ORIGINAL ARTICLE

Prevalence of sexually transmitted infections and mental health needs of female child and adolescent survivors of rape and sexual assault attending a specialist clinic

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Objectives: To determine the prevalence of sexually transmitted infections (STIs) and the mental health needs of female child and adolescent survivors of rape and sexual assault who were referred to a specialist genitourinary medicine (GUM) clinic.

Method: Retrospective case notes review of 98 females aged 16 or less, who attended over a 5 year period (1996–2000).

Results: The overall prevalence of STIs was 26%. Among the girls who were aged 0–12 years ($n=16$), one had gonorrhoea and another had *Trichomonas vaginalis* infection. Prevalence of STIs in those aged 13–16 years, who were not sexually active before the index assault, was 24% and in those who gave a history of previous consensual sexual activity it was 39% ($p=0.17$). Chlamydial infection was more common among the girls who disclosed previous consensual sexual activity than in those who did not disclose previous sexual activity ($p=0.012$). The overall prevalence of vaginal candidiasis was 17% and bacterial vaginosis 13%. More than one third of the study population gave a history of previous sexual, physical, or other abuse. 81% reported having current psychological difficulties. Mood changes and sleep disturbances were reported more frequently than other psychological symptoms; 15% attempted self harm. All types of psychological difficulties, except mood changes, were not affected by the time interval between index assault and first presentation to the clinic and the type of assailant. 29% had no involvement with social and mental health services before their attendance at the clinic.

Conclusions: The prevalence of STIs among female child and adolescent survivors of rape and sexual assault attending a specialist clinic was high. The range of mental health and social difficulties was wide and multiple. The importance of an early assessment for the presence of STIs and mental health difficulties was demonstrated.

Sexual abuse of children and adolescents is widespread.¹ In one UK study, 27% of reported rapes were perpetrated against girls aged 15 years or less.² There are serious physical, social, and mental health consequences for those experiencing sexual violence whether non-penetrative assault, single episode rape, or reoccurring sexual relationships of a non-consensual nature.³ Early victimisation is associated with an increase in further victimisation and risk taking behaviour in adolescence and adulthood—for example, unprotected sex with multiple partners and teenage pregnancy.^{1, 4, 5} This may also impede risk reduction intervention efforts to implement safer sex strategies.⁶ Victims who have been assaulted at a younger age have a high prevalence of psychological morbidity, later psychiatric disorder, and substance misuse.^{7, 8} Multiple symptoms within the first few weeks after an assault may reflect the “normal” response to such a stressful event or perhaps an adjustment disorder. Severe, persistent single symptom profiles at a later time may reflect more serious psychopathology such as post-traumatic stress disorder and depression.

The aim of this study was to determine the prevalence of sexually transmitted infections, mental health, and social difficulties in female child and adolescent survivors of sexual assault/rape attending a specialist sexual assault service in an inner London genitourinary medicine (GUM) clinic.

METHODS

The study population comprised all females aged 16 years or less, who were referred over a 5 year period (1996–2000) to a

specialist service for victims of sexual assault based in a specialist GUM clinic in London. Ethical approval was obtained from the East London and the City Health Authority research subcommittee. Data were collected retrospectively from the case notes using a standardised study proforma. Sexual and medical history, psychosocial problems, history of mental health difficulties, and current mental health issues of all survivors were routinely documented on clinic proforma.

Genital examination was offered in all cases. This includes screening for *Neisseria gonorrhoeae*, *Chlamydia trachomatis*, *Trichomonas vaginalis*, *Candida* species, and bacterial vaginosis, performed using standard methods. Pre-pubertal girls and those who were intolerant of or declined a speculum examination had external genital or vulvo-vaginal swabs taken.⁹ Oral and/or rectal samples were taken in those declaring attempted or full penetration or in those who had symptoms suggestive of infection at these sites. A first voided urine (FVU) sample was taken for chlamydial EIA or nucleic acid amplification (NAAT) test when it became available if other tests were declined. Blood tests for syphilis, hepatitis B, hepatitis C, and HIV serological markers were offered at presentation and at 3 month follow up, where appropriate. Culture for herpes simplex virus (HSV) was taken if clinically indicated. Pelvic inflammatory disease (PID), genital warts, and *Pediculosis pubis* were diagnosed clinically.

