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Social support and the intimate partner violence victimization among adults from six European countries

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Abstract

Background. Social support may buffer the negative effects of violence on physical and mental health. Family medicine providers play an essential role in identifying the available social support and intervening in intimate partner violence (IPV).

Objective. This study aimed at assessing the association between social support and the IPV victimization among adults from six European countries.

Methods. This is a cross-sectional multi-centre study that included individuals from Athens (Greece), Budapest (Hungary), London (UK), Östersund (Sweden), Porto (Portugal) and Stuttgart (Germany). Data collection was carried out between September 2010 and May 2011. The sample consisted of 3496 adults aged 18–64 years randomly selected from the general population in each city. The revised Conflict Tactics Scales was used to assess IPV victimization. Social support was assessed with the Multidimensional Scale of Perceived Social Support.

Results. Participants reporting physical assault victimization experienced lower social support (mean ± SD) than their counterparts, 66.1 ± 13.96 versus 71.7 ± 12.90, $P < 0.001$, for women; and 67.1 ± 13.69 versus 69.5 ± 13.52, $P = 0.002$ for men. Similar results were found regarding sexual coercion victimization, 69.1 ± 14.03 versus 71.3 ± 12.97, $P = 0.005$ for women and 68.0 ± 13.29 versus 69.3 ± 13.62, $P = 0.021$ for men. This study revealed lower levels of social support among participants reporting lifetime and past year victimization, independent of demographic, social and health-related factors.

Conclusion. Results showed a statistically significant association between low social support and IPV victimization. Although the specific mechanisms linking social support with experiences

of violence need further investigation, it seems that both informal and formal networks may be associated with lower levels of abusive situations.

Key words: Adult, cross-sectional studies, Europe, intimate partner violence, social networking, social support.

Introduction

Intimate partner violence (IPV) is a public health problem worldwide (1) with detrimental effects on the victims' mental and physical health (2,3) and quality of life (4). People experiencing abusive relationships have disrupted social ties and sometimes are socially isolated as a result of the abuse (5). Conversely, increased social support may help IPV victims to cope with their critical situation (6).

According to Cobb (7), social support entails receiving information that enables individuals to believe that they are part of a reciprocal network where they feel valued, loved and cared for. Moreover, high levels of social support seem to have a positive effect on the individual's quality of life (8,9). Social support seems to have a relevant role in mitigating the impact of IPV on the mental and physical health of victims (10,11). Feeling the support from friends, family and others may improve self-efficacy, enhancing the ability to apprehend the environment of violence and to seek adequate help (12). Additionally, social support has been shown to prompt people to make a firm decision to leave an abusive relationship (13,14) and to break through the isolation and dependency on the perpetrators (15).

Social support may also encourage people to disclose the violence to others, including health professionals and authorities (16,17). Family medicine providers, in particular, may play an essential role in understanding the social entourage of their patients and in identifying occult complaints to offer confidence and adequate referrals to other services if necessary. Therefore, as they have a unique relationship with patients, family medicine providers can be the entry point for health care services in matters of IPV detection, prevention and intervention (18).

The hypothesis of a buffer effect of social support in the presence of IPV victimization would be strengthened by an approach that accommodates cultural differences usually unmeasured and a comparable methodology across cultures. This study aimed at assessing the association between social support and the IPV victimization among adults from six European countries.

Methods

Study design and participants

In the current study, 3496 non-institutionalized adults (18–64 years) were sampled from the general population of six European cities: Athens–Greece, Budapest–Hungary, London–UK, Östersund–Sweden, Porto–Portugal and Stuttgart–Germany. Sites were selected based on previous collaboration and to represent the geographical and cultural diversity across Europe (19).

A sample size of 544 (272 women) per city was defined considering an IPV prevalence of 15% (20) and 3.0% of relative precision, which expresses the uncertainty as a fraction of the quantity of interest (acceptable error in the estimate). Thus, a confidence interval (CI) of 13.5%–16.5% was expected. Samples were calculated to represent a proportionally stratified distribution of the resident population according to age and sex. The sampling strategies used varied from registry-based (Stuttgart and Östersund), registry-based and random-digit-dialling (Porto), registry-based and via-public approach (London) and random-route (Athens and Budapest). A detailed portrayal of the study design and sampling strategy is available elsewhere (21).

