

Lifetime Offending Behaviour Among UK Military Personnel

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Foreword

Whilst most Service personnel make a successful transition to civilian life, some may struggle. For a minority, this can lead to offending which can have significant and negative consequences for themselves, their families and wider society. It was therefore important for us to fund this research to help us and others to better understand the offending behaviours of individuals before, during and after service, and where interventions are best placed to prevent offending and reduce recidivism.

This research is not only the first of its kind to explore the offending behaviours of serving and ex-serving personnel, it also highlights the value of data linkage studies. By combining data from the King's Centre for Military Health Research Health and Wellbeing Cohort Study and the Ministry of Justice Police National Computer database, the research team has been able to harness existing datasets, offering richer insights on the offending pathways, characteristics and outcomes of those who have served in the Armed Forces to inform practice and policy.

It is positive that this research has confirmed that ex-Service personnel are less likely to have a record of an offence

when compared to the general population. However, for those serving or ex-serving personnel who do offend, offending behaviour can be prevalent throughout their life, with a history of offending being the strongest predictor of subsequent offending. Therefore, it is key that the report also offers additional understanding of the risk factors for offending in and after service, highlighting the need for more awareness and targeted support for personnel at risk through tailored mental, social and welfare support to address both the service and non-service related factors that can contribute to offending.

Why is this key? Because this report can help us to identify the personnel who are most at risk of offending during and after service and be used to inform the development of interventions and prevention strategies. I therefore recommend this report to all those involved in supporting serving and ex-Service personnel and their families to help ensure that they make a successful and sustain transition to civilian life, without adverse contact with the criminal justice system.

Michelle Alston,
Chief Executive, Forces in Mind Trust



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Executive Summary



Background

Research has shown that 17% of UK military personnel have a conviction record compared to 28% of similarly aged males from the general population (1). Previous research has focused on specific time-periods, including in-service and post-service separately, but has not explored offending behaviour and trajectories across the life-course of military personnel. This study builds on previous research to further examine offending behaviour prior to joining service, throughout the service period and beyond.

Objectives

There were three main study objectives: First, to describe and compare the prevalence of and risk/protective factors for offending behaviour pre-service, during service and post-service; second, to examine the offending trajectories of military personnel who offend at each period; and third, to identify different offender groups and their respective profile characteristics.

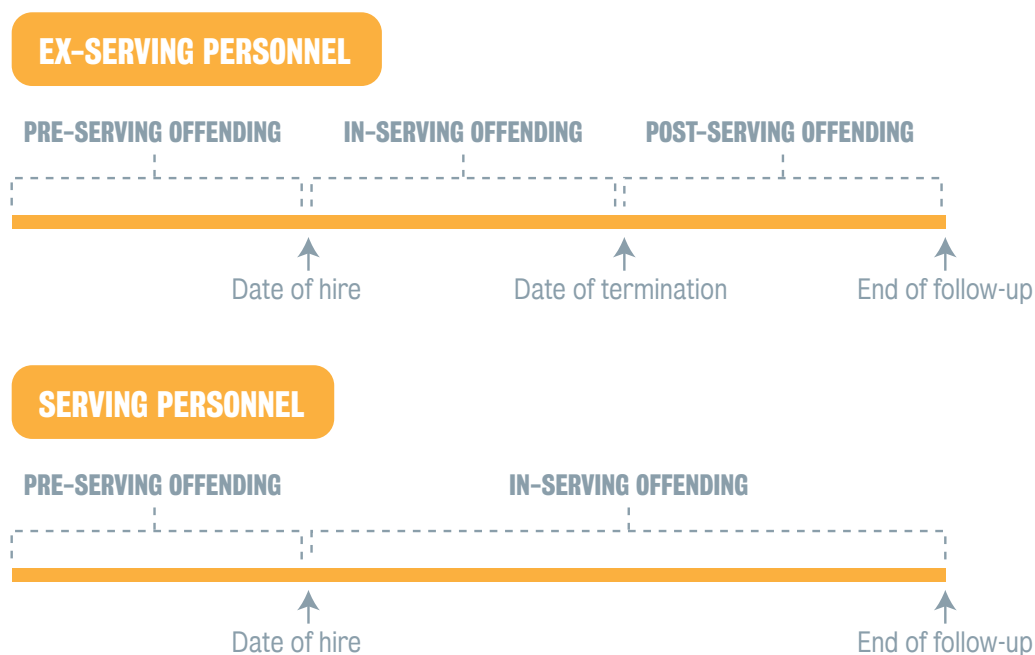
Methods

This was a data linkage study using data from the King's Centre for Military Health Research (KCMHR) Health and Wellbeing cohort study and the Ministry of Justice (MoJ) Police National Computer (PNC) database. The study linked the criminal offending records of 11,418 male and female UK military personnel with their responses to the KCMHR cohort questionnaires.

Offences were categorised based on their legal definition into four main mutually exclusive categories: violent, alcohol/drug, risky driving and non-violent offences. Offenders were categorised as “violent offenders” if they had any record of a violent offence irrespective of whether they also had a non-violent offence. Offenders were categorised as “non-violent offenders” if they only had records of non-violent offences.

Offences were categorised as having occurred pre-service, during service and post-service based on dates of hire and actual or projected date of termination supplied by Defence Statistics (Figure 1).

Figure 1: Time-periods of offending



A variety of risk and protective factors were explored to assess their association with offending behaviour. These included sociodemographic, military related and mental health variables.

Results

Objective 1:

Prevalence and incidence of offending and the factors associated with offending at each time-period

Prevalence and Incidence

- ♦ 16.2% of the sample (1,957) had a record of an offence. This is compared to 28% of similarly aged males in the general population (1).

Table 1 shows the types of offending occurring at each time-period. Of these offenders:

- ♦ 36.2% (n=806) of offenders had a record of an offence pre-service
- ♦ 69.6% (n=1,301) of offenders had a record of an offence during service
- ♦ 29.1% (n=341) of offenders who were ex-serving personnel (n=1,247) had a record of an offence post-service
- ♦ The incidence of offending was highest during the post-service period.
- ♦ There was a higher percentage of alcohol/drug offences during service compared to pre-service and post-service.

Table 1: Type of offending occurred at each time period.

	Pre-service % (n)	In-service % (n)	Post-service % (n)
Violent	43.9 (502)	44.4 (773)	49.8 (222)
Alcohol/Drug	13.3 (187)	30.5 (531)	23.8 (116)
Risky Driving	1.4 (21)	1.7 (25)	1.7 (7)
Other/Non-violent	41.3 (422)	22.4 (378)	24.2 (106)



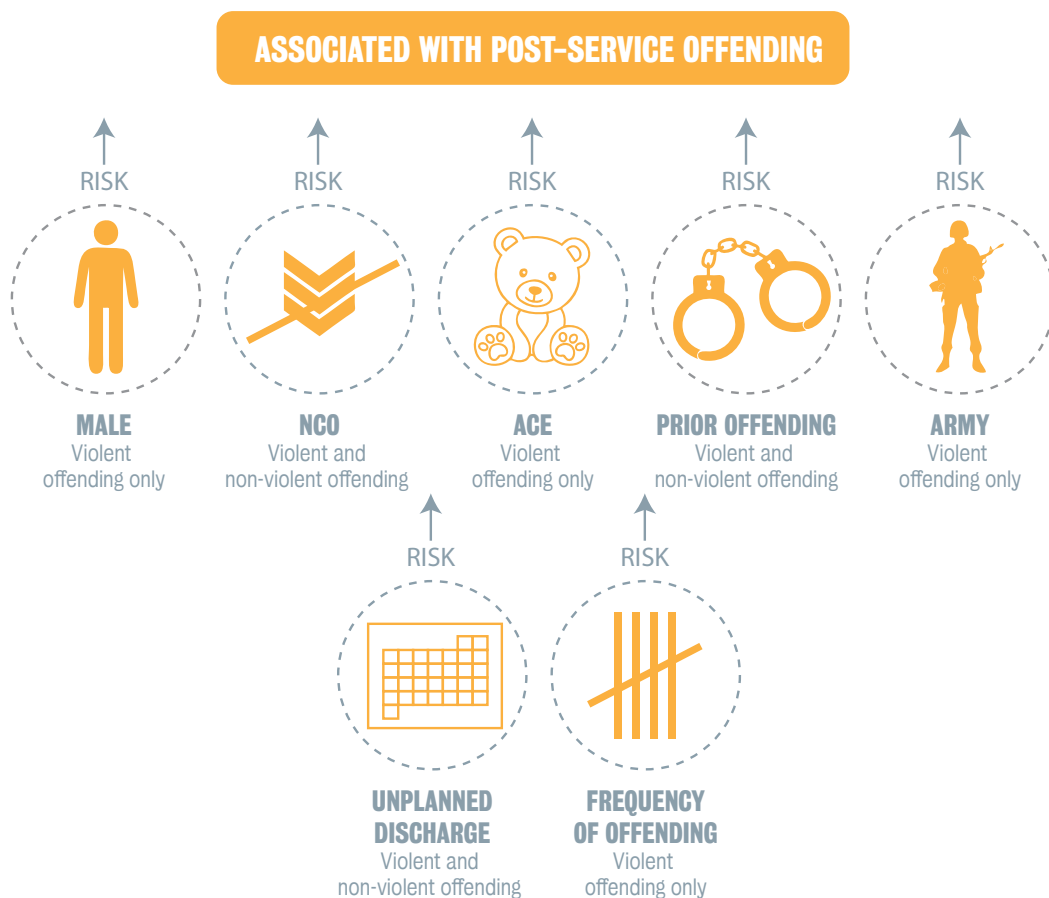
Key factors associated with in-service offending

- Being male, having a history of pre-enlistment antisocial behaviour (ASB), being a member of the Army, being of lower rank, and having a history of pre-service offending increased the risk of in-service offending.



Key factors associated with post-service offending

- Being male, having adverse childhood experiences (ACE), being a member of the Army, being a non-commissioned officer (NCO), having a history of offending prior to leaving service and having an unplanned method of discharge was associated with post-service offending. Each record of an offence prior to leaving service increased the risk of earlier post-service offending.



Key factors associated with subsequent offending

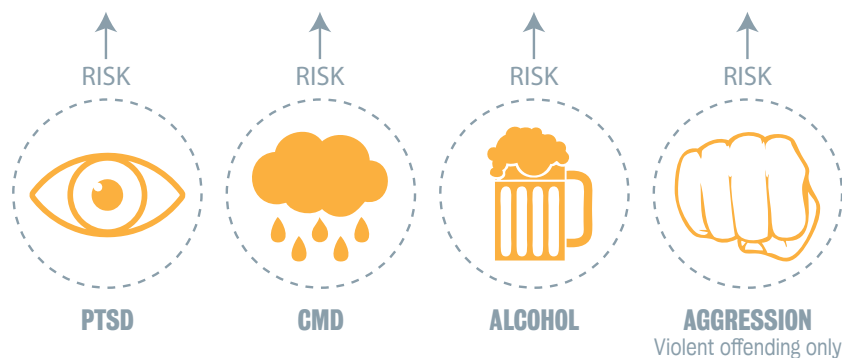
- Deployment was significantly associated with an increased risk of subsequent violent and non-violent offending.
- Combat exposure was significantly associated with an increased risk of violent and non-violent subsequent offending.
- Having experienced more traumatic events was significantly associated with an increased risk of subsequent violent and non-violent offending.

MILITARY EXPERIENCES ASSOCIATED WITH SUBSEQUENT OFFENDING (VIOLENT AND NON-VIOLENT)



- Mental health variables, including probable PTSD, harmful alcohol misuse and probably common mental disorders were associated with an increased risk of subsequent violent and non-violent offending.
- Aggression was associated with an increased risk of subsequent violent offending.

MENTAL HEALTH VARIABLES ASSOCIATED WITH SUBSEQUENT OFFENDING



Objective 2:

Offending trajectories from pre-service to in-service and post-service

- The presence of any offending (violent or non-violent) during the pre-service period increased the risk of offending during service.
- The presence of a record of offending (violent or non-violent) during the in-service period increased the risk of offending post-service.

Objective 3:

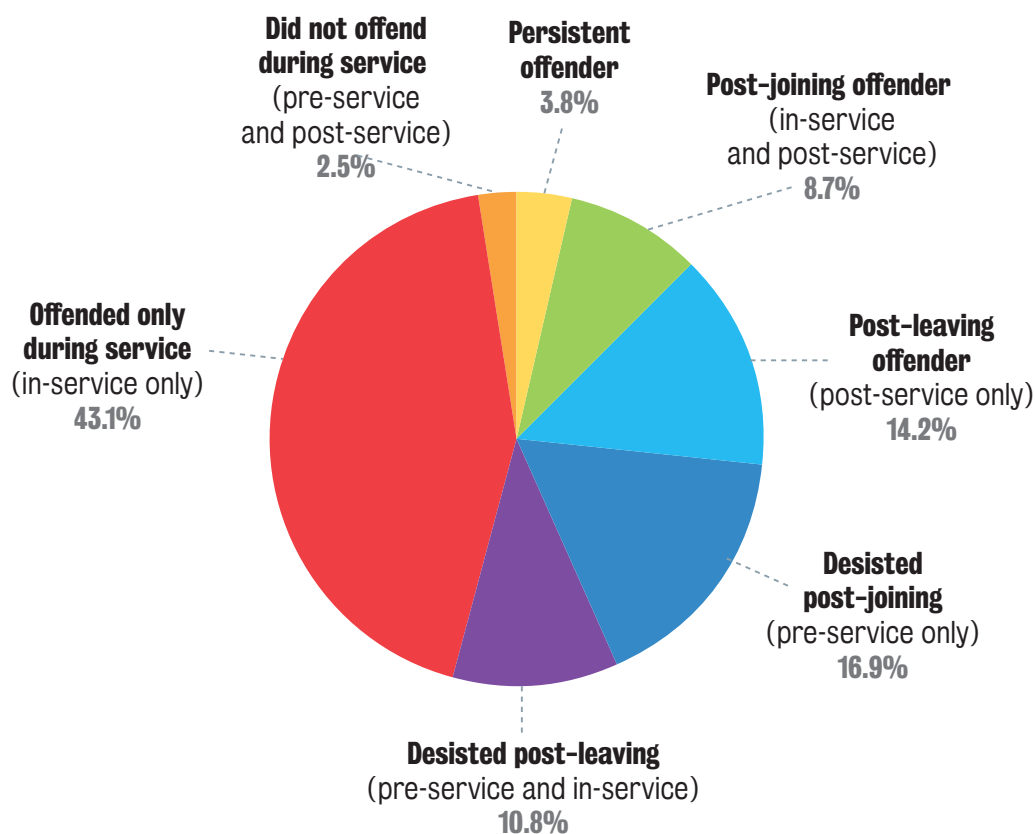
Patterns of Offending behaviour over time

- The majority of offenders offended during one time-period only. The largest proportion of offenders offended during service only (43.1%), followed by offenders who offended pre-service only (16.9%) and those who offended post-service only (14.2%).
- Any pattern of pre-discharge offending (pre-service only, in-service only or both pre-and in-service offending) increased the risk of post-service violent and non-violent offending.

Discussion

Offending behaviour was prevalent in the pre-service, in-service and post-service periods, with the most common of offences at each time-period being non-violent offences, followed by minor interpersonal violent offences. Incidence of offending was highest during the post-service period, suggesting that while offending behaviour is occurring at all three time-periods, based on the first offence in each time period, there are a larger number of new offenders during the post-service period compared to pre-service and in-service periods.

70% of offenders had a record of an offence during service, 65% of whom (n=513) only offended during service. During the in-service period, theft related offences such as stealing and burglary accounted for almost 20% of in-service offences, followed by minor interpersonal offences such as common assault and battery at 15%, and other motor vehicle offences such as driving whilst disqualified and failing to stop after an accident



at 12%. This mirrors research in the general population that suggests that acquisitive crimes are the most common offences (36-38) and is echoed in the pre-service offending statistics in this study.

This project demonstrated that among those who offend, offending behaviour is prevalent throughout their life course. While this may be due to younger males enlisting in the military at the time at which they are at the peak age for offending, this could also be a result of something that is occurring during military service (a period spanning the enlistment process, training, deployments etc).

The risk and protective factors that we found to be associated with offending behaviour were consistent with previous research. Younger males, with lower levels of educational attainment, who had a history of pre-enlistment ASB, who were members of the Army, held lower ranks and had a history of prior offending were at an increased

risk of offending. It is noteworthy that these factors did not solely increase the risk of any offending behaviour, but also specifically violent and non-violent in-service offending. Being a male with ACEs, who were members of the Army, held NCO ranks and had a history of prior offending increased the risk of post-service violent offending. By comparison, holding an NCO rank and having a history of prior offending were associated with post-service non-violent offending.

Having a history of offending behaviour as a predictor of further offending was a consistent finding throughout this project. It is the strongest predictor of subsequent offending. Indeed, the more frequent offending in-service the stronger a predictor of post-service offending it was and highlights the need to address offending behaviour by military personnel while in service and understand and address the individual factors contributing to the behaviour.



Implications

There were seven main recommendations for reducing offending and further research that arose from this study.

