

The Roles of Gender and Coping Styles in the Relationship Between Child Abuse and the SCL-90-R Subscales 'Psychoticism' and 'Paranoid Ideation'

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Few of the many studies demonstrating a relationship between various types of child abuse and a range of experiences indicative of psychosis analyze their findings by gender. This study, therefore, tested the hypotheses that child sexual and physical abuse are related to subsequent 'Psychoticism' and 'Paranoid Ideation', and that the relationships are not gender specific. Three hundred and thirty eight adult New Zealanders completed questionnaires including demographic information, the Symptom Checklist-90 Revised (SCL-90-R), the Coping Responses Inventory, and the questions 'Were you physically [sexually] abused prior to the age of 16 years?' Multivariate analysis found that Psychoticism and Depression were the only two of the nine SCL-90-R subscales that were significantly higher in all three abuse groupings (sexual only, physical only, and both sexual and physical) than in the group reporting no abuse. When the same analyses were run separately for men and women, both males and females who reported both physical and sexual abuse scored significantly higher than those reporting no abuse on the Psychoticism and Paranoid Ideation subscales. There was, however, no significant difference, for either gender, for those who reported physical but not sexual abuse. There were significant interactions between gender and abuse type, with males who had been sexually abused scoring particularly high on Psychoticism and Emotional Discharge and particularly low on Seeking Guidance/Support. The findings are consistent with previous studies demonstrating a relationship between child abuse and psychosis. While men and women might employ different coping mechanisms, the relationship itself is not gender specific.

A 2005 review (Read, van Os, Morrison, & Ross, 2005) reported many cross-sectional, and a smaller number of prospective studies, showing that childhood emotional, physical and sexual abuse, neglect and bullying are all strongly related to psychosis. The reviewers concluded that childhood abuse is a causal factor for psychosis. Other reviewers were more cautious and called for further research (Bendall, Jackson, Hulbert, & McGorry, 2009; Morgan & Fisher, 2007). Subsequent reviews (Larkin & Read, 2009; Read et al., 2008, 2009), however, report that ten out of eleven recent large-scale

general population studies have found, even after controlling for other factors, that child maltreatment is significantly related to psychosis. The authors of the one exception recently reanalyzed their data, correcting a flaw in their original paper, and found the same as the other ten (Cutajar et al., 2010).

For example, a prospective Netherlands study of 4,045 adults controlled for 12 factors, including family history of psychosis, and found that people who had been abused as children were nine times more likely than non-abused people to experience pathology-level psychosis (Janssen et

al., 2004). Nine of the eleven studies tested for, and found, a dose-response relationship. For example, in a study of 8,580 British adults, those who had experienced three types of trauma were 18 times more likely, and those who had suffered five types 193 times more likely, to have received a psychosis diagnosis than non-abused participants (Shelvin, Houston, Dorahy, & Adamson, 2008).

There is also evidence of a relationship between abuse and the actual content of hallucinations and delusions (Larkin & Read, 2008; Read et al., 2005, 2008, 2009; Read, Agar, Argyle, & Aderhold, 2003). Furthermore, even *within* samples diagnosed psychotic or 'schizophrenic', including seven first episode psychosis studies (see Conus, Cotton, Schimmelmann, McGorry, & Lambert, 2010), child abuse is related to many additional problems including: higher levels of dissociation, poorer premorbid functioning, lower verbal IQ and level of completed education, cognitive deficits, deficits in communication skills and ability to form relationships, substance abuse, other mental health problems (especially depression, anxiety disorders and PTSD), increased symptom severity and hopelessness, longer duration of untreated psychosis, unemployment, poor engagement with services, low satisfaction with diagnosis and treatment, and suicidality (Conus et al.; Bae, Kim, Kim, Jeong, & Hoon, 2010; Lecomte et al., 2008; Lothian & Read, 2002; Read et al., 2005, 2008; Ross & Keyes, 2004; Schenkel, Spalding, DiLillo, &

Silverstein, 2005; Spence et al., 2006).

Many researchers, satisfied that the relationship is indeed a causal one, have begun to investigate the relationships between specific types of abuse and specific types of psychotic experiences (e.g., hallucinations, delusions, etc.), and to research the psychological and biological mechanisms by which adverse experiences in childhood increase the probability of becoming psychotic later in life (Read et al. 2005, 2008, 2009). Two recent books have summarised these developments (Larkin & Morrison, 2006; Moskowitz, Schafer, & Dorahy, 2008).

Child Abuse, Psychosis and Gender

A recent review calculated, from an analysis of 59 studies, that an average of 55% of male, and 65% of female, psychiatric inpatients had been sexually or physically abused as children (Read et al., 2008). Morgan and Fisher (2007) calculated, from 20 studies of exclusively psychotic samples, that fewer men (28%) than women (42%) had been sexually abused, but that 50% of both genders had been either sexually or physically abused as children.

