

Lifetime prevalence and impact of stalking in a European population

Epidemiological data from a middle-sized German city

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Background There is a lack of community-based studies on prevalence rates of stalking and the impact of stalking on victims in European countries.

Aims To examine lifetime and point prevalence rates of stalking, behavioural and psychological consequences for victims, and the impact of stalking on current psychological well-being in a German community sample.

Method A postal survey was conducted with a sample randomly selected from the population of a middle-sized German city; 679 people (400 women, 279 men) responded. The survey included a stalking questionnaire and the WHO-5 well-being scale.

Results Almost 12% of the respondents ($n=78$, 68 women, 10 men) reported having been stalked. A multiple regression analysis revealed a significant effect of victimisation on psychological well-being.

Conclusions This study identified a high lifetime prevalence of stalking in the community. Effects on victims' psychological health are significant, suggesting that the phenomenon deserves more attention in future community mental health research.

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Obtaining reliable and valid data on the prevalence and incidence of stalking is difficult because of the inconsistent definition and demarcation of the concept (Meloy, 1998; Kamphuis & Emmelkamp, 2000; Sheridan *et al*, 2003). Studies have yielded lifetime prevalence rates between 12% and 32% among females, and 4% and 17% among males (Fremouw *et al*, 1997; Tjaden & Thoennes, 1997; Budd & Mattinson, 2000; Sheridan *et al*, 2001; Purcell *et al*, 2002). Despite the wide range of prevalence estimates, the published epidemiological studies reveal that the magnitude of the problem indicates an obvious need for further research, especially in European countries (Kamphuis & Emmelkamp, 2000). The present study represents the first community-based study on stalking in Germany. Data from this study offer an empirical basis for legal discussions in countries with a tradition of Roman law and allow comparisons with existing epidemiological data, which are predominantly from English-speaking countries.

METHOD

Data acquisition

A postal survey was sent to a stratified random sample of 1000 men and 1000 women aged 18 to 65 years living in Mannheim, a middle-sized German city with 330 000 inhabitants. The sampling frame was the resident register of Mannheim, which includes the addresses of all registered citizens. The survey package included an explanatory letter, study questionnaires and a prepaid reply envelope. In order to improve the response rate, a reminder letter followed 2 weeks post-survey distribution.

The survey included questions on demographic variables and a 51-item self-report stalking questionnaire on the experience of harassing intrusions. Respondents who indicated any incidence of harassment were asked to answer additional questions

on the nature, duration and frequency of the intrusions, their relationship to the perpetrator, possible motives of the stalker, and behavioural and psychological responses to the stalking experience. The stalking questionnaire was adapted from an instrument used by Voss & Hoffmann (2002) in an ongoing study on stalking victims. This questionnaire contains items shown to be relevant by similar studies performed in English-speaking countries. It included a list of 18 possible harassing behaviours (e.g. unwanted communications by letters, e-mails, faxes or telephone calls, as well as following, loitering nearby, invading the victim's home, damage of property and sending of unsolicited goods).

All participants – irrespective of whether a victim of harassment or not – were asked to complete the WHO-5 Well-Being Index (World Health Organization, 1998). The WHO-5 is a psychometrically sound short scale for measuring positive psychological well-being (Bech, 2004). It consists of five items assessing positive mood, vitality and general interest over the past 2 weeks. The WHO-5 has also proved a good screening instrument for the detection of depression in the general population (Henkel *et al*, 2003; Loewe *et al*, 2004). The sum score of the WHO-5 ranges from 0 to 25; a score below 13 indicates poor well-being and represents an indication for testing for depression (World Health Organization, 1998). In the present study, the internal consistency of the scale was high (Cronbach's $\alpha=0.90$).

In addition, all respondents completed a list with six items (coded yes/no) from the study by Voss & Hoffmann (2002), reflecting difficulties in setting boundaries and distinguishing oneself from others (psychological dependency scale). Examples are: 'it is difficult for me to say no'; 'it is important for me what other people think of me'; 'I often ask others for help'.

