


# BMJ Open Individual and societal risk factors of attitudes justifying intimate partner violence against women: a multilevel cross-sectional study

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## ABSTRACT

**Objectives** Attitudes justifying intimate partner violence against women (IPVAW) can play an essential role in explaining the prevalence of such public health problem. The study aim was to explain attitudes justifying IPVAW identifying individual and societal risk factors.

**Design and setting** A multilevel cross-sectional study of the World Values Survey (WVS) in 54 global countries.

**Participants** A representative transnational community-based sample of 81 516 participants (47.8% male, 52.1% female), aged mean of 42.41.

**Measures** Attitudes justifying IPVAW, sociodemographic, sexism, self-transcendence and conservation values were measured using questions from WVS. Country and regional gender inequality were assessed by Gender Inequality Index.

**Results** Around 16% (intraclass correlation=0.16) of individual differences in attitudes justifying IPVAW are explained by countries. Statistically significant predictors at individual and country level were: sex ( $B=-0.24$ , 95% CI  $-0.27$  to  $-0.22$ ), age ( $B=-0.08$  to  $-0.25$ , 95% CI  $-0.34$  to  $-0.03$ ), marital status ( $B=0.09$  to  $0.23$ , 95% CI  $0.002$  to  $0.33$ ), educational level ( $B=-0.10$  to  $-0.14$ , 95% CI  $-0.20$  to  $-0.04$ ), self-transcendence values ( $B=-0.10$ , 95% CI  $-0.20$  to  $-0.12$ ), sexism ( $B=0.21$ , 95% CI  $0.15$  to  $0.28$ ), country ( $B=2.18$ , 95% CI  $1.09$  to  $3.26$ ) and regional ( $B=2.23$ , 95% CI  $1.04$  to  $3.42$ ) gender inequality. Country gender inequality ( $B=-0.18$ ,  $p=0.12$ ) and regional gender inequality ( $B=-0.21$ ,  $p=0.10$ ) did not moderate the associations between self-transcendence values and attitudes justifying IPVAW. In the same way for sexism, data did not provide support for a moderating role of country gender inequality ( $B=0.22$ ,  $p=0.26$ ) and regional gender inequality ( $B=0.10$ ,  $p=0.66$ ).

**Conclusions** Individual and country predictors accounted for differences in attitudes justifying IPVAW. However, neither gender inequality of country nor gender inequality of region interacted with sexism and self-transcendence values. Theoretical and methodological implications are discussed.

## BACKGROUND

One in three women are the target of violence by their partner or ex-partner throughout their lifetime, suffering serious physical,

## Strengths and limitations of this study

- The probabilistic sampling strategy of the World Values Survey (WVS) provided representative population-based samples from 54 countries.
- Multilevel approach allowed accounting for attitudes justifying intimate partner violence against women (IPVAW) by means of individual and country differences.
- The cross-sectional nature of the data does not allow for causal inferences.
- Gender Inequality Index is the unique composite sensitive association measure of gender gap that includes female-specific health indicators.
- Measures and individual predictors of attitudes justifying IPVAW were taken from responses to an international survey research project (WVS).

mental, sexual or reproductive health consequences.<sup>1</sup> Although intimate partner violence against women (IPVAW) is globally a condemned problem, prevalence differs by world regions.<sup>1,2</sup> Rates vary from 37.7% in South-East Asia (eg, Bangladesh, India, Thailand) to 23.2% in Western, educated, industrialised, rich and democratic countries (eg, USA, Canada and Europe).<sup>3</sup>

Traditionally, multicountry research has focused on possible risk factors (eg, history of abuse, education, marital status, etc) that can explain prevalence of psychological, sexual, and physical forms of IPVAW.<sup>4-6</sup> However, a growing body of international studies have paid attention to one factor directly related to IPVAW prevalence: public attitudes justifying IPVAW.<sup>7-9</sup> A recent review highlighted that societies with public attitudes justifying IPVAW tend to show a higher rate of IPVAW, and lower formal and informal responses towards such violence by the public, professionals, and victims.<sup>8</sup> In this vein, we set out to contribute to a better understanding of



attitudes justifying IPVAV that can help work towards transnational gender equality, women's good health and well-being in line with the Global Sustainable Development Goals for 2030.<sup>10</sup>

