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ORIGINAL ARTICLE

Is the 'Nordic Paradox' an illusion? Measuring intimate partner violence against women in Europe

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Abstract

Objectives Recent studies suggest that intimate partner violence (IPV) against women in Europe is highest among some of the most gender egalitarian countries in the world, like Sweden, Finland and Denmark. This paper aims at disentangling the so-called Nordic Paradox.

Methods We have decomposed traditional IPV indicators into a 'previous partner' and 'current partner' components and presented new IPV indicators that are sensitive to the frequency of victimization. The new indicators are based on aggregated data from Agency for Fundamental Rights Survey on violence against women for the 28 EU Member States.

Results The country rankings in terms of IPV levels change substantially when overall prevalence measures are substituted by their 'previous partner' and 'current partner' components and, especially, when considering the frequency of victimization. When comparing the traditional IPV prevalence ranking with the current partner violence repetition-sensitive indicator ranking, the Nordic countries fall several positions.

Conclusions Our findings suggest that the prevalence of IPV tends to be higher in more gender egalitarian countries because union formation and dissolution occur more often, but not because men are necessarily more violent against their partners.

Keywords Gender-based violence · Violence against women · Intimate partner violence · European Union · 'Nordic Paradox'

Introduction

Intimate partner violence (IPV) is a major public health problem (WHO 2013; Ellsberg et al. 2008). Among the total female victims of homicide worldwide, 38.6% of them are killed by their intimate partner (Stöckl et al. 2013). The European Union Agency for Fundamental Rights (FRA) recently generated results on IPV for the 28 EU Member States based on a standard prevalence indicator (henceforth referred to as $\mathcal{P}$) counting the percentage of women that, since the age of 15, had experienced physical and/or sexual violence. Against expectation, some of the most gender egalitarian countries in the world (the Nordic countries) turned out to be the countries with the highest levels of IPV against women in Europe (FRA 2014). This surprising result has generated much controversy and triggered the formulation of several explanatory hypotheses (Gracia and Merlo 2016; Gracia et al. 2019; Ivert et al. 2019; Martín-Fernández et al. 2019; Wemrell et al. 2019; Sanz-Barbero et al. 2018), but none of them seems to have generated a consensus among scholars or policy-makers. The main aim of this paper is to suggest yet another group of explanations that could throw some light into the so-called Nordic Paradox.

A first group of hypotheses, initially supported by Yllö's (1984) results, argue that increased gender equality can create a backlash effect. The backlash hypothesis states that increased levels of gender equality could lead to

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increased levels of violence from men in an effort to keep their power and privileges vis-à-vis women. The second group of explanations suggests that in those countries with higher levels of gender equality, women are more empowered and prone to disclose IPV against them than in less gender egalitarian countries (EIGE 2015, 2017). This line of reasoning posits that in gender unequal settings where violence against women is very extended, women 'normalize', 'internalize' and 'accept' this behaviour and are less willing to report it to an unknown interviewer. Unfortunately, such statements are not empirically substantiated (Gracia and Merlo 2016). The third group of explanations simply argues that the quality of the FRA's EU-VAW survey is inadequate to treat such a sensitive phenomenon as IPV against women. According to Walby et al. (2017) and Walby and Towers (2017), the fact that respondents in Denmark, Finland and Sweden were approached by phone interviews rather than the face-to-face interviews used in the other 25 countries included in the FRA's EU-VAW survey invalidates any claim that there were higher rates of IPV against women in the Nordic countries. Yet, this argument fails to explain the (weaker though still) positive relationship between IPV and gender equality levels observed in the remaining 25 non-Nordic countries.

Here, we put forward yet another possible explanation for such puzzling results: 'the violent partners' rotation' hypothesis (henceforth 'VPR hypothesis'). We suggest that, other factors kept constant, the standard levels of IPV prevalence as measured with $\mathcal{P}$ will tend to be higher in those countries where women break up from violent relationships more often/easily than in other countries where women tend to get trapped in such violent relationships. Under the assumption that men exercising IPV against their partners are likely to perpetrate violence against prospective partners as well, we should expect to observe higher levels of prevalence ($\mathcal{P}$) in those settings where the formation and dissolution of unions are more common. The VPR hypothesis is thus a probabilistic argument suggesting that the levels of IPV prevalence will be higher in contexts where the pool of men exercising IPV renovate their partners more often.

Following this line of thought, one could argue that in those countries where women break up more quickly/easily from violent relationships, the extent of *violence repetition* in such relationships should tend to be lower as a consequence of reduced exposure. We suggest that, ignoring the extent of violence repetition, traditional measures of prevalence (like $\mathcal{P}$) lead to an incomplete assessment of the amount of IPV in a given country that could partly explain the Nordic Paradox. As already discussed by Walby and colleagues (Walby and Towers 2017; Walby et al. 2014, 2015, 2017), domestic violence tends to be a repeat crime, so there is often a big difference between the number of IPV victims (i.e. prevalence) and the number of violent episodes. To substantiate and test our new hypothesis, and to address the aforementioned concerns, in this paper we define different groups of indicators. First, we generate 'current partner' and 'previous partner'-specific prevalence indicators to distinguish whether IPV has been exercised by current or previous partners. Second, we generate 'repetition-sensitive' indicators that aim to take into consideration the frequency of victimization when assessing the levels of IPV across countries.

Methods

Data

The EU-VAW survey was conducted in 2012 among a total of 42,000 women in the EU. For each of the 28 Member State, the sample is around 1000–1500 women. The interviewed women were aged from 18 to 74 years. Questions were asked about their experiences of violence victimization suffered from different categories of perpetrators (including previous and current partners) and for different periods, the last year and since the age of 15 (FRA 2014, 2015). This paper takes into account 13 different types of physical and sexual violent acts perpetrated by current or previous partner since the age of 15 (see Online Appendix for details).