Data collection

A questionnaire was developed comprising information concerning socio-demographic and lifestyle factors, health care use, IPV and social support. Most of the standardized instruments were already available for each language and validated using samples of general population. Items for which a nationally validated version was not available were translated, back-translated and revised by an expert panel.

Socio-demographics included city of residence, migrant status, gender, age (18–24, 25–34, 35–44, 45–54 and 55–65 years), education (primary level, secondary level and university degree), marital status (single, cohabiting, married, divorced/separated/widowed), unemployment duration (never, <12 months, >12 months), financial strain and the main source of income. Self-reported financial strain was assessed with the question: 'How often are you worried about the daily expenses? (e.g. for buying food)', evaluated as 'never/quite often/often/always'. If a participant answered any option other than 'never', she/he was classified as having 'financial strain'. Present main source of income included work, pension (retirement, disability, age, widow/er), benefits (social help, unemployment) or other (e.g. any other main source of income specified by participants and not fitting in the closed categories).

Smoking was assessed through the questions 'Do you smoke or ever smoke?' and 'How often do you smoke?' with the following options: at least once a day, less than once a day or ex-smoker. For alcohol use, participants were asked 'During the past year, did you drink alcoholic beverages?' Reported weight and height were used to compute the body mass index (BMI). BMI was categorized in underweight, normal and overweight or obese according to the WHO categories (22). Health care use included self-reports of any visit during the previous year to an emergency department or a primary health care centre regardless of the reason. Participants were asked whether they were exposed to any act of child abuse before the age of 15 and a binary variable (yes or no) was computed.

IPV victimization was assessed using validated versions of the revised Conflict Tactics Scales (CTS2) (23), originally developed in English, available in Portuguese, German and Swedish. Translations to Greek and Hungarian followed a standard protocol including forward translation, expert panel revision, back-translation, new expert panel revision and piloting. The psychological aggression (8 items, e.g. 'My partner insulted or swore at me' or 'My partner destroyed something belonging to me'), physical assault (12 items, e.g. 'My partner threw something at me that could have hurt me'), sexual coercion [7 items, e.g. 'My partner made me have sex without a condom' or 'My partner used force (like hitting, holding down, or using a weapon) to have oral or anal sex with me'] and injury (6 items, e.g. 'I had a sprain, bruise, or small cut because of a fight with my partner' or 'I passed out from being hit on the head by my partner in a fight') subscales of the CTS2 were used to assess victimization in the past year and lifetime, considering a current or former intimate

partner. Ever-partnered included those in a dating, cohabiting/marital relationship that lasted >1 month. Cronbach alpha (internal consistency of the CTS2) in the global sample was 0.903 (from 0.825 in Budapest to 0.956 in London). Participants who have reported the occurrence of at least one act of violence were considered victims.

Social support was assessed with the Multidimensional Scale of Perceived Social Support (MSPSS) (24). It is composed of 12 questions (graded 1–7), which comprise support from family, friends and significant others. The total possible score is 84. Low scores correspond to low perceived social support. Cronbach alpha for this scale was 0.941.

Data collection was carried out between September 2010 and May 2011 after ethical approval in each country.

Data analysis

Kruskal–Wallis or Mann–Whitney tests were used to compare mean scores (SD) of social support in relation to socio-demographic and health factors, and experiences of different IPV types as the data were not normally distributed. Linear regression models were used to calculate β coefficients (and 95% CI) concerning the association between social support and past year and lifetime IPV experiences. As no significant statistical interaction by country and by sex was found, data were analysed together. Four models were fitted consecutively adjusting for potential confounders: Model 0 shows the crude associations; Model 1 was adjusted for demographics (city of residence, age, sex and marital status); Model 2 was adjusted for demographic and socio-economic characteristics (education level, financial strain, unemployment, main source of financial support and migrant status); Model 3 was adjusted for demographics, socio-economics, lifestyle characteristics and health care use (alcohol and smoking use, BMI, emergency department and primary health care use); and Model 4 was adjusted for demographic, socio-economic characteristics, lifestyle, health care use and child abuse.

