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Adult female sexual offending: A comparison between co-offenders and solo offenders in a Dutch sample

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Abstract *Few studies have examined female sexual offenders who committed a sexual offence with an accomplice (co-offender) and without an accomplice (solo offender). In this study, several offence, victim and offender characteristics of 60 adult female sexual offenders were examined. The first purpose was to explore the personality pathology among these offenders. The second purpose was to examine the sexual, violent and any recidivism rates of these offenders. These offenders were referred for an inpatient or outpatient psychiatric and/or psychological evaluation between January 1999 and December 2008. The results revealed that the mean number of DSM-IV Axis I disorder was larger among solo offenders compared to co-offenders. Conversely, the mean number of DSM-IV personality disorders was larger among co-offenders compared to solo offenders. Furthermore, the sexual, violent and any recidivism rate of these female sexual offenders was 0, 1.9 and 7.7%, respectively. Offender type (i.e. solo offender) significantly predicts a new offence of any type.*

Keywords *female sexual offenders; solo offender; co-offender; personality pathology; recidivism*

Introduction

Formerly, it was widely assumed by professionals, as well as the public at large, that women rarely, if ever, committed acts of sexual offences (Wakefield & Underwager, 1991). Recently, the number of studies in female sexual offenders is growing (e.g. Freeman & Sandler, 2008; Strickland, 2008; Turner, Miller, & Henderson, 2008), indicating that women do commit sexual offences (Nathan & Ward, 2002). Women perpetrators account for approximately 1–24% of all sexual offences, depending on several factors, including whether the data were collected from official criminal justice sources or victimization surveys (e.g. Cortoni & Hanson, 2005), the gender of the respondents (e.g. Finkelhor & Russell, 1984) or whether the data were collected in

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industrial or non-industrial countries (e.g. Bonta, Pang, & Wallace-Capretta, 1995). In a Dutch sample the prevalence rate of women who committed sexual offences was 1.7%, based on official criminal justice records of all 38,309 sexual offences between 1996 and 2005 (van der Horst, 2008).

Research among female sexual offenders has focused primarily on demographic and clinical characteristics of these offenders, including childhood (sexual) victimisation (e.g. Christopher, Lutz-Zois, & Reinhardt, 2007; Kaplan & Green, 1995; Strickland, 2008), personality pathology (e.g. Green & Kaplan, 1994; Kaplan & Green, 1995) and motivations and cognitions (e.g. Nathan & Ward, 2002). A thoroughly discussed subject in the scientific literature is female offender typology (e.g. Matthews, Mathews, & Speltz, 1991; Sandler & Freeman, 2007; Syed & Williams, 1996; Turner et al., 2008; Vandiver & Kercher, 2004; Wijkman, Bijleveld, & Hoving, 2008). These offender typologies were developed based on (i) offence characteristics, (ii) offence and offender characteristics or (iii) victim, offender and offence characteristics. One of the most well-known female sexual offender typologies was developed by Matthews and colleagues (Turner et al., 2008). Matthews and colleagues (1991) initially developed a three-category typology system including teacher/lover offender, predisposed offender and male-coerced offender, based on examining the offence characteristics of 16 female sexual offenders. These authors expanded their categorisation when they developed a more extensive typology system. This system comprised two broad categories that contained several specific types: (i) self-initiated offenders, including teacher/lover offender and the predisposed offender, and (ii) accompanied offenders, including male-coerced offender, and the psychologically disturbed co-offender (Turner et al., 2008). Accordingly, Matthews and colleagues—and other researchers (e.g. Syed & Williams, 1996; Wijkman et al., 2008)—recognise the importance of an accomplice in sexual offences committed by female offenders.

Although Vandiver (2006) stated that previous research among sexual offenders indicated that a substantial number of female sexual offenders are not solo offenders, there is debate over how frequently female sexual offenders are accompanied by an accomplice (Becker, Hall & Stinson, 2001). More specifically, research showed that 22–96% of female sexual offenders were accompanied by at least one male or female accomplice (Vandiver, 2006). Syed and Williams (1996) described a typical co-offender situation, which included a female offender who acted with a male accomplice. Moreover, the male and female offenders were often married to each other, in a common-law spouse situation or involved romantically (Vandiver, 2006). In addition, female offenders were often in an abusive relationship with their male accomplices and were, perhaps, encouraged or threatened to participate in the abuse (Lewis & Stanley, 2000). Although not all male-accompanied female sexual offenders were coerced (Nathan & Ward, 2002), cases involving female sexual offenders who initiated the offence were found less frequently (Vandiver, 2006).

