	Yes Explored whether positive family support and perception of community-based services predicted lower recidivism for people with mental health and substance use difficulties.
	Was the cohort recruited in an acceptable way? Look for selection bias. Was cohort	Yes Used all available SVORI participants from cohort study.	Yes Used all available SVORI participants	Yes Used all available SVORI participants from cohort study	Yes Used all available SVORI participants from cohort study.	Yes Used participants from larger study who were randomly	Yes Data came from Alleghany County Jail (ACJ) Collaborative

representative of defined population? Something special about cohort? Was everybody included who should have been? Yes/no/can't tell		from cohort study			assigned into groups of rehabilitation environment and traditional prison environment. Cohort only incarcerated for six months for first offence.	evaluation project. Cohort representative of population. No evidence of selection bias.
Was the exposure accurately measured to minimise bias?\n\nLook for classification bias. Subjective/objective measurements? Do measurements reflect what you want them to (validated?) were all subjects classified into exposure groups using same procedure?	Yes\n\nUsed subjective ratings of four items for peer crime scale and five items for peer support. Items for both constructs demonstrated strong interitem reliability.	Yes\n\nCombined Likert scale scores of seven subjective questions. Confirmatory principle components factor analyses demonstrated two constructs of professional support (3 items) and interpersonal support (4 items). All factor loadings exceeded .7.	Can't tell\n\nSubjective measurement of family support comprised of three items with acceptable level of reliability. Peer crime subjective ratings of four items with high levels of interitem reliability Appears to have face validity but for family support construct the three items do not appear to be robust enough to cover all elements	Yes\n\nEmotional family support was derived from 10 subjective items on a 4-point Likert scale. Did not report interitem reliability but appeared to have face validity. Instrumental family support derived in same way from 5 subjective items, appear to have face validity.	Yes\n\nSelf-reported measures of levels of attachment and changes in social bonds and prosocial beliefs. Facilitative attachment and supportive attachment measures demonstrated high interitem reliability. Factor analyses indicated the items loaded highly on one factor.	Yes\n\nNot validated measure of family support. Consisted of eight items and computed into ordinal scores from 0-8 for overall positive family support. Subjective but looked at different features of support and appear to reflect purpose.

				of family support, such as instrumental support.			
	Was the outcome accurate measured to minimise bias? Subjective/objective? Validated? Has reliable system been established for detecting all cases? Measurement methods similar in different groups? Subjects or outcome assessor blinded to exposure?	Can't tell Self-reported criminal offending a binary variable. Relies on self-report of criminal behaviour, possible under-reporting for fear of consequences.	Yes Self-reporting of reincarceration.	Can't tell Subjective recidivism data obtained. Binary items yes/no asked about a range of offending behaviour. Possible under-reporting.	Can't tell Subjective reporting of any crime or violent crime.	Yes Objective data collected of number of rearrests and time to rearrest using official records.	Yes Subjective binary response to whether they had gone back to jail as recidivism measure. Self-report.
	Have the authors identified all important confounding factors? List the ones that	Yes Employment, Black ethnicity; Age, Marital status, Parenthood,	Yes Post-release family support, Substance use., Marital status, Substance abuse	Yes Employment, Income, Marital status, Parent Black or Other race, Age, Length	Yes Employed, criminogenic neighbourhood, legal cynicism, need for	Can't tell Age, Black ethnicity, Age of first arrest, Prior arrests, Violent crime, Bootcamp	Yes Race, Age, Mental health status, Substance abuse involvement.

	you think might be important? And ones the author missed?	Length of incarceration Number of prior arrests, Programme participation	treatment, Parole compliance failure, Employment status, Age, Ethnicity, Legal cynicism, Length of incarceration. Level of education, Offense type	of incarceration, Offense conviction type, Number of prior arrests, Prior substance use	substance use treatment, services received, SVORI participant, need MH treatment	or traditional prison. Did not identify employment, socioeconomic status, marital status, etc.	Did not identify risk factors e.g. employment, socioeconomic status, etc.
	Have they taken into account of the confounding factors in the design and/or analysis? Controlled or adjusted for variables in analysis?	Yes Controlled for variables in analysis.	Yes Controlled for variables in analysis.	Yes Controlled for variables in analysis.	Can't tell Did not state whether controlled for variables in analysis but included control for employment and intimate partner.	Can't tell Only controlled for whether subject was in prison or therapeutic boot camp. Included confounds in analysis but did not control for these.	Yes All covariates taken into account in model to measure for change in predictor variable.
	Was the follow up of subjects complete enough? The good/bad effects should have had long	Yes 4 waves of data from 30 days prior to release to 3, 9 and 15 months post	Yes 4 waves of data from 30 days prior to release to 3, 9 and 15 months post	Yes 4 waves of data from 30 days prior to release to 3, 9 and 15 months post	Yes Follow up complete enough however high attrition and use of multiple	Yes Objective measurements of recidivism collected. However, there	Yes Subjects followed up 1 month, 6 months and 12 months post-release from jail.