1. Awareness of individuals at increased risk of offending during recruitment and training

Making the Armed Forces aware of the increased risk of subsequent offending behaviour among those who have a record of a prior offence and considering additional support needed for those enlisting with histories of previous antisocial behaviour and contact with the criminal justice system.

2. Rehabilitation and support for offenders during service

For offending behaviour that does not result in detention in the Military Corrective Training Centre (MCTC), understanding how in-service offending is managed is necessary to reduce repeat offending. An individual tailored approach addressing the factors that contributed to offending would be beneficial to reducing reoffending. In particular, motivations for offending could be discussed and military personnel could be directed towards appropriate support services where necessary (e.g. anger management, trauma counselling etc.)

3. Awareness of offending histories upon leaving service

Individuals with a history of offending during service should be targeted with support during transition to identify mental health, social and welfare needs which are linked to offending post-service.

4. Identification of military personnel in the Criminal Justice System (CJS)

The development of a training programme for staff members working within the CJS in the identification of veterans and delivery of veteran sensitive care as part of their college programme for prison staff.

5. Role of mental health support in offence reduction

Acknowledgment that mental health difficulties are key risk factors for offending behaviour and ensuring mental health support is accessible throughout personnel's military careers, including pre-deployment, post-deployment and prior to discharge.

6. Alcohol culture change

Continued education of military personnel about the dangers of alcohol abuse at all levels (and its relationship to offending behaviours) within the chain of command is necessary to continue changing the culture of alcohol use in the military. These need to be supported and modelled by commanding officers while encouraging alcohol-free social events and activities. It is also important to recognise and provide treatment for those with serious alcohol problems.

7. Research into motivations for offending behaviour

Research into specific motivations for offending behaviour among UK military personnel, particularly for non-violent and less serious violent offending is necessary to further improve our understanding of offending in terms of individual experiences. Additionally, a qualitative study on military personnel's experiences during transition periods is necessary to improve our understanding of the impact of key transition periods (i.e. joining and leaving service). In particular, it is necessary to explore the motivations for offending or desisting among those who had pre-service offending compared to those without after joining service.

This study highlights a clear and persistent offending pathway (possibly irrespective of or exacerbated by military service). A qualitative study could recruit offenders from both groups and examine their perceptions of the factors which influenced their offending at different time points as well as any perceived influence of military and non-military factors.

Glossary of abbreviations & statistical terms

Abbreviations

ACE	Adverse Childhood Experiences
AHR	Adjusted Hazard Ratio
AUDIT	Alcohol Use Disorders Identification Test
ASB	Antisocial Behaviour
CI	Confidence Interval (set a 95% Confidence Interval)
CMD	Common Mental Disorder
DASA	Defence Analytical Services and Advice, Ministry of Defence. Now Def Stats
Def Stats	Defence Statistics, Ministry of Defence. Formerly DASA
GHQ	General Health Questionnaire
HO	Home Office
HR	Hazard Ratio (Cox Regression)
IQR	Interquartile Range
KCMHR	King's Centre for Military Health Research
MoDREC	Ministry of Defence Research Ethics Committee
MoJ	Ministry of Justice
PCL-C	Post-traumatic Stress Disorder Checklist, Civilian Form
PNC	Police National Computer
PTSD	Post-traumatic Stress Disorder
RAF	Royal Air Force
RM	Royal Marines
RN	Royal Navy
SPCB	Service Police Crime Bureau
STATA	Data analysis statistical software: Software for Statistics and Data Science

Statistical terms

PREVALENCE: The percentage of a population who have a specified characteristic in a given time period:

$$\frac{\text{Number of people in the sample with the characteristic}}{\text{Number of people in the sample}}$$

INCIDENCE: The number of new cases that develop during a specified time-period:

$$\frac{\text{Number of new cases during a specified time-period}}{\text{Person-time at risk}}$$

PERSON-TIME AT RISK: A measure of how long each person is at risk of developing the outcome during the study.

Example: 10 participants, observed for up to 5 years

Participant	Observation duration (years)	Developed outcome
1	2.5	Yes
2	3	Yes
3	5	No
4	5	No
5	0.5	Yes
6	4	Yes
7	4	Yes
8	5	No
9	5	No
10	5	No

- Number of people in the sample with the characteristic = 5
- Number of people in the sample = 10
- Number of new cases during a specified time period = 5
- Person-time at risk = $2.5 + 3 + 5 + 5 + 0.5 + 4 + 4 + 5 + 5 + 5 = 39$ person-years

$$\text{Prevalence} = \frac{5}{10} = 0.5 \times 100\% = 50\%$$

$$\text{Incidence} = \frac{5}{39} = 0.128 \times 1000 = 128 \text{ cases per 1000 person-years}$$

HAZARD RATIO: A measure of an effect of an exposure on an outcome over time.

Example:

HR = 0.5 means, at any point in time, the risk of developing an outcome is half as high among the exposed group compared to the non-exposed group (i.e., the risk is twice as high among the non-exposed group compared to the non-exposed group)

HR = 1 means, at any point in time, there is no difference in the risk of developing an outcome among the exposed group compared to the non-exposed group

HR = 2 means, at any point in time, the risk of developing an outcome is twice as high among the exposed group compared to the non-exposed group

CONFIDENCE INTERVAL: The range of values where the true estimate will lie. Where we state a 95% confidence interval, this means that if the study was carried out 100 times and confidence intervals were calculated for each, 95 out of the 100 calculated confidence intervals would contain the true estimate.

Report



Introduction

Offending behaviour can encompass anything from theft to murder. While there is such a wide range of offences, research into offending behaviour among military personnel has largely focused on violent offending. Previous research has demonstrated that offending behaviour, particularly violent offending is prevalent among military populations (1-5).

Although non-violent offending behaviour has not yet been examined to the same extent, research has suggested that there is a higher prevalence of non-violent compared to violent offending among military populations (6).

Offending behaviour impacts on military personnel's career, and on their families (7), not to mention the impact offending behaviour has on the victim, their families and the wider community (8). It also imposes a substantial drain on administrative and criminal justice resources (8).

The percentage of male ex-Armed Forces personnel with a conviction record has been found to be less than the percentage of similarly aged males from the general population (17.0% and 28.3% respectively) (1). However, the percentage of military personnel (serving or ex-serving) with a conviction for a violent offence at some point in their lifetime is higher than seen in males in the general population (11.0% and 8.7% respectively) (1). These findings are supported by government reports from both the United Kingdom (UK) and the United States (US) which have described overall lower proportions of ex-serving personnel in prison compared to the proportion of the general population (9-12). These reports also show that they are more likely to receive a prison sentence for

a violent offence than offenders from the general population (10-13).

It has been suggested that military service may have an impact on criminal offending trajectories (14-19). Military service has been described as a "turning point" (16) and studies have demonstrated that military service may have a positive influence on individuals from more disadvantaged or difficult backgrounds (20). However, other research has demonstrated that military service may have a negative impact on some individuals and that deployment to conflict zones and combat exposure is linked to increased offending behaviour (17-19).

Research has consistently demonstrated that factors associated with increased risk of offending behaviour in military populations, both violent and non-violent, include both non-military and military specific factors. Non-military factors such as being male, younger in age, having lower levels of educational attainment and having a history of antisocial behaviour (ASB) increased the risk of subsequent offending behaviour (1-3, 6, 21). Military specific factors, including experiences on deployment, combat and trauma exposure, have been suggested to further increase the risk of subsequent offending behaviour (1-3, 6, 21).

King's Centre for Military Health Research has conducted several data linkage studies with different official UK databases on offending. The first study linked a large random sample of UK military personnel with official criminal records from the Ministry of Justice (MoJ) Police National Computer (PNC) database (1). The study found that 17.0% of male UK military

personnel had a recorded criminal offence during their lifetime and 11.0% were violent offenders (1). This study also suggested that offending behaviour increases from the pre-service to pre-deployment and post-deployment periods (1). Unfortunately, the study did not have access to specific in-service offending records from the REDCAP database.

A recent UK data linkage study examining in-service offending behaviour with official criminal records from the Ministry of Defence (MoD) Service Police Crime Bureau (SPCB) REDCAP database found that almost 30.0% of Regular serving personnel had at least one record of an offence during service, where 11.0% were violent offenders (6). This study did not focus solely on violent offending and found that a large proportion of offences were non-violent crimes. However, this study did not explore offending pre- or post-service.

Previous research has explored offending behaviour at specific time periods related to military service, for example, post-deployment and post-service (1, 21), or in-service (6). The current study builds on previous research to further examine offending behaviour (violent and non-violent) throughout the life-course in UK military personnel using official offending records, and allows the comparison of offending behaviour pre-service, during service and post-service using a single data source.

Research Aims and Objectives

The “Lifetime Offending Behaviour among UK Military Personnel” study sought to explore offending behaviour throughout the life-course of military personnel using official offending records.

Upon initial development of the project, the aim of the study was to merge official offending records from the MoJ PNC and the SPCB REDCAP databases to have a complete record of lifetime offending. As we were unable to merge the datasets due to data sharing limitations, we proceeded with the PNC database only.

This study examines offending behaviour prior to joining service, throughout the service period and beyond, taking into consideration transition periods. The main aim of the study was to gain insight into how offending behaviour changes from pre-service to in-service to post-service periods and to investigate the life-course offending trajectories of military personnel who offend. Therefore, there were three main study objectives:

- 1 To describe and compare the prevalence of and risk/protective factors for offending pre-service, during service and post-service periods.
- 2 To examine the offending trajectories of military personnel who offend in the pre-service, in-service and post-service periods.
- 3 To identify different offender groups and their respective profile characteristics.



Methods

Study Design

This was a data linkage study using data from the third phase of the KCMHR Health and Wellbeing cohort study and the Ministry of Justice (MoJ) Police National Computer (PNC) Database. The PNC database is the UK national criminal offence database for recording standard offences. Recordable offences (any offences that are punishable by imprisonment and some non-imprisonable offences (22)) that have been dealt with by the military police are recorded in military criminal records and transferred to the PNC.

The present study used a sample of UK Armed Forces personnel who were recruited for the KCMHR Health and Well-being cohort study in 2003. Phase 1 took place between 2003-2005 (23), Phase 2 between 2007-2009 (24) and Phase 3 between 2014-2016 (25).

The cohort study data was collected using self-completion questionnaires at each study phase and consisted of seven main sections: (i) sociodemographics, (ii) service information, (iii) experiences prior to deployment or experiences since leaving service (if applicable), (iv) experiences on deployment, (v) experiences after most recent deployment, (vi) current mental and physical health, and (vii) background information including past medical history and adversity in early life.

Only participants who consented to further contact for the Health and Well-being cohort study at Phase 3 were included in the linkage. The final sample consisted of 11,418 serving and ex-serving UK military personnel (9,652 Regular and 1,766 Reserve).

Linkage procedure

The MoJ were sent a list of KCMHR personal identifiers including first, last name and initials, gender, and date of birth. A scrambled unique King's ID number was also sent securely. The MoJ conducted the linkage on the 21st September 2017 and all offence records associated with an individual were linked with the scrambled ID number. The linkage provided information including the date of offence, order of offences (if more than one), legal definition (including official offence codes) and the outcome of the offence and sent securely back to KCMHR. Once received, the KCMHR Senior Database Administrator unscrambled the unique King's ID number, and the offences were linked with the KCMHR cohort study data. A flow chart of the linkage process can be found in Appendix A (Appendix Figure 1).

The linkage was conducted without explicit consent from participants due to the risk of response bias as it was argued that with informed consent, participants with offending histories would either be less likely to be traceable or less likely to consent. All appropriate approvals were obtained and discussed with relevant bodies, including the Information Commissioner's Office. An appropriate data sharing agreement was in place with the MoJ and ethical approval was obtained through the Ministry of Defence Research Ethics Committee (MoDREC). Participants were informed of the study and data linkage by newsletter and making the study details available on the KCMHR website. All participants were given the opportunity to object and withdraw from the study if they so choose.

Study Participants

The study consisted of 11,418 male and female UK military personnel with a median age (age at most recent questionnaire completion) of 35.4 years (Interquartile Range (IQR) (28.1-44.0 years). The sample was mainly comprised of men (89.5%), serving in the Army (63.4%) and non-commissioned officers (61.2%). 65.6% (n=6,783) of the sample had left service by the MoJ PNC linkage data extraction date (21st Sept 2017).

Measures

Offending Behaviour

All indictable offences on the PNC were included. Possible outcomes included convictions, cautions, reprimands and warnings. Offences were categorised based on their legal definition into four main mutually exclusive categories: violent, alcohol/drug, risky driving and other non-violent offences (Table 1). Violent offences were categorised in line with a previous data linkage

Table 2: List of included offences in the five main offence categories

Offence Categories		Included Offences
Violent	Violent and/or Sexual	<ul style="list-style-type: none"> ♦ Verbal aggression ♦ Minor interpersonal violence ♦ Major interpersonal violence ♦ Other aggressive behaviours ♦ Non-violent sexual offence ♦ Violent sexual offences
Non-violent	Alcohol/Drug	<ul style="list-style-type: none"> ♦ Impaired driving ♦ Drug offences ♦ Drunk/disorderly
	Risky Driving	<ul style="list-style-type: none"> ♦ Careless driving ♦ Speed limit offences ♦ Dangerous driving ♦ Reckless driving
	Other Non-Violent	<ul style="list-style-type: none"> ♦ Theft/handling stolen goods ♦ Fraud/forgery ♦ Breach offences ♦ Other non-violent offences: for example, vagrancy, public nuisance, other indictable offences ♦ Motoring offences (not risky driving): for example, driving whilst disqualified or failing to stop after an accident

study (1) between the KCMHR cohort study and MoJ PNC and based on Home Office offence categorisation as described in the Home Office Group Classification document (26) (Table 2).

Offenders were categorised as either violent or non-violent offenders. Participants with a record of a violent offence were categorised as “violent

offenders” irrespective of whether they also had a non-violent offence. Participants who only had records of non-violent offences were categorised as “non-violent offenders”.

Offences were categorised as having occurred pre-service, during service and post-service based on dates of hire and actual or projected dates of

Table 3: Classification of violent offences

Violent offence Classification	Examples of Offence Description provided
Verbal aggression	<ul style="list-style-type: none"> • Racial harassment • Using threatening, abusive, insulting words or behaviour with intent to cause fear or provocation of violence • Pursued a course of conduct which amounted to harassment • Harassment – put in fear of violence
Minor interpersonal	<ul style="list-style-type: none"> • Battery (assault by beating) • Affray • Assault a constable • Common Assault • Possessing firearm without certificate • Assault with intent to resist arrest
Major interpersonal	<ul style="list-style-type: none"> • Grievous Bodily Harm • Assault occasioning Actual Bodily Harm • Wounding / inflicting grievous bodily harm • Causing explosion with intent to do grievous bodily harm • Murder of person 1 year or over (Common Law)
Other aggressive behaviours	<ul style="list-style-type: none"> • Aggravated vehicle taking • Arson • Criminal damage • Destroy or damage property
Non-violent sexual	<ul style="list-style-type: none"> • Possessing an indecent photograph or pseudo-photograph of a child under 16 years • Indecent exposure (any other indecent exposure) • Voyeurism – observing a person doing a private act • Persistently solicit person(s) for prostitution
Violent sexual	<ul style="list-style-type: none"> • Sexual assault on a male aged 13 or over – no penetration • Rape – Female 16 years or over • Indecent assault on a female 16 years or over • Sexual assault on a female aged 13 years or over – no penetration • Attempted Rape – Female 16 years or over

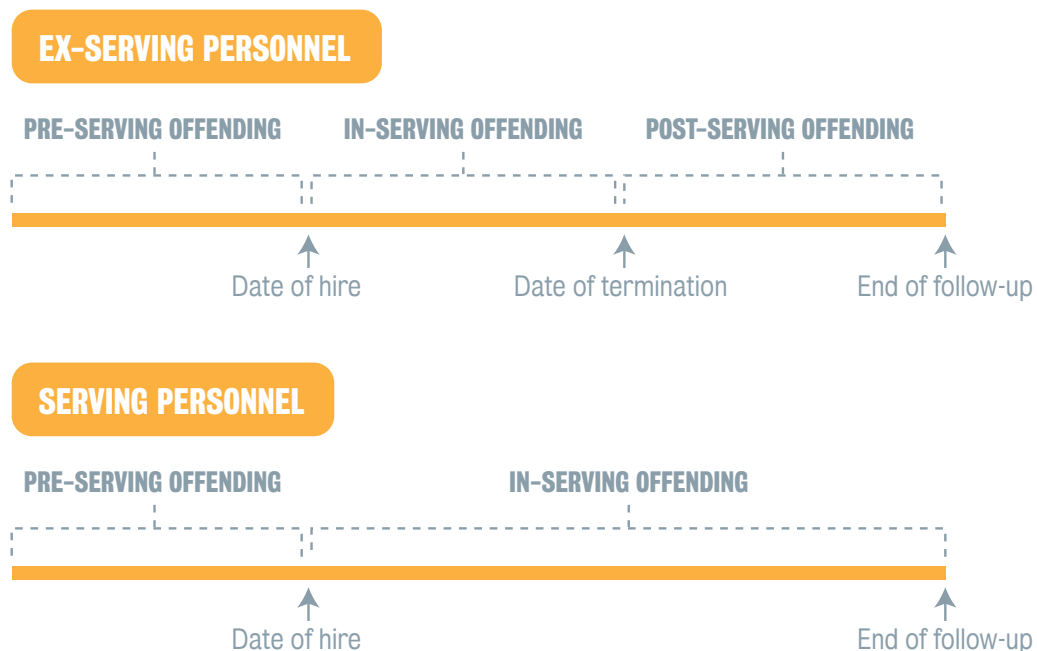
NB: Included offences are examples and not an exhaustive list

termination supplied by Defence Statistics (Figure 2). Pre-service offences were any offences that occurred prior to participants' date of hire. In-service offences were any offences that occurred between participants' date of hire and date of termination (or end of follow-up if participants were still in service at the data extraction date). Post-service offences were any offences that occurred after participants' actual or projected termination date.