Prevalence indicators

Prevalence ($\mathcal{P}$) is the mainstream indicator used to measure the magnitude of non-lethal IPV against women (FRA 2014; Ellsberg et al. 2008; Garcia-Moreno et al. 2006). It measures the proportion of women who have suffered at least one violent act from either a current or a previous partner since the age of 15. In addition, we consider IPV prevalence indicators among previous partners ($\mathcal{P}_p$, i.e. the proportion of women who had a previous partner that have experienced IPV from a previous partner) and current partners ($\mathcal{P}_c$, i.e. the proportion of women that are currently in union that have experienced IPV from their current partner). It is easy to show that these three indicators can be linked via the following equation:

$$\mathcal{P} \cong s_p \mathcal{P}_p + s_c \mathcal{P}_c \quad (1)$$

where s_p and s_c are the population shares of women who had a previous partner and women who have a current partner, respectively (see Online Appendix for details). In words, total prevalence of IPV against women can be approximated by the weighted sum of IPV from previous partners and IPV from current partners. This equation is

used to quantify how much of the observed IPV prevalence can be attributable to previous and current partners, respectively (see Online Appendix).

Incorporating repetitions

To a certain extent, the FRA's EU-VAW survey allows for quantifying the amount of violence repetition by asking respondents how often they have experienced different types of physical and sexual violence. The responses are coded in four categories: 'Never', 'Once', '2 to 5 times' and '6 or more times'. With this information, for each woman (indexed by 'i') we create a *violence repetition score* that will be written as r_i. This is an index that first counts the number of violent acts perpetrated by an intimate partner reported by woman 'i' and then normalizes dividing by the maximal possible number of such violent acts. In doing so, we assume that the number of violent acts associated with the categories '2 to 5 times' and '6 or more times' is 3.5 and 6, respectively (the results associated with alternative cardinalizations of the open-ended category are shown in Online Appendix). Women failing to give any valid response are dropped from the sample. Because of the applied normalization, r_i takes the minimal value of 0 when woman 'i' does not report violence of any kind, and the maximal value of 1 when she reports the highest possible repetition category ('6 and more') in all reported violent act categories included in the FRA questionnaires (details shown in Online Appendix). Using this women-specific violence repetition score, we define the following repetition-sensitive index of IPV against women:

$$\mathcal{R} = \frac{\sum_{i=1}^{n} r_i}{n} \tag{2}$$

where n is the number of women who ever had a partner. As can be seen, $\mathcal{R}$ is simply an average of the violence repetition score across the women included in the sample, so its values are bounded between 0 and 1. The values of the repetition-sensitive IPV index $\mathcal{R}$ should be interpreted as the average amount of violence repetition experienced by the women in the sample.

Analogously, we can define $\mathcal{R}_p$ and $\mathcal{R}_c$: the previous partner and current partner versions of the repetition-sensitive IPV index $\mathcal{R}$ (i.e. $\mathcal{R}_p$ is the average of the violence repetition score r_i among the women who had a previous partner, and $\mathcal{R}_c$ is the average of such scores among women who are currently in union—see Online Appendix). Again, it is easy to show that the three repetition-sensitive IPV indices can be linked through the following equation—which is used to quantify how much of the observed levels of repetition-sensitive IPV index $\mathcal{R}$ can be attributable to previous and current partners, respectively (see Online Appendix for details):

$$\mathcal{R} \cong s_p \mathcal{R}_p + s_c \mathcal{R}_c \tag{3}$$

The six indicators presented in this section are important; they are all useful to describe different aspects of IPV against women. Yet, our preferred specification is the 'current partner repetition-sensitive IPV index' $\mathcal{R}_c$. On the one hand, it is sensitive to the extent of violence repetition—a crucial and characteristic aspect of IPV. On the other hand, it focuses on current partners, who given the repeat nature of IPV are the individuals that are more likely to perpetrate acts of violence against their partners.

Measuring gender equality

To measure the levels of gender equality at the country level, we use the Gender Equality Index (GEI) published by the European Institute for Gender Equality (EIGE 2015, 2017). The index was created in 2012 with the purpose of assessing the levels of gender equality across the Member States of the European Union in a wide range of dimensions that are essential for human well-being (these are 'work', 'money', 'knowledge', 'time', 'power' and 'health'). The GEI is a hierarchical composite index built from 28 basic indicators. Its values range between 1 and 100, where the value of 100 stands for complete gender equality and 1 for full gender inequality. For this paper, we use the values of the GEI index in 2015.

Testing the VPR hypothesis

The main aim of the paper is to test whether the VPR hypothesis is supported by the data. Such hypothesis posits that, other factors kept constant, in those societies where women break up from violent relationships quicker and more often than in others, (1) prevalence of IPV against women will tend to be higher, and (2) the average violence repetition scores will tend to be lower. To test it rigorously, we would need to know the complete histories of union formation and dissolution across EU countries—a piece of information that, unfortunately, is not currently available. As a proxy, we will use s_p (i.e. the share of women who had a previous partner somewhere in the past). While imperfect, this indicator will tend to be larger in those societies where individuals are more prone to dissolve unions and re-partner again over time.