	enough to reveal selves? Persons lost to follow up may have different outcomes?	release.	release.	release.	imputation.	were no measures available to assess changes in social bonds after release from incarceration	Relevant for population as sentences typically shorter than other prison populations.
	Was the follow up of subjects long enough?	Can't tell 15 months	Can't tell 15 months	Can't tell 15 months	Can't tell 15 months	Can't tell 38 months	Can't tell 12 months
B: What are the results?	What were the results of this study? Bottom line results? Ratio/rate difference? How strong is association between exposure and outcome? What is the absolute risk reduction?	Peer crime has a significant and positive effect on criminal offending (p=<.001). Odds ratio was 31.2%. Peer support has a significant effect on reoffending (p=<.05), and each one unit increase in peer support corresponds to a 4.6% decrease in the logged odds of criminal offending.	Overall parole officer support relates to significantly lower odds of reincarceration (p=<.001). Parole officer professional and interpersonal support is associated with decreased odds of reincarceration (p=<.001). However, interpersonal parole officer support fails to reach	Family support is negatively related to criminal offending post-release (p=<.01). Criminal peers positively linked to criminal offending (p=<.001). Interaction term between family support and peer criminality is sig at .05 level. Direction of effect demonstrated that protective effect of family support	Higher levels of emotional support are associated with a 5%–9% reduction in the likelihood of recidivism across the three periods predicting any self-reported crimes (p=<.05). Instrumental support did not predict recidivism. Neither support predicted violent crime recidivism. Even at higher	Positive Social relationship change during incarceration impacted on likelihood of rearrest (p=<.05) and number of days until rearrest (p=<.05). Quality of attachment at rerelease did not appear to be related to recidivism. The hazard rate for social relationships is	Positive family social support was significantly related to recidivism in overall model (p=0.02). A one-point increase in family social support was related to a reduced recidivism rate of about 14%. Highly positive family social support was found to reduce the effect of factors known to predict higher recidivism

		Interaction term was not significant, suggesting independent effects of peer support and criminality.	significance once accounting for the effect of parole officer professional support which remains significant (p=<.01).	is weakened by the presence of criminal peers.	levels of family support, more frequent victimization was still associated with a fairly large increase in the likelihood of recidivism.	.56, demonstrating that positive relationship change is associated with a decrease of .44 in the hazard of recidivism.	rates: substance abuse, race, and younger age.
	How precise were the results? Look for the range of confidence intervals if given	Odds ratio and significance given.	Rho ICC was 0.504 for full model. Odds ratio and significance given.	Effect sizes reported. ICC .418 for full model including interaction.	R2=.322 For emotional support and any crime.	Hazard rates provided but confidence intervals not given.	Overall, 14.7% of recidivism variance was explained. (Nagelkerke R 2 D 0.147).
	Do you believe the results? Big effect hard to ignore Due to bias, chance or confounding? Designs/methods sufficiently flawed to make unreliable?	Yes Accounted for confounding variables. Methodology appropriate. Criminal peer effect significant at p=<.001 level.	Yes Large sample size. Not due to confounding variables. Methodology appropriate.	Yes Large sample size. Not due to confounding variables. Methodology appropriate.	Can't tell Large sample size but high attrition and missing data. Did not control for as many confounding variables. Relied on self-reporting of reoffending and victimisation.	Can't tell It may be that participants had relatively low levels of attachment. Only significant at .05 level. Confounding variables not included in study.	Yes Accounted for confounding variables. Methodology appropriate using differential predictor variables.