Results

Table 1 describes the sample characteristics. As shown in Table 2, there were significant differences in social support in relation to the city of residence, that is, the lowest mean scores (mean ± SD) for social support were observed in London (63.3 ± 17.42) and Budapest (68.7 ± 14.26), and the highest in Östersund (72.9 ± 13.85) and Stuttgart (72.7 ± 11.14; H = 178.258, $P < 0.001$). The means of social support were significantly higher among women, younger adults and those who were married/cohabitating. Participants with a migrant status reported lower social support (67.5 ± 15.84; H = 522011.000, $P = 0.021$). Also, the mean of social support was higher among those with a higher education level (71.6 ± 12.72) compared with those with primary education level (64.4 ± 16.15; H = 70.816, $P < 0.001$), those who reported never being unemployed (70.9 ± 13.16; H = 52.712, $P < 0.001$), and those who experienced no financial strain (71.9 ± 12.66; H = 67.609, $P < 0.001$). Beneficiaries of pension or social benefits as the main source of financial support reported lower social support (64.1 ± 17.17; H = 31.300, $P < 0.001$). Furthermore, participants who reported to drink any alcoholic beverage during the previous year had the highest mean of social support (70.6 ± 12.93; H = 31.490, $P < 0.001$) compared with non-drinkers, while those who were current smokers had the lowest mean of social support score (68.5 ± 14.08; H = 19.228, $P < 0.001$) compared with non-smokers and ex-smokers. Participants with a normal BMI had the highest means of social support (71.1 ± 13.00), while obese had the lowest score (66.6 ± 15.52; H = 45.995, $P < 0.001$). Participants who reported using primary or emergency care during the past year reported lower means of social support. Finally, those who were exposed to any type of child abuse presented lower means of social support compared with those who were never exposed.

As shown in Table 3, male and female victims of lifetime psychological aggression, physical assault and sexual coercion reported lower mean scores of social support compared with non-victims. Similar findings were observed concerning past year victimization except for psychological aggression among men.

Results from the regression models shown in Table 4 suggest a decrease in social support scores among participants reporting past year psychological victimization, β [95% CI] = −1.452 [−2.420, −0.484] and physical assault victimization, −2.625 [−3.943, −1.307] during the previous year, independently of the covariates considered. Estimates for lifetime violence were −2.629 [−3.652, −1.6059] and −4.052 [−5.171, −2.932], respectively for psychological and physical assault victimization.

Discussion

This study results' showed that victims of IPV present significant lower levels of social support, independent of socio-demographic, health behaviours, health factors and child abuse. Higher levels of social support were associated with less frequent victimization of different forms of IPV in both men and women. Our results are in line with previous studies; although most previous evidence concerned only abused women (25,26), women reporting support from friends, family or others were less likely to be victims of IPV. It has also been suggested that if women victims of IPV disclose their abuse and receive support to address the abuse, they will be at a significantly reduced risk of mental health problems (27), which supports not only the positive effect of social support on reducing violence victimization, but also its effects on health.

Understanding the role that social support from friends, family or significant others plays in IPV also requires a better comprehension of the attitudes of friends, family or others about violence. If family, friends or others adhere to the belief that partner violence is a private matter, they may not provide the expected support and the victim will not easily disclose his or her experience of abuse. Socializing with other violence-prone or violence-condoning people may potentially normalize the violence that occurs within the relationship, which may, in turn, encourage the victim to stay in a violent relationship.

In our study, participants might also have reported the support received from the partner who inflicted violence. However, to remove this potential confounding, we ran a sensitivity analysis excluding the support received from a significant other, which we believe that might refer to the partner, and results showed that mean scores differences remained statistically significant when comparing participants with and without experiences of IPV (Supplementary Table S1).

Additionally, one cannot discard the influence of the place or context in which individuals are living on the relationship between social support and violence. The positive influence of social support on IPV seems to be weakened in disadvantaged neighbourhood contexts (28). Our results showed significant differences in levels of social support across cities. For instance, respondents from Östersund and Stuttgart were more likely to report increased support, whereas the opposite emerged in participants from London and Budapest. Regional characteristics such as legal and health care systems, social interaction, different social organizations and cultural diversity may influence the geographic differences observed in levels of social support across countries (29).

