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1 **SOCIAL SUPPORT AND THE INTIMATE PARTNER VIOLENCE VICTIMIZATION AMONG**
2 **ADULTS FROM SIX EUROPEAN COUNTRIES**

3

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25

26 **Key messages**

- 27 • High social support was found in women, married/cohabitating and younger adults
- 28 • High levels of social support were observed among the most educated participants
- 29 • Lower social support was observed among victims from six European cities
- 30 • High social support was associated with less frequent victimization.

31

32

33 **Abstract**

34 **Background:** Social support may buffer the negative effects of violence on physical and
35 mental health. Family medicine providers play an essential role in identifying the available social
36 support and intervening in intimate partner violence. **Objective:** This study aimed at assessing
37 the association between social support and the intimate partner victimization among adults from
38 six European countries. **Methods:** Cross-sectional multi-centre study included individuals from
39 Athens (Greece), Budapest (Hungary), London (United Kingdom), Östersund (Sweden), Porto
40 (Portugal) and Stuttgart (Germany). Data collection was carried out between September 2010
41 and May 2011. The sample consisted of 3496 adults aged 18–64 years randomly selected from
42 the general population in each city. The Revised Conflict Tactics Scales 2 was used to assess
43 intimate partner violence victimization. Social support was assessed with the Multidimensional
44 Scale of Perceived Social Support. **Results:** Participants reporting physical assault victimization
45 experienced lower social support (mean±standard deviation) than their counterparts,
46 66.1±13.96 vs. 71.7±12.90, $p<0.001$, for women; and 67.1±13.69 vs. 69.5±13.52, $p=0.002$ for
47 men. Similar results were found regarding sexual coercion victimization, 69.1±14.03 vs.
48 71.3±12.97, $p=0.005$ for women and 68.0±13.29 vs. 69.3±13.62, $p=0.021$ for men. This study
49 revealed lower levels of social support among participants reporting lifetime and past year
50 victimization, independent of demographic, social and health-related factors. **Conclusion:**
51 Results showed a statistically significant association between low social support and intimate
52 partner victimization. Although the specific mechanisms linking social support with experiences
53 of violence need further investigation, it seems that both informal and formal networks may be
54 associated with lower levels of abusive situations.

55

56 **Keywords:** Intimate Partner Violence; Social Support; Europe; Adult; Social Networking; Cross-
57 Sectional Studies.

58

59 **Background**

60

61 Intimate Partner Violence (IPV) is a public health problem worldwide¹ with detrimental
62 effects on the victims' mental and physical health^{2,3} and quality of life⁴. People experiencing
63 abusive relationships have disrupted social ties and sometimes are socially isolated as a result
64 of the abuse⁵. Conversely, increased social support may help IPV victims to cope with their
65 critical situation⁶.

66 According to Cobb⁷, social support entails receiving information that enables individuals
67 to believe that they are part of a reciprocal network where they feel valued, loved and cared for.
68 Moreover, high levels of social support seem to have a positive effect on the individual's quality
69 of life^{8,9}. Social support seems to have a relevant role in mitigating the impact of IPV on the
70 mental and physical health of victims^{10,11}. Feeling the support from friends, family and others
71 may improve self-efficacy, enhancing the ability to apprehend the environment of violence and
72 to seek adequate help¹². Additionally, social support has been shown to prompt people to make
73 a firm decision to leave an abusive relationship^{13,14} and to break through the isolation and
74 dependency on the perpetrators¹⁵.

75 Social support may also encourage people to disclose the violence to others, including
76 health professionals and authorities^{16,17}. Family medicine providers, in particular, may play an
77 essential role in understanding the social entourage of their patients and in identifying occult
78 complaints in order to offer confidence and
79 **adequate referrals to others services** if necessary. Therefore, as they have a unique relationship
80 with patients, family medicine providers can be the entry point for health care services in
81 matters of IPV detection, prevention and intervention¹⁸.

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

86

87 **Methods**

88

89 *Study design and participants*

90 In the current study, 3496 non-institutionalized adults (18–64 years) were sampled from
91 the general population of six European cities: Athens–Greece, Budapest–Hungary, London–
92 United Kingdom, Östersund–Sweden, Porto-Portugal and Stuttgart–Germany. Sites were
93 selected based on previous collaboration and to represent the geographical and cultural
94 diversity across Europe¹⁹.