C: Will the results help locally?	Can the results be applied to the local population? Cohort study appropriate measure? Subjects covered could be sufficiently different from your population to cause concern? Local setting likely to differ? You can quantify local benefits and harms?	Yes Only to serious and violent offenders in Western populations. However, may be bias in self-reporting of criminal offending.	Yes Only serious and violent offenders in Western populations but applicable to Western offender populations.	Yes Only serious and violent offenders in Western populations but applicable to Western offender populations.	Yes Study included serious or violent offenders only and all men but can be applied to many Western offender populations.	Yes Appropriate measures and follow-up, fit into Western populations however only those who had a first prison term or shorter prison sentences (6 months in study).	Yes Sample only applicable to Western offender populations and offenders who typically have shorter sentences for less serious crimes.
	Do the result of this study fit with other available evidence?	Yes Supported by DCSS theory (Colvin et al., 2002) and applying differential association of peers within reentry outcomes (Boman & Mowen, 2017).	Yes Findings similar to other research areas such as nursing (Hong et al., 2014) showing the importance of different forms of support. Supported by research suggesting that	Yes Fits with theories of support and coercion (Colvin et al., 2002). In line with previous research suggesting that family support is significantly related to lower levels of	Can't tell Moderating effect of family support on recent victimisation not widely studied in literature. In line with previous research demonstrating protective effects of family support on offending (e.g.	Can't tell Fits with theories that outcomes are worse for individuals who become disconnected from ties whilst incarcerated (Laub & Allen, 2000).	Yes Recidivism risk reduced by positive family support supported by social control theory (Hirschi, 1969) and DCSS theory (Colvin et al., 2002). In line with prior literature (e.g. Martinez, 2006)

			relationship with parole officer is related to recidivism (Chamberlain, 2018).	offending (e.g. Martinez, 2006).	|Martinez, 2006).		of positive effects of family support on reoffending.
	What are the implications of this study for practice? One observational study rarely provides robust evidence to recommend changes for clinical practice Recommendations always stronger when supported by other evidence	Suggests that peer relationships be considered as well as other significant relationships e.g. family in supporting individuals post-release from prison and consideration of prosocial informal social support for policy makers.	Policy makers may consider placing more emphasis on building interpersonal but especially professional support between parole officer and individual leaving prison.	Help offenders maintain healthy lives with families and offer incentives for offenders refrain from contact with criminal friends. Monitoring of social networks post-release from prison and to provide more support to those with criminal peers.	Policy makers to assist families supporting returning individuals with victimisation experiences and be aware of providing extra services to ex-inmates and their families.	Implication for correctional programmes to attempt to improve social bonds whilst still incarcerated before release. Emphasis on maintenance or rebuilding of relationships.	Implication to policy makers to promote programmes that emphasise and assist family involvement and healthy relationship building.

Appendix B: Letter of Access for Research Project

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Appendix C: Examples of Personal Support Coding

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Appendix D: Notes on Coding for Variables

<u>Notes on data cleaning</u>

Diagnosis Raw Data

Mental Health Disorder – Not otherwise Specified; Paranoid Schizophrenia; Dissocial Personality Disorder; Schizophrenic Disorder – Manic Type; EUPD; Mixed and other personality disorders; Other schizophrenia; Delusional disorder; Men & behav dis multiple/psychoact drug: psychotic disorder; General psychiatric examination not elsewhere classified; Unspecific nonorganic psychosis; Acute and transient psychotic disorder unspecified; Other schizophrenia; Hyperkinetic disorder unspecified; Acute behavioural disorder due to use of opioids: acute intoxication; Bipolar affective disorder ; Bipolar affective disorder current episode manic without psychotic symptoms; Moderate depressive episode; Other reactions to severe stress; Person with feared complaint to whom no diagnosis is made; Acute schizophrenic like psychotic disorder; Severe depressive disorder

<u>CHANGED TO:</u>
MOOD DISORDER: No = 0, Yes = 1
PSYCHOTIC DISORDER: No = 0, Yes = 1
PERSONALITY DISORDER: No = 0, Yes = 1
SUBSTANCE USE DISORER**:** No = 0, Yes = 1

Age
Convert to age by working out time between Date of Birth and day of most recent admission (where HCR-20 filled in)

Gender
CHANGED TO: 0 = male 1 = female

Marital status

CHANGED TO: 1=Single; 0=not known,2= married/civil partner; 3=separated/divorced, 4=widowed;
CHANGED TO: Not Married = 0, Married = 1

Ethnicity
White British; Black/Black British – other; Black/Black British – African; Not stated; Asian/Asian British; White gyp/Irish Traveller; Mixed race – white and black African; white – Irish; Black British – Caribbean; mixed race – other; Asian british – Pakistani;
CHANGED TO
Consensus data: 1=white british 2=white Irish 3=white traveller 4=other 5=W&B Caribbean 6=W&B African 7=White&Asian 8=any other mixed 9=black African 10=black Caribbean 11=other black 12=Indian 13=Pakistani 14=Bangladeshi 15=other Asian 16=arab 17=any other
BROADER ETHNICITY VARIABLE: 1=white british 2=white other 3=black 4=Asian 5=mixed race 6=other
WHITE/NON-WHITE VARIABLE: 0 = WHITE; 1=NON-WHITE