Results

IPV measures across countries

Here, we compare the values of the different IPV indicators presented in the previous section across the 28 EU Member

States. In the first column of Table 1, we show the values of the standard prevalence indicator $\mathcal{P}$, the indicator used by FRA (2014) to report IPV across Europe. The five countries with the highest levels are Denmark (32%), Latvia (32%), Finland (30%), UK (29%) and Sweden (28%), well above the EU-28 average of 22%. The rankings shown in Table 1 alongside each indicator go from the countries with the highest levels of violence (rank #1 being for the 'most violent country') to the ones with the lowest levels. What happens when we consider the prevalence of IPV against women from previous and current partners separately? The results are shown in columns (2) and (3). There is some reshuffling in the ranking of countries, but in general, the changes are not very dramatic. The rank correlation coefficient between $\mathcal{P}$ and $\mathcal{P}_p$ is 0.84 and the one between $\mathcal{P}$ and $\mathcal{P}_c$ is 0.69, so these different measures are highly correlated and they present a roughly similar overall picture of IPV across Europe. Despite the relatively high correlations, the UK and Sweden experience quite large changes when moving from the standard prevalence indicator $\mathcal{P}$ to its current partner version $\mathcal{P}_c$, and they drop to the 22nd and 19th position of the ranking.

Using the decomposition equation shown in [1], we can see that most of the IPV prevalence reported by FRA can be attributable to the violence perpetrated by *previous* partners. The per cent contribution of current partners' violence to the prevalence of IPV against women is relatively small, with an average across EU countries of 25.5%

Table 1 Prevalence ($\mathcal{P}$) of intimate partner physical and sexual violence against women since the age of 15 across the 28 EU Member States for previous ($\mathcal{P}_p$) and current partner ($\mathcal{P}_c$)

	(1)	(2)	(3)
Country	$\mathcal{P}$	$\mathcal{P}_p$	
Austria	0.13 (0.11, 0.15) [27]	0.15 (0.13, 0.17) [27]	0.03 (0.02, 0.04) [28]
Belgium	0.24 (0.22, 0.26) [9]	0.3 (0.27, 0.33) [9]	0.08 (0.06, 0.09) [13]
Bulgaria	0.23 (0.21, 0.26) [11]	0.38 (0.35, 0.42) [1]	0.12 (0.1, 0.13) [6]
Cyprus	0.15 (0.13, 0.16) [22]	0.24 (0.21, 0.27) [19]	0.06 (0.04, 0.07) [21]
Czech Republic	0.21 (0.19, 0.23) [16]	0.24 (0.21, 0.26) [20]	0.06 (0.04, 0.07) [20]
Germany	0.22 (0.2, 0.24) [14]	0.24 (0.22, 0.26) [18]	0.07 (0.06, 0.09) [17]
Denmark	0.32 (0.3, 0.35) [1]	0.31 (0.29, 0.34) [7]	0.12 (0.1, 0.14) [5]
Estonia	0.2 (0.18, 0.23) [17]	0.24 (0.22, 0.27) [17]	0.08 (0.06, 0.09) [14]
Greece	0.19 (0.17, 0.21) [18]	0.19 (0.16, 0.21) [24]	0.1 (0.08, 0.11) [9]
Spain	0.13 (0.11, 0.14) [28]	0.19 (0.16, 0.22) [25]	0.04 (0.03, 0.05) [27]
Finland	0.3 (0.28, 0.32) [3]	0.31 (0.28, 0.34) [6]	0.11 (0.09, 0.12) [8]
France	0.27 (0.24, 0.29) [6]	0.32 (0.29, 0.36) [5]	0.11 (0.09, 0.13) [7]
Croatia	0.13 (0.11, 0.15) [26]	0.13 (0.11, 0.15) [28]	0.07 (0.05, 0.08) [18]
Hungary	0.21 (0.19, 0.23) [15]	0.23 (0.21, 0.26) [21]	0.07 (0.06, 0.09) [15]
Ireland	0.15 (0.13, 0.17) [21]	0.2 (0.17, 0.22) [23]	0.04 (0.03, 0.05) [26]
Italy	0.19 (0.17, 0.21) [20]	0.25 (0.22, 0.28) [16]	0.09 (0.08, 0.11) [10]
Lithuania	0.26 (0.23, 0.28) [7]	0.37 (0.33, 0.4) [3]	0.13 (0.11, 0.15) [3]
Luxembourg	0.22 (0.2, 0.25) [13]	0.27 (0.24, 0.31) [13]	0.07 (0.05, 0.09) [16]
Latvia	0.32 (0.29, 0.34) [2]	0.37 (0.34, 0.41) [2]	0.13 (0.11, 0.15) [2]
Malta	0.15 (0.13, 0.16) [23]	0.28 (0.24, 0.32) [12]	0.05 (0.04, 0.06) [24]
Netherlands	0.25 (0.23, 0.27) [8]	0.27 (0.24, 0.29) [15]	0.09 (0.07, 0.11) [11]
Poland	0.13 (0.12, 0.15) [24]	0.17 (0.15, 0.2) [26]	0.05 (0.04, 0.07) [23]
Portugal	0.19 (0.17, 0.21) [19]	0.28 (0.25, 0.32) [11]	0.08 (0.06, 0.1) [12]
Romania	0.24 (0.22, 0.26) [10]	0.31 (0.27, 0.34) [8]	0.14 (0.12, 0.16) [1]
Sweden	0.28 (0.26, 0.31) [5]	0.3 (0.27, 0.32) [10]	0.07 (0.05, 0.08) [19]
Slovenia	0.13 (0.11, 0.15) [25]	0.21 (0.18, 0.24) [22]	0.05 (0.04, 0.06) [25]
Slovakia	0.23 (0.21, 0.26) [12]	0.27 (0.24, 0.3) [14]	0.12 (0.1, 0.14) [4]
UK	0.29 (0.27, 0.32) [4]	0.34 (0.32, 0.37) [4]	0.05 (0.04, 0.07) [22]
European Union	**0.22 (0.21, 0.22)**	**0.26 (0.26, 0.27)**	**0.08 (0.07, 0.08)**

Values in round brackets indicate the Confidence Intervals. Values in square brackets indicate the corresponding ranking, with lower values indicating a higher level of IPV. Reference population: women declaring that are currently married or in a civil partnership, living with a partner, involved in a relationship without living together. *Source*: Authors' calculations based on the European Union Agency for Fundamental Rights' survey on Violence Against Women Survey dataset, 2012

Bold values indicate EU averages

[see column (1) in Table 3]. This means that, on average, only one out of four female victims of IPV in Europe has experienced violence from a current partner. This average contribution varies substantially across countries: it moves from 13% of the UK to 45.8% in Romania. Thus, the contribution of previous and current partners' violence to IPV prevalence levels differs considerably between EU Member States.