95 A sample size of 544 (272 women) per city was defined considering an IPV prevalence
96 of 15%²⁰ and 3.0% of relative precision, which expresses the uncertainty as a fraction of the
97 quantity of interest (acceptable error in the estimate). Thus, a confidence interval of 13.5 to
98 16.5% was expected. Samples were calculated to represent a proportionally stratified
99 distribution of the resident population according to age and sex. The sampling strategies used
100 varied from registry-based (Stuttgart and Östersund), registry-based and random-digit-dialing
101 (Porto), registry-based and via-public approach (London) and random-route (Athens and
102 Budapest). A detailed portrayal of the study design and sampling strategy is available
103 elsewhere²¹.

104

105 *Data collection*

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

111 Socio-demographics included city of residence, migrant status, gender, age (18-24; 25-
112 34; 35-44; 45-54 and 55-65 years), education (primary level, secondary level and university
113 degree), marital status (single, cohabiting, married, divorced/separated/widowed),
114 unemployment duration (never, less than 12 months, more than 12 months), financial strain and
115 the main source of income. Self-reported financial strain was assessed with the question: "How
116 often are you worried about the daily expenses? (e.g. for buying food)", evaluated as "never/

117 quite often/ often/always". If a participant answered any option other than "never", she/he was
118 classified as having "financial strain". Present main source of income included work, pension
119 (retirement, disability, age, widow/er), benefits (social help, unemployment) or other (e.g. any
120 other main source of income specified by participants and not fitting in the closed categories).

121 Smoking was assessed through the questions "Do you smoke or ever smoke?" and
122 "How often do you smoke?" with the following options: at least once a day, less than once a day
123 or ex-smoker. For alcohol use, participants were asked "During the past year, did you drink
124 alcoholic beverages?". Reported weight and height was used to compute the Body Mass Index
125 (BMI). BMI was categorized in underweight, normal and overweight or obese, according to the
126 WHO categories²². Health care use included self-reports of any visit during the previous year to
127 an emergency department or a primary health care centre regardless of the reason. Participants
128 were asked if they were exposed to any act of child abuse before the age of 15 and a binary
129 variable (yes or no) was computed.

130 IPV victimization was assessed using validated versions of the Revised Conflict Tactics
131 Scales (CTS2)²³, originally developed in English, available in Portuguese, German and
132 Swedish. Translations to Greek and Hungarian followed a standard protocol including forward
133 translation, expert panel revision, back-translation, new expert panel revision and piloting. The
134 psychological aggression (8 items – e.g. "My partner insulted or swore at me" or "My partner
135 destroyed something belonging to me"), physical assault (12 items – e.g. "My partner threw
136 something at me that could have hurt me"), sexual coercion (7 items - e.g. "My partner made
137 me have sex without a condom" or "My partner used force (like hitting, holding down, or using a
138 weapon) to have oral or anal sex with me") and injury (6 items – e.g. "I had a sprain, bruise, or
139 small cut because of a fight with my partner" or "I passed out from being hit on the head by my
140 partner in a fight") subscales of the Revised Conflict Tactics Scales were used to assess
141 victimization in the past year and lifetime, considering a current or former intimate partner. Ever-
142 partnered included those in a dating, cohabiting/marital relationship that lasted more than one
143 month. Cronbach alpha (internal consistency of the CTS2) in the global sample was 0.903 (from
144 0.825 in Budapest to 0.956 in London). Participants who have reported the occurrence of at
145 least one act of violence were considered victims.

146 Social support was assessed with the Multidimensional Scale of Perceived Social
147 Support²⁴. It is composed of 12 questions (graded 1-7), which comprise support from family,
148 friends and significant others. The total possible score is 84. Low scores correspond to low
149 perceived social support. Cronbach alpha for this scale was 0.941.