Antibiotic prophylaxis against bacterial STIs and hepatitis B vaccination was offered to all survivors of sexual assault/rape. The study period was defined as follow up over 3 months from first presentation to the clinic. An assessment

of STIs and risk of mental health problems was made on each visit. Blood tests and genital swabs were repeated if clinically indicated.

Statistical analysis

Prevalence of STIs, including chlamydial infection, in post-pubertal girls (13–16 years) who were sexually active before the index assault and those who denied previous consensual sexual activity and in those who had full genital examination and those who declined speculum examination was compared using the χ^2 test. Relation between the presence of an STI and psychological disturbance, current mental health symptoms against age, type of assailant, and the time interval between assault and attendance was also compared using the χ^2 test. A statistical package, SAS version 8.2, was used for all the calculation of p values.

RESULTS

Demographic details

A total of 126 females aged 16 years or less were referred to the clinic over the 5 year period, of whom 15 did not attend for assessment by a genitourinary physician. Twelve girls were seen at a different venue arranged by the paediatric team and were not included in the study; 99 girls were reviewed in clinic and 98 case notes were retrieved for analysis. The age range of the sample was 3–16 years, of whom 16 girls were aged less than 13 years. Assailants were all male; the youngest assailant recorded as aged 15 years. Assault by multiple assailants was reported in 15% (n = 15) of the sample (range 2–7 assailants). Other demographic details of the study population are presented in table 1.

Contraception

In those girls aged 13–16 years who gave a history of consensual sexual activity before the assault/rape (n = 28) four used condoms, five took the oral contraceptive pill, one received medroxyprogesterone acetate (Depo-provera), and 18 girls did not use any method of contraception.

Twenty four girls received emergency hormonal contraception; seven girls obtained it at presentation within our clinic, the remainder being prescribed it elsewhere. Seven individuals became pregnant and four of these may have been a direct consequent of the assault. Six girls underwent termination of pregnancy.

Screening for STIs

Of the sample (n = 98), 10 females (10%) declined any examination including urine test; 44 girls had a full genital screen including speculum examination, and 40 had external or vulvo-vaginal swabs without speculum examination. FVU was tested for *Chlamydia trachomatis* in four cases who declined genital examination; 16 of 72 (22%) post-pubertal girls aged 13–16 years declined speculum examination.

Thirteen of 98 (13%) cases had antibiotic prophylaxis against bacterial STIs. Eight girls (8%) had hepatitis B vaccination; none had HIV post-exposure prophylaxis; 69 (70%) girls attended at least one appointment during follow up period.

Prevalence of STIs

Twenty three girls had at least one STI and the overall prevalence of STIs including non-specific PID was 26% (n = 88). Multiple STIs were diagnosed in two cases; one girl had gonorrhoea, *Trichomonas vaginalis*, and chlamydial infections; the other was diagnosed with genital warts and PID. Two of 16 (13%) girls who were aged 12 years or less had an STI; one had gonorrhoea and another had *Trichomonas vaginalis* infection. Ten of 42 (24%) girls aged 13–16 years who did not disclose any consensual sexual activity before

Table 1 Detail of study population (n = 98)

Demographic data	No (%)
Median age (years)	14.5
Ethnicity	
White European	44 (45)
Black Afro-Caribbean	27 (28)
Bangladeshi	17 (17)
Other	10 (10)
Details of assault	
Referral pattern	
Police including CPT* and CID†	62 (63)
Self referral	9 (9)
Paediatrician	8 (8)
General practitioner	7 (8)
Social services and others	4 (4)
Not recorded	8 (8)
Location of assault	
UK	96 (97)
Abroad	2 (3)
Time between assault and attendance	
<7 days	17 (17)
1–4 weeks	35 (36)
1–3 months	22 (23)
4–6 months	10 (10)
>7 months	12 (12)
Not recorded	2 (2)
Assailants	
Stranger	28 (29)
Acquaintance	26 (27)
Family member	22 (22)
Friend	15 (15)
Unknown by patient	7 (7)
Nature of assault	
Vaginal penetration (attempted/actual)	67 (68)
Oral penetration only	1 (1)
Digital penetration only	4 (4)
More than one site including anal penetration‡	21 (22)
Unknown by patient	5 (5)
Family and social history	
Accommodation	
Living with parent (s)/carer	77 (79)
Local authority	19 (19)
Not recorded	2 (2)
Family problems	20 (20)
Studying	85 (87)
School based difficulties/truancy	24 (25)
Learning difficulties	6 (6)
Previous mental health problems	30 (31)
Alcohol and other substance misuse	31 (32)
Smoking	31 (32)
Previous abuse	
Sexual	37 (38)
Physical/emotional	13 (13)
Previous STIs	4 (4)
Previous pregnancy	4 (4)

*Child Protection Team.