Table 2 shows the values of the repetition-sensitive IPV indicators suggested in this paper. While the country rankings arising from the values of the repetition-sensitive IPV index $\mathcal{R}$ and the standard IPV prevalence index $\mathcal{P}$ are quite similar (rank correlation of 0.82), both Denmark and Sweden disappear from the list of worst five performers; they move to the 10th and 15th positions, respectively. Using the decomposition formula shown in [3], we can see that levels of the repetition-sensitive IPV index $\mathcal{R}$ are mostly attributable to the violence perpetrated by *previous* partners. As shown in the second column in Table 3, the per cent contribution of current partners' violence to the values of the repetition-sensitive IPV index $\mathcal{R}$ moves between 3.7% in the UK and 36% in Romania, with an EU average of 15.8%. This suggests that looking at the values of $\mathcal{R}$ alone, we might be seriously misled about the extent of IPV perpetrated by current partners. Inspecting the previous and current partner versions of $\mathcal{R}$, very interesting

Table 2 Repetition-sensitive ($\mathcal{R}$) intimate partner physical and sexual violence against women since the age of 15 across the 28 EU Member States, for previous ($\mathcal{R}_p$) and current partner ($\mathcal{R}_c$)

	(1)	(2)	(3)
Country	$\mathcal{R}$	$\mathcal{R}_p$	$\mathcal{R}_c$
Austria	0.016 (0.013, 0.019) [24]	0.026 (0.02, 0.033) [27]	0.005 (0.003, 0.007) [21]
Belgium	0.029 (0.024, 0.034) [6]	0.058 (0.048, 0.067) [5]	0.005 (0.003, 0.007) [19]
Bulgaria	0.035 (0.029, 0.04) [4]	0.08 (0.067, 0.093) [1]	0.013 (0.009, 0.016) [4]
Cyprus	0.02 (0.016, 0.025) [21]	0.044 (0.034, 0.053) [12]	0.008 (0.005, 0.012) [10]
Czech Republic	0.021 (0.018, 0.025) [19]	0.036 (0.03, 0.042) [20]	0.004 (0.003, 0.006) [24]
Germany	0.022 (0.018, 0.026) [18]	0.036 (0.03, 0.043) [19]	0.005 (0.003, 0.006) [22]
Denmark	0.026 (0.023, 0.03) [10]	0.04 (0.035, 0.046) [16]	0.005 (0.004, 0.007) [18]
Estonia	0.024 (0.02, 0.028) [17]	0.043 (0.036, 0.051) [14]	0.005 (0.003, 0.007) [20]
Greece	0.024 (0.02, 0.029) [14]	0.031 (0.024, 0.037) [25]	0.011 (0.008, 0.014) [6]
Spain	0.015 (0.011, 0.018) [26]	0.029 (0.023, 0.036) [26]	0.004 (0.002, 0.005) [25]
Finland	0.03 (0.025, 0.034) [5]	0.049 (0.042, 0.056) [9]	0.006 (0.004, 0.008) [14]
France	0.024 (0.02, 0.028) [13]	0.045 (0.037, 0.053) [11]	0.007 (0.005, 0.01) [13]
Croatia	0.016 (0.012, 0.019) [25]	0.023 (0.017, 0.029) [28]	0.008 (0.005, 0.01) [12]
Hungary	0.021 (0.018, 0.025) [20]	0.033 (0.027, 0.038) [22]	0.009 (0.006, 0.012) [9]
Ireland	0.024 (0.019, 0.029) [16]	0.043 (0.035, 0.052) [13]	0.005 (0.002, 0.007) [23]
Italy	0.018 (0.015, 0.021) [23]	0.032 (0.026, 0.038) [24]	0.01 (0.007, 0.012) [7]
Lithuania	0.039 (0.033, 0.045) [3]	0.071 (0.06, 0.083) [4]	0.018 (0.013, 0.023) [2]
Luxembourg	0.027 (0.021, 0.033) [9]	0.056 (0.043, 0.068) [6]	0.006 (0.003, 0.009) [15]
Latvia	0.029 (0.025, 0.032) [8]	0.048 (0.041, 0.055) [10]	0.013 (0.01, 0.016) [3]
Malta	0.014 (0.011, 0.017) [27]	0.04 (0.03, 0.049) [17]	0.006 (0.003, 0.008) [17]
Netherlands	0.029 (0.024, 0.033) [7]	0.051 (0.042, 0.059) [8]	0.006 (0.004, 0.008) [16]
Poland	0.02 (0.015, 0.024) [22]	0.034 (0.026, 0.042) [21]	0.008 (0.005, 0.012) [11]
Portugal	0.026 (0.021, 0.03) [11]	0.052 (0.043, 0.062) [7]	0.009 (0.006, 0.012) [8]
Romania	0.04 (0.034, 0.046) [1]	0.073 (0.061, 0.086) [2]	0.023 (0.018, 0.028) [1]
Sweden	0.024 (0.02, 0.028) [15]	0.039 (0.033, 0.045) [18]	0.003 (0.002, 0.005) [26]
Slovenia	0.013 (0.01, 0.016) [28]	0.032 (0.025, 0.039) [23]	0.003 (0.002, 0.005) [27]
Slovakia	0.025 (0.02, 0.029) [12]	0.041 (0.033, 0.048) [15]	0.012 (0.009, 0.015) [5]
UK	0.04 (0.035, 0.046) [2]	0.072 (0.063, 0.082) [3]	0.003 (0.002, 0.004) [28]
European Union	**0.025 (0.024, 0.026)**	**0.044 (0.043, 0.046)**	**0.007 (0.007, 0.008)**