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

152

153 *Data analysis*

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

168 **Results**

169

170 Table 1 describes the sample characteristics. As shown in Table 2, there were
171 significant differences in social support in relation to the city of residence, i.e., the lowest mean
172 scores (mean± standard deviation) for social support were observed in London (63.3±17.42)
173 and Budapest (68.7±14.26), and the highest in Östersund (72.9±13.85) and Stuttgart
174 (72.7±11.14) ($H=178.258$, $p<0.001$). The means of social support were significantly higher
175 among women, younger adults and those who were married/cohabitating. Participants with a
176 migrant status reported lower social support (67.5±15.84) ($H=522011.000$, $p=0.021$). Also, the
177 mean of social support was higher among those with a higher education level (71.6±12.72)
178 compared to those with primary education level (64.4±16.15) ($H=70.816$, $p<0.001$), those who
179 reported never being unemployed (70.9±13.16) ($H=52.712$, $p<0.001$), and those who
180 experienced no financial strain (71.9±12.66) ($H=67.609$, $p<0.001$). Beneficiaries of pension or
181 social benefits as the main source of financial support reported lower social support
182 (64.1±17.17) ($H=31.300$, $p<0.001$). Furthermore, participants who reported to drink any
183 alcoholic beverage during the previous year had the highest mean of social support
184 (70.6±12.93) ($H=31.490$, $p<0.001$) compared to non-drinkers, while those who were current
185 smokers had the lowest mean of social support score (68.5±14.08) ($H=19.228$, $p<0.001$)
186 compared to non-smokers and ex-smokers. Participants with a normal BMI had the highest
187 means of social support (71.1±13.00), while obese had the lowest score (66.6±15.52)
188 ($H=45.995$, $p<0.001$). Participants who reported using primary or emergency care during the
189 past year reported lower means of social support. Finally, those who were exposed to any type
190 of child abuse presented lower means of social support compared to those who were never
191 exposed.

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

196 Results from the regression models shown in Table 4 suggest a decrease in social
197 support scores among participants reporting past year psychological victimization, β [95%

198 Confidence Interval]= -1.452 [-2.420; -0.484] and physical assault victimization -2.625 [-3.943; -
199 1.307] during the previous year, independently of the covariates considered. Estimates for
200 lifetime violence were -2.629 [-3.652, -1.6059] and -4.052 [-5.171, -2.932], respectively for
201 psychological and physical assault victimization.

202

203 Discussion

204

205 This study results' showed that victims of IPV present significant lower levels of social
206 support, independent of socio-demographic, health behaviours, health factors and child abuse.
207 Higher levels of social support were associated with less frequent victimization of different forms
208 of IPV in both men and women. Our results are in line with previous studies, although most
209 previous evidence concerned only abused women^{25,26}, women reporting support from friends,
210 family or others, were less likely to be victims of IPV. It has also been suggested that if women
211 victims of IPV disclose their abuse and receive support to address the abuse, they will be at a
212 significantly reduced risk of mental health problems²⁷, which supports the positive effect of
213 social support not only in reducing violence victimization, but also its effects on health.

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

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

226 Additionally, one cannot discard the influence of the place or context in which
227 individuals are living on the relationship between social support and violence. The positive
228 influence of social support on IPV seems to be weakened in disadvantaged neighborhood
229 contexts²⁸. Our results showed significant differences in levels of social support across cities.
230 For instance, respondents from Östersund and Stuttgart were more likely to report increased
231 support, whereas the opposite emerged in participants from London and Budapest. Regional
232 characteristics such as legal and health care systems, social interaction, different social

233 organizations and cultural diversity may influence the geographic differences observed in levels
234 of social support across countries²⁹.

235 As expected, women showed higher levels of social support from informal networks
236 than men³⁰. Women are more likely to communicate to others when they have a problem and
237 they can more readily assemble support³¹. Men, on the other hand, report experiences of
238 violence less frequently to informal sources and also tend to less often seek emotional
239 support³². In this study, we stratified the bivariate analysis by sex, to explore how the different
240 covariates were related to social support among women and men. One of the main findings was
241 that social support seems to influence psychological violence victims of both genders in the
242 same direction, although the mechanisms by which such influence is exerted might be different.
243 This should be the focus for future research.