Data analysis

Our definition restricted the presence of stalking to multiple episodes of harassment that had to be present over a minimum of 2 weeks, involved more than one form of intrusive behaviour, and provoked fear. As a first step, the data were summarised descriptively. Lifetime incidence was calculated as the percentage of participants who had experienced stalking at any time. Point prevalence of stalking was calculated

by considering only those victims who reported being stalked at present.

Victims and non-victims were compared for several characteristics using Pearson's χ^2 -tests for analysing categorical data, and analyses of variance (ANOVAs) for continuous data. A multiple regression analysis was performed to assess the relative impact of being a stalking victim on psychological health (WHO-5) by adjusting for further relevant characteristics. All analyses were carried out using SPSS for Windows, version 10.1.

RESULTS

Sample

Of the 2000 in the initial sample, 15 could not be contacted because they had moved to an unknown address. A total of 679 people responded (400 women, 279 men), amounting to a response rate of 34.2%. More women than men responded (59% *v.* 41%). According to the annual statistics of the city of Mannheim, the age distribution of the sample was very similar to that of the Mannheim community, with a maximum deviance of 3.3% in the oldest age group (58–65 years). Four questionnaires (0.6%) were excluded from the subsequent analyses, because they were clearly false claims of victimisation due to psychotic symptoms. This ratio is in line with the prevalence of schizophrenia in community-based samples. The remaining study sample ($n=675$) had a mean age of 42.5 years (*s.d.*=13.3 years). About an equal percentage had less than 10 years (50.6%) and 10 or more years (49.4%) of school education.

Incidence of stalking

In total, 78 people (11.6%; 68 women, 10 men) from this community sample claimed to have been subjected to repeated harassment at some point during their life that met the stalking criteria listed above. Of the stalking victims, 87% were women, whereas 86% of the stalkers were men. Nearly all of the female victims (91%) were stalked by a man, whereas for male victims the proportion of male and female stalkers was about equal (44% male stalkers, $\chi^2(1)=13.9$, $P<0.001$).

The duration of stalking ranged from less than 1 month (17%, $n=13$) to 1 year and longer (24%, 19). Frequency of pursuing ranged from a few times (32%, 25), several times a month (8%, 6), several

times a week (35%, 27), daily (9%, 7) to several times a day (16%, 12). The harassment was ongoing for 11 individuals (14% of the victims, 9 women and 2 men), corresponding to a point prevalence rate of 1.6%.

Relationships of stalkers and victims

In 76% ($n=59$) of cases the stalker was known to the victim, being a prior intimate partner in 32% (25), an ex-partner of the current partner in 3% (2), a friend or acquaintance in 20% (16), a work colleague in 9% (7), a client or customer in 1% (1), and a family member in 4% (3). The most frequent motives of the stalkers, as assessed by the victims, were a desire for a loving relationship (35%, 27), resumption of a former relationship (30%, 23), jealousy, envy or distrust (32%, 25), revenge (27%, 21), and feeling hurt by rejection (24%, 19) (multiple ratings were possible).

Stalking behaviours

Stalking victims reported a mean number of five different types of harassment (*s.d.*=2.8). The most frequent types included unwanted telephone calls (78%, $n=61$), loitering nearby (63%, 49), unwanted letters, e-mails or faxes (50%, 39), following (38%, 30), approach via a third party (36%, 28), standing in front of the door (33%, 26), silently hanging around (24%, 19), leaving messages at doors (19%, 15), pursuing by car (19%, 15), property damage (17%, 13), invading the home (15%, 12), sending unsolicited goods (18%, 14), placing orders under the victim's name (10%, 8), and sending offensive materials (9%, 7). Written messages contained statements of love (50%, 39), abusive language or denouncements (47%, 37), threats (35%, 27) and sexual content (24%, 19). Physical assaults were reported by 31% ($n=24$) of victims, including physical restraint (24%, 19), beating (12%, 9) and hitting with objects (9%, 7). Sexual harassment was reported by 42% (33) and 19% (15) had experienced sexual assaults.