Risk and protective factors

A variety of risk and protective factors were explored to assess their association with offending behaviour (both violent and non-violent). These included sociodemographic and military characteristics, deployment and role during deployment, combat and trauma exposure and post-deployment mental health and alcohol misuse.

Figure 2: Time-periods of offending



Non-offenders were used as the comparison group for analyses.

Table 4: Factors explored identifying associations with offending behaviour from the Phase 3 cohort questionnaire

FACTOR	DEFINITION AND MEASUREMENT
SOCIODEMOGRAPHIC CHARACTERISTICS	
Age at enlistment	Self-reported age at enlistment categorised into groups: <20, 20-24, 25-29 and 30+ years
Most recent age	Age at most recent questionnaire completion categorised into groups: <30, 30-34, 35-39, 40-44 and 45+ years
Sex	Male/Female
Educational attainment	Self-reported highest level of educational attainment at most recent questionnaire completion: No qualifications, O Level or equivalent, A Level or equivalent, Degree or post-doctoral degree
Pre-enlistment antisocial behaviour (ASB)	Yes/No – This variable was adapted from a validated questionnaire on childhood adversity (27). Included if answered ‘true’ to “I used to get into fights at school” and any of the following statements: I often used to play truant from school” or “I was suspended or expelled from school” or “I did things that should have got me (or did get me) into trouble with the police” (20, 28).
Adverse childhood experiences (ACE)	Score of 0, 1 or 2+ – This measure was adapted from a validated questionnaire on childhood adversity, Adverse Childhood Exposure study scale (20, 27). Items that endorsed adverse childhood experiences were summed and a final score was given.
Serving status	Regular or Reserve status.
Branch of service	Royal Navy/Royal Marine, Army or Royal Air Force.
Rank	Highest rank achieved at most recent questionnaire completion: Officer, Non-Commissioned Officer (NCO) or Other Rank.
EXPERIENCES DURING MILITARY SERVICE	
Length of Service	This variable was calculated based on the time between date of hire and date of discharge supplied by DASA (or data extraction date if participant was still serving). This variable was categorised based on tertiles: <11 years, 11-20 years and >20 years
Early Service Leaver (ESL)	Yes/No – This variable was based on whether participants left service before 4.5 years for Royal Navy/Marines personnel, 4 years for Army personnel and 3 years for RAF personnel(29).
Method of Discharge	Planned/Unplanned – This variable was based on participants response to how they were discharged from military service. Examples of having a planned method of discharge: reached the end of their contract or retired. Examples of having an unplanned method of discharged: medically discharged or temperamental unsuitability
Deployment	Yes/No – This variable was based on whether participants had been deployed to Iraq or Afghanistan. Participants’ first reported deployment was used. This was a time-varying co-variate due to the deployment date being different for each participant.

FACTOR	DEFINITION AND MEASUREMENT
Combat exposure	Yes/No – This variable was based participants’ role during their most recent deployment at the earliest completed questionnaire. Participants were categorised as having combat exposure if they reported being in direct combat with enemy forces. Participants were categorised as not having combat exposure if they reported being in combat support (e.g. engineers and intelligence) and combat support services roles (e.g. logistic and medical).
Trauma exposure	This variable was based on the number of traumatic exposures endorsed by participants. Questions were asked about a range of traumatic events (including, seeing personnel wounded or killed, handling bodies, landmine strike etc.), adapted from the combat experience scale (30). The number of traumatic events was categorised into 3 groups: 0-1, 2-4 and 5 or more. The highest number of traumatic events related to participants’ earliest deployment was used for analyses.
POST-SERVICE SOCIAL RISK FACTORS	
Debt problems	Yes/No – This variable was based on whether participants answered ‘Yes’ or ‘No’ to the question: “Do you have problems paying money owed).
Accommodation	Permanent/Temporary – This variable was based on participants reported living arrangements at most recent questionnaire completion and was then collapsed into a binary variable (permanent vs temporary).
Employment	Yes/No – This variable was based on whether participants answered ‘Yes’ or ‘No’ to the question: “Are you currently employed?
Relationship status	This variable was based on participants most recent marital status: Long-term relationship vs single.
Relationship satisfaction	Satisfied/Not satisfied – This variable was based on participants response to the question: “How satisfied are you with your marriage/relationship”.
MENTAL HEALTH AND ALCOHOL MISUSE	
Post-Traumatic Stress Disorder (PTSD)	Yes/No – This variable was measured using the PTSD Checklist (PCL-C) where a score of 50 and above indicated probable PTSD (31). Participants’ first reported score indicating probable PTSD was used.
Alcohol misuse	Yes/No – This variable was measured using the Alcohol Use Disorder Identification Test (AUDIT) where scores of 16 and above indicated alcohol misuse (32). Participants’ first reported score indicating alcohol misuse was used.
Common mental disorders (CMD)	Yes/No – This variable was measured using the short version of the General Health Questionnaire-12 (GHQ-12) where scores of four or above indicated the presence of probable mental health problems (33). Participants’ first reported score indicating probable mental health problems was used
Aggression	Yes/No – This variable was measured using a set of questions from a validated measure of self-reported aggression (34). Participants were categorised as having displayed anger if they endorsed any of the following questions in the past month: 1 - get angry with someone and yelled/shouted at them; 2 - get angry with someone and kicked/smashed something, slammed the door, punched the wall etc; 3 - get angry with someone and hit the person; 4 - threaten someone with physical violence. Participants’ first endorsement of aggression was used.

Ethical Approval

Ethical approval was obtained for the data linkage study from the Ministry of Defence Research Ethics Committee (MoDREC) on 09/04/2020 (reference 448/MODREC/13).

Statistical Analyses

The statistical analyses for each aim of the study are detailed in Table 5 below:

Statistical Analyses for Objective 1: Prevalence and incidence of offending and the factors associated with offending at each time-period.

Descriptive statistics were conducted to determine the prevalence and incidence of offending as well as offending patterns and characteristics for different offender categories at each time-period.

Cox regression analyses were conducted to

explore the risk and protective factors associated with in-service and post-service offending. The impact of deployment, combat and trauma exposure were also explored, along with reported mental health issues, including symptoms of PTSD, alcohol misuse, CMD and anger. Each model was adjusted for potential confounding variables using multivariable cox regression analyses.

Statistical Analyses for Objective 2: Offending trajectories from pre-service to in-service and post-service

The trajectory of offending behaviour from pre-service to in-service was explored by comparing individuals with and without a record of pre-service offending and their subsequent in-service offending. Univariable and multivariable cox regression analyses were conducted.

Table 5: Aims and associated statistical analyses

AIM	ANALYSES
1a: To determine the prevalence and incidence of offending at each time-period	Descriptive statistics
1b: To determine any offending patterns and characteristics for different offender categories at each time-period	Descriptive statistics
1c: To explore the risk and protective factors of offending behaviour, including the impact of deployment, combat and trauma exposure and self-reported mental health problems.	Univariable and multivariable cox regression analyses
2a: To explore the trajectory of offending behaviour from pre-service to in-service	Univariable and multivariable cox regression analyses
2b: To explore the trajectory of offending behaviour from in-service to post-service	Univariable and multivariable cox regression analyses
3a: To determine the profile characteristics of offenders in each offending pattern group	Descriptive statistics
3b: To explore the impact of pre-discharge offending patterns on post-service offending	Univariable and multivariable cox regression analyses

Similarly, the trajectory of offending behaviour from in-service to post-service was explored by comparing individuals with and without a history of offending during service and their subsequent post-service offending. Again, univariable and multivariable cox regression analyses were conducted. Only ex-serving personnel were included in these analyses (n=6,783).

Statistical Analyses for Objective 3: Patterns of Offending behaviour over time

Offending behaviour patterns over time were separated into 8 different categories among ex-serving personnel (N=6,783) (Figure 3):

1. Non-offender,
2. Persistent offender,
3. Post-joining onset offender,
4. Post-leaving onset offender,
5. Desisted post-joining,
6. Desisted post-leaving,
7. Offended during service only and
8. Did not offend during service.

Descriptive statistics were conducted to determine the sociodemographic characteristics of offenders belonging to each of offending pattern group. This was followed by a series of Chi2 analyses to determine if there were significant differences between the sociodemographic characteristics of each offending pattern.

The impact of pre-discharge offending patterns on post-service offending was explored by comparing individuals with and without a history of pre-discharge offending (violent and non-violent) and subsequent post-service offending. This was done using univariable and multivariable cox regression analyses.

The analyses for each aim were conducted using StataMP (35) and results were expressed in hazard ratios (HR) with a 95% confidence interval (CI). Significance was set at 0.05.



Findings

OBJECTIVE 1:

Prevalence and incidence of offending and the factors associated with offending at each time-period.

Prevalence

16.2% of the sample (n= 1,957) had at least one record of an offence. This includes any offence at any time-period (pre-, in- or post-service). Figures 3-5 depict the prevalence of offending at each time-period.

Of 1,957 offenders:

- 36.2% (n=806) of offenders had a record of an offence pre-service
- 69.6% (n=1,301) of offenders had a record of an offence during service
- 29.1% (n=341) of offenders who were ex-serving personnel (1,247) had a record of an offence post-service

Incidence

The incidence of offending was highest during the post-service period and lowest pre-service. The incidence of non-violent offending was consistently higher than violent offending (Table 5).

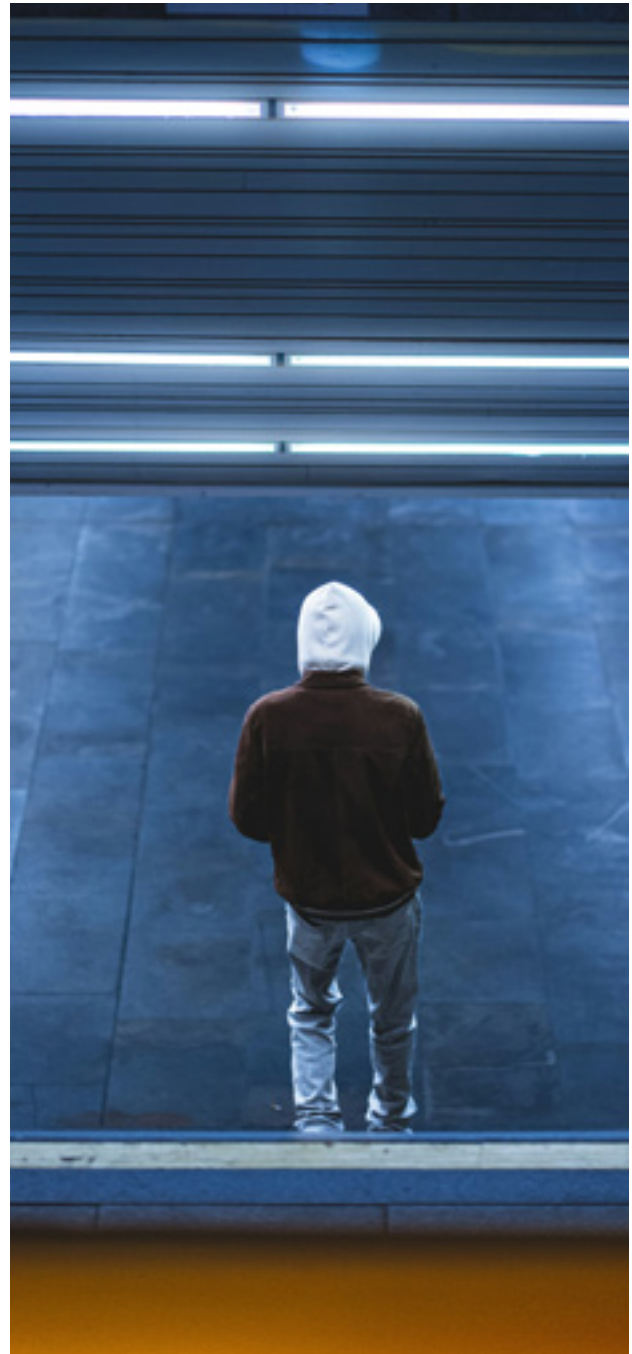


Figure 3: Offending behaviour pattern among ex-serving personnel (N=6,783)

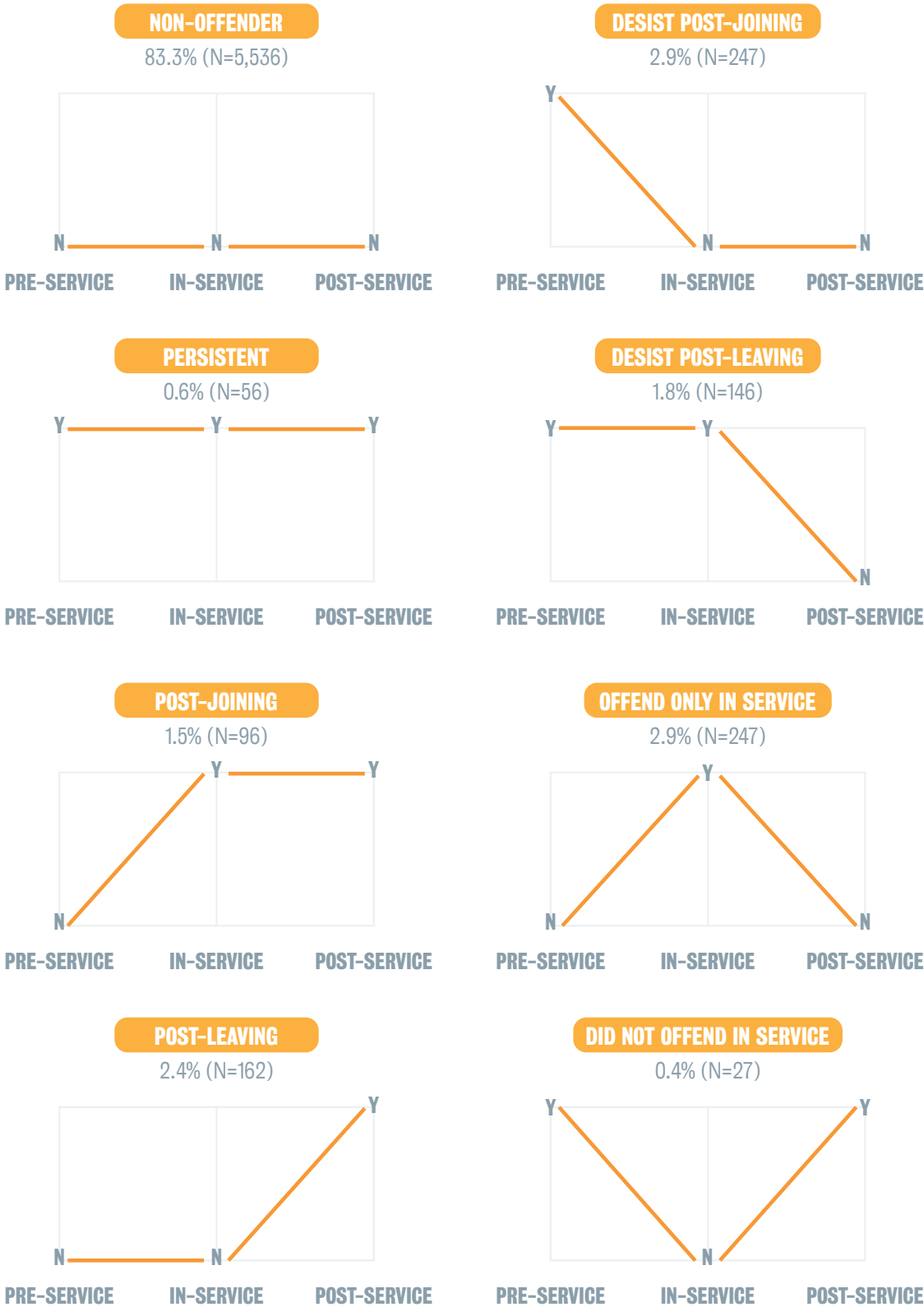


Figure 4: Prevalence of pre-service offenders (N=11,418)