Discharge destination
0 = community or step down, 1=prison or other secure service

MHA section
37/41; 47/49; 41; 48/49; 2; 3; 37;
SECTION VARIABLE; 1=civil 2=criminal w/o restrictions 3=criminal w/restrictions/recall
ANOTER VARIABLE FOR CIVIL/CRIMINAL: 0 = CIVIL, 1=CRIMINAL

Admission source
Non NHS run hospital; penal establishment court or police station; special hospital; NHS general hospital or A&E department; NHS mental illness or learning disability hospital;
Admission Source: 0=community; 1=health care setting; 2=custodial setting

Length of Stay
Admission date and discharge date – create new value for number of days in hospital (only for those discharged to community/step-down)
Take admission that coincides with last completed HCR20

Risk event type
Violence and aggression; other; self harm and suicide; physical health; neglect
V&A: Variable for Frequency count for V&A
Additional binary variable for V&A: 0 = no; 1 = yes
Rate calculation variable for length of stay divided by incidences of V&A
SH: Variable for Frequency count for Self-harm
Additional binary variable for self-harm: 0 = no; 1 = yes
Rate calculation variable for length of stay divided by incidences of SH

HCR20 Presence
2 = yes; 1 = partial/possible; 0 = no

HCR20 Relevance
2 = high, 1 = moderate, 0 = low

Number of admissions
Frequency count for total number of admissions
Use HCR-20 for the admission that is most recent (where most recent completed HCR-20 coincides with dates of admission)
Take most recent admission when discharged or current admission not discharged if HCR20 not available for previous admission

Appendix E: End of Study Letter for NHS Trust

End of Project Summary Report

Project Title: Investigating the Protective Effects of Personal Support on Forensic Inpatient Admissions

Introduction

To date research investigating the role of socially supportive relationships on service users' recovery in the context of forensic inpatient admissions is scarce. This study aimed to explore the protective effects of socially supportive relationships on objective measures of recovery in the context of admissions to secure hospital. This study was a secondary data analysis which intended on using information from service users' HCR-20 risk assessments to develop numerous variables for the presence of 'personal support'. This research additionally aimed to explore whether clinician ratings of personal support differed based on demographic variables, to see whether implicit bias could be a factor when assessing service users' socially supportive relationships.

Methods

All data were extracted from X, in which anonymised electronic medical records are held. 330 service user records were identified as meeting the inclusion criteria. Dependent variables that acted as our objective recovery outcomes included incidences of violence and aggression, incidences of self-harm, service users' length of stay in hospital as well as the total number of admissions. Our dependent variables for our additional aim acted as clinician ratings of the personal support item of the HCR-20 (version 3). Independent variables of our objective outcomes of recovery were the presence of family, peer and intimate partner support, as well as the presence of positive family, positive peer and positive intimate partner support. Independent variables of our exploration of clinician ratings of personal support were demographic variables of gender and ethnicity. Generalised linear models and proportional hazards modelling were conducted for our analyses.

Findings

The presence of family support significantly predicted whether an individual would engage in an incident of violence and aggression. Contrastingly the presence of positive family support decreased the likelihood of engaging in a violent or aggressive incident, and significantly predicted having fewer incidences of violence and aggression. No personal support variables were found to be significantly associated with the likelihood of self-harm, however being male, as well as being Non-White ethnicity predicted the likelihood of self-harm. Family support also predicted a greater number of admissions to hospital, and positive family support and positive intimate partner presence predicted fewer admissions to secure hospital. Intimate partner support additionally was associated with a shorter length of stay in hospital. Finally, clinician ratings were not found to differ based on gender and ethnicity.

Discussion and Conclusion

Findings are discussed in context of current theory and research. A commentary on the unmet need for family intervention services within forensic mental health services as well as the benefits for services providing outreach to social networks, such as reducing stigma and fostering improvements in relationships is provided. Limitations of analysis and methodology are included. This research indicates that social support, particularly supportive family and intimate partner relationships, can be a protective factor for users of forensic mental health services.

Dissemination

This project will be submitted for publication in a peer reviewed journal at a later date.