Values in round brackets indicate the Confidence Intervals. Values in square brackets indicate the corresponding ranking, with lower values indicating a higher level of IPV. Reference population: women declaring that are currently married or in a civil partnership, living with a partner, involved in a relationship without living together. *Source*: Authors' calculations based on the European Union Agency for Fundamental Rights' survey on Violence Against Women Survey dataset, 2012

Bold values indicate EU averages

Table 3 Contribution of current partners to $\mathcal{P}$ and $\mathcal{R}$; share of women who had a previous partner; share of women who are currently in union; and Gender Equality Index across the 28 EU Member States

	(1)	(2)	(3)	(4)	(5)
Country					GEI
Austria	15.3%	15.1%	0.74 [8]	0.72 [26]	63.3 [13]
Belgium	23.9%	9.7%	0.64 [14]	0.77 [13]	70.5 [7]
Bulgaria	34.5%	21.8%	0.45 [25]	0.79 [9]	58 [16]
Cyprus	30.4%	25.5%	0.45 [26]	0.81 [3]	55.1 [22]
Czech Republic	19.8%	10.5%	0.76 [7]	0.77 [15]	53.6 [23]
Germany	21.7%	11%	0.78 [3]	0.74 [21]	65.5 [12]
Denmark	25%	10.5%	0.85 [2]	0.75 [17]	76.8 [2]
Estonia	24.2%	10.6%	0.67 [10]	0.69 [28]	56.7 [20]
Greece	37.4%	29.6%	0.67 [13]	0.77 [12]	50 [28]
Spain	21.5%	14.3%	0.57 [20]	0.79 [6]	68.3 [11]
Finland	25.6%	11.4%	0.77 [5]	0.78 [11]	73 [3]
France	28.2%	16.3%	0.62 [17]	0.74 [20]	72.6 [5]
Croatia	39.2%	28.9%	0.64 [15]	0.77 [14]	53.1 [24]
Hungary	22.6%	20.4%	0.77 [6]	0.73 [25]	50.8 [27]
Ireland	17.6%	10.6%	0.67 [11]	0.74 [22]	69.5 [8]
Italy	35.6%	30.7%	0.54 [21]	0.8 [5]	62.1 [14]
Lithuania	33.6%	27.3%	0.49 [22]	0.72 [27]	56.8 [18]
Luxembourg	25.6%	12.8%	0.63 [16]	0.83 [2]	69 [9]
Latvia	28%	23.1%	0.67 [12]	0.74 [23]	57.9 [17]
Malta	29%	24%	0.39 [28]	0.86 [1]	60.1 [15]
Netherlands	26.4%	11.6%	0.73 [9]	0.79 [8]	72.9 [4]
Poland	27.8%	23.5%	0.58 [19]	0.75 [18]	56.8 [19]
Portugal	31.4%	22.1%	0.47 [24]	0.76 [16]	56 [21]
Romania	45.8%	36%	0.44 [27]	0.8 [4]	52.4 [25]
Sweden	16.4%	6.9%	0.85 [1]	0.73 [24]	82.6 [1]
Slovenia	27.5%	14.5%	0.47 [23]	0.79 [7]	68.4 [10]
Slovakia	37.3%	27.5%	0.6 [18]	0.78 [10]	52.4 [26]
UK	13%	3.7%	0.78 [4]	0.74 [19]	71.5 [6]
European Union	**25.5%**	**15.8%**	**0.66**	**0.76**	**66.2**

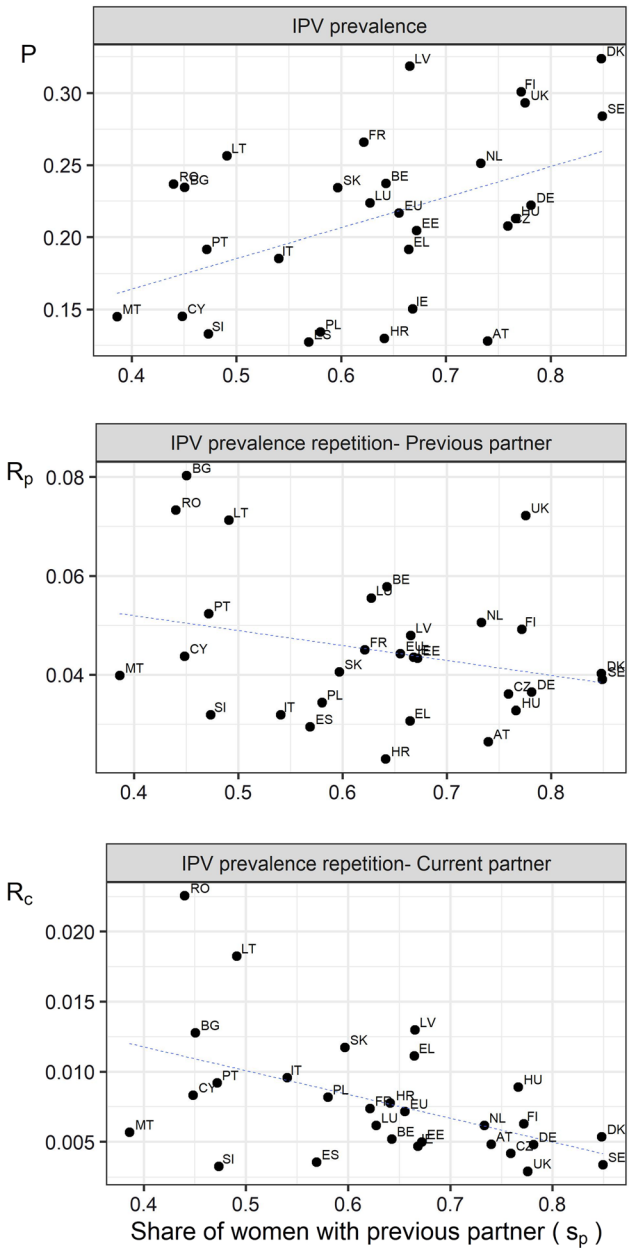
Values in brackets indicate the corresponding ranking, with lower values indicating a higher share of population or higher levels of equality (GEI). Notes: Reference population (columns 1 to 4): women declaring that are currently married or in a civil partnership, living with a partner, involved in a relationship without living together *Source*: Authors' calculations based on the European Union Agency for Fundamental Rights' survey on Violence Against Women Survey dataset, 2012 and data from the European Institute for Gender Equality, 2015