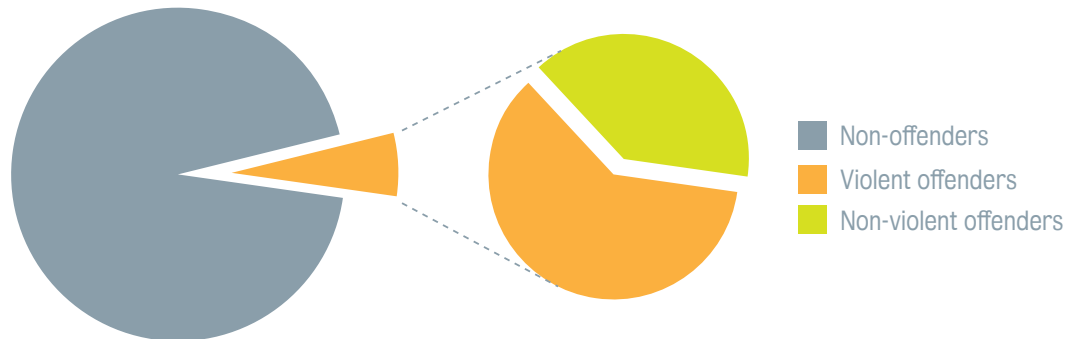


Figure 5: Prevalence of in-service offenders (N=11,418)

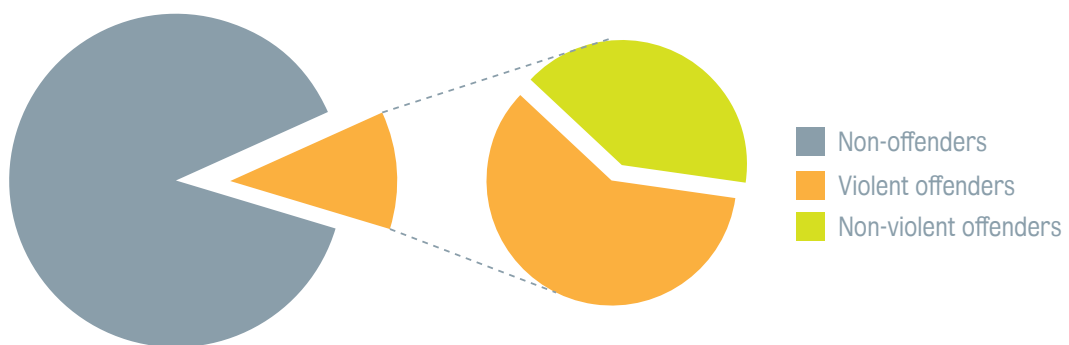


Figure 6: Prevalence of post-service offenders (N=11,418)

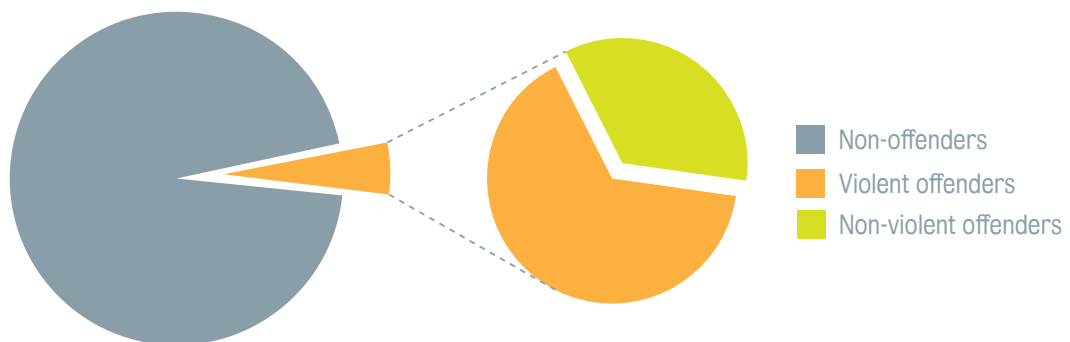


Table 6: The incidence of offending

	Any offending	Violent offending	Non-violent offending
Pre-service	4.3/1,000 p-y	0.7/1,000 p-y	2.9/1,000 p-y
In-service	7.0/1,000 p-y	1.4/1,000 p-y	4.9/1,000 p-y
Post-service	7.5/1,000 p-y	1.4/1,000 p-y	4.1/1,000 p-y

Characteristics of Offenders

The demographic distribution of non-offenders was similar to the overall characteristics of the sample.

Below is a brief comparison of offenders and non-offenders where significant differences are present :

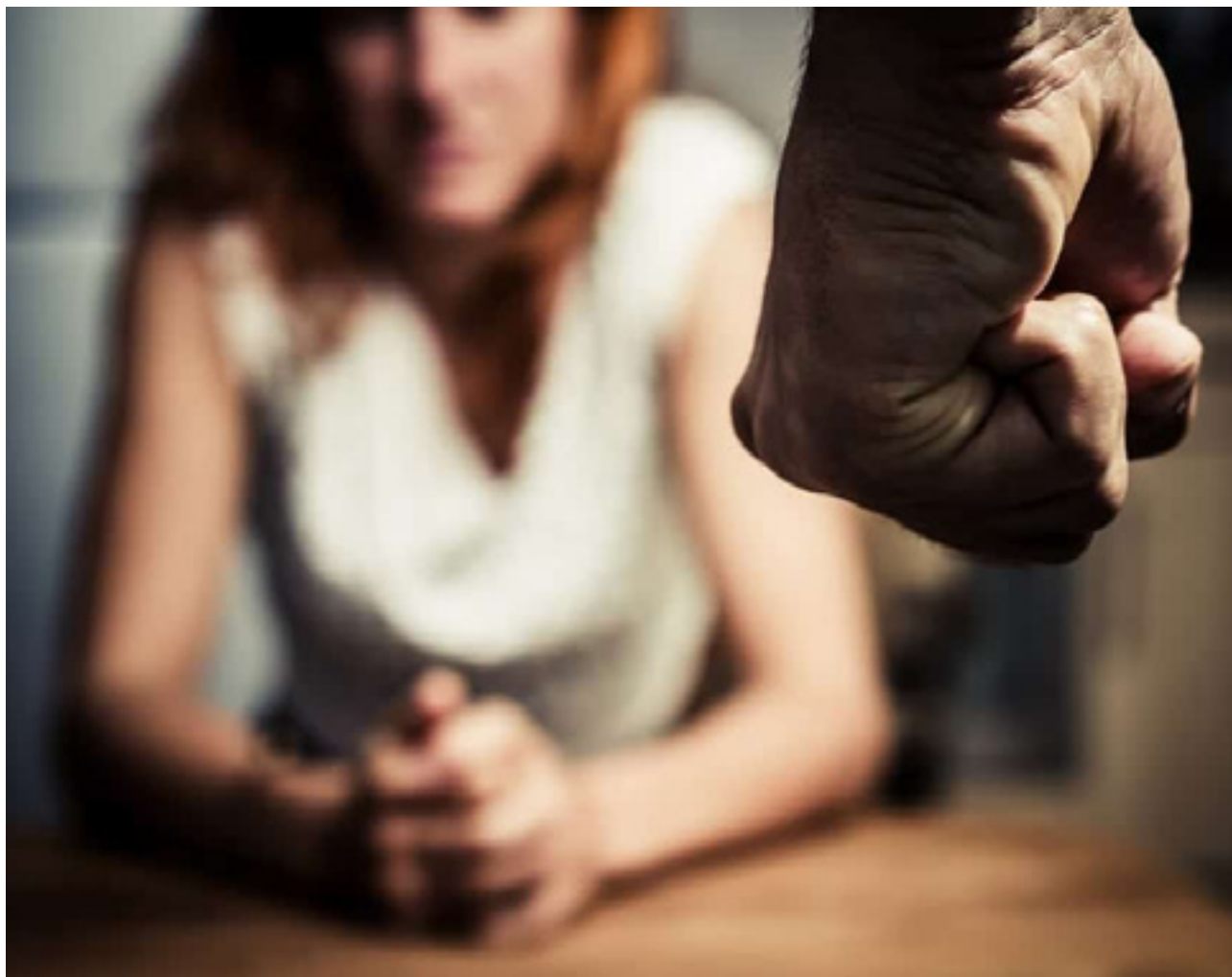
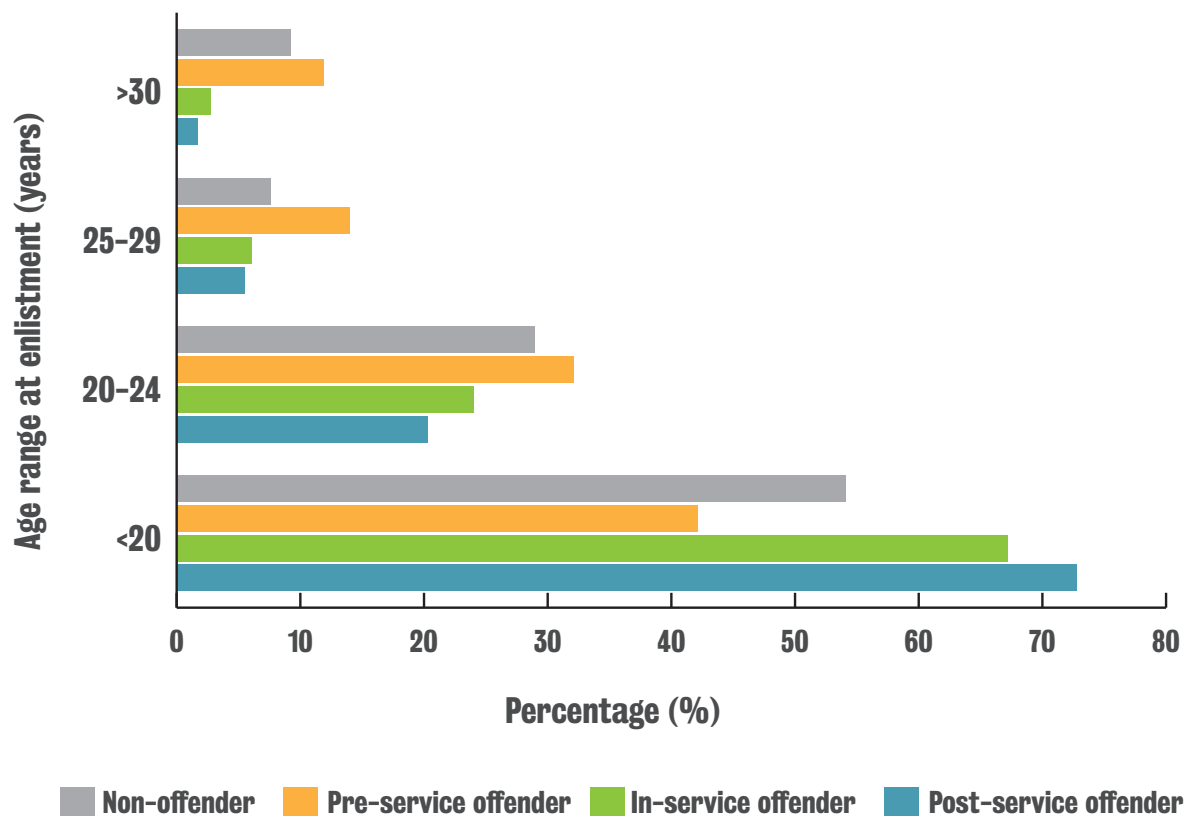


Figure 7: Comparison of offenders and non-offenders by age at enlistment



Pre-service: 11.9% of pre-service offenders were over the age of 30 years at enlistment compared to 1.6% of pre-service non-offenders.

In-service: 67.2% of in-service offenders were less than 20 years old at enlistment compared to 47.5% of in-service non-offenders.

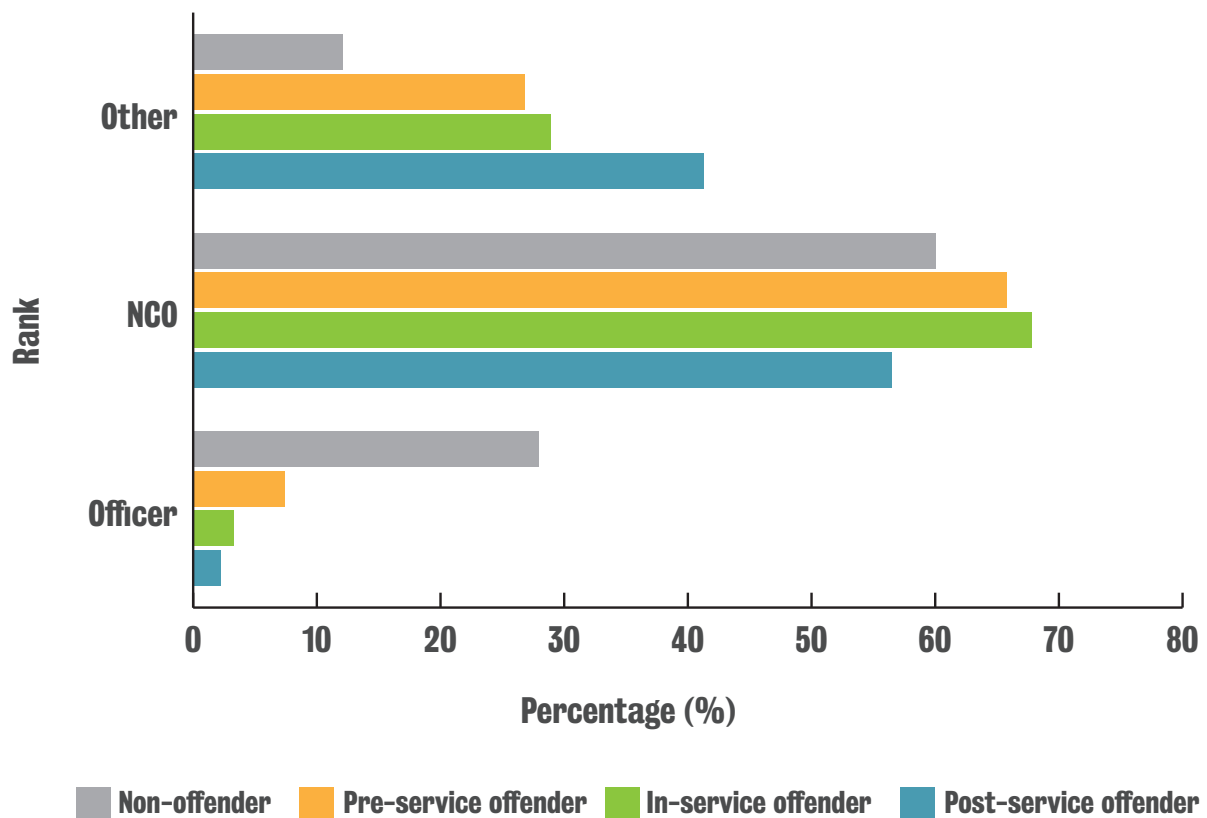
Post-service: 72.8% of post-service offenders were less than 20 years old at enlistment compared to 58.1% of post-service non-offenders.

Comparison: Regardless of when the offending took place, offenders were more likely to be younger at enlistment (less than 20 years old).

♦ 42.1% of pre-service offenders, 67.2% of in-service offenders and 72.8% of post-service offenders).

Rank at most recent completed questionnaire

Figure 8: Comparison of offenders and non-offenders on rank



Pre-service: 7.4% of pre-service offenders held an officer rank compared to 2.8% of pre-service non-offenders.

In-service: 3.3% of in-service offenders held an officer rank compared to 7.3% of in-service non-offenders.

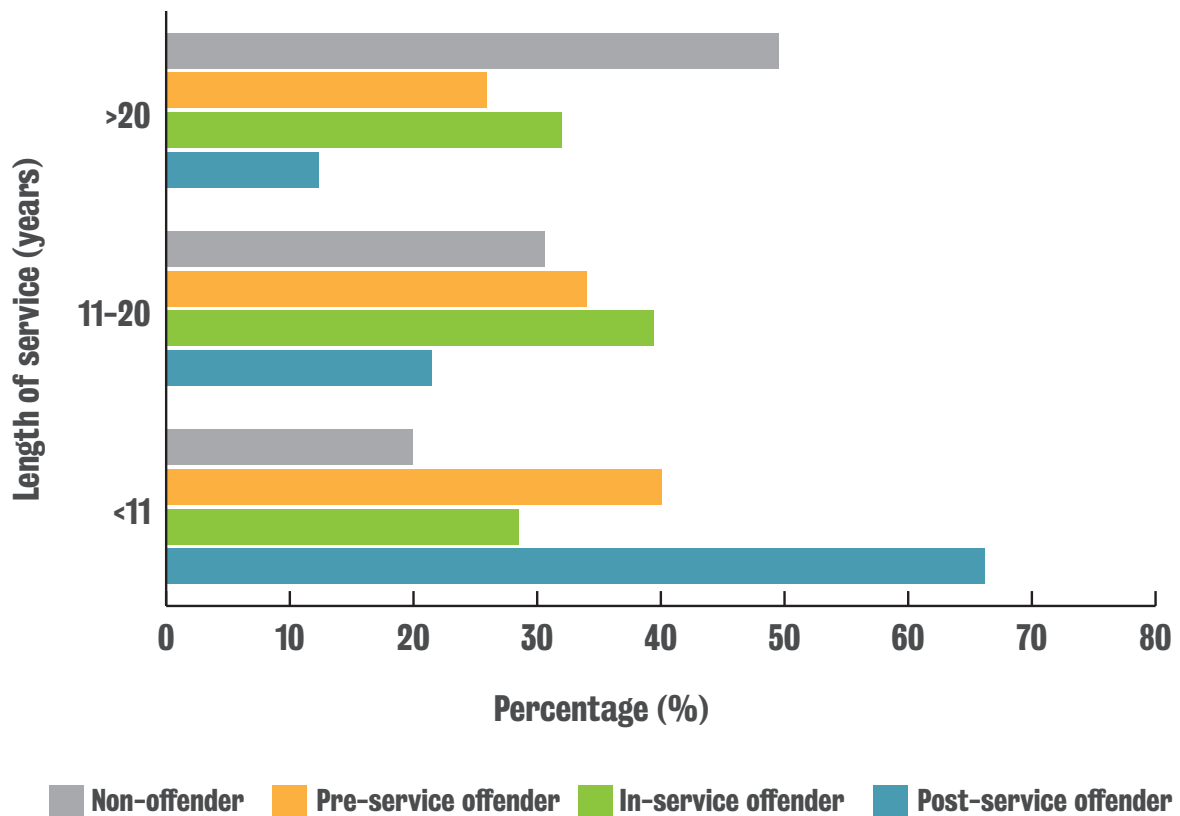
Post-service: 41.3% of post-service offenders held a lower rank (i.e. any rank lower than NCO) compared to 28.8% of post-service non-offenders.