A small number of studies have investigated the differences between female sexual offenders who committed the sexual offence with an accomplice (co-offender) and without an accomplice (solo offender) (Vandiver, 2006). A study conducted by Vandiver (2006), which focused primarily on victim, offence and co-offender characteristics of 227 female sexual offenders, found that female co-offenders were more likely to have female victims compared to male victims. Female solo offenders were more likely to have male victims. Most of the co-offenders were accompanied by at least one male, which might indicate that the male is choosing the victim, a female victim, and that the female offender participates less in the initiation of the abuse (Vandiver, 2006). Furthermore, the study revealed that co-offenders (43%) were significantly more likely than solo offenders (18%) to abuse relatives. Based on this finding, Vandiver (2006) hypothesised that females who have children are chosen by their

male co-offenders because they have children, making victims more accessible. After a male gains the confidence of the female, he may then force her to participate in the behaviour (Vandiver, 2006). Consequently, females may be participating in the behaviour out of fearfulness or willingness to please their male co-offenders (Vandiver, 2006), indicating that these co-offenders are characterised by different motives and cognitions compared to solo offenders.

Several studies examined the role of personality disorders or traits in a sample of female sexual offenders and non-sexual offenders (e.g. Kaplan & Green, 1995; Strickland, 2008) or female sexual offenders only (e.g. Mathews et al., 1989). In a sample of 60 female sexual offenders and 70 female non-sexual offenders, Strickland (2008) revealed that there was no statistically significant differences between female sexual offenders and non-sexual offenders in terms of frequencies of personality disorder indicators, including dependent and antisocial personality disorder indicators. Mathews and colleagues (1989), however, speculated that female sexual offenders only, both with or without an accomplice, suffer from traits associated with personality disorders, particularly borderline and dependent personality indicators. In addition, Kaplan and Green (1995) investigated 11 incarcerated female sexual offenders and 11 incarcerated female non-sexual offenders and found a high incidence of psychiatric impairment and personality disorders, including an avoidant, dependent and antisocial personality disorder. Specifically, sexual offenders suffered more frequently from avoidant and dependent personality disorders, while the comparison offenders were diagnosed more often with an antisocial personality disorder. Furthermore, the majority of the female sexual offenders committed their sexual offence with an accomplice. Several of these female sexual offenders had a diagnosis of a dependent personality disorder (Kaplan & Green, 1995). Hence, although the majority of both female sexual offenders and non-sexual offenders suffered from personality disorders or traits (e.g. Kaplan & Green, 1995; Strickland, 2008), the proportion of these personality disorders or traits among these offenders remains tentative.

Personality disorders or traits might have several implications, including for intervention targets and recidivism risk. Blanchette (2001) and Nathan and Ward (2001) stated that an antisocial personality disorder, or at least antisocial attitudes or tendencies, might predict recidivism in female non-sexual offenders. More specifically, results from prediction studies show correlations that range from .10 to .45 between antisocial attitudes and recidivism among female offenders (Blanchette, 2001). Therefore, Blanchette (2001) estimated that antisocial attitudes and feelings are promising targets for intervention.

Research data on the recidivism rates of female sexual offenders are now accumulating. In a meta-analysis, Cortoni, Hanson and Coache (2010) examined the sexual, violent (including sexual) and any (including sexual and violent) recidivism rates in a combined sample of 2490 female sexual offenders from 10 studies. The average follow-up period was 6.5 years. Overall, the sexual recidivism rate among female sexual offenders was less than 3%. The rate of any violent (including sexual) recidivism was 6% and the rate of any (including violent and sexual) recidivism was 20%.

The present study examined female sexual offenders who were referred for an inpatient or outpatient psychiatric and/or psychological evaluation between 1999 and 2008 in the Netherlands. The primary purpose of this study was to explore the personality pathology among these offenders. As suggested by Kaplan and Green (1995), the role of personality features should be examined further to ascertain what role different personality disorders may play in different types of atypical sexual interests. Based on previous research findings, it was hypothesized (i) that co-offenders were more likely to suffer from an avoidant and/or dependent personality disorder or traits and that (ii) solo offenders were more likely to suffer

from an antisocial and/or borderline personality disorder or traits. The second purpose was to examine the sexual, violent and any recidivism rates among these women. Specifically, it was hypothesized (iii) that solo offenders would be more likely to commit a new sexual, violent, or any offence, compared to co-offenders.

Method

Participants

A total of 119 juvenile and adult female sexual defendants were referred to the Netherlands Institute of Forensic Psychiatry and Psychology (NIFP) for an inpatient or outpatient psychiatric and/or psychological evaluation between January 1999 and December 2008. The NIFP is an institute of the Dutch Ministry of Justice and is responsible for the welfare of adult defendants in the Netherlands. The NIFP serves as an intermediary between the Courts and psychiatrists and psychologists to allocate inpatient or outpatient psychiatric and/or psychological evaluation assignments. These evaluations are imposed by judges, based on the nature of the offence. As a first step, psychiatrists of the NIFP examine the offence with the defendant, enquire about her early development and childhood, health status and other conditions and determine whether an evaluation should be imposed. If so, the defendants are referred for a psychiatric and/or psychological evaluation to assess their mental health and their degree of legal accountability, to determine their recidivism risk and to advise the Courts on the risk management programme that would help to decrease the recidivism risk. These evaluations take place before the defendants are convicted of the offence. The psychiatric and/or psychological evaluations are summarised in a report, wherein the mental health status, the degree of legal accountability, the recidivism risk and the risk management programme of each defendant are reviewed. For the current study, only convicted adult female sexual offenders were examined. Twenty-one juvenile suspects and 38 adults who were acquitted of the sexual offence were excluded, resulting in a total of 60 convicted adult female offenders. The offenders in the study were convicted of the following sexual offences¹: public indecency ($n = 1$), possession of child pornography ($n = 5$), rape ($n = 15$), statutory rape below age 12 ($n = 13$), statutory rape below age 16 ($n = 10$), sexual abuse with minors ($n = 13$), sexual abuse ($n = 10$), sexual assault ($n = 20$), procurement ($n = 1$) and incitement to prostitution ($n = 1$).