The differences between men and women diagnosed with 'schizophrenia' include pre-morbid functioning, age of onset, symptomatology, co-morbidity (including substance abuse), cognitive deficits, response to medication, course and outcome (Castle et al., 2000; Murphy, Shevlin, Adamson, & Houston, 2010; Read, 2004). These differences are so pronounced that they have been summarized in terms of men having 'typical schizophrenia' and women 'atypical schizophrenia' (Lewine, 1981). Nevertheless, partly because of the recent dominance of a bio-genetic 'medical model' paradigm (Bentall, 2009; Read, Mosher, & Bentall, 2004), researchers of psychosis and 'schizophrenia' have paid surprisingly little attention to gender. In 2003 only about 1% of the 450 page text *The Epidemiology of Schizophrenia* dealt with gender (and even less with child abuse) and, in keeping with the dominant paradigm, focused primarily on oestrogen to explain the gender differences (Murray, Jones, Susser, van Os, & Cannon, 2003). Sparks (2002) pointed out that

"The examination of gender differences in schizophrenia and other chronic mental illnesses has not kept pace with the literature on depression" (p.280). This is supported by a Medline search entering (a) 'female' and (b) 'gender' to roughly estimate the proportion of studies of a range of disorders that (a) record the gender of the study sample, and (b) analyze or discuss their findings in terms of gender. Table 1 suggests that only about a half of all studies of psychosis (49.5%) or 'schizophrenia' (47.5%) even report the gender of their sample, compared to 65% for depressive disorders and 61.2% of non-psychotic disorders overall. Similarly, while 4.6% of studies of non-psychotic disorders appear to analyse or discuss their findings in relation to gender, this is the case for only 2.2% for psychosis and 2.5% for 'schizophrenia'.

Fisher et al. describe their 2009 study not only as "the first study to investigate gender differences systematically" but as "the largest population-based case-control study of early trauma and psychosis". Compared to a general population control group, the women were 3.3 times more likely to have been physically abused before age 16 ($p = .001$), 1.9 times more likely to have been sexually abused ($p = .07$), and 2.5 times more likely to have suffered either type of abuse ($p = .01$). After adjusting for age, ethnicity and study centre, the findings were: physical - 2.2 ($p = .07$); sexual - 2.2 ($p = .04$); either - 2.6 ($p = .01$). Even after controlling for 'parental

history of mental illness' the women were still 2.6 times more likely to have been either sexually or physically abused ($p = .02$). No significant differences were found for men.

However, nine of the 11 large general population studies reported in recent reviews (all with approximately 50% males) controlled for gender and still found a significant relationship between child abuse and psychosis. We have also seen that about 50% of both men and women diagnosed with psychosis have been either sexually or physically abused as children. Studies of predominantly (Conus et al., 2010) and exclusively men (Lysaker, Meyer, Evans & Marks, 2001), diagnosed with psychotic disorders, have found that those who had been sexually abused have increased rates of a range of related difficulties, including suicidality and polysubstance abuse.

Despite the well documented differences between men and women diagnosed 'schizophrenic', little attention has been paid to gender differences in life experiences which might explain those differences. Most studies investigating the causal relationship between child abuse and psychosis have either studied only one gender or failed to analyze their findings by gender. To redress this situation, and to specifically address Fisher et al.'s hypothesis that the relationship may be limited to females, the current study examines the relationships between child physical and sexual abuse with

Table 1. Estimates of percentages of studies recording and discussing gender.

	Total	Gender Recorded	Gender Discussed
Depressive Disorder	65,399	65.0% (42,496)	4.5% (2,938)
Eating Disorders	11,691	64.9% (7,589)	4.4% (515)
Anxiety Disorders	21,741	61.3% (13,325)	4.4% (963)
Personality Disorders	15,264	58.1% (8,863)	3.4% (520)
Alcohol Abuse	9,109	57.2% (5,208)	6.0% (544)
Substance Abuse	30,196	54.3% (16,391)	5.0% (1,495)
Non-Psychotic Disorders - Average	153,400	61.2% (93,972)	4.5% (6,975)
Psychotic Disorders	27,726	49.5% (13,734)	2.2% (618)
Schizophrenia	86,009	47.5% (40,819)	2.5% (2,167)

Psychoticism, and other subscales of the Symptom Checklist-90 Revised (Derogatis & Lazarus, 1994), and analyzes those relationships separately for men and women. In an attempt to understand any gender differences in the relationships, coping styles are also assessed.

METHOD

Participants

Participants were a non-representative sample of 338 individuals from the New Zealand general population, of whom 91 (26.9%) were male. Age of participants ranged from 17 to 87 with a mean of 37.2 ($SD = 17.11$). The men and women did not differ on education or income but the men were significantly ($p = .03$) older than the women, with means of 40.9 and 35.8 respectively. Most participants self-identified as being of New Zealand European ethnicity ($n = 266$; 78.5%), while 28 (8.3%) self-identified as Māori, 19 (5.6%) as Pacific Island peoples, and 16 (7.7%) as being of another ethnicity. Education level was relatively high with 118 (34.8%) having attended University and 123 (36.3%) individuals having attended polytechnic, while 87 (25.7%) had completed high school, and 11 (3.2%) had completed only primary school. Twenty nine (8.6%) reported an annual income of less than \$20,000; 67 (19.8%) reported \$20,000 to \$40,000; 72 (21.3%) reported \$40,001 to \$70,000; and 81 (24%) reported over \$70,000. A hundred and forty seven (43.4%) were married, 137 (40.4%) single, and 52 (15.5%) separated or divorced. Participants were from all over New Zealand, with addresses selected at random from the New Zealand residential phone directory.