Table 1. Sample characteristics from 3496 participants (conducted in six European cities during 2010–2011)

Variables		*n* (%)
City of residence	Athens	548 (15.7)
	Budapest	604 (17.3)
	London	571 (16.3)
	Östersund	592 (16.9)
	Porto	635 (18.2)
	Stuttgart	546 (15.6)
Sex	Male	1470 (42.0)
	Female	2026 (58.0)
Age	18–24	434 (12.4)
	25–34	711 (20.3)
	35–44	777 (22.2)
	45–54	747 (21.4)
	55–65	827 (23.7)
Marital status	Single	989 (28.3)
	Cohabiting	533 (15.3)
	Married	1506 (43.1)
	Divorced/separated/widowed	464 (13.3)
Migrant status	Yes	363 (10.4)
	No	3133 (89.6)
Education	Primary	257 (7.6)
	Secondary	1682 (49.5)
	University	1462 (43.0)
Unemployment	Never	1775 (53.9)
	12 months or less	947 (28.8)
	More than 12 months	571 (17.3)
Financial strain	Never	1126 (32.4)
	Quite often	1123 (32.3)
	Often	648 (18.6)
	Always	581 (16.7)
Main source of financial support	Work	2313 (66.1)
	Pension/social benefits	526 (15.0)
	Other	639 (18.3)
Any alcohol drink during past year	Yes	2864 (82.2)
	No	349 (10.0)
	Never in life	272 (7.8)
Smoking	Current	1108 (31.8)
	Ex-smoker	619 (17.8)
	Never	1759 (50.5)
BMI	Underweight	83 (2.4)
	Normal	1647 (48.1)
	Overweight	1105 (32.3)
	Obese	587 (17.2)
Emergency department last year[a]	Yes	467 (13.4)
	No	2732 (78.1)
Primary care last year[a]	Yes	1886 (53.9)
	No	1466 (41.9)
Child abuse	Yes	1366 (40.8)
	No	1978 (59.2)

Total values differ due to missing information. BMI, body mass index.
[a]At least one visit during the previous year.

As expected, women showed higher levels of social support from informal networks than men (30). Women are more likely to communicate to others when they have a problem and they can more readily assemble support (31). Men, on the other hand, report experiences of violence less frequently to informal sources and also tend to less often seek emotional support (32). In this study, we stratified the bivariate analysis by sex, to explore how the different covariates were related to social support among women and men. One of the main findings was that social support seems to influence psychological violence victims of both genders in the same direction, although the mechanisms by which such influence is exerted might be different. This should be the focus for future research.

High levels of social support were observed among participants of the most advantaged socio-economic positions. In fact, individuals from the most socio-economic advantaged groups tend to have more communication skills, which is strongly related to a large support network (11), and they may also feel more confident to seek help and to end violence. Previous research has shown that women who are employed more often seek help (33,34). However, women

Table 2. Mean scores of social support by socio-demographic characteristics and health factors from 3496 participants (conducted in six European cities during 2010–2011)

Variables		Social support Mean (SD)	H or *U*, *P*[a]
City of residence	Athens	71.8 (10.23)	178.258, <0.001
	Budapest	68.7 (14.26)	
	London	63.3 (17.42)	
	Östersund	72.9 (13.85)	
	Porto	69.1 (12.52)	
	Stuttgart	72.7 (11.14)	
Sex	Male	68.4 (14.32)	1308087.500, <0.001
	Female	70.7 (13.42)	
Age	18–24	71.1 (13.70)	22.848, <0.001
	25–34	71.1 (13.34)	
	35–44	69.9 (13.32)	
	45–54	68.6 (14.39)	
	55–65	68.6 (14.19)	
Marital status	Single	68.5 (14.76)	233.848, <0.001
	Cohabiting	72.2 (11.91)	
	Married	72.4 (11.75)	
	Divorced/separated/widowed	60.9 (16.12)	
Migrant status	Yes	67.5 (15.84)	522011.000, 0.021
	No	69.9 (13.60)	
Education	Primary	64.4 (16.15)	70.816, <0.001
	Secondary	68.8 (13.94)	
	University	71.6 (12.72)	
Unemployment	Never	70.9 (13.16)	52.712, <0.001
	12 months or less	69.9 (13.33)	
	More than 12 months	66.1 (15.28)	
Financial strain	Never	71.9 (12.66)	67.609, <0.001
	Quite often	69.9 (13.70)	
	Often	67.9 (13.75)	
	Always	67.1 (15.55)	
Main source of financial support	Work	70.5 (13.16)	31.300, <0.001
	Pension/social benefits	64.1 (17.17)	
	Other	71.3 (12.30)	
Any alcohol drink during past year	Yes	70.6 (12.93)	31.490, <0.001
	No	65.6 (17.14)	
	Never in life	66.9 (16.77)	
Smoking	Current	68.5 (14.08)	19.228, <0.001
	Ex-smoker	70.6 (13.10)	
	Never	70.2 (13.83)	
BMI	Underweight	68.5 (17.16)	45.995, <0.001
	Normal	71.1 (13.00)	
	Overweight	69.4 (13.57)	
	Obese	66.6 (15.52)	
Emergency department last year[b]	Yes	67.5 (15.20)	573576.500, 0.003
	No	69.9 (13.54)	
Primary care last year[b]	Yes	69.0 (14.23)	1283190.500, 0.005
	No	70.5 (13.10)	
Child abuse	Yes	67.8 (13.90)	1097613.000, <0.001
	No	71.4 (13.30)	

Total values differ due to missing information. BMI, body mass index.