The offender and offence and victim characteristics of the convicted female sexual offenders are shown in Table I. In the present study, 48 of the female offenders committed their offence with an accomplice (labelled co-offenders hereafter). More specifically, 39 female offenders had one male accomplice, three females had two or more male accomplices and six had a combination of both male and female accomplices. The remaining 12 offenders committed the sexual offences alone (labelled hereafter solo offenders). In this study, co-offenders and solo offenders are referred to as “offender types”.

Design

The present study is a between-subjects case-control design. Female solo offenders were compared to female co-offenders on several characteristics, including victim characteristics, previous convictions and mental health. Furthermore, recidivists were compared to non-recidivists on these same characteristics. A logistic regression was conducted to assess whether offender type predicted recidivism.

Table I. Descriptive characteristics of the offender, offence and victim characteristics of female co-offenders and female solo offenders.

Variable	Co-offenders (<i>n</i> = 48)		Solo offenders (<i>n</i> = 12)	
	Mean (s.d.)	<i>n</i> (%)	Mean (s.d.)	<i>n</i> (%)
Offender characteristics				
Age at offence	36.7 (9.5)	–	35.08 (9.6)	–
Sentence (in months)				
Imprisonment	32.4 (15.5)	12 (25.0)	24.0 (0.0)	1 (8.3)
Imprisonment, including suspended sentence	17.1 (10.5)	17 (35.4)	7.5 (0.7)	2 (16.7)
Suspended sentence	6.2 (2.6)	–	5.0 (1.4)	–
Probation	6.4 (2.4)	17 (35.4)	3.2 (2.6)	5 (41.7)
Discharged	–	–	–	3 (25.0)
	–	2 (4.2)	–	1 (8.3)
Ethnicity				
Dutch	–	43 (89.6)	–	10 (83.3)
Surinam	–	2 (4.2)	–	–
Turkish	–	–	–	1 (8.3)
Antillean	–	–	–	1 (8.3)
Other	–	3 (6.3)	–	–
Educational level				
None	–	1 (2.1)	–	–
Low	–	32 (66.7)	–	7 (58.3)
Medium	–	7 (14.6)	–	3 (25.0)
High	–	4 (8.3)	–	–
Missing	–	4 (8.3)	–	2 (16.7)
Marital status				
Single	–	9 (18.8)	–	3 (25.0)
Relationship	–	9 (18.8)	–	–
Lived together with partner	–	12 (25.0)	–	4 (33.3)
Married	–	16 (33.3)	–	3 (25.0)
Missing	–	2 (4.2)	–	2 (16.7)
Children				
Children of their own	2.5 (1.6)	41 (85.4)	2.5 (1.9)	6 (50.0)
Children living at home	1.9 (1.0)	32 (66.7)	2.3 (1.5)	4 (33.3)
Missing	–	2 (4.2)	–	2 (16.7)
Offence and victim characteristics				
Location				
Offenders' residence	–	11 (22.9)	–	4 (33.3)
Victims' residence	–	2 (4.2)	–	3 (25.0)
Both offenders' and victims' residence	–	24 (50.0)	–	2 (16.7)
Public place	–	1 (2.1)	–	2 (16.7)
Other	–	6 (12.5)	–	–
Missing	–	4 (8.3)	–	3 (25.0)
Handicap victim				
Physically handicapped	–	1 (2.1)	–	1 (8.3)
Mentally handicapped	–	6 (12.5)	–	–
Missing	–	1 (2.1)	–	3 (25.0)

s.d.: Standard deviation.

Measures

Victim characteristics. Victim characteristics were obtained from the psychiatric and/or psychological evaluations. The victim characteristics included number of victims; whether the victim(s) was below 13 years of age (no/yes); male victim (no/yes); female victim (no/yes); both male and female victim (no/yes); and unrelated victim (no/yes).