Comparison: Regardless of when the offending took place, offenders were more likely non-commissioned officer ranks.

♦ 41.3% of post-service offenders held lower ranks compared to 26.8% of pre-service offenders and 28.9% of in-service offenders.

Length of Service

Figure 9: Comparison of offenders and non-offenders by length of service



Pre-service: 40.1% of pre-service offenders served for less than 11 years compared to 31.5% of pre-service non-offenders.

In-service: 28.5% of in-service offenders served for less than 11 years compared to almost half of in-service non-offenders (48.4%).

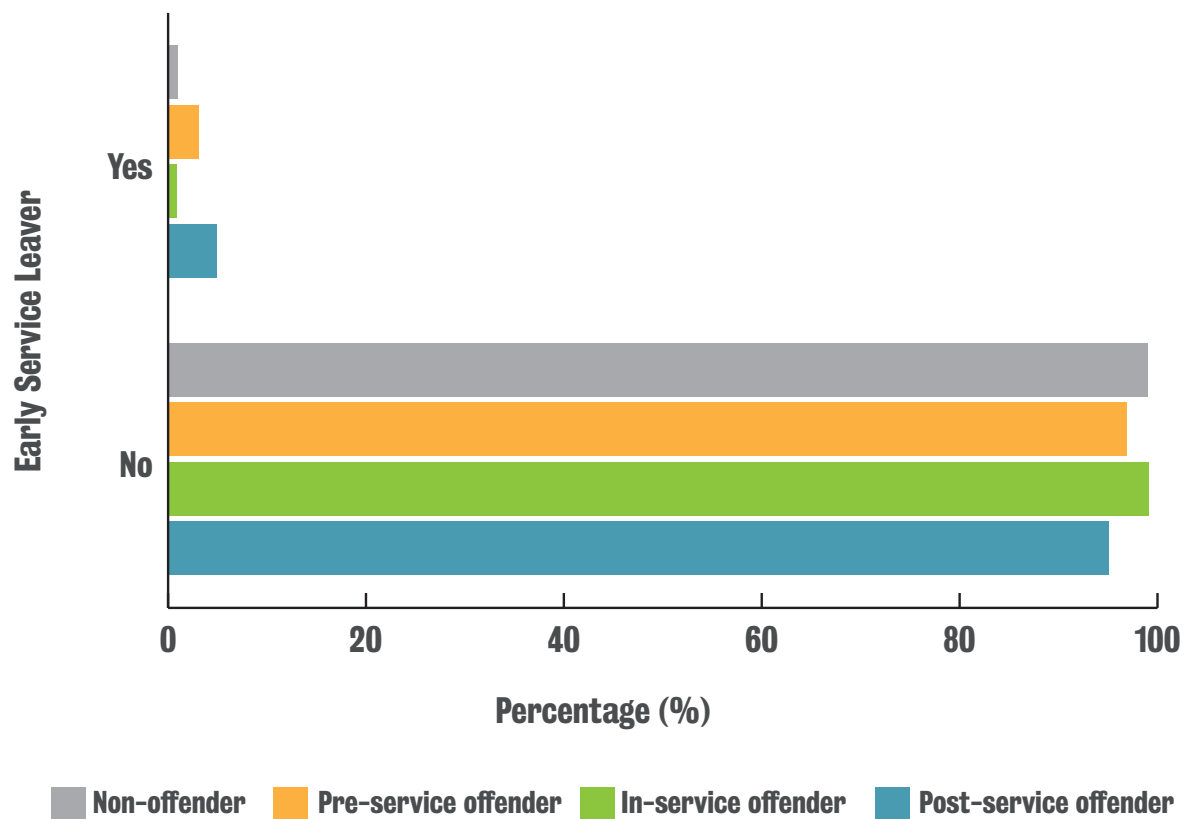
Post-service: 66.2% of post-service offenders served for less than 11 years compared to 39.0% of post-service non-offenders, while 12.3% of post-service offenders served for more than 20 years compared to 32.6.0% of post-service non-offenders.

Comparison: 12.3% of post-service offenders served in the military for more than 20 years compared to 25.9% and 32.0% of pre-service and in-service offenders respectively.

- ♦ The majority of post-service offenders (66.2%) had served for less than 11 years compared to 40.1% of pre-service offenders and 28.5% of in-service offenders.

Early Service Leavers

Figure 10: Comparison of offenders and non-offenders by early service leaver status



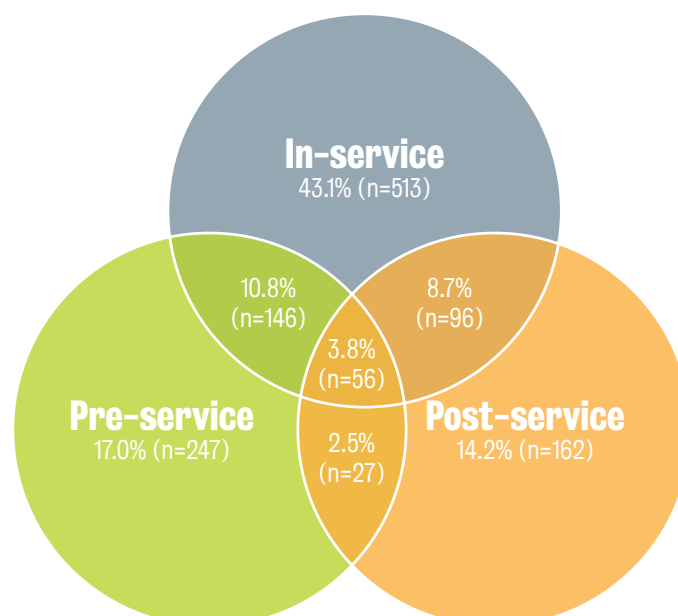
Pre-service: 3.1% of pre-service offenders were early service leavers compared to 0.9% of pre-service non-offenders.

In-service: 0.9% of in-service offenders were early service leavers compared to 3.4% of in-service non-offenders).

Post-service: 4.9% of post-service offenders were early service leavers compared to 1.4% of post-service non-offenders.

Comparison: 3.1% of pre-service offenders and 4.9% of post-service offenders were early service leavers compared to 0.9% of in-service offenders.

Figure 11: Venn diagram of offenders at each time-period (N=1,247)



Comparison of Types of Offenders at each time-period

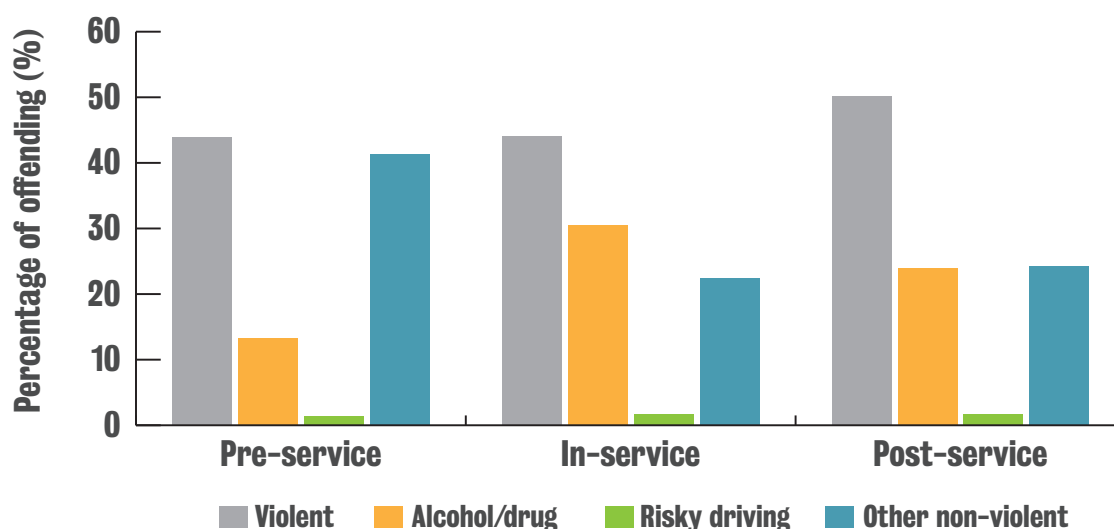
The sociodemographic characteristics of violent and non-violent offenders at each time-period was similar. They were younger males with lower levels of educational attainment who were members of the Army and held non-commissioned officer ranks.

The following section will discuss offences. Offenders were categorised as either violent or non-violent offenders and we did not delve further into the specific types of offences. As it was possible for offenders to commit offences from multiple offence categories, we were unable to categorise offenders into further subgroups. Offenders also could have committed multiple offences of the same type. Each individual offence was counted regardless of whether it was committed by the same offender in the subsequent analyses.

Comparison of Offences

- The percentage of violent and sexual offences was similar during the pre-service and in-service periods and was higher during the post-service period.
- There was a higher percentage of alcohol/drug offences during service compared to pre-service and post-service.
- The percentage of risky driving offences was lowest compared to other types of offending, but similar across all time-periods.
- The percentage of 'other non-violent offences' decreased from pre-service to in-service and post-service periods.

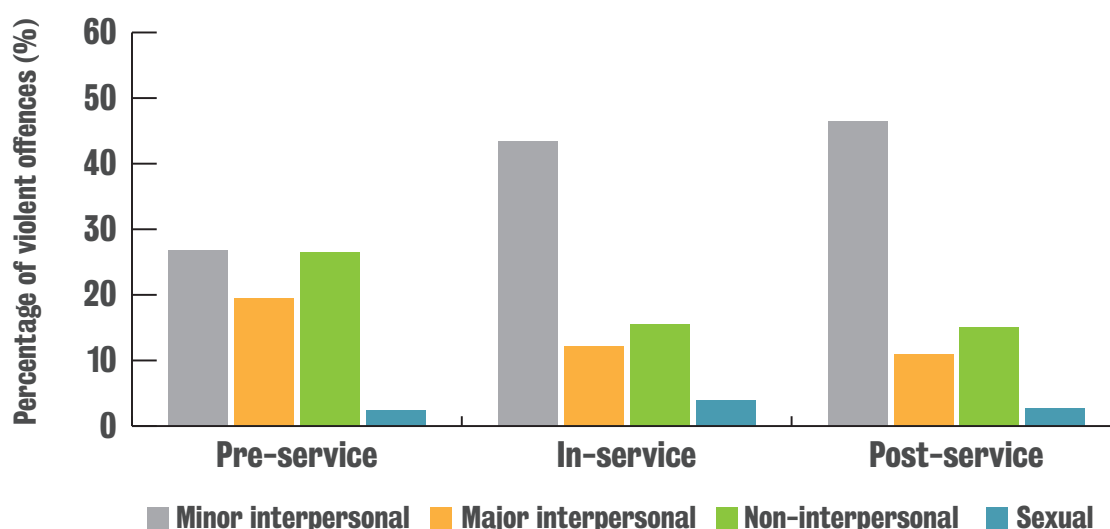
Figure 12: Percentage of offending at each time-period by offence category



- The percentage of minor interpersonal offences increased from pre-service to in-service to post-service periods and was highest compared to other types of violent offences.
- The percentage of major interpersonal and non-interpersonal violent offences was similar during

- the in-service and post-service periods, but was higher during the pre-service periods.
- The percentage of non-violent offences drops after joining the military while the percentage of violent offences increase.

Figure 13: Breakdown of violent offences at each time-period



Factors Associated with Offending

Tables including hazard ratios for in-service and post-service offending can be found in Appendix C (Appendix Table 3 and Appendix Table 4).

Sociodemographic and military factors associated with different types of offending

Age at enlistment, sex, level of education, pre-enlistment ASB, branch of service, rank, adverse childhood experiences and prior offending were all associated with in-service and post-service violent and non-violent offending on univariate analyses.

After adjusting for confounding variables, gender, pre-enlistment ASB, branch of service, rank and prior offending continued to be associated with in-service offending (violent and non-violent).

- Being male increased the risk of in-service offending.
- Compared to having no pre-enlistment ASB, having a history of pre-enlistment ASB increased the risk of in-service offending.
- Being a member of the Army increased the risk of in-service offending.
- Compared to holding an officer rank, non-commissioned officer ranks showed an increased risk of in-service offending. Compared to being a non-commissioned officer, holding a lower rank increased the risk of in-service offending.
- The risk of offending was increased among non-commissioned officers compared to officers. The risk of offending was increased among those who held a lower rank compared to non-commissioned officers.
- Having a history of pre-service offending increased the risk of in-service offending.

After adjusting for confounding variables, the following variables were associated with increased post-service offending:

- Being male increased the risk of post-service offending.
- Compared to having none, having one adverse childhood experience increased the risk of post-service violent offending.
- Compared to being a member of the RAF, being a member of the Army increased the risk of post-service violent offending.
- The risk of post-service violent and non-violent offending was increased among non-commissioned officers compared to Officers.
- Having a history of offending prior to leaving service was associated with an increased risk of post-service violent and non-violent offending.
- Compared to having a planned method of discharge, having an unplanned method of discharge was associated with an increased risk of post-service violent and non-violent offending.

Impact of Deployment on Offending

Deployment was significantly associated with subsequent violent and non-violent offending. Compared to individuals who were not deployed, those who were deployed to Iraq or Afghanistan were at an increased risk of offending. The association continued to be significant after adjusting for confounding variables including pre-deployment offending.

The majority of first offences that occurred post-deployment are occurring within the first 5 years after returning from deployment. This remains true when we explore violent and non-violent post-deployment offences separately (Figure 14-16). It is noteworthy that while over 30% of post-deployment offences occur during the first two years, when separated into violent and non-violent offending, 22.9% of violent offences occurred during the first two years, compared to 25.8% of non-violent offences.