†Criminal Investigation Department.

‡Majority involving vaginal penetration.

the index assault and 11 of 28 (39%) girls who gave a history of previous consensual sexual activity, had at least one STI (p = 0.17). No STI was found in two girls aged 13–16 years whose sexual activity before the index assault was not recorded. Chlamydial infection was found in eight of 28 (29%) girls who were involved in consensual sexual activity before the index assault compared to two of 42 (5%) girls who were not involved in consensual sexual activity (p = 0.012).

Of the girls who had a full genital screen and examination (n = 44), 18 (41%) were found to have at least one STI. Of those who had FVU, external genital, or vulvo-vaginal swabs (n = 44), five (11%) girls had at least one STI (p = 0.0016). Ten girls in the “full examination” group and none in the other group were diagnosed with chlamydial infection (p = 0.008).

Overall, 15 (17%) girls had vaginal candidiasis and 11 (13%) had bacterial vaginosis ($n = 88$). There were no cases of syphilis, hepatitis B or hepatitis C virus ($n = 57$), or HIV infection among those tested ($n = 33$).

Mental health and social difficulties

Fifty eight of 98 (59%) females aged 16 years or less described psychosocial difficulties before the index assault. These included previous sexual abuse, other abuse, family problems, poor school attendance, learning difficulty, and alcohol misuse (table 1). Thirty (31%) had one or more mental health difficulties before the assault. These included deliberate self harm 13 (13%), depression 13 (13%), behavioural problems eight (8%), and eating difficulties four (4%).

Ninety one out of 93 girls aged 10–16 years were included in the analysis of current mental health problems; five girls below the age of 10 years were excluded for developmental reasons. Two girls aged 10–16 years were also excluded from the analysis because of the absence of documented current psychosocial information in the case notes; 74 of 91 (81%) girls reported current, often multiple, symptoms at presentation, including mood changes in 50 (55%), sleep disturbance in 36 (40%), anxiety in 30 (33%), appetite change in 14 (15%), and psychosomatic symptoms in seven (8%). Thoughts of self harm occurred in 32 (35%) and 14 (15%) made attempts after the assault. Attempted self harm included overdoses in nine cases, cutting in two cases, and attempted hanging and jumping in three cases, with the majority presenting in the first 6 months of the assault. Details of the recorded symptoms were compared to age at presentation, time interval between assault and first presentation, and the type of assailants (table 2). Both younger (aged 10–12 years) and older adolescents (aged 13–16 years) reported a wide range of current mental health problems during the follow up period: 32 of 91 (35%) girls reported more than three psychological symptoms and 30 of them were aged 13–16 years. Mood changes were higher in those presenting after 1 month of the index assault ($p = 0.001$).

Further analysis of the results showed no significant relation between the presence of an STI and psychological disturbance ($p = 0.84$). Twenty six (29%) of these young people aged 10–16 years had no involvement with social services or child and adolescent mental health services at the initial presentation to our clinic and these girls were referred to the appropriate services for further assessment and follow up.

DISCUSSION

The reported prevalences of STIs in girls and boys where sexual abuse was suspected were low in the United Kingdom.^{10–11} However, the risk of infection depends upon

the prevalence of STIs in the abusers and abused population, the organism, and the type and site of the assault. Recent data suggest a continued rise in the number of new cases of STIs diagnosed within GUM clinics in the United Kingdom. The largest increase in cases of gonorrhoea and genital chlamydial infection was seen among teenagers of both sexes, and they remain key groups in STI transmission.¹² More recently, Creighton *et al* demonstrated higher rate of STIs in females aged 16 years or less attending a London clinic. However, the authors did not report on the number of girls who were sexually assaulted/raped in their study.¹³