[a]H or *U* statistics and *P* values from Kruskal–Wallis or Mann–Whitney's *U*-tests, respectively.

[b]At least one visit during the previous year.

with limited resources tend to be more isolated and therefore receive poorer support (35,36).

In this study, we considered as a victim someone that, in the CTS2 (23), reported the occurrence of at least one act of violence. Although this classification may result in a potential overestimation of violence frequency, this is the most comparable used coding procedure for the CTS2. Also, in this study participants were asked to report both victimization and perpetration and previous analyses showed that most victims were also perpetrators, reporting both types of exposure for the different types of violence assessed. However, gender differences are clear regarding sexual coercion (where women more frequently reported to be victims and men perpetrators) (37), which could not be expected if a stronger social desirability influence was present in the reports of male perpetrators.

In this study, we observed that participants who used emergency or primary care in the past year had lower social support.

Table 3. Mean scores of social support by past year and lifetime intimate partner violence (IPV) from 3496 participants (conducted in six European cities during 2010–2011)

	Men			Women		
	n	Mean (SD)	*U*, *P*	*n*	Mean (SD)	*U*, *P*
Past year IPV						
Psychological aggression						
Victims	805	69.6 (12.32)	224862.000, 0.565	1085	70.1 (13.29)	407088.00, <0.001
Non-victims	569	68.5 (15.16)		838	71.9 (12.98)	
Physical assault						
Victims	220	67.1 (13.69)	109847.000, 0.002	258	66.1 (13.96)	157432.000, <0.001
Non-victims	1154	69.5 (13.52)		1664	71.7 (12.90)	
Sexual coercion						
Victims	212	68.0 (13.29)	110826.500, 0.021	332	69.1 (14.03)	238161.000, 0.005
Non-victims	1161	69.3 (13.62)		1590	71.3 (12.97)	
Injury						
Victims	57	62.5 (17.26)	27045.500, <0.001	86	66.1 (14.67)	61017.000, <0.001
Non-victims	1317	69.4 (13.32)		1837	71.1 (13.07)	
Lifetime IPV						
Psychological aggression						
Victims	967	68.6 (13.10)	167468.500, <0.001	1330	69.8 (13.36)	321062.000, <0.001
Non-victims	407	70.5 (14.54)		593	73.3 (12.47)	
Physical assault				413	65.5 (14.03)	
Victims	328	65.7 (14.90)	137210.000, <0.001	1509	72.4 (12.54)	209252.000, <0.001
Non-victims	1046	70.2 (12.94)				
Sexual coercion						
Victims	307	65.7 (14.70)	129199.000, <0.001	482	68.3 (14.28)	292826.000, <0.001
Non-victims	1066	70.1 (13.07)		1440	71.8 (12.68)	
Injury						
Victims	101	58.9 (18.37)	38811.000, <0.001	133	64.4 (14.56)	81670.500, <0.001
Non-victims	1273	69.9 (12.78)		1790	71.4 (12.95)	

U, *P*: Mann–Whitney's *U*-test and *P* values.

A previous report focusing on victimized women showed that few sought formal support services, while most women turned to informal sources like family and friends before seeking formal support (38). The same report also mentioned that women have little confidence in existing services and authorities, which highlights the need for better and more accessible support services where victims can safely disclose their experience of violence (38). Incorporating a violence history into non-judgemental routine records, taking advantage of the physician–patient relationship, could contribute to identifying IPV (39) and may provide the opportunity for victims to disclose their experiences of violence. Additionally, health services should be prepared to respond to IPV cases when needed, which would require a concerted action involving other services and institutions. The role of health care services and health professional attitudes about violence is a topic that should be constantly reinforced (40) and the influence of trust in institutions should be further explored to provide optimized support for victims.