Measures

Symptom Checklist-90-Revised.

The SCL-90-R is a 90-item self-report inventory. Each item presents a symptom (e.g., poor appetite) and the respondent rates the extent to which the symptom has been bothersome in the past week on a five-point scale from 'Not at all' (0) to 'Extremely' (4). The scale contains nine primary symptom scales (Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety,

Paranoid Ideation, Psychoticism) and three global indices of distress (Global Severity Index, Positive Symptom Distress Index, Positive Symptom Total). Scale scores are computed by summing the values of each contributing item completed, divided by the total number of items completed. These are then converted to gender specific t-scores. Normative data is available for non-patients 13 years of age and over (Derogatis & Lazarus, 1994). In accordance with the manual participants were assigned as a 'case' if producing a score ≥ 63 on any SCL-90-R total T-score (Global Severity Index) or by being within this same range on at least two of its subscale scores.

Coping Responses Inventory (CRI) adult form.

This 48 item scale (Moos, 1997; Moos & Schaefer, 1993) measures eight different coping types with scales of six items each. Respondents are asked to identify 'the most important problem or stressful event experienced in the past 12 months' and complete the inventory in reference to that event. The scales, with item examples, are:

Logical Analysis - Did you think of different ways to deal with the problem?

Positive Reappraisal - Did you tell yourself things to make yourself feel better?

Seeking Guidance/Support - Did you talk with your spouse or other relative above the problem?

Problem Solving - Did you make a plan of action to be followed?

Cognitive Avoidance - Did you try to forget the whole thing?

Acceptance/Resignation - Did you feel that time would make a difference-that the only thing to do was wait?

Seeking Alternative Rewards - Did you try to help others deal with a similar problem?

Emotional Discharge - Did you take it out on other people when you felt angry or depressed?

Each item is rated from 0 = *no, not at all* to 3 = *yes, fairly often* which, when summed, produces a maximum total score of 144. Scales are only minimally correlated with social desirability (average absolute $r = .13$ for the 8

scales). Scoring procedures to generate t-scores were followed in accordance with Moos (1997). Internal consistency of the eight CRI scales for respondents ranged from .68 to .75. Overall mean level of performance on this inventory was 53.91 with a standard deviation of 7.31.

Abuse.

Participants were asked to respond 'yes' or 'no' to 'Did you ever experience physical [sexual] abuse prior to the age of 16 years?'

Procedure

This study was approved by the University of Auckland Human Participants Ethics Committee, and participants gave informed consent. All questionnaires were accompanied by an introductory letter and a Participant Information Sheet which outlined the confidential and voluntary nature of the study, who to contact if they felt distressed in any way, the expected amount of time it would take to complete the questionnaires, etc. The anonymous questionnaire packages were distributed via mail to 2300 randomly selected addresses from throughout New Zealand listed in the Telecom White Pages print or online directories. This methodology means that participants were limited to those aged over 18 years with landline telephone access, which represents over 96% of New Zealand adults (Pink, 2002). Of the surveys distributed, 92 were returned due to incorrect or insufficient address. Of the remaining 2208 survey packages, 356 (16.1%) were returned; of which two were illegible, three were blank, and thirteen were incomplete. Data from the remaining 338 questionnaires was entered into an SPSS 15.0 file for analysis.

RESULTS

Chronbach's alphas (internal reliability consistency) were .868 for the CRI and .970 for the SCL-90-R.

Of the 91 men who completed the survey, 25 (27.5%) reported no history of child abuse, 23 (25.3%) reported physical abuse only, 5 (5.5%) reported sexual abuse only, and 38 (41.8%) reported both physical and sexual abuse. Of the 247 women in the sample 69 (27.9%) reported no abuse, 57 (23.1%) reported physical abuse only, 21 (8.5%)

sexual abuse only, and 100 (40.5%) both physical and sexual abuse.

Symptoms

Abuse groups

Table 2 presents the proportions of men and women who met the definition of caseness for Psychoticism in each of the abuse groupings, including those who suffered one type of abuse without the other ('sexual only', 'physical only') and those who suffered one type of abuse regardless of whether they also suffered the other ('all physical', 'all sexual'). For both genders rates of Psychoticism were far higher for those had suffered any abuse ('either physical or sexual') than in the no abuse group: males 43.9% vs 0%; females 25.8% vs 5.8%. The rates increased in those who had suffered both forms of abuse, to 52.6% for men and 37.0% for women. Chi square tests indicated that the proportion of individuals meeting the definition of caseness differed significantly across abuse groupings (none, physical only, sexual only, both) for both men ($X^2(3) = 32.15, p < .001$) and women ($X^2(3) = 32.65, p < .001$). In both genders those who experienced both forms of abuse were significantly more likely to meet the definition of caseness than those who suffered either no abuse or only physical

abuse. For women this was also true for sexual abuse; but the opposite was found for men, who were most likely to meet caseness definition if they had been sexually abused only.