About one-third of the female offenders had more than one victim ($n = 18$; 30.0%). In those cases, an average age of victims was calculated for the data analyses. In 19 cases (31.7%), the victim(s) age was not included in the evaluation reports. In 13 of these cases, the victim age was obtained from the Dutch criminal code. Specifically, when the offender was charged with statutory rape below age 12, it meant that the victim(s) were below 13 years of age. In the remaining six cases, the rater(s) calculated whether the victim(s) were below 13 years of age, based on the year of birth of the victim(s) and the year of the offence(s). It is noted that the three victim gender variables were not mutually exclusive. For example, if an offender victimized both a male and female victim, all three variables were coded as “yes”.

Previous convictions. Data on previous convictions were derived from the Judicial Documentation register of the Ministry of Justice. Previous convictions variables included previous sexual convictions (no/yes); previous violent convictions (including sexual) (no/yes); and previous any convictions (including violent and sexual) (no/yes). Previous sexual offences were defined as previous convictions for sexual offences in accordance with Dutch criminal law, and were comprised of both hands-off (e.g. exhibitionism, possession of child pornography) and hands-on (e.g. rape, sexual assault, child molestation) offences.

Mental health. Mental health characteristics were derived from the reports of the psychiatric and/or psychological evaluations. These mental health characteristics included presence (no/yes) and number of DSM-IV Axis I disorders, including substance-related disorder, mood disorder, post-traumatic stress disorder (PTSD) and paraphilia; and presence (no/yes) and number of DSM-IV personality disorders and/or traits, including antisocial, borderline, avoidant and dependent. All DSM-IV Axis I disorders and DSM-IV personality disorders and/or traits classifications were based on the Diagnostic and Statistical Manual for Mental Disorders version IV (DSM-IV) (American Psychiatric Association, 1994).

Recidivism. Data on recidivism were retrieved from the Judicial Documentation register of the Ministry of Justice. The recidivism variables included sexual recidivism (no/yes); violent recidivism (including sexual) (no/yes); and any recidivism (including violent and sexual) (no/yes). Sexual recidivism was defined as a new conviction for a sexual offence in accordance with Dutch criminal law, as mentioned above. The follow-up period, starting on the date of conviction and ending on the date of data gathering (April 2010), varied from three to 133 months with an average of 69.5 months [standard deviation (s.d.) = 37.20]. Date of conviction was used, as the date of release of about half the female sexual offenders in our study ($n = 52$; 86.7%) was unknown. It is noted, however, that almost half the female sexual offenders received either a suspended sentence ($n = 23$; 38.3%) or probation ($n = 3$; 5.0%) and, therefore, were not incarcerated prior to or after the conviction.

Procedure

All data for this study were coded from file information by the authors. An inter-rater reliability analysis using intraclass correlation (ICC) was performed to determine consistency

among the raters for all measures across a sample of female sexual offenders ($n = 10$). The inter-rater reliability was found to be $ICC = .83$ ($p < .001$), 95% confidence interval (CI) (.77, .87), indicating a high level of inter-rater consistency among the raters (Fleis & Cohen, 1973; Landis & Koch, 1977).

Statistical analyses

To assess group differences between solo offenders and co-offenders and recidivists and non-recidivists, effect size statistics were utilized. Cohen's d (Cohen, 1988) was calculated to determine the effect size of each difference for continuous variables. An effect size of .20 is considered small, an effect size of .50 is considered moderate and an effect size of .80 is considered large, according to Cohen (1988). The confidence interval for of Cohen's d was calculated for each difference and alpha (α) was set at .05. The differences were considered statistically significant if the 95% CI did not contain the value 0.

Odds ratios (Edwards, 1963) were calculated to determine the effect size of each difference for dichotomous variables. According to Tabachnick and Fidell (2001), the odds ratio is the increase (or decrease if the ratio is less than 1) in odds of being in one outcome category when the value of the predictor increases by 1 unit. The confidence interval of odds ratio was calculated for each difference and alpha (α) was set at .05. The differences were considered statistically significant if the 95% CI did not contain the value 1. In those cases wherein the frequency in a cell was 0, a constant of .5 was added to all cells to compute the odds ratio and its CI.

Logistic regression provides an indication of the adequacy of the model by assessing goodness-of-fit and provides an indication of the relative importance of each predictor variable (Pallant, 2005). Two logistic regression analyses using a forced entry method were conducted to examine whether offender type alone, or offender type and/or age at offence predicted recidivism. As both the sexual and violent re-offence rates were very low, these logistic regressions could be conducted only to examine whether offender type predicted a new offence of any type.

Results

Differences between co-offenders and solo offenders

The differences between co-offenders and solo offenders are shown in Tables II and III. There was no significant difference in the average number of victims between solo offenders and co-offenders. Solo offenders were also no more or less likely to have victimized a victim(s) who was/were below 13, or to have victimized both a male and a female victim, compared to co-offenders. Solo offenders were significantly more likely to have victimized a male victim and less likely to have victimized a female victim or a related victim compared to co-offenders.

In terms of previous criminal history, there was no difference between solo and co-offenders on previous convictions.