Impact on the victims

A majority of victims (73%, $n=57$) reported that they had changed their lifestyle in response to stalking. This involved changing their telephone number, installing an answerphone (32%, 25), taking

additional security measures (17%, 13), changing residence (17%, 13) and changing workplace (5%, 4). A report to the police was made by 20% of the victims, and 12% sought help from a lawyer.

Stalking victims described various physical and mental symptoms in response to stalking. These included agitation (56%, $n=44$), anxiety symptoms (44%, 34), sleep disturbances (41%, 32), stomach trouble (35%, 27), depression (28%, 22), headaches (14%, 11) and panic attacks (12%, 9). Aggressive thoughts against the stalker were prevalent in 31% (24) of the victims, and 39% (30) reported that they had become more suspicious of others; 18% (14) were on sick leave because of the impact of stalking. Finally, 24% (19) consulted a psychologist or a physician because of the distress experienced following the stalking.

Comparisons of stalking victims and non-victims

Although as a whole group stalking victims tended to be younger than non-victims, an ANOVA with fixed factors 'gender' and 'being a stalking victim' showed a significant interaction effect ($F_{1,645}=4.79$, $P<0.03$). Female victims had the lowest mean age (38.4, *s.d.*=10.5), followed by female (42.6, *s.d.*=13.8) and male non-victims (43.2, *s.d.*=13.3), whereas male victims represented the oldest group (49.1, *s.d.*=16.0). Women were stalked more frequently than men (17% *v.* 4%, $\chi^2(1)=29.1$, $P<0.001$). In contrast, people with more education (>10 years) were equally affected as those with less education (11.6% *v.* 11.9%, $\chi^2(1)=0.16$, NS). Individuals who reported being stalked scored higher on the psychological dependency scale than those who did not (2.7, *s.d.*=1.4 *v.* 2.2, *s.d.*=1.3, $F_{1,666}=10.8$, $P<0.001$).

Impact of lifetime stalking on current psychological well-being

The WHO-5 Well-Being Index score of stalking victims was significantly poorer than that of respondents without a stalking history (11.2, *s.d.*=6.4 *v.* 15.6, *s.d.*=5.6, $F_{1,658}=40.2$, $P<0.001$), resulting in an effect size $d=0.77$. On a categorical level, 57% ($n=44$) of the victims, in contrast to 27% (157) of the non-victims, scored in the pathological range of 12 and below ($\chi^2(1)=29.3$, $P<0.001$).

A multiple regression analysis was conducted to identify the relative impact of

Table 1 Prediction of psychological well-being from lifetime incidence of being stalked adjusted for further variables

	WHO-5 ¹ index		
	beta ¹	T	P
Gender	-0.021	-0.54	0.587
Age	0.089	2.25	0.025
Educational level (0 < 10 years, 1 ≥ 10 years)	0.061	1.55	0.122
Lifetime incidence of being stalked (0 no, 1 yes)	-0.205	-5.34	<0.001
Psychological dependency score (0-6)	-0.225	-5.86	<0.001

WHO-5, WHO-5 Well-Being Index.
1. Standardised coefficients.

lifetime incidence of stalking on current psychological well-being (WHO-5). Further variables entered into the model were age, gender, educational level and the dependency score. Results of the multiple regression analysis are summarised in Table 1. The model explained 12% (adjusted R^2) of the variability in WHO-5 scores ($F_{4,628}=18.4$, $P<0.001$). When entered simultaneously, the variables age, being stalked and psychological dependency remained highly significant predictors of psychological well-being, whereas gender and educational level did not explain further variance. Respective beta weights in Table 1 indicate that younger age, high levels of psychological dependency and being a stalking victim predict low levels of psychological well-being.