Bold values indicate EU averages

patterns arise. For its previous partner version $\mathcal{R}_p$, the five worst performing countries are Bulgaria, Romania, the UK, Lithuania and Belgium, and for its current partner version $\mathcal{R}_c$, they are Romania, Lithuania, Latvia, Bulgaria and Slovakia, respectively. Interestingly, the Nordic countries have disappeared altogether from the 'worst five list', which is gradually filled with Eastern European countries (for the current partner repetition-sensitive IPV index $\mathcal{R}_c$, Denmark, Finland and Sweden move to the 18th, 14th and 26th positions, respectively). In contrast, some other countries, like Spain, remain relatively stable no matter what measure we choose. Lastly, the rank correlation coefficient between the standard prevalence indicator reported by FRA and $\mathcal{R}_c$ is as low as 0.16, thus suggesting that the two indicators present rather complementary views of the extent of IPV across Europe.

Evidence supporting the VPR hypothesis

Figure 1 shows three scatterplots comparing the shares of women who had a previous partner (s_p) against three IPV indicators: the standard IPV prevalence indicator $\mathcal{P}$, and the previous and current partner versions of the repetition-sensitive IPV indicators $\mathcal{R}_p$ and $\mathcal{R}_c$. As can be seen in the



◀**Fig. 1** Scatterplots comparing the share of women who had a previous partner (horizontal axes) with the standard intimate partner violence prevalence index $\mathcal{P}$ (upper panel), the previous partner repetition-sensitive intimate partner violence index $\mathcal{R}_p$ (middle panel) and the current partner repetition-sensitive intimate partner violence index $\mathcal{R}_c$ (lower panel) across the 28 EU Member States. Best-fit regression lines added to show the direction of the relationships. Notes: Reference population: women declaring that are currently married or in a civil partnership, living with a partner, involved in a relationship without living together. Country labels follow the ISO3166 codes: Austria (AT); Belgium (BE); Bulgaria (BG); Cyprus (CY); Czech Republic (CZ); Germany (DE); Denmark (DK); Estonia (EE); Greece (EL); Spain (ES); Finland (FI); France (FR); Croatia (HR); Hungary (HU); Ireland (IE); Italy (IT); Lithuania (LT); Luxembourg (LU); Latvia (LV); Malta (MT); Netherlands (NL); Poland (PL); Portugal (PT); Romania (RO); Sweden (SE); Slovenia (SI); Slovakia (SK); United Kingdom (UK); European Union (EU). *Source*: Authors' calculations based on the European Union Agency for Fundamental Rights' survey on Violence Against Women Survey dataset, 2012

upper panel, there is a clear positive association between the share of women who had a previous partner s_p and the standard IPV prevalence indicator $\mathcal{P}$, i.e. in countries where women are more likely to have had previous partners, the share of IPV victims tends to be larger. The correlation coefficient equals 0.44 (i.e. it is well above zero and statistically significant). The middle panel in Fig. 1 shows there is a slightly negative relationship between s_p and $\mathcal{R}_p$, i.e. in countries where women are more likely to have had previous partners, the average violence repetition score among those women tends to be smaller. In absolute terms, the correlation coefficient is not very large (− 0.27), but it goes in the direction predicted by our hypothesis. Remarkably, the lower panel in Fig. 1 shows a moderately strong negative relationship between the share of women who ever had a previous partner s_p and $\mathcal{R}_c$ (correlation coefficient of − 0.49). That is, in countries where women are more likely to have had previous partners, the average violence repetition score among women with *current* partners tends to decrease.

We conclude the results section comparing the values of the six IPV indicators presented in this paper against the Gender Equality Index (GEI). The results are shown in Fig. 2. The upper left scatterplot illustrates the so-called Nordic Paradox: the more gender equal countries tend to exhibit higher prevalence of IPV against women. Separating previous from current partners, new patterns arise. The relationship between gender equality and prevalence of IPV perpetrated by previous partners is weaker but still positive (i.e. still in the 'paradoxical' direction; see middle left panel). Yet, the relationship turns negative when switching to the prevalence of IPV perpetrated by current partners (see lower left panel). While the relationship is not particularly strong (correlation − 0.16), it suggests that the prevalence of (female) victims from current partners' violence tends to decrease with increasing gender equality—though there is a lot of variability across countries. These patterns are further strengthened when considering the repetition-sensitive IPV indicators (see right panels). The relationship between GEI and the repetition-sensitive IPV index $\mathcal{R}$ is still positive (correlation 0.05) but very weak, and the same goes for the relationship between GEI and the previous partner repetition-sensitive IPV index $\mathcal{R}_p$. Interestingly, the relationship between GEI and the current partner repetition-sensitive IPV index $\mathcal{R}_c$ is negative and quite strong (correlation − 0.58), thus indicating that the average violence repetition score among