The mean number of DSM-IV Axis I disorders was larger among solo offenders than in co-offenders ($d = -.56$, $p < .05$). The odds that solo offenders suffered from a DSM-IV Axis I disorder were 11.29 times those of co-offenders ($p < .05$). There were no differences between solo and co-offenders on substance-related disorder, PTSD or paraphilia. Solo offenders, however, were significantly more likely to suffer from a mood disorder ($p < .05$).

The mean number of a DSM-IV personality disorders and/or traits was significantly smaller in solo offenders than in co-offenders ($d = .37$, $p < .05$). Despite this difference, solo

Table II. Differences between female co-offenders and female solo offenders in continuous variables.

Variable	Co-offenders (<i>n</i> = 48)	Solo offenders (<i>n</i> = 12)	Cohen's <i>d</i>	95% CI
	Mean (s.d.)	Mean (s.d.)		
Victim characteristics ^a				
Number of victims	1.5 (1.0)	1.2 (0.4)	0.27	-0.04 to 0.56
Mental health characteristics ^b				
Number of DSM-IV Axis I disorders	0.7 (1.0)	1.2 (0.7)	-0.56*	-0.86 to (-)0.12
Number of DSM-IV personality disorders	0.8 (0.7)	0.5 (0.7)	0.37*	0.15 to 0.89

CI: confidence interval; s.d.: standard deviation. ^aThe number of victims of co-offenders ranged from one to five, the number of victims of solo offenders ranged from one to two; the number of victims of six (12.5%) co-offenders and three (25.0%) solo offenders were missing. ^bThe number of Axis I disorders of seven (14.6%) co-offenders and three (25.0%) solo offenders were missing; the number of Axis II disorders of four (8.3%) co-offenders and four (33.3%) solo offenders were missing. **p* < .05.

and co-offenders did not differ significantly on specific DSM-IV personality disorders and/or traits.

Differences between non-recidivists and recidivists

The differences between non-recidivists and recidivists are shown in Tables IV and V. Eight offenders were institutionalized in an inpatient forensic psychiatric hospital when the recidivism data were retrieved. Hence, these eight offenders were excluded from the sample. There was no sexual recidivism among the remaining 52 offenders. The violent recidivism rate² was 1.9% (*n* = 1) and the recidivism rate of any re-offence³ was 7.7% (*n* = 4). The time elapsed between the date of conviction and a re-offence varied from two to 41 months, with an average of 13 months (s.d. = 18.7).

Recidivists were not more or less likely to have been convicted previously of a sexual offence, violent offence or any offence compared to non-recidivists. There also was no significant difference in the average number of previous victims between recidivists and non-recidivists. Furthermore, there were no significant differences between these two groups on all five victim characteristics. Although the odds that recidivists victimized an unrelated victim were 10.16 times those of non-recidivists, this difference was not significant.

There were no significant differences between recidivists and non-recidivists in the number or type of DSM-IV Axis I disorders, but the mean number of DSM-IV personality disorders and/or traits was larger among non-recidivists compared to recidivists (*d* = 1.12, *p* < .05). However, recidivists were not more likely to suffer from a specific type of DSM-IV Axis II disorder and/or traits compared to non-recidivists.

Predicting recidivism

The results of the logistic regression analyses are shown in Tables VI and VII, respectively. The first analysis indicated that offender type predicted the presence of recidivism (*p* = .02). Specifically, the odds that solo offenders had committed a new offence of any type were 13.00 times those of co-offenders (*p* < .05).

The addition of age as a second predictor variable did not lead to a significant improvement of the goodness-of-fit. In this second analysis, offender type predicted

Table III. Differences between female co-offenders and female solo offenders in dichotomous variables.

Variable ^a	Co-offenders (<i>n</i> = 48)	Solo offenders (<i>n</i> = 12)	Odds ratio ^b	95% CI
	<i>n</i> (%)	<i>n</i> (%)		
Victim characteristics^c				
Victim <13 years of age	22 (48.9)	3 (30.0)	0.45	0.10–2.03
Male victim	11 (23.9)	6 (60.0)	4.77*	1.14–20.05
Female victim	40 (87.0)	4 (40.0)	0.10*	0.02–0.46
Male and female victim	5 (10.9)	0 (0.0)	0.36	0.02–7.02
Unrelated victim	13 (27.1)	7 (58.3)	9.15*	1.68–49.93
Previous conviction				
Previous sexual conviction	2 (4.2)	0 (0.0)	0.48	0.02–11.72
Previous violent conviction	3 (6.3)	1 (8.3)	1.36	0.12–14.40
Previous any conviction	15 (31.3)	5 (41.7)	1.57	0.43–5.76
Mental health characteristics^d				
DSM-IV Axis I disorder	17 (41.5)	8 (88.9)	11.29*	1.29–98.90
Substance-related disorder	7 (14.6)	4 (33.3)	3.89	0.83–18.24
Mood disorder	2 (4.2)	3 (25.0)	11.70*	1.56–87.93
PTSD	4 (8.3)	1 (8.3)	1.32	0.13–13.66
Paraphilia	3 (6.3)	1 (8.3)	1.81	0.16–20.00
DSM-IV personality disorder	26 (59.0)	3 (37.5)	0.42	0.09–1.98
Antisocial personality	5 (11.4)	0 (0.0)	0.42	0.02–8.39
Borderline personality	14 (31.8)	3 (37.5)	1.29	0.27–6.15
Avoidant personality	7 (15.9)	0 (0.0)	0.29	0.02–5.66
Dependent personality	18 (40.9)	0 (0.0)	0.08	0.01–1.55