A 2 x 4 MANOVA determined whether groups based on gender and the four abuse groups (none, physical only, sexual only, both) differed in t-scores across the SCL-90-R subscales. This approach to categorizing abuse leads to more robust multivariate analysis by ensuring that no cases are included in more than one cell.

There was a significant main effect for abuse grouping; $F(60, 578) = 1.821, p < .001$. All SCL-90-R scales contributed significantly to the main effect of abuse grouping ($p < .01$). Table 3 reports the post hoc tests (Bonferroni), with overall significance level set at $p < .01$. The Global Severity Index (GSI) had significantly higher scores for all three abuse groupings compared to the non-abused group. Psychoticism was one of only two subscales (with Depression) with significantly higher scores for physical abuse than for the non-abused group; and was one of four subscales (with Depression, Anxiety and Somatization) with significantly higher scores for sexual abuse than for non-

abused. Those reporting both types of abuse differed significantly from those reporting no abuse on all subscales except Obsessive-Compulsive. Thus, Psychoticism and Depression were the only two subscales with significant differences for all three abuse groupings. The possibility of a dose effect is suggested by the pattern, in Table 3, for SCL-90-R scales for Obsessive-Compulsive, Interpersonal Sensitivity, Hostility, Paranoid Ideation and Psychoticism.

Gender

The MANOVA results for the SCL-90-R indicate that there was also a main effect for gender $F(20, 194) = 2.736, p < .001$. All SCL-90-R subscales, except Hostility, contributed significantly ($p < .01$) to the main effect. Post hoc analyses with Bonferroni correction found that males produced higher t-scores than females for Somatisation, Obsessive Compulsive, Interpersonal Sensitivity, Anxiety, Phobic Anxiety and the GSI (see Table 4).

Table 4 presents the data from Table 3 analyzed by gender. None of the subscales (or the GSI) produced significant differences between the physical abuse only and the non-abused groups, for men or for women. For

Table 2. Number and proportion of individuals falling within each abuse category plus the proportion of these meeting definition of caseness of Psychoticism, by abuse grouping and gender

	Total Sample			Psychoticism Caseness		
	All	Male	Female	All	Male	Female
	(n=338)	(n=91)	(n=247)	(n=79; 23%)	(n=29; 32%)	(n =50; 20%)
No Abuse	94 (28%)	25 (27%)	69 (28%)	4 (4%)	0 (0%)	4 (6%)
Physical Only	80 (24%)	23 (25%)	57 (23%)	8 (10%)	4 (17%)	4 (7%)
Sexual Only	26 (8%)	5 (5%)	21 (9%)	10 (38%)	5 (100%)	5 (24%)
Any Physical	218 (64%)	61 (67%)	157 (64%)	65 (30%)	24 (39%)	41 (26%)
Any Sexual	164 (49%)	43 (47%)	121 (49%)	67 (41%)	25 (58%)	42 (35%)
Either Physical or Sexual	244 (72%)	66 (73%)	178 (72%)	75 (31%)	29 (44%)	46 (26%)
Both Physical and Sexual	138 (41%)	38 (42%)	100 (40%)	57 (41%)	20 (53%)	37 (37%)

Table 3. Means and standard deviations across abuse groups for t-scores on SCL-90-R scales.

	No Abuse		Physical Abuse Only		Sexual Abuse Only		Both Forms of Abuse	
	(n = 94)		(n = 80)		(n = 26)		(n= 138)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Somatization	43.09	7.56	47.96	10.83	56.12*	10.65	55.12*	10.30
Obsessive-compulsive	47.89	8.58	51.08	8.91	55.92	11.49	58.66	10.17
Interpersonal Sensitivity	46.71	8.09	50.89	10.10	55.32	10.50	57.78*	10.47
Depression	47.86	9.19	53.35*	10.89	59.35*	11.83	58.73*	10.56
Anxiety	42.11	6.99	46.95	10.35	54.76*	13.02	54.40*	11.76
Hostility	43.37	7.16	46.71	9.95	51.73	11.81	54.48*	10.95
Phobic Anxiety	46.39	3.89	48.31	6.38	52.23	9.26	51.40*	8.88
Paranoid Ideation	44.74	5.85	47.76	8.26	52.46	9.73	54.06*	10.08
Psychoticism	48.32	7.39	53.40*	9.65	59.46*	10.67	60.20*	11.88
Global Severity Index	51.32	9.41	56.54*	10.69	60.93*	10.13	60.14*	10.14

* higher than 'no abuse' group, $p < .01$, bonferroni corrections

men, eight of the nine subscales (and GSI) produced significant differences between the sexual abuse only and the non-abused group. For the women, this was the case for five of the subscales (and GSI). Similarly, the difference between the group suffering both forms of abuse and the non-abused group was significant on eight subscales for the men (and GSI) and six for the women (and GSI). Both men and women produced significantly higher Psychoticism scores for the sexual abuse, and both forms of abuse, groups than for the non-abused group.