Figure 14 Percentage of post-deployment offending since returning from deployment

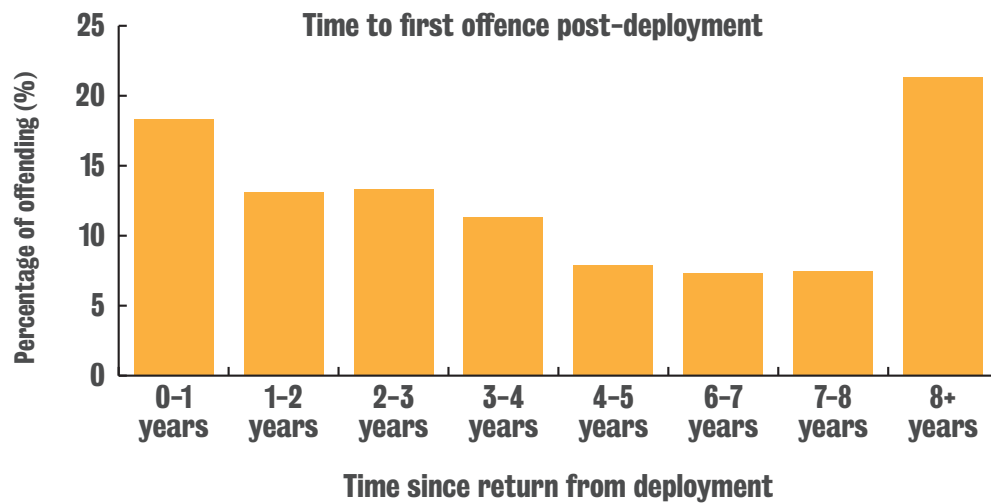


Figure 15: Percentage of post-deployment violent offending since returning from deployment

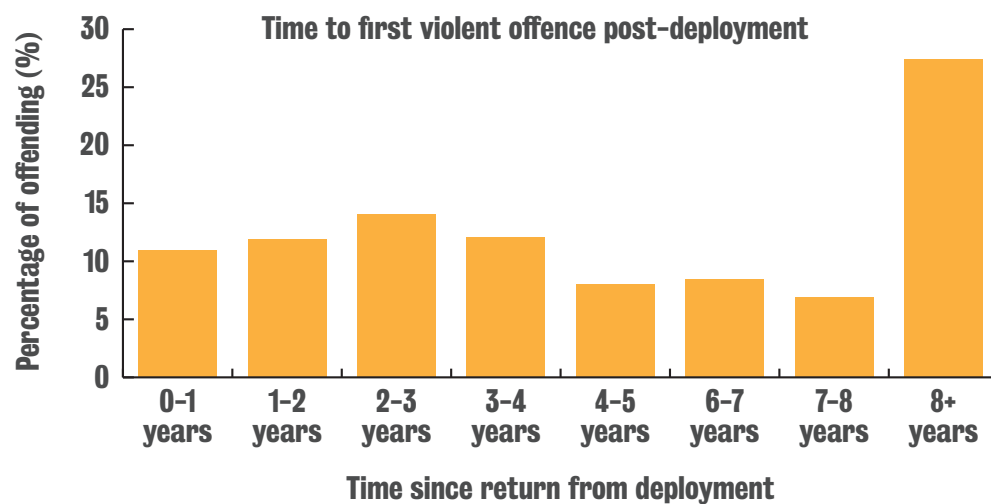
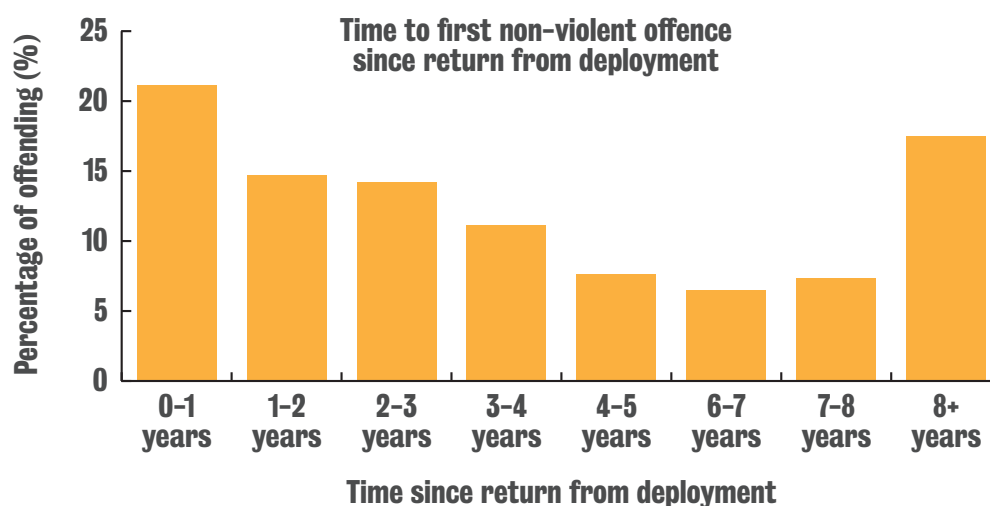


Figure 16 Percentage of post-deployment non-violent offending since returning from deployment



Impact of Combat Exposure on Offending

Compared to being deployed in a non-combat role, being deployed in a combat role was significantly associated with an increased risk of violent and non-violent post-deployment offending. The association continued to be significant after adjusting for confounding variables and pre-combat offending.

Impact of Trauma Exposure on Offending

Compared to having experienced 0-1 traumatic events, having two or more traumatic experiences was significantly associated with an increased risk of subsequent offending (both violent and non-violent) on univariate analyses. This association continued after adjusting for confounding variables for violent offending only. However, having five or more traumatic experiences was significantly associated with an increased risk of non-violent offending after adjusting for confounding variables.

Impact of Mental Health Issues on Offending

Having reported symptoms consistent with a probable diagnosis of PTSD, harmful alcohol

misuse and probable common mental disorder were significantly associated with an increased risk of violent and non-violent offending. These associations continued to be significant after adjusting for confounding variables and pre-service offending.

Aggression was independently associated with violent and non-violent offending, however, after adjusting for potential confounding variables and pre-service offending, only the association with violent offending remained significant.

Summary of factors associated with subsequent offending

- Method of discharge (planned vs unplanned) associated with increased risk of post-service offending (both violent and non-violent).
- Prior offending associated with increased risk of in-service and post-service offending (both violent and non-violent).
- Deployment increased risk of post-deployment offending (both violent and non-violent).
- Combat exposure increased risk of post-combat offending (both violent and non-violent).

- Having more traumatic experiences during deployment increased the risk of violent and non-violent offending.
- PTSD associated with increased risk of subsequent offending (both violent and non-violent).
- Alcohol misuse associated with increased risk of subsequent offending (both violent and non-violent).
- Common mental disorders associated with increased risk of subsequent offending (both violent and non-violent).
- Aggression was associated with increased risk of violent subsequent offending.

Impact of Socioeconomic Factors Post-Service Offending

Having no debt problems, permanent accommodation and being in a long-term relationship were independently associated with a reduced risk of any post-service offending. After adjusting for potential confounding variables, only being in a long-term relationship continued to significantly reduce the risk of any post-service offending among ex-serving personnel.

While having no debt problems, permanent accommodation and being in a long-term relationship were also independently associated with a reduced risk of violent post-service offending, these were no longer significant after adjusting for potential confounders.

Having no debt problems, being employed and being in a long-term relationship were independently associated with a reduced risk of non-violent post-service offending. Only being in a long-term relationship continued to reduce the risk of non-violent post-service offending following adjustment for confounders.

Post hoc stepwise regression analyses revealed that the impact of having a history of pre-enlistment antisocial behaviour was responsible for most of the association between post-service socioeconomic factors and offending.

Impact of Frequency of Offending on Post-Service Offending

Compared to not having offended prior to leaving service, each record of an offence prior to leaving service increased the risk of earlier post-service offending. For example, Table 7 shows that with every additional pre-discharge offence, the risk of post-service offending increases by a factor of 1.03. The confidence interval (1.02-1.05) suggests that if we were to repeat the study 100 times, 95 out of the 100 calculated confidence intervals would contain the true estimate. We can also see that with each additional pre-discharge violent offence, the risk of post-service offending by a factor of 1.30 after adjusting for confounding variables. This suggests that the pre-discharge violent offending is the strongest predictor of post-service offending in these analyses.

Table 7: Impact of frequency of offending on any post-service offending

	Hazard Ratio (HR) (95% CI) p	Adjusted ^a HR (AHR) (95% CI) p
Pre-discharge offending^b	1.03 (1.02-1.05) p<0.001	1.03 (1.02-1.04) p<0.001
Pre-discharge violent offending^b	1.43 (1.32-1.54) p<0.001	1.30 (1.19-1.41) p<0.001
Pre-discharge non-violent offending^b	1.03 (1.02-1.04) p<0.001	1.03 (1.02-1.04) p<0.001

a Adjusted for age at enlistment, sex, educational attainment, pre-enlistment ASB, branch of service, and rank

b Pre-discharge offending as a continuous variable

Table 8: Impact of frequency of offending on violent post-service offending

	Hazard Ratio (HR) (95% CI) p	Adjusted ^a HR (AHR) (95% CI) p
Pre-discharge offending^b	1.03 (1.02-1.05) p<0.001	1.03 (1.02-1.05) p<0.001
Pre-discharge violent offending^b	1.42 (1.31-1.54) p<0.001	1.26 (1.15-1.37) p<0.001
Pre-discharge non-violent offending^b	1.03 (1.02-1.05) p<0.001	1.03 (1.01-1.05) p<0.001

a Adjusted for age at enlistment, sex, educational attainment, pre-enlistment ASB, branch of service, and rank

b Pre-discharge offending as a continuous variable

Table 9: Impact of frequency of offending on non-violent post-service offending

	Hazard Ratio (HR) (95% CI) p	Adjusted ^a HR (AHR) (95% CI) p
Pre-discharge offending^b	1.04 (1.03-1.05) p<0.001	1.04 (1.03-1.05) p<0.001
Pre-discharge violent offending^b	1.49 (1.38-1.61) p<0.001	1.37 (1.25-1.51) p<0.001
Pre-discharge non-violent offending^b	1.04 (1.03-1.05) p<0.001	1.04 (1.03-1.05) p<0.001

a Adjusted for age at enlistment, sex, educational attainment, pre-enlistment ASB, branch of service, and rank

b Pre-discharge offending as a continuous variable

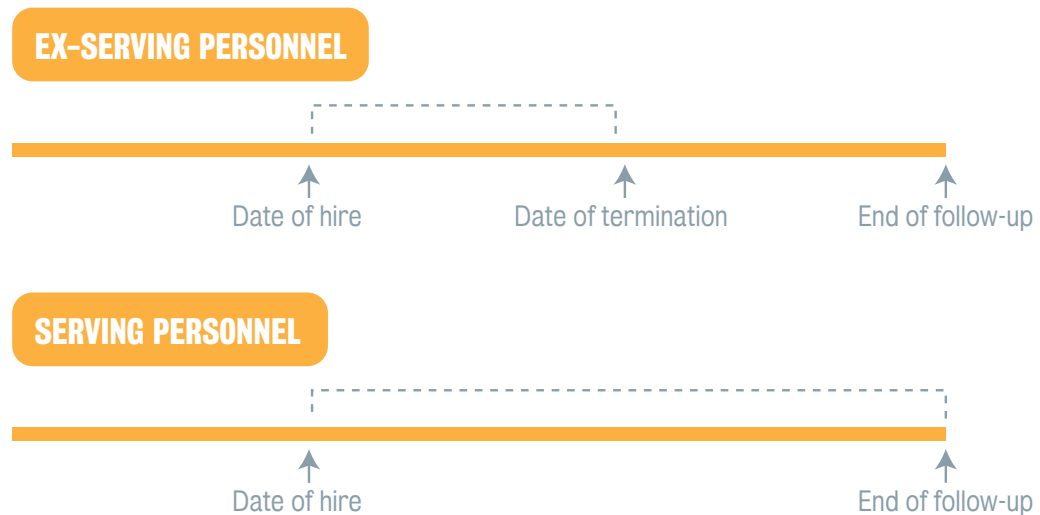


OBJECTIVE 2:

Offending trajectory of military personnel who offend from pre-service to in-service and post-service.

The trajectory of offending behaviour from pre-service to in-service.

Observation period:



The presence of any offending (violent or non-violent) during the pre-service period increased the risk of offending during service. This was the

case for the risk of both in-service violent and non-violent offending (Table 10 and Table 11).

Table 10: Impact of pre-service offending on in-service violent offending among Regular personnel (N=9,652). Type of offender compared to non-offender

	No Offending N=8,951	In-service violent offending % (n) 7.0% (n=701)	Hazard Ratio (HR) (95% CI) p	Adjusted ^a HR (AHR) (95% CI) p
Pre-discharge offending	95.7 (8,465)	75.0 (516)	1.0	1.0
Pre-discharge violent offending	2.6 (299)	16.8 (122)	10.02 (7.89-12.72) p<0.001	4.27 (3.06-5.98) p<0.001
Pre-discharge non-violent offending	1.8 (187)	8.2 (63)	7.45 (5.31-10.46) p<0.001	3.50 (2.36-5.18)

^a Adjusted for age at enlistment, sex, educational attainment, pre-enlistment ASB, branch of service, and rank

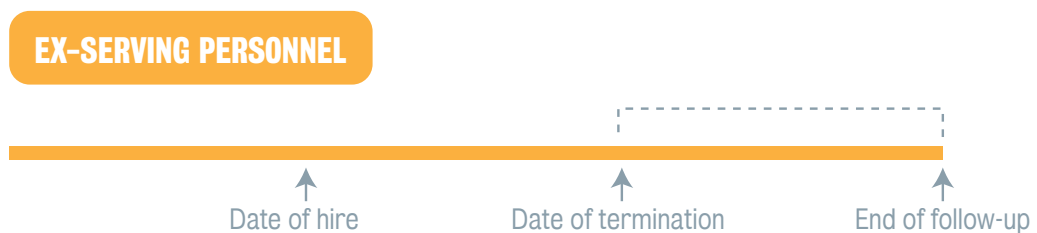
Table 11: Impact of pre-service offending on in-service non-violent offending among Regular personnel (N=9,652). Type of offender compared to non-offender

	No Offending N=8,922	In-service violent offending % (n) 7.3% (n=730)	Hazard Ratio (HR) (95% CI) p	Adjusted ^a HR (AHR) (95% CI) p
Pre-discharge offending	95.5 (8,423)	77.4 (558)	1.0	1.0
Pre-discharge violent offending	2.7 (310)	14.4 (111)	8.25 (6.43-10.58) p<0.001	3.53 (2.45-5.09) p<0.001
Pre-discharge non-violent offending	1.7 (189)	8.2 (61)	7.21 (5.14-10.10) p<0.001	3.83 (2.66-5.51) p<0.001

a Adjusted for age at enlistment, sex, educational attainment, pre-enlistment ASB, branch of service, and rank

The offending trajectory of military personnel who offend from in-service to post-service.

Observation period:



As was seen with the impact of pre-service offending on in-service offending, the presence of a record of in-service offending (violent or non-violent) increased the risk of post-service offending. Again, this was the case for the risk of both

post-service violent and non-violent offending. The association continued to be significant after adjusting for deployment, combat and trauma exposure (Table 11 and Table 12).

Table 12: Impact of having in-service offending on post-service violent offending among Regular personnel (N=9,652). Type of offender compared to non-offender.

	Non-offender N=5,558	Post-service violent offending % (n) 3.3 (204)	Hazard Ratio (HR) (95% CI) p	Adjusted ^a HR (AHR) (95% CI) p	AHR ^b (95% CI) p	AHR ^c (95% CI) p	AHR ^d (95% CI) p
No in-service offending	89.6 (4,917)	53.5 (104)	1.0	1.0	1.0	1.0	1.0
In-service violent	6.0 (365)	30.0 (66)	7.79 (5.31-11.42) p<0.001	3.93 (2.48-6.23) p<0.001	3.88 (2.42-6.21) p<0.001	3.34 (1.90-5.90) p<0.001	3.39 (1.95-5.91) p<0.001
In-service non-violent	4.4 (276)	16.5 (34)	5.61 (3.54-8.90) p<0.001	3.55 (2.14-5.91) p<0.001	3.56 (2.15-5.90) p<0.001	2.64 (1.33-5.26) p<0.006	2.66 (1.33-5.34) p<0.006

a Adjusted for age at enlistment, sex, educational attainment, pre-enlistment ASB, branch of service, and rank

b Adjusted for confounding variables and deployment

c Adjusted for confounding variables and deployment in a combat role

d Adjusted for confounding variables and trauma exposure

Table 13: Impact of having in-service offending on post-service non-violent offending among Regular personnel (N=9,652). Type of offender compared to non-offender.

	Non-offender N=5,559	Post-service violent offending % (n) 2.8 (173)	Hazard Ratio (HR) (95% CI) p	Adjusted ^a HR (AHR) (95% CI) p	AHR ^b (95% CI) p	AHR ^c (95% CI) p	AHR ^d (95% CI) p
No in-service offending	89.4 (4,936)	53.3 (85)	1.0	1.0	1.0	1.0	1.0
In-service violent	6.0 (368)	31.8 (63)	8.26 (5.40-12.62) p<0.001	4.38 (2.50-7.68) p<0.001	4.36 (2.47-7.70) p<0.001	2.57 (1.15-5.72) p<0.021	2.72 (1.26-5.87) p<0.011
In-service non-violent	4.6 (285)	14.9 (25)	5.07 (3.16-8.12) p<0.001	3.22 (1.92-5.41) p<0.001	3.22 (1.92-5.41) p<0.001	3.06 (1.59-5.92) p<0.001	3.11 (1.62-5.98) p<0.001

a Adjusted for age at enlistment, sex, educational attainment, pre-enlistment ASB, branch of service, and rank

b Adjusted for confounding variables and deployment

c Adjusted for confounding variables and deployment in a combat role

d Adjusted for confounding variables and trauma exposure

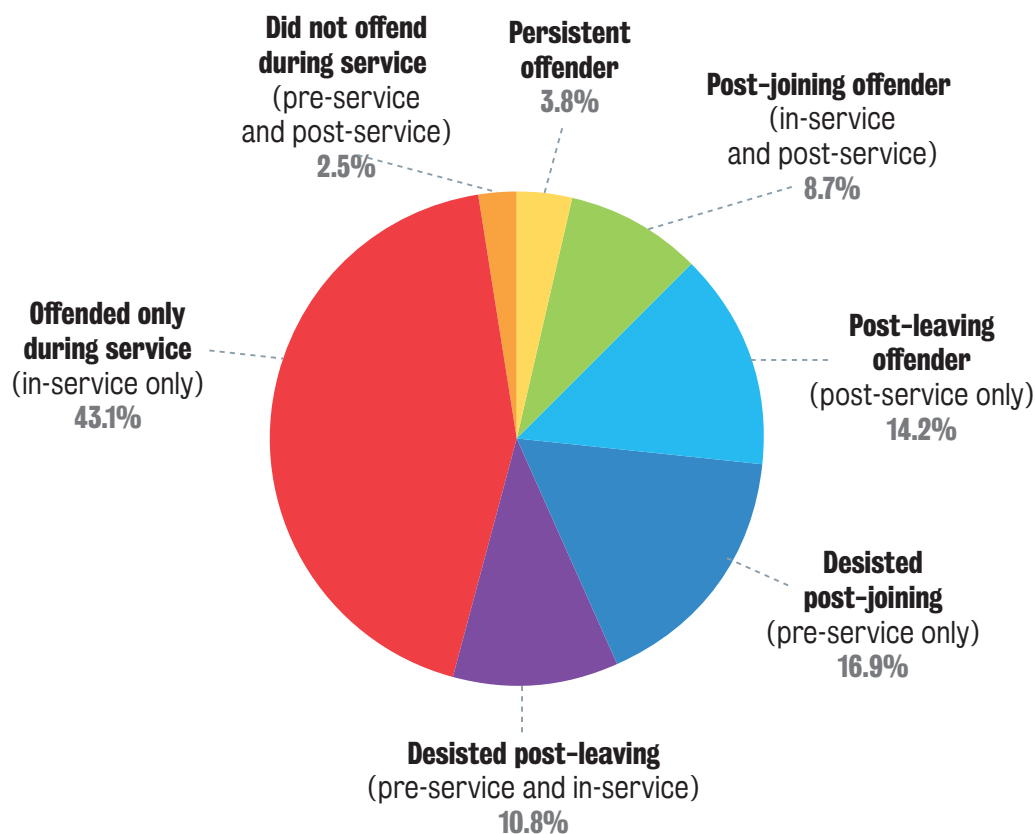
OBJECTIVE 3:

Patterns of offending behaviour over time

Distribution of offenders in offending pattern groups

The following analyses were conducted among ex-serving personnel only. Of the 6,783 ex-serving personnel, 16.7% (n=1,247) offended during at least one time-period. Figure 18 shows the percentage of offenders belonging to each offending behaviour pattern group.