244 High levels of social support were observed among participants of the most advantaged
245 socio-economic positions. In fact, individuals from the most socioeconomic advantaged groups
246 tend to have more communication skills which is strongly related with a large support network¹¹
247 and they may also feel more confident to seek help and to end violence. Previous research has
248 shown that women who are employed more often seek help^{33,34}. However, in contrast, women
249 with limited resources tend to be more isolated and therefore receive poorer support^{35,36}.

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

259 In this study, we observed that participants who used emergency or primary care in the
260 past year had lower social support. A previous report focusing on victimized women showed
261 that few sought formal support services, while most women turned to informal sources like
262 family and friends before seeking formal support³⁸. The same report also mentioned that women

263 have little confidence in existing services and authorities, which highlights the need for better
264 and more accessible support services where victims can safely disclose their experience of
265 violence³⁸. Incorporating a violence history into non-judgmental routine records, taking
266 advantage of the physician-patient relationship, could contribute to identifying IPV³⁹ and may
267 provide the opportunity for victims to disclose their experiences of violence. Additionally, health
268 services should be prepared to respond to IPV cases when needed, which would require a
269 concerted action involving other services and institutions. The role of health care services and
270 health professional attitudes about violence is a topic that should be constantly reinforced⁴⁰ and
271 the influence of trust in institutions should be further explored to provide optimized support for
272 victims.

273

274 *Strengths and limitations*

275 This is a cross-sectional study and therefore causal or temporal relationships between
276 IPV and social support cannot be inferred. We might speculate about social support as a risk for
277 IPV or a consequence, but with this study design we cannot assess which is the cause and the
278 effect. The strengths of this study include the large sample size, the geographical diversity, and
279 the measurement of both exposure and outcome with two reliable and commonly used
280 instruments: the CTS2²³ and the MSPSS²⁴.

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

286 The age distribution of the studied samples was close to the resident population in
287 Athens, London, and Stuttgart, but in Budapest, Östersund, and Porto, participants were older,
288 and the educational level in all cities was generally higher than the resident population, which
289 might have translated into an underestimation of violence²¹. Across study sites, women were
290 more likely to participate than men. Although gender differences would be expected in reports of
291 IPV and social support, no interaction effect for sex was found and thus we decided to run the
292 final models for women and men together.

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

299

300 **Conclusions**

301 Our results showed a statistically significant association between low social support and
302 IPV victimization among adult women and men. Although the specific mechanisms linking social
303 support with experiences of violence need further investigation, it seems that both informal and
304 formal networks may be associated with lower levels of abusive situations.

305

306

307 **Declaration**

308 Ethical approval: The study protocol was approved by Ethic Committees in each city. The World
309 Health Organization (WHO) ethical and safety guidelines were followed to ensure privacy and
310 safety of the participants and interviewers.

311

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318

319 **Conflicts of interest**

320 None of the authors has any financial or nonfinancial competing interests concerning the
321 present study. The authors have nothing to disclose.

322

323 **References**

324

- 325 1. World Health Organization. Global status report on violence prevention 2014.
326 http://www.who.int/violence_injury_prevention/violence/status_report/2014/en/. Published 2014.
327 Accessed January 7, 2018. Geneva, Switzerland; 2014.
- 328 2. Campbell JC. Health consequences of intimate partner violence. *Lancet*.
329 2002;359(9314):1331-1336.
- 330 3. Coker AL, Davis KE, Arias I, et al. Physical and mental health effects of intimate partner
331 violence for men and women. *American journal of preventive medicine*. 2002;23(4):260-268.
- 332 4. Costa D, Hatzidimitriadou E, Ioannidi-Kapolou E, et al. Intimate partner violence and
333 health-related quality of life in European men and women: findings from the DOVE study. *Qual*
334 *Life Res*. 2015;24(2):463-471.
- 335 5. El-Bassel N, Gilbert L, Rajah V, Foleno A, Frye V. Social Support Among Women in
336 Methadone Treatment Who Experience Partner Violence: Isolation and Male Controlling
337 Behavior. *Violence Against Women*. 2001;7(3):246-274.
- 338 6. Coker AL, Watkins KW, Smith PH, Brandt HM. Social support reduces the impact of
339 partner violence on health: application of structural equation models. *Prev Med*. 2003;37(3):259-
340 267.
- 341 7. Cobb S. Social Support as a Moderator of Life Stress. *Psychosom Med*.
342 1976;38(5):300-314.
- 343 8. Beeble ML, Bybee D, Sullivan CM, Adams AE. Main, mediating, and moderating effects
344 of social support on the well-being of survivors of intimate partner violence across 2 years. *J*
345 *Consult Clin Psychol*. 2009;77(4):718-729.
- 346 9. Bybee DI, Sullivan CM. The process through which an advocacy intervention resulted in
347 positive change for battered women over time. *Am J Community Psychol*. 2002;30(1):103-132.
- 348 10. Mertin P, Mohr PB. A follow-up study of posttraumatic stress disorder, anxiety, and
349 depression in Australian victims of domestic violence. *Violence Vict*. 2001;16(6):645-654.
- 350 11. Thompson MP, Kaslow NJ, Kingree JB, et al. Partner violence, social support, and
351 distress among inner-city African American women. *Am J Community Psychol*. 2000;28(1):127-
352 143.