CI: confidence interval; PTSD: post-traumatic stress disorder. ^a Dichotomous variables coded as 0 = no, 1 = yes. ^b Interpreted as the multiplicative change in odds for solo offenders. ^c The victim(s) age of three (6.3%) co-offenders and three (25.0%) solo offenders were missing; the victim(s) gender of two (4.2%) co-offenders and two (16.7%) solo offenders were missing; the relationship with the victim of one (2.1%) co-offender and three (25.0%) solo offenders were missing. ^d The number of Axis I disorders of seven (14.6%) co-offenders and three (25.0%) solo offenders were missing; the number of Axis II disorders of four (8.3%) co-offenders and four (33.3%) solo offenders were missing. * $p < .05$.

recidivism ($p = .02$) but age did not ($p = .15$). The odds that solo offenders committed a new offence of any type were 19.46 times those of co-offenders ($p < .05$).

Discussion

The current study examined 60 convicted adult female sexual offenders who were referred for an inpatient or outpatient psychiatric and/or psychological evaluation. The majority of these offenders committed the sexual offences with at least one male and/or female accomplice, which is consistent with previous research (e.g. Vandiver, 2006). The results of our study show that co-offenders were significantly more likely to have victimized a female victim, whereas solo offenders were significantly more likely to have victimized a male victim, which is in accordance with Vandiver (2006). In addition, the majority of the female co-offenders were accompanied by at least one male accomplice, possibly indicating that the gender of the victim depends largely upon whether the female sexual offender was accompanied by a male accomplice. Furthermore, the results revealed that solo offenders were significantly more likely to have victimized an unrelated victim compared to co-offenders. This is consistent with Vandiver (2006), who also found that co-offenders were significantly more likely than solo

Table IV. *Differences between non-recidivists and recidivists in continuous variables.*

Variable	Non-recidivists (<i>n</i> = 48)	Recidivists (<i>n</i> = 4)	Cohen's <i>d</i>	95% CI
	Mean (s.d.)	Mean (s.d.)		
Victim characteristics ^a				
Number of victims	1.4 (0.9)	1.5 (0.7)	-0.16	-0.43 to 0.82
Mental health characteristics ^b				
Number of DSM-IV Axis I disorders	0.6 (0.8)	0.7 (0.6)	-0.10	-0.36 to 0.55
Number of DSM-IV personality disorders	0.8 (0.7)	0.0 (0.0)	1.12 [*]	0.89 to 1.12

CI: confidence interval; s.d.: standard deviation. ^aThe number of victims of six (12.5%) non-recidivists and two (50.0%) recidivists were missing. ^bThe number of Axis I disorders of nine (18.8%) non-recidivists and one (25.0%) recidivist were missing; the number of Axis II disorders of seven (14.6%) non-recidivists and one (25.0%) recidivist were missing. **p* < .05.

offenders to abuse relatives. These results suggest that solo offenders and co-offenders may differ in the initiation of the offence. More specifically, as hypothesised by Vandiver (2006), it may be that male accomplices initiate the sexual offence and that the female co-offenders participate less in the initiation of the offence, and co-offend out of fearfulness of rejection by or separation from her accomplice or willingness to please her male co-offender. It should be mentioned, however, that the sample size of Vandiver's (2006) study was substantially larger compared to this study. Vandiver's (2006) study included 123 solo offenders and 104 co-offenders; the current study examined 12 solo offenders and 48 co-offenders. Consequently, comparisons between these studies are tentative.

The primary purpose of this study was to explore the personality pathology among solo offenders and co-offenders. The results revealed that solo offenders, in comparison to co-offenders, were significantly more likely to suffer from a DSM-IV Axis I disorder; specifically, a mood disorder. Previous studies indicated that female sexual offenders in general often suffer from a major depression or depressive symptoms (e.g. Kaplan & Green, 1995; Lewis & Stanley, 2000). For example, Kaplan and Green (1995) reported that seven of 11 female sexual offenders (63.6%) experienced a past or current episode of a major depression. According to Dobash, Dobash, Wilson and Daly (1992), self-defence or extreme depression is often a motive for female violence (Steffensmeier & Allen, 1996). Hence, episodes of a major or extreme depression might be related to the decision for some solo offenders, and to a lesser extent for co-offenders, to commit a sexual crime.