Figure 18: Offending behaviour pattern among ex-serving personnel (N=6,783)



The majority of offenders offended during one time-period only. The largest proportion of offenders only offended during service (43.1%), followed by 16.9% of offenders who offended pre-service only and 14.2% of offenders who offended post-service only.

The sociodemographic distribution of offenders by each offending pattern was similar. Offenders were generally younger, had lower levels of educational attainment, were members of the

Army and held NCO rank (Table 13). When Chi2 analyses were conducted to explore whether there were significant differences between the distribution of offenders of each offending pattern, it was noted that there were significant differences between most recent age, age at enlistment, sex, level of education, pre-enlistment ASB, branch of service and rank between all offending patterns compared to non-offenders (Appendix D, Appendix Table 5).

Differences of note:

- A higher percentage of those who offended post-joining (81.3%), post-leaving (74.6%) and during service only (71.3%) were younger at enlistment (less than 20 years) compared to other groups. 15.8% of those who desisted post-joining were older at enlistment (>30 years).
- 14.3% of persistent offenders had higher educational attainment compared to less than 8% of the other offending pattern groups.

- 8.4% of those who desisted post-joining were Officers compared to less than 5% of the other offending pattern groups.

Where there were some significant differences between specific offending patterns, it is possible that some of these differences are due to chance.

Table 14: Sociodemographic distribution of offenders of offending pattern groups (N=6,783)

	Non-offender 83.3 (5,536)	Persistent offender 0.6 (56)	Post-join offend 1.5 (96)	Post-leave offend 2.4 (162)	Desisted post-join 2.8 (247)	Desisted post-leave 1.8 (146)	Offend in service 7.2 (513)	No offence in service 0.4 (27)
Most Recent Age (years)*								
<30	17.4 (1,299)	45.6 (--)	67.1 (--)	52.5 (89)	27.8 (95)	40.9 (72)	37.7 (226)	55.3 (--)
30-34	13.0 (587)	24.7 (--)	13.4 (--)	18.6 (29)	13.3 (39)	14.6 (21)	21.6 (107)	14.7 (--)
35-39	15.9 (819)	23.2 (--)	12.4 (--)	11.7 (15)	22.3 (41)	21.9 (25)	15.9 (72)	17.9 (--)
40-44	15.7 (787)	2.8 (--)	5.1 (--)	9.0 (15)	11.6 (24)	8.5 (8)	12.6 (50)	0.8 (--)
>45	37.9 (1,774)	3.7 (--)	1.9 (--)	8.3 (13)	24.9 (48)	14.1 (20)	12.3 (58)	11.2 (--)
Age at enlistment (years)								
<20	57.3 (2,926)	50.8 (--)	81.3 (--)	74.6 (--)	31.8 (80)	47.0 (68)	71.3 (354)	66.6 (--)
20-24	26.3 (1,526)	34.6 (--)	15.1 (--)	20.5 (--)	34.0 (84)	31.4 (48)	22.1 (120)	15.3 (--)
25-29	6.5 (456)	7.8 (--)	3.5 (--)	4.1 (--)	18.4 (40)	14.9 (19)	4.1 (21)	17.3 (--)
>30	9.9 (627)	6.7 (--)	0.0 (--)	0.9 (--)	15.8 (43)	6.6 (11)	2.6 (18)	0.8 (--)
Sex								
Male	87.9 (4,803)	96.1 (--)	100.0 (96)	96.1 (154)	97.9 (239)	99.5 (--)	97.9 (503)	93.3 (--)
Female	12.1 (733)	3.9 (--)	0.0 (0)	3.9 (8)	2.1 (8)	0.5 (--)	2.1 (10)	6.7 (--)
Educational status								
No qual or O-Level	41.5 (2,223)	59.7 (--)	71.8 (67)	65.3 (99)	62.4 (148)	69.9 (105)	65.5 (320)	70.4 (--)
A-Level or equiv.	35.6 (1,959)	26.0 (--)	28.2 (25)	29.1 (50)	29.6 (73)	23.6 (26)	28.0 (152)	28.2 (--)
Degree/Post-grad	22.9 (1,227)	14.3 (--)	0.0 (0)	5.6 (9)	7.9 (22)	6.5 (9)	6.6 (27)	1.4 (--)
Pre-enlistment ASB								
No	85.8 (4,637)	56.6 (27)	56.6 (57)	68.9 (111)	63.6 (151)	44.9 (68)	61.9 (314)	45.8 (13)
Yes	14.2 (788)	43.4 (25)	43.4 (38)	31.1 (47)	36.4 (91)	55.1 (74)	38.1 (187)	54.2 (14)
ACE								
0	46.4 (2,502)	14.5 (12)	32.3 (33)	40.7 (64)	34.2 (81)	27.6 (36)	34.0 (167)	37.9 (--)
1	19.9 (1,066)	28.9 (13)	18.0 (19)	19.0 (31)	13.2 (37)	17.0 (29)	19.0 (100)	23.6 (--)
2+	33.7 (1,885)	56.6 (28)	49.7 (43)	40.3 (63)	52.6 (125)	55.4 (78)	47.0 (236)	38.5 (--)

	Non-offender 83.3 (5,536)	Persistent offender 0.6 (56)	Post-join offend 1.5 (96)	Post-leave offend 2.4 (162)	Desisted post-join 2.8 (247)	Desisted post-leave 1.8 (146)	Offend in service 7.2 (513)	No offence in service 0.4 (27)
Serving Status								
Regular	90.7 (4,661)	92.5 (--)	98.1 (--)	96.2 (146)	87.9 (192)	91.2 (125)	95.8 (471)	85.5 (--)
Reserve	9.3 (875)	7.5 (--)	1.9 (--)	3.8 (16)	12.1 (55)	8.8 (21)	4.2 (42)	14.5 (--)
Branch of Service								
RN/RM	17.9 (916)	4.6 (--)	17.6 (14)	13.7 (25)	13.1 (30)	7.5 (--)	11.7 (63)	6.7 (--)
Army	59.6 (3,446)	88.0 (--)	79.6 (74)	75.0 (120)	79.5 (197)	89.3 (--)	80.6 (411)	93.3 (--)
Royal Air Force	22.5 (1,174)	7.4 (--)	6.0 (8)	11.3 (17)	7.4 (20)	3.2 (--)	7.7 (39)	0.0 (--)
Rank								
Officer	25.6 (1,261)	0.0 (0)	0.0 (0)	1.6 (--)	8.4 (16)	1.5 (--)	1.1 (9)	4.5 (--)
NCO	60.4 (3,138)	50.0 (--)	42.7 (38)	66.9 (--)	66.1 (137)	67.6 (--)	69.6 (321)	55.8 (--)
Other	14.0 (1,119)	41.6 (--)	57.3 (57)	31.5 (--)	25.5 (91)	30.8 (--)	29.3 (179)	39.7 (--)

* Age at most recent completed questionnaire

Impact of pre-discharge offending pattern history on post-service offending

Table 15: Post-service offending by pre-discharge offending behaviour patterns (N=5,762)

Pre-discharge offending behaviour pattern	Post-service offence	
	No offence % (n)	Offence % (n)
No offence pre- or in-service (N=4,807)	97.1 (4,661)	2.9 (146)
Pre-service offending only (N=214)	87.4 (192)	12.6 (22)
In-service offending only (N=564)	82.8 (471)	17.2 (93)
Both pre- and in-service offending (N=177)	73.6 (125)	26.4 (52)

Compared to having no history of offending, having any pre-discharge offending (pre-service only, in-service only or both pre- and in-service offending) increased the risk of post-service offending (violent and non-violent). This remained true after adjusting for potential confounding variables (Table 15 and Table 16). Interaction analyses suggest

that deployment moderates in the relationship between pre-discharge offending patterns and post-service offending. This means that the impact of pre-discharge offending on post-service offending is affected by whether personnel were deployed or not.

Table 16: Impact of having pre-discharge offending on post-service violent offending among Regular personnel (N=9,652). Type of offender compared to non-offender

	Non-offender N=5,558	Post-service violent offender % (n) 3.3% (n=204)	Hazard Ratio (HR) (95% CI) p	Adjusted ^a HR (AHR) (95% CI) p
No pre-discharge offending	95.7 (5,715)	47.3 (82)	1.0	1.0
Pre-discharge violent	2.6 (513)	37.0 (82)	7.66 (5.32-11.02) p<0.001	4.20 (2.71-6.52) p<0.001
Pre-discharge non-violent	1.8 (330)	15.7 (30)	5.28 (3.22-8.65) p<0.001	3.34 (1.93-5.78) p<0.001

a Adjusted for age at enlistment, sex, educational attainment, pre-enlistment ASB, branch of service, and rank

Table 17: Impact of having pre-discharge offending on post-service non-violent offending among Regular personnel (N=9,652). Type of offender compared to non-offender

	Non-offender N=5,559	Post-service violent offender % (n) 7.3 (173)	Hazard Ratio (HR) (95% CI) p	Adjusted ^a HR (AHR) (95% CI) p
No pre-discharge offending	86.5 (4,738)	42.5 (69)	1.0	1.0
Pre-discharge violent	8.0 (516)	42.6 (79)	9.81 (6.53-14.74) p<0.001	6.18 (3.59-10.62) p<0.001
Pre-discharge non-violent	5.5 (335)	14.9 (25)	5.49 (3.32-9.08) p<0.001	3.83 (2.16-6.78) p<0.001

a Adjusted for age at enlistment, sex, educational attainment, pre-enlistment ASB, branch of service, and rank

There was no significant association between violent and non-violent pre-discharge offending and post-service violent offending. However, compared to violent offending prior to discharge,

non-violent offending prior to discharge were at a reduced risk of post-service non-violent offending (Table 17).

Table 18: Impact of having pre-discharge offending on post-service non-violent offending among Regular personnel (N=851). Non-violent offender compared to violent offender

	Non-offender N=851	Post-service violent offender % (n) 10.9 (104)	Hazard Ratio (HR) (95% CI) p	Adjusted ^a HR (AHR) (95% CI) p
No pre-discharge offending	59.6 (516)	74.1 (79)	1.0	1.0
Pre-discharge non-violent	40.4 (335)	25.9 (25)	0.56 (0.33-0.93) p<0.024	0.55 (0.32-0.93) p<0.027

a Adjusted for age at enlistment, sex, educational attainment, pre-enlistment ASB, branch of service, and rank

Discussion

This study aimed to understand the trends and trajectories of offending among UK military personnel throughout the life-course. This section will discuss the study findings in line with the research objectives.

- 1 To describe and compare the prevalence of and risk/protective factors for offending during the pre-service, during service and post-service periods.
- 2 To examine the trajectory of offenders from pre-service to in-service and post-service
- 3 To identify different offender groups and their respective profile characteristics.

1. The prevalence and risk/protective factors for offending

Prevalence and incidence

Offending behaviour was prevalent in the pre-service, in-service and post-service periods, with the most common of offences at each time-period being non-violent offences, followed by minor interpersonal violent offences. Incidence of offending was highest during the post-service period, suggesting that while offending behaviour is occurring at all three time-periods, based on the first offence in each time period, there are a larger number of new offenders during the post-service period compared to pre-service and in-service periods.

70% of offenders had a record of an offence during service, 65% of whom (n=513) only offended during service. During the in-service period, theft related offences such as stealing and burglary accounted for almost 20% of in-service

offences, followed by minor interpersonal offences such as common assault and battery at 15%, and other motor vehicle offences such as driving whilst disqualified and failing to stop after an accident at 12%. This mirrors research in the general population that suggests that acquisitive crimes are the most common offences (36-38) and is echoed in the pre-service offending statistics in this study.

Perhaps something is occurring during the enlistment process or the training period that is increasing individuals' propensity for offending? While this could be coinciding with younger males enlisting in the military at the time at which they are at the peak age for offending (1), as suggested, this could be the acceptance of use of violence for conflict resolution and alcohol use as a reward. This could also be due to differences in policing of offences in service compared to in the community. While some offences may go unnoticed in the community, these same offences could be more likely to be picked up in the military as it is a more closed environment. However, while this may explain less serious violent crimes, what about the acquisitive ones? It is possible that alcohol use plays a role, but it is unlikely the only explanation. Military personnel are provided with subsidised living, salary, education as well as other benefits, so what are the drivers for such offending? More research into the specific motivations for offending would help to answer these questions.

It is noteworthy that while the percentage of all other types of offending appears to decrease with time (from pre-service to in-service to post-service periods), the proportion of minor interpersonal violent offences appear to increase. A possible

explanation for this is that there is a level of tolerance and normalisation of violence as a method of conflict resolution during service (39). This behaviour may continue in the post-service period even though violence is no longer normalised in the civilian community which could explain the continued increase of minor interpersonal offences into the post-service period. Experiences during military service could also have an impact on subsequent offending resulting in increasing percentages of minor interpersonal violent offences at each time-period. These include trauma, mental health problems and alcohol use/misuse that have all been shown to increase the risk of subsequent offending behaviour (1, 6, 21, 40).

The incidence of pre-service and in-service offending was similar to previous research (1, 41). The current study found that the incidence of pre-service offending was 4.3/1,000 person-years at risk and in-service offending was 7.0/1,000 person-years at risk. This is compared to 5.4/1,000 person-years at risk pre-service and 8.6/1,000 person-years at risk in-service in a previous data linkage study using MoJ offending records (1). The study using official military police offending data found that the incidence of in-service offending was 10.3 per 1,000 person-years at risk (41). The higher incidence rate found in the study using official military police offending data is likely due to the military specific offences that were included in the study but not included in the current one.

While incidence of pre-service and in-service offending was similar in the two studies using MoJ offending records, the original linkage explored post-deployment offending and not post-service offending. As we have seen, deployment impacts offending (1, 6), and the risk of subsequent offending is increased by having a history of prior offending which explains the difference in the findings (1, 6, 21). The incidence of specifically post-service offending was lower in our study (7.5/1,000 person-years at risk) compared to

the study that explored post-service offending behaviour (13.3/1000 person-years at risk) (21). This suggests that the majority of post-deployment offending that occurred during this period likely occurred early in the post-service period. This, along with a longer follow-up period post-service in the current study would explain the lower incidence.

Characteristics of offenders

Research has consistently found that offenders are generally young males with lower levels of educational attainment (1, 2, 5, 6, 21, 41). They are more likely to have a history of pre-enlistment antisocial behaviour and prior offending and are often members of the Army and hold non-commissioned officer ranks (1, 2, 5, 6, 21, 41).

A higher percentage of offenders served in the Armed Forces for less than 11 years compared to non-offenders and a higher percentage of offenders had an unplanned method of discharge compared to non-offenders. The characteristics of offenders at specific time-periods were slightly different. For example, pre-service offenders were generally older at enlistment than those who first offended in-service and post-service. This could be a product of individuals who are older at enlistment having more opportunity to offend. Research in the general population has indicated that the peak age of offending is 19 years old (42). If these individuals are not joining service until after 19 years of age, it is likely that they would have a record of pre-service offending.

Almost half in-service offenders served for longer than 20 years (45.6%). Post hoc analyses suggest that the offences perpetrated by these individuals were generally less severe (e.g. 61.8% were other non-violent offences compared to 32.2% among those who served for less than 11 years). Although these individuals did offend during service, the nature of the offence was not serious enough to warrant discharge from military service.

Risk and protective factors

Although the risk and protective factors for pre-service offending were not explored in this study, research in the general population has found that antisocial behaviour or attitudes and impulsivity were significantly linked to offending behaviour as were having negative experiences in school (43-45). Promotive factors included low neuroticism and having few friends (46).