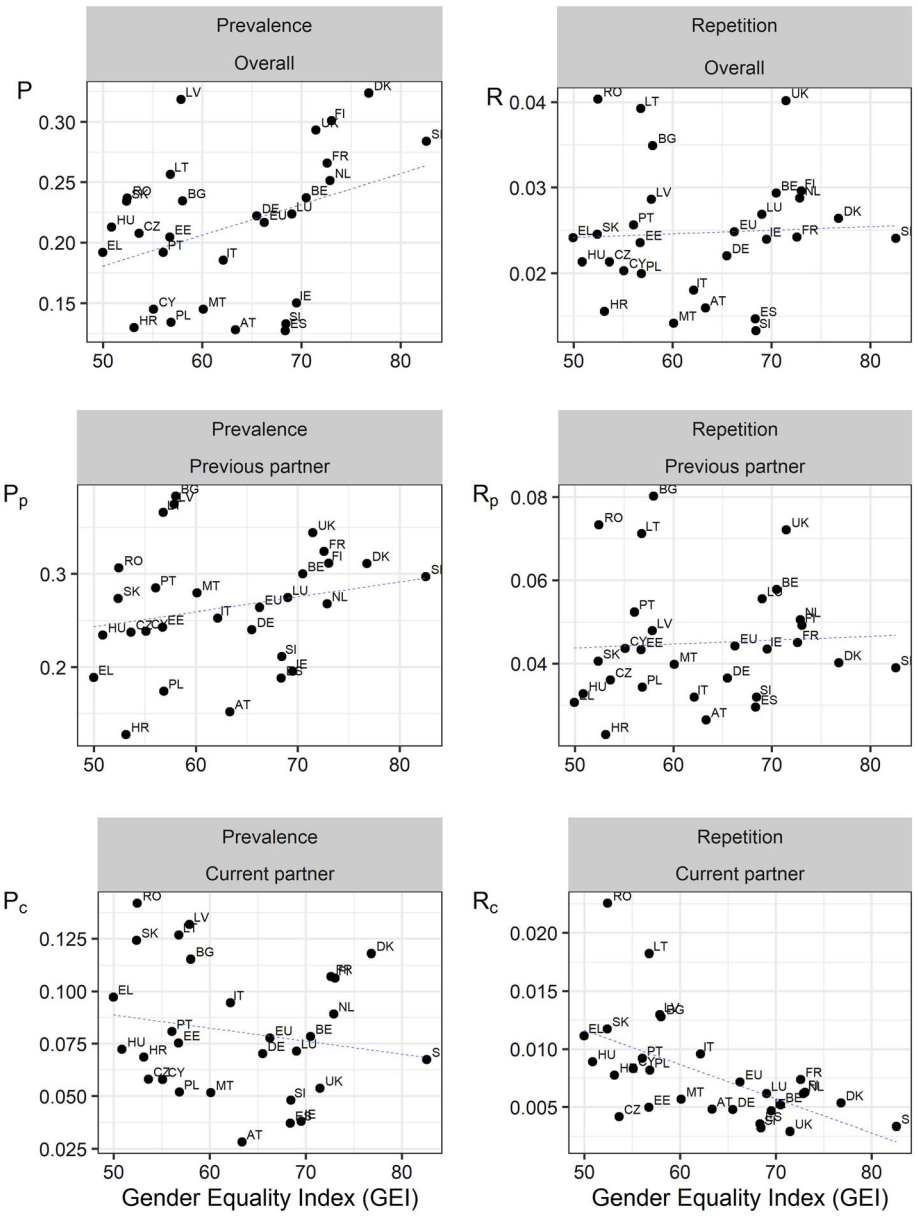


Fig. 2 Scatterplots comparing the Gender Equality Index (horizontal axes) against different intimate partner violence measures (vertical axes) across the 28 EU Member States. Best-fit regression lines added to show the direction of the relationships. Notes: Reference population: women declaring that are currently married or in a civil partnership, living with a partner, involved in a relationship without living together. Prevalence of intimate partner violence ($\mathcal{P}$) and repetition-sensitive measures ($\mathcal{R}$); prevalence for previous partner violence ($\mathcal{P}_p$) and repetition-sensitive measures ($\mathcal{R}_p$); prevalence of current partner violence ($\mathcal{P}_c$) and repetition-sensitive measures ($\mathcal{R}_c$). Country labels follow the ISO3166 codes: Austria (AT); Belgium (BE); Bulgaria (BG); Cyprus (CY); Czech Republic (CZ); Germany (DE); Denmark (DK); Estonia (EE); Greece (EL); Spain (ES); Finland (FI); France (FR); Croatia (HR); Hungary (HU); Ireland (IE); Italy (IT); Lithuania (LT); Luxembourg (LU); Latvia (LV); Malta (MT); Netherlands (NL); Poland (PL); Portugal (PT); Romania (RO); Sweden (SE); Slovenia (SI); Slovakia (SK); United Kingdom (UK); European Union (EU). *Source*: Authors' calculations based on the European Union Agency for Fundamental Rights' survey on Violence Against Women Survey dataset, 2012

women who are currently in union tends to decrease with increasing gender equality.