Strengths and limitations

This is a cross-sectional study and therefore causal or temporal relationships between IPV and social support cannot be inferred. We might speculate about social support as a risk for IPV or a consequence, but with this study design we cannot assess which is the cause and the effect. The strengths of this study include the large sample size, the geographical diversity, and the measurement of both exposure and outcome with two reliable and commonly used instruments: the CTS2 (24) and the MSPSS (24).

In the current study we used social support as a continuous variable; however, interpretation of results should be cautious as no clinically meaningful stratification of scores exists. We ran a parallel analysis considering the tertiles of social support and the results confirmed that the prevalence of victimization decreases when social support levels increase (Supplementary Table S2).

The age distribution of the studied samples was close to the resident population in Athens, London and Stuttgart, but in Budapest, Östersund and Porto, participants were older, and the educational level in all cities was generally higher than the resident population, which might have translated into an underestimation of violence (21). Across study sites, women were more likely to participate than men. Although gender differences would be expected in reports of IPV and social support, no interaction effect for sex was found and thus we decided to run the final models for women and men together.

The sites included in this study are representing cultural and social features that were not considered in the analysis. These European urban centres are different regarding IPV campaigns, gender equality initiatives, laws, action plans and support mechanisms; all expected to influence prevalence rates and attitudes towards disclosure. Some of the differences might still reflect the effect of unmeasured social and cultural characteristics of the different sampling locations.

Conclusions

Our results showed a statistically significant association between low social support and IPV victimization among adult women and men. Although the specific mechanisms linking social support with

Table 4. Association (β coefficients and confidence interval) of social support with past year and lifetime intimate partner violence (IPV) from 3496 participants (conducted in six European cities during 2010–2011)

	β Coefficient (95% CI)				
	Model 0	Model 1	Model 2	Model 3	Model 4
Past year					
Psychological aggression (ref. no)	−0.702 (−1.624 to 0.221)	−2.286* (−3.179 to −1.393)	−2.296* (−3.204 to −1.389)	−2.017* (−2.979 to −1.055)	−1.452* (−2.420 to −0.484)
Physical assault (ref. no)	−4.217* (−5.505 to -2.929)	−4,325* (−5.551 to −3.098)	−3.489* (−4.758 to −2.219)	−3.262* (−4.576 to −1.949)	−2.625* (−3.943 to −1.307)
Sexual coercion (ref. no)	−1.811* (−3.04 to −0.583)	−2,685 (−3.858 to −1.506)	−2.360 (−3.560 to −1.161)	−2.333 (−3.594 to −1.073)	−1.910* (−3.165 to −0.656)
Injury (ref. no)	−5.722* (−7.954 to −3.490)	−5,162* (−7.263 to −3.061)	−4.325* (−6.487 to −2.162)	−3.246 * (−5.505 to −0.987)	−2.822* (−5.079 to −0.564)
Lifetime					
Psychological aggression (ref. no)	−2.883* (−3.871 to −1.895)	−3.220* (−4.162 to −2.278)	−3.187* (−4.144 to −2.230)	−3.172* (−4.190 to −2.155)	−2.629* (−3.652 to −1.605)
Physical assault (ref. no)	−5.951* (−7.025 to −4.876)	−5.100* (−6.134 to −4.067)	−4.594* (−5.661 to −3.527)	−4.622* (−5.732 to −3.512)	−4.052* (−5.171 to −2.932)
Sexual coercion (ref. no)	−3.825* (−4.887 to −2.764)	−3.406* (−4.434 to −2.378)	−3.228* (−4.270 to −2.186)	−2.878* (−3.977 to −1.778)	−2.529* (−3.624 to −1.435)
Injury (ref. no)	−8.750* (−10.502 to −6.998)	−6.694* (−8.364 to −5.025)	−5.949* (−7.658 to −4.240)	−5.527* (−7.309 to −3.746)	−4.917* (−6.699 to −3.136)

Model 0: crude association; Model 1: adjusted for city of residence, age, sex, marital status; Model 2: adjusted for Model 1 + education, financial strain, unemployment, main source of financial support, migrant status; Model 3: adjusted for Model 2 + alcohol, smoking, body mass index, emergency department, primary care; Model 4: adjusted for Model 3 + child abuse. ref., reference category.

*Estimate is statistically significant ($P < 0.05$).

experiences of violence need further investigation, it seems that both informal and formal networks may be associated with lower levels of abusive situations.

Supplementary Material

Supplementary data are available at *Family Practice* online.

Declaration

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