Factors associated with violent and non-violent in-service offending and post-service violent offending were consistent with previous research. Younger males, with lower levels of educational attainment, who had a history of pre-enlistment antisocial behaviour, who were members of the Army, held NCO ranks and had a history of prior offending were at an increased risk of offending during these periods. Holding an NCO rank and having a history of offending prior to leaving service were associated with an increased risk of post-service non-violent offending. Prior offending was the strongest predictor for subsequent offending, whether it was in-service or post-service and violent or non-violent. This is in keeping with a large body of research which has found that prior offending is a key risk factor for future offending (1-3, 6, 21, 39, 42). Although these findings are not new, they do reinforce the current evidence base in military populations (1-3, 6, 21, 39). The military has a history of recruiting from socially disadvantaged areas (20, 47). Studies have also suggested that personnel may join the military to escape negative circumstances (39). While having a history of offending does not and should not preclude individuals from military service, perhaps extra support should be given to these individuals to prevent subsequent offending.

Deployment has been shown to be a significant predictor of subsequent offending (violent and non-violent) even after adjusting for any offending that occurred prior to deployment. Deployment in a combat role also increased the risk of subsequent

offending when compared to those who were deployed in a non-combat role. This supports the results found in the FiMT funded qualitative study conducted by the Probation Institute and Liverpool John Moores University that suggested combat violence was a risk factor for offending behaviour (39). However, a study specifically among UK veterans found that neither deployment, nor role on deployment impacted post-service offending behaviour (21).

A possible explanation for the differing results on the impact of deployment could be the way deployment was measured in the two studies. The current study explored the impact of the earliest reported deployment (i.e. first reported deployment), whereas the study among UK veterans explored the impact of the most recent reported deployment (i.e. last deployment). As the exposure happens earlier in the current study, there is more opportunity to capture any post-deployment offending.

It is noteworthy that the current study defines post-combat offending as any offending behaviour that takes place post-combat, in other words, from the date of first combat exposure. This could be offending behaviour that takes place during service or post-service and could explain the different results. While deployment and combat exposure could partly explain the increased risk of offending, there may be other risk factors that were not measured in this study that might have also have an impact on subsequent offending.

The FiMT funded study conducted by the Probation Institute and Liverpool John Moores University found that deployment trauma was a common theme among their participants (39). This has been echoed in the findings of our study which found that exposure to an increased number of traumatic events is associated with an increased risk of offending behaviour, though the link with violent offending is stronger than with non-violent offending. These findings also support previous

research in the UK that demonstrate links between exposure to trauma and subsequent offending (1).

PTSD, alcohol misuse, common mental disorder and anger problems are a recurring theme in the risk of offending behaviour among military populations (6, 21). These are issues that come up consistently in quantitative research and have not been as thoroughly explored in a qualitative context. The recent FiMT funded study on journeys to harmful behaviour have found that alcohol use is a risk factor for offending behaviour. It is possible that alcohol use may lower inhibitions and increase risk taking behaviour which could, in turn, increase offending behaviour (48, 49). However, other mental health problems including PTSD and common mental disorders were not discussed. Seeing as mental health problems are important risk factors for offending behaviour, it is possible that regular mental health screening and support would be helpful in the reduction of offending behaviour. If the provision of easily accessible mental health support is not possible, perhaps screening at key time-periods (including pre- and post-deployment) would be beneficial.

Having an unplanned method of discharge, compared to a planned one significantly increased the risk of post-service offending. It is likely that factors leading to unplanned discharge also increase the risk of subsequent offending. This supports the finding from the Journeys to Harmful Behaviour Study (39) as their participants discussed dishonourable and medical discharge as being related to their subsequent offending behaviour. Our study was not able to separate the different methods of discharge, but even so, we found that any unplanned discharge from service (including disciplinary, medical or administrative) increased the risk of post-service offending. This is likely due to other factors suggested by other studies including feelings of abandonment and loss of protective factors. There was also the loss of camaraderie, status, and respect once participants left the

military that could have impacted subsequent offending behaviour (39).

Previous research has indicated that absence of debt, being employed, having permanent accommodation, being in a long-term relationship and being satisfied in the relationship were protective factors for offending among veterans (21). This study found that only being in a long-term relationship (compared to being single) reduced the risk of post-service offending after adjusting for confounding variables, but this was limited to non-violent post-service offending behaviour. No other social risk factors were significantly associated with post-service offending after adjusting for confounding variables. The sample in the current linkage was mainly comprised of the same sample used in the original linkage observed over a longer period of time (21). During this time, the proportion of veterans would have increased, and the observation period was extended giving veterans more opportunity to offend during this post-service period.

2. Offending trajectory of military personnel who offend from pre-service to in-service and post-service

We compared military personnel with and without a history of offending prior to joining service and compared their subsequent offending. As expected, individuals who had a history of offending prior to joining service were at an increased risk of offending during service. Similarly, individuals who had a history of offending during service had a higher risk of post-service offending. This echoes the earlier finding that prior offending is the strongest predictor of subsequent offending. This highlights the need for more work to be done with in-service offenders to reduce offending post-service when they have returned to civilian lives and families and the impact of their offending may be greater.

3. Patterns of offending behaviour over time

Even without military specific offences, the largest proportion of offenders only offended during service. Individuals undergo experiences and pressures that may increase the propensity for offending (1, 6, 36, 39). This could include the normalisation of violence and use of alcohol as a reward as suggested in the Journeys to Harmful Behaviour study (39).

It is noteworthy that the majority of offenders only offended during one time-period (74.3%). Almost 20% of offenders offended during the pre-service period only and did not go on to in-service or post-service. However, it is also noteworthy that this does not mean that since the data linkage occurred in 2017, these individuals have not since committed an offence. Perhaps military service was a turning point and positive influence on the life-course for individuals who only offended prior to joining service. However, for a larger percentage (43% of offenders), offending only took place during service, which suggests that there is something that occurs during service that increases the risk of offending (or at least more likely to be caught). It is likely that these risk factors are those that were unable to be measured in this study. Post hoc analyses revealed that among those who only offended during service, a large proportion of the offences were minor interpersonal violent offences (28.1%) and alcohol/drug related (27.5%). Research has demonstrated, the normalisation of violence (39) and alcohol use/misuse are risk factors for offending behaviour by military personnel (2, 3, 36, 39). It is likely that these behaviours are subject to the 'spillover theory' where the influence of feelings, emotions, and behaviour patterns from work spill over into personnel's daily life, or vice versa (50). While the use of violence as a form of conflict resolution is encouraged within the military, the same use

of violence to resolve conflicts in the community could result in an arrest.

Compared to non-offenders, offenders, regardless of which offending pattern group they belonged to, were more likely to be younger at enlistment, men, have lower levels of educational attainment, endorse pre-enlistment ASB, be members of the Army and hold non-commissioned officer ranks. The profile comparison identified some specific differences between the offender groups. The majority of those who offended post-joining, post-leaving and during service only were younger at enlistment compared to other offending pattern groups. In particular, a higher percentage of those who desisted post-joining were older at enlistment compared to other groups. However, this could merely be a reflection of findings that suggest young people 'grow out' of criminal activity (51). It is noteworthy that chance could have played a role in the results of these analyses. There were many variables included in the comparisons and significant results could have been due to chance.

Where the impact of pre-discharge offending (offending that occurs pre-service, in-service or both) pattern on post-service offending was explored, compared to having no history of offending (i.e. individuals who only offended post-service), having a history of offending consistently increased the risk of post-service offending. This is consistent with other findings in this study and previous research (1-3, 21, 41). These findings further demonstrate the need for increased awareness of offending histories and support for Armed Forces personnel to reduce subsequent offending.

Strengths and Limitations

The main strength of this study was the use of a large random sample of the UK Armed Forces. Their responses to the in-depth questionnaire from the cohort study were linked with MoJ PNC data. We were able to capture official offending records

throughout the lifetime of military personnel, including non-violent offending. We were able to avoid added biases being introduced as it is likely that those with a record of offending would have been more likely to decline consent or would have been more difficult to reach, resulting in an underestimation of offending. It also removes the potential for self-report bias and social desirability. The use of official offending records is likely richer and more informative than self-reported data. Official offending records have the exact date of arrest as well as details gathered on the same date that would be subject to recall bias when using self-report data. The use of official offending records also allowed the consideration of time at risk, and the longitudinal nature of the data allowed for the interpretation of variables as risk factors.

It is noteworthy that the PNC data was extracted in 2017 and is not up to date. Due to data sharing limitations, we were unable to obtain updated data. This would have extended our observation period a further 6 years and we may have been able to capture more offending behaviour.

Limitation for not merging REDCAP data

The original intention for a linkage between the MoJ PNC data with REDCAP data was not possible due to data sharing limitations and thus, a complete record of offending was not possible. Specifically, military specific offences were not included in this study. Previous research demonstrated that 40% of offending that took place during service were military specific offences (41).

The inclusion of these offences may have altered the results of the study. However, it is arguable that the results from the current study are more comparable to general population studies due to the exclusion of military specific offences.

A crude side-by-side comparison between in-service offending records supplied by the REDCAP and PNC datasets was done (Appendix E, Appendix Table 6 and Appendix Table 7). As the PNC data extraction took place after REDCAP, the PNC data was limited to offences up to the REDCAP data extraction date (11th July 2017) for the comparison. Military specific offences were removed for the comparison as these offences do not exist in the community and are not recorded on the PNC. The results of the comparison found that the sociodemographic breakdown of offenders, violent and non-violent, during service were very similar between the PNC and REDCAP databases, however there was a difference in the prevalence of offenders (15.2% based on REDCAP data and 11.2% based on PNC data). We can see that the prevalence of offenders in REDCAP is higher than the PNC which suggests an underestimation of in-service offending by the PNC. This could be a result of records not being transferred between REDCAP and PNC databases. When comparing the factors associated with deployment experiences (Appendix Table 8 and Appendix Table 9) and mental health when using the REDCAP vs PNC data, we see a difference in the results particularly regarding mental health variables (Appendix Table 10-13).



Next steps

Reservists

This study focused on Regular personnel (and ex-serving Regular personnel) as the majority of the sample were Regular personnel. As we know Reservist personnel may behave differently, it would be helpful to conduct a study that focuses specifically on the offending behaviour of Reservists.

Qualitative Research

The use of qualitative methodologies in offending research, particularly with this population would allow us to explore the motivations for specific types of offending. This would provide a more complete understanding of the mechanisms underlying offending and what other factors influence offending behaviour.

It was not possible in this study to explore the direct impact of joining and leaving service due to the nature of the data. Participants were not randomly assigned to join and leave service and we did not have a civilian population comparison group. This could be explored through qualitative interviews into personnel's experiences of enlistment and training processes as well as other experiences in military service, which may provide insight into the factors which can influence offending behaviour during service. Similarly, exploration of personnel's experiences of deployment could provide further insight into what it is specifically about deployment that increases the risk of offending. Our study demonstrates the link between deployment and offending, and that it is not necessarily solely combat related. Military

personnel experience many forms of trauma during service regardless of their role during deployment.

The impact of trauma on offending has been widely studied in the US and the UK and demonstrates an increased risk of offending behaviour among those who have been exposed to combat related trauma (1, 4, 52, 53). This is further supported by the results of the current study that showed that more traumatic experiences increased the risk of subsequent offending. Further research is necessary to examine exactly how exposure to traumatic events impacts on behaviour to increase the risk of offending. Perhaps it involves executive functioning and decision making, or trauma exposure impacts aggression and anger leading to subsequent offending. Qualitative research could aid in exploring the relationship further by examining individual experiences of trauma in more depth.

We did not explore motivations for enlistment in the current study – i.e. to escape adversity and disfunction, that was suggested in the Journeys to Harmful Behaviour study (39). Previous research has suggested that military service could be a “turning point” and that military service may have a positive influence on individuals from more disadvantaged backgrounds (14-16) – which is where the military has a history of recruiting from (20, 47). Recent research into motivations for offending behaviour within the general population has indicated that the most frequently endorsed motivation for criminal behaviour were pleasure/happiness, sensation seeking, escape, substance use and utilitarian (wanting or needing something)

(54). These motivations can be used as a basis for research into motivations for offending among UK military personnel.

Finally, questions surrounding personnel's transition back into civilian life could aid in further understanding of what risk factors are associated with post-service offending – in particular, those who have no record of prior offending during service or even before joining. When we have more information about individual motivations for enlistment, we could compare offending behaviour patterns of those individuals and determine if military service does have a positive impact on this aspect (offending) of the life-course – i.e. what influences desistance of offending behaviour after joining service? Our study has shown a decrease in specific types of offending behaviour.

Focus on less serious crimes

There are serious economic and social costs (8) that come with offending behaviour, and it impacts the individual and the wider family and community (55, 56). Previous research has focused on violent offending behaviour, and in particular, serious violent crimes. While the cost of specific violent crime is high, the impact is limited to a smaller group (i.e. the individual, the victim and their family). Less serious violent and non-violent offending also much more prevalent than serious violent crime. These less serious crimes may also be a steppingstone towards more serious offences (57). It is possible that interventions and prevention strategies for less serious and non-violent crimes could aide in the prevention of more serious violent offences.



Recommendations

Some of those who serve in the military will offend at some point in their lifetime with a steady rise in the incidence of lower level violent crime from enlistment to the post service period. Recommendations for reducing offending and further research are outlined below.

1. Awareness of individuals at increased risk of offending during recruitment and training:

The Armed Forces should be aware of key risk factors for offending behaviour during service. In particular, having a record of a prior offence is a strong predictor of subsequent offending. While having a record of an offence does not preclude an individual from joining military service, they should be offered support during key stages of risk (e.g. deployment). It should be noted that certain convictions do preclude entry even if spent (58-60).

2. Rehabilitation and support for offenders during service:

The Armed Forces should implement procedures to acknowledge and support individuals who do offend during service. As offending during service is highly prevalent, it is necessary to understand how in-service offending is managed in order to reduce repeat offending. Where offences do not result in detention in a Military Correction Training Centre (MCTC), an individual, tailored approach addressing the factors that contributed to offending would be beneficial to reduce

reoffending. Depending on the type and severity of the offence, military personnel could be given the opportunity to discuss the motivations for offending and be directed towards appropriate support services where necessary. This could include anger management training and trauma counselling, for example.

3. Awareness of offending histories upon leaving service:

Although most military personnel transition well, a small proportion, particularly those who have a history of offending in service continue offending post-service. Upon leaving service, individuals with a history of offending during service should be targeted with support during transition to identify mental health, social and welfare needs which research has shown to be associated with offending on leaving service and appropriate services identified (e.g. mental health support, anger management, further education, etc.). Being aware that individuals may require extra support in managing their mental health, or gaining employment, for example, during the transition period could help to reduce post-service offending.

4. Identification of military personnel in the Criminal Justice System (CJS):

The development of a system that would allow the identification of military personnel who come into contact with the CJS would be beneficial as ex-serving personnel do not always disclose their veteran status. As we have seen in previous

research, the needs of veterans compared to non-veterans differ (61). This could be in the form of a training programme as part of their college programme to help prison staff members working within the CJS in the identification of veterans and delivery of veteran sensitive care. It could also include training to educate staff on the needs of veterans and provide them with knowledge of available veteran specific services.

5. Role of mental health support in offence reduction:

Psychological trauma, PTSD, and anger management difficulties have been consistently shown in research to be key factors on pathways to offending by military personnel. Acknowledgement that mental health difficulties are key risk factors for offending behaviour and ensuring mental health support is accessible throughout personnel's military careers, including pre-deployment, post-deployment and prior to discharge, is fundamental to any efforts to reduce offending. Strategies to support and improve emotional regulation and anger management should form a critical component to any mental health support offering.

6. Alcohol culture change:

Alcohol misuse is a key risk factor for offending behaviour (1, 3). It may lower inhibitions and increase risk taking behaviour which could, in turn, increase offending behaviour (48, 49). Encouraging alcohol culture change and providing treatment for alcohol misuse could reduce offending. This could

be through alcohol abuse prevention and education at all levels within the military, particularly in early stages of recruitment and training. Encouraging alcohol-free social events and activities by commanding officers could also help to reduce alcohol misuse. Educating military personnel to recognise serious alcohol problems is key to seeking and accessing treatment – if they are unaware they have a problem, it is unlikely they will seek a solution.

7. Research into motivations for offending behaviour:

There is currently limited research into specific motivations for offending behaviour among UK military personnel. While the Probation Institute and Liverpool John Moore's University explored serious violent and sexual offending (39), motivations for non-violent and less serious violent offending is unknown, which our current study has shown accounts for the highest percentage of offences.

This study highlights a clear and persistent offending pathway (possibly irrespective or exacerbated by military service). A qualitative study could recruit offenders from both groups and examine their perceptions of the factors which influenced their offending at different time points. This study could then explore differences in any perceived influence of military and non-military factors among these two groups.

Conclusion

This study explored offending behaviour, violent and non-violent, throughout the life-course of UK military personnel. Among those who do offend, a significant proportion of the offending behaviour takes place during service and the offences being committed are largely less serious violent and acquisitive crimes. The results of this study identify an important gap in the existing research. There are likely other factors related to enlistment and training as well as experiences during service that may influence in-service offending behaviour.

Our study and previous research have consistently found that having a history of

offending behaviour is a strong risk factor of subsequent offending. Although the numbers surrounding post-service offending are not as high by comparison in this study, ex-serving personnel continue to be at an increased risk of offending compared to those who do not have a history of offending during service.

The findings from this study should guide further research to inform policy and aid service providers in developing intervention and prevention strategies for reducing and preventing offending behaviour among UK military personnel and veterans.



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