Our study showed that the overall prevalence of STIs in female child and adolescent survivors of rape and sexual assault attending a specialist GUM clinic was high. Chlamydial infection was significantly more common in post-pubertal girls who were involved in consensual sexual activity before the index assault. The study also demonstrated that the prevalence of STIs was lower in those who declined a speculum examination than in those who underwent the examination. This may reflect differences in the methods used or true population differences between the two groups. Prospective studies are needed to explain this. Furthermore, this study supports other published studies in emphasising the importance of screening for STIs in survivors of rape and sexual assault whether or not they disclose a history of previous consensual sexual activity.^{14–15}

Ten per cent of the study population declined screening for STIs because of its perceived invasive nature. School based screening programmes for chlamydia and/or gonorrhoea in the United States and, more recently, pilot studies for genital chlamydial infection in England, have demonstrated that less invasive techniques such as urine ligase chain reaction (LCR) test were more acceptable to young people.^{16–19} Non-invasive DNA amplification tests to identify *C trachomatis* and other sexually transmitted organisms, would also be more acceptable for STI screening in these young survivors. Before these assays could be used for medicolegal purposes, studies comparing these techniques with the more established methods would need to be undertaken as they are largely untested in this age group.²⁰

There were a number of risk factors within the study population, which could increase the likelihood of further abuse and future unwanted pregnancies, STIs, and psychological difficulties. More than one third of girls reported previous sexual abuse. A history of mental health problems, substance misuse, and learning difficulty indicated further individual vulnerability. Environmental factors including school attendance difficulties, leaving the family home, family dysfunction, lack of social and mental health support were frequent in the study population. The prevalence of mood, sleep and appetite disturbances was also high.

Table 2 Symptoms recorded after assault compared to time interval, age at presentation, and type of assailant(s)

	Mood changes No (%)	Sleep disturbance No (%)	Anxiety No (%)	Thought of self harm No (%)	Attempted self harm No (%)	Appetite changes No (%)	Psychosomatic symptoms No (%)
Age at presentation							
10–12 years ($n = 12$)	5 (42)	3 (25)	5 (42)	1 (8)	1 (8)	1 (8)	0
13–16 years ($n = 79$)	45 (57)	33 (42)	25 (32)	31 (41)	13 (16)	13 (16)	7 (9)
Time interval since assault							
<1 month ($n = 46$)	17 (37)	20 (43)	18 (39)	18 (39)	6 (13)	9 (20)	3 (7)
1–6 months ($n = 32$)	25 (78)	13 (40)	9 (28)	11 (34)	6 (19)	2 (6)	1 (3)
≥7 months ($n = 13$)	8 (62)	3 (23)	3 (23)	3 (23)	2 (15)	3 (23)	3 (23)
Assailants							
Stranger/unknown ($n = 33$)	17 (52)	14 (42)	9 (27)	10 (30)	5 (15)	3 (9)	2 (6)
Acquaintance/friend ($n = 38$)	27 (71)	17 (45)	16 (42)	17 (45)	7 (18)	8 (21)	2 (5)
Family ($n = 20$)	6 (30)	5 (25)	5 (25)	5 (25)	2 (10)	3 (15)	3 (15)

Key messages

- Prevalence of STIs was high among female child and adolescent survivors of sexual assault/rape
- Genital chlamydial infection was more common in post-pubertal girls who were involved in consensual sexual activity
- Psychosocial difficulties were common and multiple in young survivors of sexual assault/rape
- An early assessment of both physical and mental health is important in these survivors

Deliberate self harm was a common problem in these young survivors as reported in other studies.^{8 21–23}

There were some limitations in this retrospective study. Those attending the clinic were a self selected group. The findings cannot be generalised to survivors not making contact with services. A significant proportion of adolescent survivors of sexual violence may not be able to disclose their history unless specifically asked.²⁴ Inquiring about mental health problems requires specialist training and expertise, being dependent upon the young person's recall of events. In addition, the method for eliciting mental health symptoms was not standardised in this study. Furthermore, different types of assessment used and poor follow up may have contributed to an underestimation of the true prevalence of STIs among these survivors.

In conclusion, our study demonstrated a high prevalence of STIs, mental health, and social difficulties among female child and adolescent survivors of sexual assault/rape, reinforcing the importance of early physical and mental health assessment of these young people. The development of specialist services, within the United Kingdom, where the needs of child and adolescent survivors of sexual assault/rape can be addressed, is urgently required.

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CONTRIBUTORS

MK and AA, data collection, data analysis, manuscript preparation; SM, data collection, manuscript preparation; EW and GEF, study design, data analysis, manuscript preparation.

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