In contrast, the results revealed that the mean number of DSM-IV personality disorders was larger among co-offenders than solo offenders. Although the differences were not statistically significant, probably due to low power in the statistical analyses, solo offenders tended to demonstrate less antisocial, avoidant and/or dependent personality disorder or traits and more borderline personality disorder or traits than co-offenders. Researchers have speculated that female sexual offenders in general are more likely to suffer from traits associated with borderline and/or dependent personality disorders (e.g. Green & Kaplan, 1994; Kaplan & Green, 1995; Mathews et al., 1989). For example, Kaplan and Green (1995) reported that several of the female offenders who committed their sexual offence with an accomplice had a diagnosis of dependent personality disorder, which might suggest that a dependent personality disorder or traits might be characteristic of female co-offenders. This assumption, however, remains speculative and should be extensively investigated.

Table V. Differences between non-recidivists and recidivists in dichotomous variables.

Variable ^a	Non-recidivists (<i>n</i> = 48)		Recidivists (<i>n</i> = 4)	
	<i>n</i> (%)	<i>n</i> (%)	Odds ratio ^b	95% CI
Victim characteristics^c				
Victim <13 years of age	20 (41.7)	2 (50.0)	2.40	0.20–28.45
Male victim	12 (25.0)	2 (50.0)	5.50	0.45–66.32
Female victim	35 (72.9)	1 (25.0)	0.14	0.01–1.74
Male and female victim	2 (4.2)	0 (0.0)	0.40	0.02–10.13
Unrelated victim	15 (31.3)	2 (50.0)	10.16	0.46–224.82
Previous conviction				
Previous sexual conviction	2 (4.2)	0 (0.0)	0.48	0.02–11.72
Previous violent conviction	2 (4.2)	1 (25.0)	7.67	0.53–110.65
Previous any conviction	14 (29.2)	3 (75.0)	7.29	0.70–76.18
Mental health characteristics^d				
DSM-IV Axis I disorder	16 (33.3)	2 (50.0)	2.88	0.24–34.46
Substance-related disorder	6 (12.5)	1 (25.0)	2.75	0.21–35.33
Mood disorder	4 (8.3)	0 (0.0)	0.89	0.04–20.12
PTSD	3 (6.3)	0 (0.0)	0.67	0.03–15.82
Paraphilia	2 (4.2)	1 (25.0)	9.00	0.55–146.67
DSM-IV personality disorder	25 (52.1)	0 (0.0)	0.09	0.01–1.91
Antisocial personality	4 (8.3)	0 (0.0)	0.84	0.04–19.03
Borderline personality	14 (29.2)	0 (0.0)	0.27	0.01–5.61
Avoidant personality	6 (12.5)	0 (0.0)	0.78	0.04–16.96
Dependent personality	17 (35.4)	0 (0.0)	0.20	0.01–4.12

CI: confidence interval; PTSD: post-traumatic stress disorder. ^aDichotomous variables coded as 0 = no, 1 = yes. ^bInterpreted as the multiplicative change in odds for recidivists. ^cThe victim(s) age of four (8.3%) non-recidivists and one (25.0%) recidivist were missing; the victim(s) gender of three (6.3%) non-recidivists and one (25.0%) recidivist were missing; the relationship with the victim of two (4.2%) non-recidivists and two (50.0%) recidivists were missing. ^dThe number of Axis I disorders of nine (18.8%) non-recidivists and one (25.0%) recidivist were missing; the number of Axis II disorders of seven (14.6%) non-recidivists and one (25.0%) recidivist were missing.

The secondary purpose of this study was to examine the sexual, violent and any recidivism rates among these female sexual offenders. It was hypothesized that solo offenders would be more likely to commit a new offence, compared to co-offenders. The results showed that there was no sexual recidivism among the women in the study. The rates of violent and any recidivism were 1.9 and 7.7%, respectively. These findings are lower than those found in

Table VI. Logistic regression results of likelihood of any re-offence in 69.5 (s.d. = 37.2) months (*n* = 60) with one predictor variable.

Variable	Any re-offence	
	β	Exp(β) ^a
Offender type	2.57*	13.00
Constant	-3.66**	-
-2LL ^b	22.85	-
Model χ^2	5.36*	-

LL: log likelihood; s.d.: standard deviation. ^aInterpreted as the multiplicative change in odds of any re-offence for offenders who committed the index offence without an accomplice (i.e. solo offender). ^bNagelkerke R²: .23. **p* < .05; ***p* < .001.

Table VII. Logistic regression results of likelihood of any re-offence in 69.5 (s.d. =37.2) months ($n = 60$) with two predictor variables.

Variable	Any re-offence	
	β	Exp(β) ^a
Offender type	2.97*	19.46
Age at offence	0.10	1.10
Constant	-7.68*	-
-2LL ^b	20.47 ^b	-
Model χ^2	7.74*	-

LL: log likelihood. ^aInterpreted as the multiplicative change in odds of any re-offence for offenders who committed the index offence without an accomplice (i.e. solo offender). ^bNagelkerke R^2 : .33. * $p < .05$.

other studies (e.g. Cortoni & Hanson, 2005; Cortoni et al., 2010; Freeman & Sandler, 2008; Sandler & Freeman, 2009). As all these studies were based on official data, the reasons for this difference are unclear.