DISCUSSION

Incidence of stalking

The presented epidemiological data on stalking collected in a German community closely resemble results found in population-based representative samples of the USA, Australia and England. In our study, the cumulative lifetime incidence rate of stalking victimisation was 12%, with a significantly higher rate among women (17%) than among men (4%). The point prevalence rate of stalking victimisation was 1.6%. These rates are comparable to those found in representative samples in England and Wales (Budd & Mattinson, 2000) and in the USA (Tjaden & Thoennes, 1997). An Australian postal survey yielded a cumulative lifetime incidence of stalking victimisation of 23.4% when a broader definition of stalking (two or more unwanted intrusions causing fear) was applied. By applying a more restrictive definition (two

or more intrusions persisting for more than 2 weeks), a lifetime incidence rate (12.8%) fairly similar to that in our study was found (Purcell *et al*, 2002).

Women were identified as perpetrators in only 14% of cases. This proportion closely resembles that found in other community studies (12%–13%), whereas in forensic samples the proportion of female perpetrators is known to be higher (Purcell *et al*, 2001). Furthermore, female victims were pursued almost exclusively by male stalkers (91%), whereas male victims were stalked by similar percentages of male and female stalkers, indicating that same-gender stalking is a predominant problem in males (Dressing *et al*, 2002).

Manifestations of stalking

Consistent with reviews by Spitzberg (2002) and Sheridan *et al* (2003), the present study revealed that stalking is mainly a product of some form of prior relationship. About 32% of the victims were pursued by prior intimate partners, rendering the 'rejected stalker', who starts stalking after the breakdown of a close relationship (Mullen *et al*, 1999), as the main problem. Sheridan *et al* (2003) concluded that ex-intimates probably comprise the largest subgroup of stalkers, which is concordant with our results. In the present study, only 24.6% of stalking was done by strangers, which is close to rates found in the literature. In a meta-analysis of 50 studies, Spitzberg (2002) found the proportion of stalking by strangers to be 21%.

Stalkers seem to employ multiple stalking tactics. Victims in the present study experienced an average of five different methods of intimidation. A similar rate of six methods was found by Blaauw *et al*

(2002), and Mullen *et al* (1999) reported that 63% of stalkers employed between three and five distinct methods. In the Australian study, victims were subjected to a mean of 2.8 stalking methods (Purcell *et al*, 2002). The most prevalent methods identified in our study (e.g. unwanted telephone calls, loitering nearby, following) correspond to Spitzberg's (2002) largest stalking categories of hyperintimacy and pursuit/surveillance.

Impact on the victims

Victims of stalking also run a high risk of being physically injured. In the literature, rates of assault vary from 2.7% (Zona *et al*, 1993) to 89% (Mechanic *et al*, 2000), with a mean rate of 33% (Spitzberg, 2002). In the present study, assaults involving physical restraint, beating or hitting with objects occurred in nearly a third of cases, confirming the high risk of experiencing violence in the context of stalking. Sexual pestering was also frequent, and almost one in five victims had experienced sexual assaults.

The significant impact of stalking is demonstrated by the high percentage of victims reporting changes in lifestyle as a response to stalking behaviour, with a rate (73%) similar to that found in other studies (Pathé & Mullen, 1997; Purcell *et al*, 2002). Reviews on the impact of stalking conclude that it has deleterious effects on the victims' psychological health (Spitzberg, 2002; Sheridan *et al*, 2003). For example, affective symptoms such as anger, irritation, anxiety, nervousness and depression were reported with a mean prevalence of 58% by Spitzberg (2002). Pathé & Mullen (1997) found that up to 83% of their stalking victims exhibited increased levels of anxiety and depression, and 37% fulfilled the criteria for post-traumatic stress disorder according to DSM-IV (American Psychiatric Association, 1994). However, all the previous studies focused on highly selected samples of victims, with a majority of victims seeking help or being registered as a victim at some kind of institution. Nevertheless, in the present community-based study victims indicated rates of psychological and somatic health complaints in reaction to the stalking that come close to those reported for selected samples, with the most prevalent symptoms being agitation (56%), anxiety (44%), sleep disturbance (41%), nausea (35%) and depression (28%). Indicative of victims'

suffering is also the fact that nearly a quarter sought help from a health professional in response to stalking.