- 353 12. Sabina C, Tindale RS. Abuse characteristics and coping resources as predictors of
354 problem-focused coping strategies among battered women. *Violence against women*.
355 2008;14(4):437-456.
- 356 13. Estrellado AF, Loh JM. Factors associated with battered Filipino women's decision to
357 stay in or leave an abusive relationship. *J Interpers Violence*. 2014;29(4):575-592.
- 358 14. Johnson NL, Johnson DM. Correlates of Readiness to Change in Victims of Intimate
359 Partner Violence. *J Aggress Maltreat Trauma*. 2013;22(2):127-144.
- 360 15. Hage SM. Profiles of Women Survivors: The Development of Agency in Abusive
361 Relationships. *J Couns Dev*. 2006;84(1):83-94.
- 362 16. Browning CR. The Span of Collective Efficacy: Extending Social Disorganization Theory
363 to Partner Violence. *J Marriage Fam*. 2002;64(4):833-850.
- 364 17. Beeble ML, Post LA, Bybee D, Sullivan CM. Factors related to willingness to help
365 survivors of intimate partner violence. *J Interpers Violence*. 2008;23(12):1713-1729.
- 366 18. Feder G, Davies RA, Baird K, et al. Identification and Referral to Improve Safety (IRIS)
367 of women experiencing domestic violence with a primary care training and support programme:
368 a cluster randomised controlled trial. *Lancet*. 2011;378(9805):1788-1795.
- 369 19. Lindert J, Luna J, Torres-Gonzalez F, et al. Study design, sampling and assessment
370 methods of the European study 'abuse of the elderly in the European region'. *Eur J Public*
371 *Health*. 2012;22(5):662-666.
- 372 20. Breiding MJ, Black MC, Ryan GW. Prevalence and Risk Factors of Intimate Partner
373 Violence in Eighteen U.S. States/Territories, 2005. *Am J Prev Med*. 2008;34(2):112-118.
- 374 21. Costa D, Soares JJ, Lindert J, et al. Intimate partner violence in Europe: design and
375 methods of a multinational study. *Gac Sanit*. 2013;27(6):558-561.
- 376 22. World Health Organization. Obesity: preventing and managing the global epidemic.
377 Report of a WHO Consultation on Obesity.
378 http://www.who.int/nutrition/publications/obesity/WHO_TRS_894/en/. Published 2000. Accessed
379 January 7, 2018. Geneva, Switzerland; 2000.
- 380 23. Straus MA, Hamby SL, Boney-Mccoy S, Sugarman DB. The Revised Conflict Tactics
381 Scales (CTS2): Development and Preliminary Psychometric Data. *J Fam Issues*.
382 1996;17(3):283-316.