Despite the low recidivism rates in this study, offender type significantly predicted recidivism. Specifically, the odds that solo offenders committed a new (non-sexual) offence were 13 times those of co-offenders. This finding suggests that solo offenders have an increased risk of a new offence of any type compared to co-offenders. In a related vein, Williams and Nicholaichuk (2001; cited in Cortoni & Hanson, 2005) conducted a study that revealed that two offenders (3.3%) who committed new (sexual) offences were solo offenders. This suggests that some characteristics of solo offenders, as yet unspecified, make solo offenders relatively more likely to re-offend than co-offenders. These characteristics or risk factors cannot, however, be determined on the basis of a few cases (Cortoni & Hanson, 2005), as is the case in the present study. As mentioned by Cortoni and Hanson (2005), extremely large samples are required to establish empirically validated risk markers for recidivism among female sexual offenders.

In this study, the mean number of DSM-IV personality disorders was significantly larger among non-recidivists compared to recidivists. Although the differences were not statistically significant, probably due to low power in the statistical analyses, the non-recidivists demonstrated antisocial, borderline, avoidant and/or dependent personality disorder or traits, while the recidivists had none. The implication of this finding is unclear, particularly as antisocial traits are associated typically with recidivism, and further research should examine this issue.

Age at offence did not predict any recidivism, which is in contrast with previous studies (Freeman & Sandler, 2008; Sandler & Freeman, 2009). In a sample of 390 convicted female sexual offenders, Freeman and Sandler (2008) found that the sexual and non-sexual recidivism risk of female sexual offenders decreased with age. Specifically, each one-year increase in age (at the time of the arrest) predicted a 10% decrease in the hazard rate of a subsequent sexual offence arrest and a 4.4% decrease in the hazard rate of re-arrest for a non-sexual offence (Freeman & Sandler, 2008). However, in a sample of 1,446 convicted female sexual offenders, Sandler and Freeman (2009) reported that the odds of a sexual re-offence increased by 4% for each one-year increase in age (at the time of the arrest). Moreover, the odds of a felony re-offence and any re-offence decreased by 2 and 3%, respectively, for each one-year increase in age (at the time of the arrest). Consequently, the results concerning the effect of ageing among female sexual offenders are inconsistent. It should be mentioned, however, that the sample size of Sandler and Freeman's (2009) study

was substantially larger compared to the current study. Comparisons between these studies are tentative and the effect of ageing among female sexual offenders requires further investigation.

Limitations

Although the current study included more participants compared to other scientific studies of female sexual offenders, the proportion of solo offenders and co-offenders was divided inadequately. Specifically, solo offenders represented a very small portion of the total sample. Therefore, given the small number of solo offenders, the current findings and conclusions should be interpreted with caution. Another limitation concerning the sample in this study is the fact that all participants were convicted offenders. Other studies have included psychiatric patients and non-adjudicated offenders (e.g. Lewis & Stanley, 2000; Nathan & Ward, 2002). The generalization of the results of these studies may be substantially limited. In addition, the participants in this study did not represent the entire female sexual offender population between January 1999 and December 2008 in the Netherlands. In fact, the sample included only a selective group of sexual offenders who were receiving a psychiatric and/or psychological evaluation. It is likely that the prevalence of the psychiatric disorders and personality disorders among the women in the current study are higher than the prevalence of these disorders in the women who did not undergo such an evaluation. In a related vein, the prevalence of these psychiatric disorders and personality disorders might be different in larger samples of female sexual offenders that include equal proportions of solo and co-offenders. Finally, the majority of the data in the present study were obtained from the reports of the psychiatric and/or psychological evaluations. The quality of these data was dependent on the quality of the reports. Some of these reports did not provide exhaustive information on all participants, resulting in missing data.

Conclusion

Although the empirical research in female sexual offenders is growing, many issues remain the subject of debate. For example, the prevalence rate of (generally male) accomplices in female sexual offences is unclear. Estimations range remarkably from 22 to 96%, also depending on the sample of the study (Vandiver, 2006). However, not all sexual offences committed by female offenders included an accomplice (Nathan & Ward, 2002). Consequently, it is important to recognize the relevance of an accomplice in sexual offences committed by a female offender. Despite this relevance, very few studies have investigated the differences between solo offenders and co-offenders. The aim of the present study was to provide clearer insight into the differences among these two female sexual offender types.

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Notes

1. On average, 2.12 (s.d. = 1.70, median = 1.5) sexual offences were registered on the Judicial Documentation among the convicted female sexual offenders, ranging from one sexual offence to nine sexual offences.
2. The violent re-offence included physical abuse, theft and devastation.
3. The any re-offences included theft ($n=2$), handling stolen goods ($n=1$) and arson ($n=1$).

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