There was a significant interaction between gender and abuse group, $F(40, 388) = 1.625, p = .012$. Contributing significantly to the interaction were Psychoticism ($p = .024$), Depression ($p = .016$) and the GSI ($p = .029$). It can be seen in Figure 1 that while men and women reported similar levels of Psychoticism in the absence of abuse, men's reports of Psychoticism and Depression increased more than that of women when abuse had been experienced, peaking with sexual abuse alone. Similarly, men reported a steeper increased overall severity of difficulties (GSI) than women when abuse was reported.

Coping

A 2 x 4 MANOVA was conducted to determine if gender and the four abuse groups differed significantly on t-scores obtained across the CRI subscales. There were significant main effects for both gender, $F(20, 194) = 2.736, p < .001$, and abuse group, $F(60, 578) = 1.821, p < .001$, as well as a significant interaction between the two, $F(40, 388) = 1.625, p = .012$. Contributing significantly to the main effect of abuse group were: Cognitive Avoidance ($p = .010$), Acceptance and Resignation ($p = .001$), and Emotional Discharge ($p < .001$) scales. Post hoc tests (Bonferroni) indicate that those reporting physical abuse and those reporting both forms of abuse differed from those reporting no abuse on Acceptance and Resignation, and on Emotional Discharge. Those reporting both forms of abuse also differed from those with no abuse on the Cognitive Avoidance scale.

Contributing significantly to the main effect of gender were Positive Reappraisal ($p = .007$) and Seeking Guidance/Support ($p = .001$). Bonferroni corrections found that males produced significantly lower t-scores than females on both these approach coping strategies; Positive Reappraisal (47.41 &

51.00 respectively), Seeking Guidance/Support (44.37 & 49.19).

Contributing significantly to the interaction between gender and abuse group were Seeking Guidance/Support ($p = .015$), and Emotional Discharge ($p = .032$) subscales.

Figure 2 shows that females in general reported slightly higher levels of Seeking Guidance and Support than males, particularly in the no abuse and sexual abuse only groups. Males reported less Emotional Discharge than females across abuse types, with the exception of those who reported sexual abuse, where a peak in Emotional Discharge was present.

DISCUSSION

Limitations

The study did not employ participants meeting DSM criteria for 'schizophrenia' or other psychosis disorders. Numerous studies, however, have now established that psychosis is a dimensional rather than categorical construct, and is found in the general population to a greater extent than previously thought (Beavan, Read, & Cartwright, 2011; Murphy, Shevlin, Adamson, & Houston, 2010).

Table 4. Means and standard deviations across groups for t-scores across SCL-90-R scales separated for males and females.

	Total Sample		No Abuse		Physical Abuse Only		Sexual Abuse Only		Both Forms of Abuse	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Male	n=92		n=25		n=23		n= 5		n=38	
Somatization	53.67#	11.97	43.40	6.40	53.17	11.71	67.00*	4.74	59.26*	10.54
Obsessive Compulsive	57.08#	11.21	47.60	6.00	55.17	8.57	70.60*	7.33	62.76*	10.75
Interpers. Sensitivity	56.16#	11.62	46.88	6.16	54.65	9.89	70.00*	6.89	61.44*	11.38
Depression	58.69	12.78	46.64	7.73	58.39	10.87	72.20*	9.39	65.02*	10.92
Anxiety	53.76#	13.04	41.60	2.35	51.43	11.18	74.00*	7.34	61.21*	11.22
Hostility	51.45	11.84	42.44	3.13	49.82	10.55	61.80*	13.16	57.07	12.25
Phobic Anxiety	50.96#	8.59	47.00	3.89	50.73	7.41	61.60	11.39	52.42*	10.32
Paranoid Ideation	51.18	10.37	43.72	3.50	49.39	8.04	64.40*	5.36	55.71*	11.31
Psychoticism	58.21	11.93	46.72	5.27	57.08	8.71	69.00*	7.61	65.18*	11.14
Global Severity Index	58.79#	11.21	52.12	7.69	62.85	11.54	67.00*	4.74	68.33*	7.51
Female	n=247		n=69		n=57		n= 21		n=100	
Somatization	48.81	10.43	42.97	7.97	45.85	9.78	53.52*	10.03	53.55*	9.81
Obsessive Compulsive	52.36	10.05	48.00	9.38	49.42	8.56	52.42	9.36	57.09	9.53
Interpers. Sensitivity	51.64	10.20	46.65	8.71	49.36	9.86	51.65*	7.63	56.39*	9.80
Depression	52.92	10.32	48.30	9.67	51.31	10.30	56.28*	10.30	56.33	9.41
Anxiety	47.55	10.63	42.28	8.04	45.14	9.51	51.09*	10.34	51.81*	10.94
Hostility	48.60	10.48	43.71	8.13	45.45	9.50	49.33	10.40	53.63*	10.31
Phobic Anxiety	48.71	7.031	46.17	4.52	47.33	5.69	50.00	7.34	51.01	8.27
Paranoid Ideation	49.32	9.092	45.11	6.47	47.10	8.32	49.61	8.27	53.43*	9.55
Psychoticism	54.10	10.88	48.89	7.96	51.91	9.67	57.19*	10.12	58.31*	11.64
Global Severity Index	54.46	10.26	51.01	10.03	53.85	9.17	60.93*	10.13	58.30*	9.79

* higher than 'no abuse' group; # higher than females; $p < .01$, bonferroni corrections

Figure 1. Significant interaction between gender and abuse experience on SCL-90-R scales of Depression, the Global Severity Index, and Psychoticism.