Although a wide range of age groups has been reported to be vulnerable to pursuit (Blaauw *et al*, 2002), a majority of studies suggest that younger persons between the age of 18 and 30 years are at the highest risk (Tjaden & Thoennes, 1997). Our results indicate, however, that this may be particularly true for female but not for male victims. Future studies with larger samples should address this aspect in more detail.

In the present study, victims had higher scores than non-victims on a psychological dependency scale. Although persons with lower levels of independence might be at greater risk of becoming victims, it is at least as plausible that the prolonged experience of having been stalked undermines self-confidence and feelings of independence. However, the cross-sectional design of this study does not allow for any causal interpretations on the direction of this association. In addition, we are aware that our assessment was based on a very simple measure. Future research should include more comprehensive standardised assessments of person-related characteristics (as in Kamphuis *et al*, 2003).

Stalking and impaired psychological well-being

The present study is also the first to show that the lifetime prevalence of being a stalking victim is associated with current impaired psychological well-being. Although the vast majority of stalking victims indicated that the stalking episode had ended at the time of the survey, they displayed substantially lower scores on the WHO-5 Well-Being Index than non-victims. The percentage of victims scoring in a pathological range (57%) comes close to that reported by Kamphuis & Emmelkamp (2001) and Kamphuis *et al* (2003), who studied a sample of 201 female victims, with more than 50% meeting the criteria for clinically significant pathology according to the General Health Questionnaire (Goldberg & Hillier, 1979). An important finding of the present study was that the substantial association between ever having been a stalking victim and current psychological distress held true even when a number of variables connected with psychological health were controlled for.

CLINICAL IMPLICATIONS

- These are the first epidemiological data on prevalence and impact of stalking in a random sample of a continental European middle-sized city.
- Impact of stalking on well-being could be directly derived from comparisons of victims with non-victims from the same population-based sample.
- The significant association between lifetime prevalence of being a stalking victim and current psychological distress persisted even when a number of variables connected with psychological health were controlled for.

LIMITATIONS

- There was a low response rate (34.2%) inherent in the method of data acquisition (postal survey).
- Information was exclusively based on self-reports.
- Data collection was restricted to an urban area, i.e. generalisation to rural areas is not warranted.

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Limitations

There are also some limitations of this study. A clear limitation is the low response rate of 34%. Although the age distribution of the responders was very similar to that of the referring population, women were somewhat overrepresented in the responder sample, limiting the generalisability of the results with regard to male victims. A connected limitation is the postal nature of the survey. High refusal rates in questionnaire studies are suspected to lead to an overestimation of prevalence rates because victims are more motivated to participate than non-victims (Sheridan *et al*, 2003). Conversely, victims may experience such a survey as more intrusive and therefore refuse to respond, potentially leading to an underestimation of prevalence rates (Purcell *et al*, 2002). In any case, respective systematic errors cannot be ruled out completely within the framework of a postal survey study design. Finally, the data collection was restricted to an urban area, and generalisation to rural areas is not warranted. Despite these potential limitations, our prevalence rates are strikingly

consistent with those from other community-based studies (Tjaden & Thoennes, 1997; Budd & Mattinson, 2000; Purcell *et al*, 2002), as are the identified consequences for the victims (Kamphuis & Emmelkamp 2001; Blaauw *et al*, 2002; Kamphuis *et al*, 2003).

Summary

The present community-based study is the first of its kind in Germany and has yielded some important information on the prevalence and impact of stalking. It confirms findings from the few existing larger epidemiological studies from other countries, indicating a substantial incidence of stalking in the community. Furthermore, the significant impact of stalking on the victims' psychological health identified suggests that the phenomenon deserves more attention in future community mental health research.

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