To ensure that our findings are not contingent upon arbitrary methodological choices, we have performed several robustness checks. We have (1) recalculated the repetition-sensitive IPV indicators using different cardinalizations for the open-ended category '6 times or more'; (2) repeated the same analysis removing the only three countries that approached women via phone interviews (Denmark, Finland and Sweden); and (3) substituted the correlation coefficient or the rank correlation coefficient reported in this paper by other measures of

association. In all those cases, the main conclusions of the paper remain unaffected (see the online Supplementary Materials section).

Discussion

This paper shows that IPV and, more generally, gender-based violence must be analysed considering wider population dynamics. In those countries where the patterns of union dissolution and union formation are more dynamic (i.e. they occur more often), the prevalence of physical and sexual IPV against women is higher. On the one hand, physical and sexual IPV often occurs or increases during relationships' break-up (FRA 2014; Garcia-Moreno et al. 2005). On the other hand, since men exercising violence against their partners in the past are likely to reproduce this behaviour in the future (Bowen et al. 2005; Bybee and Sullivan 2005), one should expect to observe a higher prevalence of IPV against women in those settings where (1) individuals change partners more often, (2) women are more successful in escaping from violent relationships and (3) where the judicial system fails to prosecute and reeducate perpetrators. In the same line, given that (a) more frequent break-ups are associated with shorter intimate relationship durations, and (b) IPV is a phenomenon that tends to repeat over time (Walby et al. 2015) one should also expect to observe lower levels of IPV repetition *per relationship* in more dynamic marriage markets due to reduced exposure. These are the tenets of the VPR hypothesis.

Our findings lend some support to the new hypothesis. Approximating the fluidity of union formation and dissolution dynamics by the share of women who ever had a previous partner, we observe that in countries where such share is higher, the prevalence of IPV tends to be higher, but the extent of violence repetition attributable to previous and, particularly, current partners, tends to be smaller. The substantial re-rankings of countries we observe when considering some pairs of IPV indicators make a strong case to complement traditional prevalence measures with the more finely grained indicators suggested here. The patterns we observe in the UK and Sweden are a case in point. The UK ranks among the worst or best performers in IPV depending on whether we focus on violence perpetrated by previous or current partners, respectively. Similarly, Sweden ranks quite badly in terms of overall IPV prevalence but performs much better when using repetition-sensitive indicators.

Revisiting the relationship between gender equality and IPV against women across countries using our battery of indicators, we observe new and more nuanced patterns. While we observe a positive relationship between gender equality and 'overall' and 'previous partner' IPV measures (i.e. the so-called Nordic Paradox), the relationship turns out to be negative when restricting our attention to 'current partner' IPV measures (both prevalence and, particularly, repetition-sensitive ones). That is, in more gender equal settings, the share of women currently in union that are victims of IPV and the extent of IPV repetition per current relationship tend to be smaller. These findings cast doubt into the validity of the Nordic Paradox announced in recent studies (FRA 2014; Gracia and Merlo 2016; Gracia et al. 2019; Wemrell et al. 2019).

Since the Nordic Paradox challenges the basic foundations of those policies attempting to prevent or lessen IPV against women by promoting gender equality, it needs to be urgently understood. The contributions of this paper are an attempt to disentangle the paradox and contest its implied premises on policymaking. The phenomenon of IPV against women is extremely complex, and the exclusive reliance on traditional measures of prevalence can offer a seriously misleading picture. On the one hand, our findings suggest that a large share of the victims experienced episodes of violence that occurred in the past (i.e. they were perpetrated by some previous partner), and tell us little about the extent of victimization perpetrated by current partners. On the other hand, neglecting the extent of violence repetition, prevalence measures overlook the distribution of IPV episodes, which can vary substantially across victims (Walby et al. 2015). Since the needs of women who suffered episodic violence in the past are very different from those currently trapped in extremely violent relationships, policy-makers need to know whether a certain number of IPV episodes have been perpetrated by a small minority of extremely violent offenders or by a majority of 'small intensity' offenders. The design of sound policies to protect the victims of IPV should take these patterns into account and avoid one-size-fits-all approaches that are exclusively guided by standard prevalence indicators.

This study has some limitations. First, the quality of the FRA's EU-VAW survey used to generate our estimates has been criticized on several grounds, like inadequate questionnaires, small sample sizes, skew sample frames or the use of non-confidential methods to assess violence victimization, among others (Walby et al. 2017; Walby and Towers 2017). Second, our repetition-sensitive indicators are limited by the capping of the data. In all likelihood, our assessments of the extent of IPV repetition across countries would vary substantially if the exact number of violent episodes had been recorded (Walby et al. 2015). Lastly, the lack of complete histories of union formation and dissolution that are comparable across EU countries has forced us to work with a simplified indicator: the share of women who had a previous partner. These shortcomings

notwithstanding, it is remarkable that our admittedly limited indicators generate estimates that go in the expected theoretical direction and are robust to a variety of sensitivity checks.

In addition to the limitations posed by the quality of the available data, there are also some potential limitations in the methods we have applied. The approach followed in this paper ignores several aspects that can be crucial to determine the levels of IPV across countries, like the trust in the police or the judicial system, the efficiency in prosecuting and reeducating perpetrators, the extent of socio-economic inequality or the overall levels of violence in the society. Rather than proposing an exhaustive list of determinants that could potentially feed an all-encompassing model to predict IPV levels (Heise and Kostsadam 2015), here we introduce very simple indicators and decomposition methods to break down standard prevalence measures of IPV into clearly interpretable parts. Such decompositions are very useful because, as demonstrated in our analyses, levels of IPV prevalence can be a deluding indicator that conflates information from the past with that from the present and ignores the extent of violence repetition. Understanding the true magnitude of the different dimensions of IPV against women is hampered by the lack of high-quality data, whose design and collection should be a high-order priority to public health planners around the world.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval Not applicable.

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