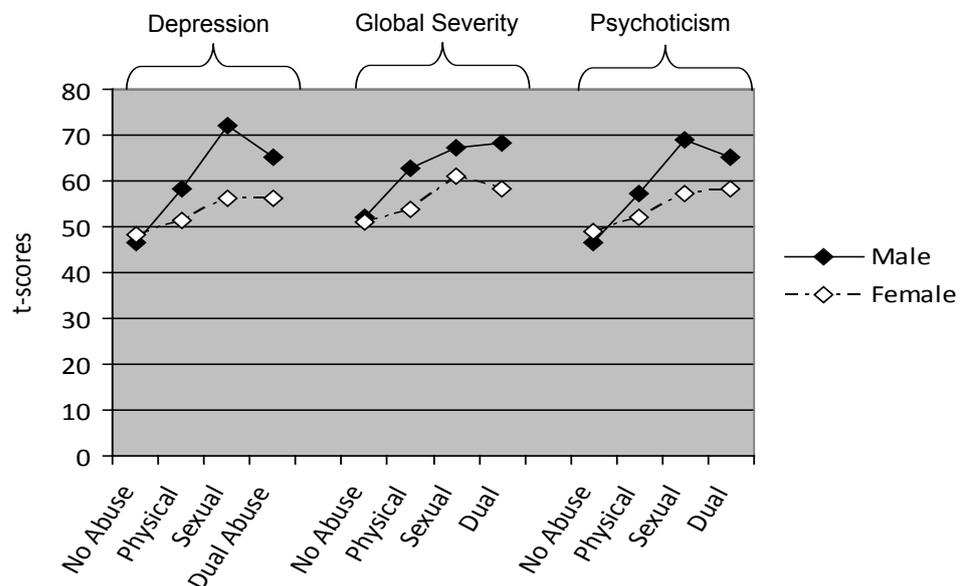
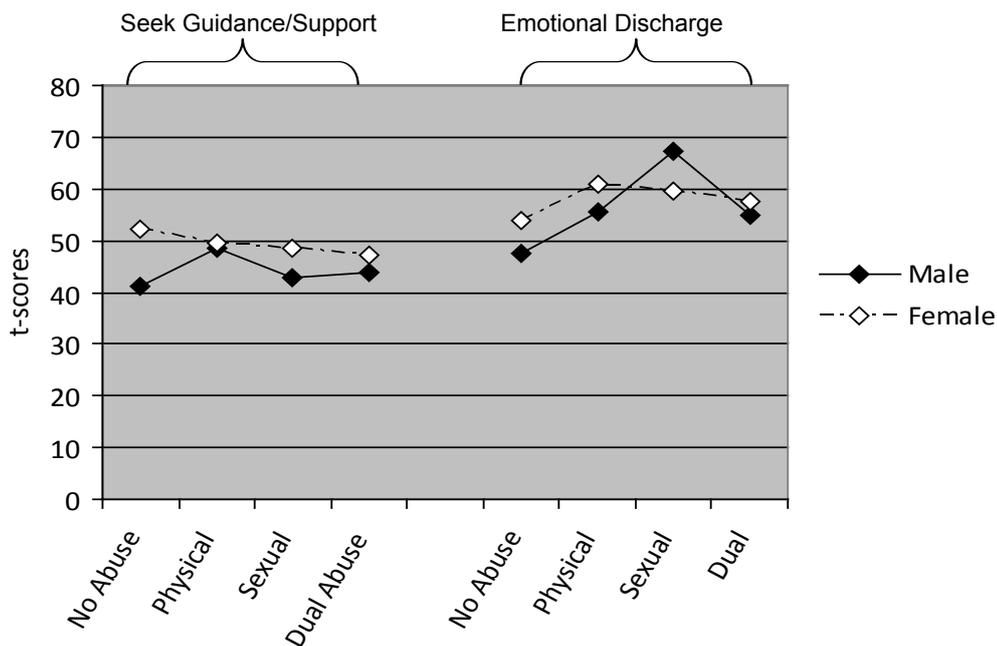


Figure 2. Significant interaction between gender and abuse experience on CRI scales of Seeking Guidance/Support and Emotional Discharge.