- 383 24. Zimet GD, Dahlem NW, Zimet SG, Farley GK. The Multidimensional Scale of Perceived
384 Social Support. *J Pers Assess.* 1988;52(1):30-41.
- 385 25. Tan C, Basta J, Sullivan CM, Davidson WS. The Role of Social Support in the Lives of
386 Women Exiting Domestic Violence Shelters: An Experimental Study. *J Interpers Violence.*
387 1995;10(4):437-451.
- 388 26. Mitchell RE, Hodson CA. Coping with domestic violence: social support and
389 psychological health among battered women. *Am J Community Psychol.* 1983;11(6):629-654.
- 390 27. Coker AL, Smith PH, Thompson MP, McKeown RE, Bethea L, Davis KE. Social support
391 protects against the negative effects of partner violence on mental health. *J Womens Health*
392 *GenD Based Med.* 2002;11(5):465-476.
- 393 28. Wright EM. The Relationship Between Social Support and Intimate Partner Violence in
394 Neighborhood Context. *Crime Delinq.* 2015;61(10):1333-1359.
- 395 29. Beehr TA, Glazer S. A cultural perspective of social support in relation to occupational
396 stress. In: Pamela L. Perrewe DCG, ed. *Exploring Theoretical Mechanisms and Perspectives.*
397 Vol 1: Emerald; 2001:97-142.
- 398 30. Dalgard OS, Dowrick C, Lehtinen V, et al. Negative life events, social support and
399 gender difference in depression: a multinational community survey with data from the ODIN
400 study. *Soc Psychiatry Psychiatr Epidemiol.* 2006;41(6):444-451.
- 401 31. Fortin I, Guay S, Lavoie V, Boisvert J-M, Beaudry M. Intimate Partner Violence and
402 Psychological Distress among Young Couples: Analysis of the Moderating Effect of Social
403 Support. *J Fam Violence.* 2012;27(1):63-73.
- 404 32. Coker AL, Derrick C, Lumpkin JL, Aldrich TE, Oldendick R. Help-seeking for intimate
405 partner violence and forced sex in South Carolina. *Am J Prev Med.* 2000;19(4):316-320.
- 406 33. Linos N, Slopen N, Berkman L, Subramanian SV, Kawachi I. Predictors of help-seeking
407 behaviour among women exposed to violence in Nigeria: a multilevel analysis to evaluate the
408 impact of contextual and individual factors. *J Epidemiol Community Health.* 2014;68(3):211-217.
- 409 34. Swanberg JE, Logan T, Macke C. Intimate Partner Violence, Employment, and The
410 Workplace: Consequences and Future Directions. *Trauma Violence Abuse.* 2005;6(4):286-312.

- 411 35. Weyers S, Dragano N, Möbus S, et al. Low socio-economic position is associated with
412 poor social networks and social support: results from the Heinz Nixdorf Recall Study. *Int J*
413 *Equity Health*. 2008;7(1):1-7.
- 414 36. Turner RJ, Marino F. Social support and social structure: a descriptive epidemiology. *J*
415 *Health Soc Behav*. 1994;35(3):193-212.
- 416 37. Costa D, Soares J, Lindert J, et al. Intimate partner violence: a study in men and women
417 from six European countries. *Int J Public Health*. 2015;60(4):467-478.
- 418 38. Santos A, Matos M, Machado A. Effectiveness of a Group Intervention Program for
419 Female Victims of Intimate Partner Violence. *Small Group Res*. 2017;48(1):34-61.
- 420 39. World Health Organization. Responding to intimate partner violence and sexual violence
421 against women: WHO clinical and policy guidelines.
422 <http://www.who.int/reproductivehealth/publications/violence/9789241548595/en/>. Published
423 2013. Accessed January 7, 2018. Geneva, Switzerland; 2013.
- 424 40. National Institute for Health and Clinical Excellence. Domestic violence and abuse:
425 multiagency working. (NICE guideline PH50). <https://www.nice.org.uk/guidance/ph50>. Published
426 26 February 2014. Accessed January 7, 2018.
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429 **Table 1 – Sample characteristics from 3,496 participants (conducted in six European**
 430 **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*	Yes	467 (13.4)
	No	2732 (78.1)
Primary care last year*	Yes	1886 (53.9)
	No	1466 (41.9)
Child abuse	Yes	1366 (40.8)
	No	1978 (59.2)

431 * At least one visit during the previous year.