Although the 2300 people to whom the questionnaire was sent were randomly selected, those who responded were relatively well-educated and wealthy and there was under-representation of Asians and males. The response rate of 16% is low but consistent with survey research in which no incentives are offered for participation (Sills & Song, 2001). Nevertheless, the sample was highly self-selected. The males who chose to respond had an unusually high level of sexual abuse (47%) and higher SCL-90-R scores in areas, such as anxiety, that have consistently been found to be higher in women. Convenience samples are not intended to estimate prevalence of abuse or symptoms, but can be valuable in examining relationships between variables. Sufficient numbers of males (and females) who did not report abuse responded to the questionnaire to make that possible.

Using self-definition of abuse is problematic. Asking “Were you sexually [or physically] abused”, rather than more specific questions with examples, underestimates abuse prevalence (Dill, Chu, Grob & Eisen, 1991; Fondacaro, Holt, & Powell, 1999). This limitation suggests that the abuse reported may be at the more severe end of the abuse spectrum. Another limitation, shared with most general population studies - including that of Fisher et al. (2009)

- is that the prison population was not included (see below).

Finally, the study did not address the tendency for both males and females with a history of childhood sexual abuse to self-medicate with alcohol or drugs (Shevlin, Murphy, Houston & Adamson, 2009).

Relevance to Previous Studies

The current study is consistent with the numerous previous studies finding a significant relationship between childhood abuse and a range of psychotic phenomena. Psychoticism was far more common, for both men and women, in all abuse groupings than in the non-abused group, except for the physical abuse only group in the case of women (Table 2). Multivariate analysis found that psychoticism was significantly elevated in those who had suffered both sexual and physical abuse, for both men and women (Table 4). It should also be noted that Paranoid Ideation was significantly elevated, for both genders, in those who had been both sexually and physically abused.

Being a retrospective study, and not having controlled for potentially mediating factors, such as rape and other assaults in adulthood, it does not add significantly to the evidence that the relationship between childhood trauma and psychosis is a causal one. It does, however, address the question, raised by

the recent study by Fisher et al. about whether the relationship may be specific to females. It also begins to explore whether coping styles are relevant to any gender related differences in the relationship.

In the current study Psychoticism and Depression contributed significantly to the interaction between gender and abuse. For both symptom clusters sexually abused males were markedly elevated (Figure 1). In the sexual abuse only grouping Paranoid Ideation was significantly elevated for the men but not for the women.

So, how can we make sense of Fisher et al.’s anomalous finding? The authors acknowledge that they employed a conservative definition of abuse, leading to the identification of low levels of abuse relative to other studies, and to a small number of men (seven) reaching criteria for both psychosis and sexual abuse. ‘It may simply be that the study was underpowered to detect an association in men’ (p. 324). Nevertheless, given the absence of other gender analyses, and the array of gender differences in psychosis/’schizophrenia’ which might be explained by gender-specific pathways to severe disturbance, their analysis by gender is welcome. Hopefully future researchers will follow their lead. It will be important, however, that weaker or non-significant findings,

in either gender, will not automatically lead to definitive conclusions that the relationship between abuse and psychosis is specific to one, or the other, gender. As we hope to demonstrate next, there may be other interpretations worthy of consideration.

Prison

The failure by Fisher et al. (2009) to find a significant relationship between childhood physical or sexual abuse in psychosis for men might be partially explained by the high numbers of psychotic men in prison. Fisher et al. (2009) argue that 'it is unlikely that there would be sufficient numbers of such cases to account for the gender difference found' (p. 323). However a survey of 632 studies from 12 countries, involving 18,530 male prisoners (Fazel & Danesh, 2002), found that 'prisoners were several times more likely to have psychosis than the general population' (p. 545). A study of 231 detained male juvenile offenders in Flanders found that 78% had had at least one psychotic experience (Colins et al., 2009). Approximately two thirds of male criminals have been abused as children (Dutton & Hart, 1992; Weeks & Widom, 1998). In the UK, where the Fisher et al. study was conducted, the prevalence of 'probable functional psychosis' in the past year is 11.5 times greater in the adult prison population (5.2%) than in the general population (0.45%). In the UK 95% of the prison population is male (Brugha et al., 2005).

Clearly, not all men who were abused as children and who have a psychotic illness are in the prison system. Nevertheless, the hypothesis that abused boys who later develop psychosis enter the criminal justice system at a higher rate than their female counterparts seems consistent with research showing that boys tend to react to trauma with hyper-arousal, while girls typically respond with dissociation (Perry, 1994; Read, Perry, Moskowitz, & Connolly, 2001). Both the dissociative response to trauma and the positive symptoms of schizophrenia are primarily dopamine-mediated. Meanwhile the hyper-arousal trauma response and negative symptoms, more common in males, are more related to structural brain changes such as cerebral atrophy and ventricular enlargement. Ventricular

enlargement is more common in male 'schizophrenics' and is correlated with negative symptoms (Andreasen et al., 1990a, b). It seems plausible then that the typically male hyperarousal response to childhood trauma leads to more profound disturbance, mediated by cerebral atrophy and marked by negative symptoms, both of which are more common in men.