432 Total values differ due to missing information.

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436 **Table 2 – Mean scores of Social Support by socio-demographic characteristics and**
 437 **health factors from 3,496 participants (conducted in six European cities during 2010–**
 438 **2011).**

Variables		Social support Mean (sd)	<i>H or U, p*</i>
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,
	No	65.6 (17.14)	<0.001
	Never in life	66.9 (16.77)	
Smoking	Current	68.5 (14.08)	19.228,
	Ex-smoker	70.6 (13.10)	<0.001
	Never	70.2 (13.83)	
BMI	Underweight	68.5 (17.16)	45.995,
	Normal	71.1 (13.00)	<0.001
	Overweight	69.4 (13.57)	
	Obese	66.6 (15.52)	
Emergency department last year**	Yes	67.5 (15.20)	573576.500,
	No	69.9 (13.54)	0.003
Primary care last year**	Yes	69.0 (14.23)	1283190.500,
	No	70.5 (13.10)	0.005
Child abuse	Yes	67.8 (13.90)	1097613.000,
	No	71.4 (13.30)	<0.001

439 *H or U statistic and p-value from Kruskal Wallis or Mann-Whitney's U tests,
440 respectively.

441 ** At least one visit during the previous year;

442 Total values differ due to missing information.

443 **Table 3 – Mean scores of social support by past-year and lifetime intimate partner violence (IPV) from 3,496 participants (conducted in six**
 444 **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

Victims	328	65.7 (14.90)	137210.000, <0.001	413	65.5 (14.03)	
Non-victims	1046	70.2 (12.94)		1509	72.4 (12.54)	209252.000, <0.001

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)	

445 IPV: Intimate partner violence; sd: standard deviation; U, *p*: Mann-Whitney's U and *p*-value.

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448 **Table 4 – Association (β coefficients and Confidence Interval) of social support with past-year and lifetime intimate partner violence (IPV) from**
 449 **3,496 participants (conducted in six European cities during 2010–2011).**

	β coefficient (95% Confidence Interval)				
	Model 0	Model 1	Model 2	Model 3	Model 4
Past year					
Psychological Aggression (ref: no)	-0.702 (-1.624; 0.221)	-2.286* (-3.179; -1.393)	-2.296* (-3.204; -1.389)	-2.017* (-2.979; -1.055)	-1.452* (-2.420; -0.484)
Physical Assault (ref: no)	-4.217* (-5.505; -2.929)	-4.325* (-5.551; -3.098)	-3.489* (-4.758; -2.219)	-3.262* (-4.576; -1.949)	-2.625* (-3.943; -1.307)
Sexual Coercion (ref: no)	-1.811* (-3.04; -0.583)	-2.685 (-3.858; -1.506)	-2.360 (-3.560; -1.161)	-2.333 (-3.594; -1.073)	-1.910* (-3.165; -0.656)
Injury (ref: no)	-5.722* (-7.954; -3.490)	-5.162* (-7.263; -3.061)	-4.325* (-6.487; -2.162)	-3.246* (-5.505; -0.987)	-2.822* (-5.079; -0.564)
Lifetime					
Psychological Aggression (ref: no)	-2.883* (-3.871; -1.895)	-3.220* (-4.162; -2.278)	-3.187* (-4.144; -2.230)	-3.172* (-4.190; -2.155)	-2.629* (-3.652; -1.605)
Physical Assault (ref: no)	-5.951* (-7.025; -4.876)	-5.100* (-6.134; -4.067)	-4.594* (-5.661; -3.527)	-4.622* (-5.732; -3.512)	-4.052* (-5.171; -2.932)
Sexual Coercion (ref: no)	-3.825* (-4.887; -2.764)	-3.406* (-4.434; -2.378)	-3.228* (-4.270; -2.186)	-2.878* (-3.977; -1.778)	-2.529* (-3.624; -1.435)
Injury (ref: no)	-8.750* (-10.502; -6.998)	-6.694* (-8.364; -5.025)	-5.949* (-7.658; -4.240)	-5.527* (-7.309; -3.746)	-4.917* (-6.699; -3.136)

450 IPV: Intimate Partner Violence; ref: reference category; *estimate is statistically significant ($p < 0.05$)

451 **Model 0:** crude association; **Model 1:** adjusted for city of residence, age, sex, marital status; **Model 2:** adjusted for model 1 + education, financial strain,
 452 unemployment, main source of financial support, migrant status; **Model 3:** adjusted for model 2 + alcohol, smoking, BMI, emergency department, primary
 453 care; **Model 4:** adjusted for model 3 + child abuse