Without discussing this traumagenic neurodevelopmental perspective (Read et al., 2001), Fisher et al. nevertheless do point out that 'following the experience of childhood abuse ... girls are more prone to internalizing difficulties they encounter, whereas boys tend to respond by exhibiting externalizing behaviour' and 'boys may display inappropriate or maladaptive behaviours such as aggression, leaving them vulnerable to developing conduct disorders' (p. 323) and, we would add, ending up in the criminal justice system. A study of 540 adult male prisoners in Italy found that childhood trauma was significantly related to aggression in general and to number of convictions (Sarchiapone, Carli, Cuomo, Marchetti, & Roy, 2009).

Suicide

Another factor that could potentially mask or minimize the relationship between childhood trauma and psychosis in males is suicide. Psychosis and 'schizophrenia' are very highly related to suicide, with some studies finding higher rates of suicide and suicide attempts in males with these diagnoses (Harvery et al., 2008; Test, Burke, & Wallisch, 1990).

Given that males in general are more likely than females to commit suicide, and that both child physical and child sexual abuse are powerful predictors of suicide, for both genders (Brezo et al., 2008), it is probable that a larger number of abused males that become psychotic commit suicide compared to their female counterparts. Adult inpatients who have been abused as children are more likely to be suicidal on admission (Sfoggia, Pacheco, & Grassi-Oliveira, 2008). An adult outpatient study found that childhood sexual abuse was a more powerful predictor of current suicidality than a current diagnosis of depression (Read, Agar, Barker-Collo, Davies, & Moskowitz, 2008).

After including current depression, and physical and sexual assaults as an adult in the regression analysis, only childhood sexual abuse significantly predicted suicidality. A New Zealand study found that inpatients who had been physically or sexually abused as a child were significantly more likely to have made previous suicide attempts and be considered a high suicide risk on admission (Read, 1998). However, when analysed by gender the difference, for this particular sample of inpatients, remained significant for men ($p < .0001$) but not for women.

Coping

Coping mechanisms have the potential to help understand differential findings between men and women in the abuse-psychosis relationship. They may also contribute to the literature seeking to understand the complex interaction of multiple factors and mechanisms by which childhood trauma leads to negative outcomes ten or twenty years later (Barker-Collo & Read, 2003; Larkin & Morrison, 2006; Moskowitz et al., 2008). The current study found an interaction between gender and abuse type. Men who had been sexually abused (but not physically abused) were far more likely to report use of the coping response Emotional Discharge. This seems consistent with the research discussed above showing that males tend to respond to abuse with externalizing and aggressive behavior, sometimes reaching criminal levels as adults. One of the items on this CRI subscale is 'Take it out on other people when you feel angry or depressed'

Similarly, men who had been sexually abused were less likely to use the coping response Seek Guidance and Support than either men who had been physically abused or women who had been sexually abused. This may be another partial explanation for anomalous findings that child abuse in general, or sexual abuse in particular, are less related to psychosis in men than in women. Sexual abuse is rarely spontaneously disclosed by either gender. Boys are not only less likely than girls to spontaneously tell anyone at the time of the abuse but also take longer to do so, or to seek help for the effects of the abuse, as adolescents or adults (O'Leary & Barber, 2008). There

may be a similar gender difference in rates of disclosure of sexual abuse when specifically asked about it. It is conceivable that by using a random sample of the population Fisher et al. produced more false negatives in males than in the current study. The convenience sampling approach, however, seemed to have attracted high numbers who were willing to report being abused and particularly high numbers of males, compared to the women, reporting disturbance across a range of domains.

Clinical Implications

A range of psychological interventions that acknowledge the psycho-social causes of psychosis have been found to be effective, at least for some patients (Bentall, 2009; Bola, Lehtinen, Cullberg, & Ciompi, 2009; Gleeson, Killackey, & Krstev, 2008; Morrison, 2009; Read et al., 2004). However unless clinicians routinely ask about these causes, including child abuse, appropriate treatment is unlikely to follow. Progress towards this goal has been slow to date, but is beginning to gather pace (Read, Hammersley, & Rudegeair, 2007). One of the barriers has been the belief, among some clinicians, that psychotic people cannot be believed when they talk about having been abused. Reviews of the relevant research, however, have revealed that abuse disclosures by people diagnosed 'schizophrenic' or psychotic are reliable (Read et al., 2005; 2008). This has recently been confirmed (Fisher et al., 2011).

It is interesting to note, in the current context, that two groups of patients are particularly unlikely to be asked about child abuse: those with a diagnosis of 'schizophrenia', and men (Read et al., 2007; Read & Fraser, 1998).

Finally, gender differences in styles of coping with psychosis may facilitate our understanding of the lower level of engagement with services in men who experience psychosis than in their female counterparts (Theuma, Read, Moskowitz and Stewart, 2007).

Research Implications

The most obvious implication for researchers is that it would be desirable to re-analyse existing data in this field by gender. Future studies seeking to

understand the pathways from trauma to psychosis, and the mechanisms and processes involved (Larkin & Morrison, 2006; Read and Bentall, in press) should not only analyse by gender but might also consider assessing coping mechanisms. Similarly, there may be unexplored ethnic or cultural differences that could be worthy of researchers' attention.

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