According to the Integral Ecological Model, attitudes towards IPVAV are a multifactorially determined phenomenon.<sup>11 12</sup> Overall, within this framework and using data from national and international survey projects, there has been an increase of research the individual (eg, prior history of IPVAV, number of children ever born, working status, etc),<sup>13</sup> and neighbourhood or community (eg, community-level permissive attitudes towards wife beating, women's media exposure, socioeconomic status)<sup>7 14 15</sup> risk factors on acceptability and justification of IPVAV.

Few studies, however, have analysed the role of societal context (eg, country conditions), and particularly, the interplay between individual and societal determinants to explain cross-country differences on public attitudes justifying IPVAV.<sup>9 16-19</sup> However, some valuable empirical data are available to investigate this relation. Most of multicountry studies have focused on studying sociodemographic variables (eg, sex, age, marital status, residential area, education, number of children, working status, wealth status) at the individual and gender inequality at the country level.<sup>16-19</sup> Gender inequality, a set of structural features (eg, women and men's literacy, political power, health status, working status) which indicate gender power asymmetries in a country, have been linked to attitudes justifying IPVAV in different ways. Two studies showed that individuals in countries with higher levels of gender inequality were more likely to justify or accept IPVAV,<sup>9 16</sup> but others did not find such effect.<sup>16-18</sup> The interplay between multiple level factors was addressed only-by-one study, finding a cross-level interaction between gender inequality and individual victim-blaming attitudes on the IPVAV acceptability.<sup>17</sup> Conversely, individual determinants over and above sociodemographic variables were considered to a lesser extent by cross-country studies.<sup>9</sup> Thus, sexism was highlighted as a relevant determinant of attitudes towards IPVAV.<sup>20-22</sup> Specially, hostile sexism, beliefs related to men should dominate women and limit them to certain roles,<sup>23</sup> has been associated positively with individual's IPVAV acceptability from 51 societies.<sup>9</sup> However, basic values, an important aspect of individual variation to explain the motivational bases of attitudes,<sup>20</sup> only were studied within a specific context.<sup>21</sup> Specifically, self-transcendence values, which promote the welfare of one's group (benevolence), society or environment (universalism), as well as conservation values refer to respect and acceptance of own cultural customs, ideas and religion (tradition), and to limit actions that offend others, social norms or expectations (conformity), to protect self or those with whom one identifies (security),<sup>24</sup> were negative and positive predictors, respectively, of myths towards rape.<sup>21</sup>

Notwithstanding the effects found at individual and country level, it is also suggested that individuals who are

socialised in similar cultural contexts (eg, countries with similar level of women's empowerment, participation in labour market, etc) may develop comparable attitudinal patterns toward IPVAV shaped by similar underlying mechanisms.<sup>16</sup> Within this field, research is limited since most studies analysed regional differences on attitudes justifying IPVAV based on data from multinational surveys (ie, Demographic and Health Survey, Multiple Indicator Cluster Surveys) which included only countries belong to the same geographical or income status region.<sup>12 13 25</sup> Although there is no direct evidence linking regional characteristics with individual attitudes justifying IPVAV, Tran *et al*<sup>12</sup> showed, through a frequency analysis, prevalence of women who endorsed attitudes accepting IPVAV was higher in countries from regions with lower national expected years of schooling, human development and higher gender inequality.

The aim of this paper is to provide new and consistent worldwide evidence of the interplay between the individual, country and regional risk factors, and attitudes justifying IPVAV. The specific objectives of this research are: (1) to examine the role of individual and societal context (countries), and their determinants; (2) to determine whether the strength of relations between less well-studied individual determinants (self-transcendence, conservation values and sexism) and attitudes justifying IPVAV differ across societal contexts; (3) to test the moderating role of gender inequality in the relation between the above individual level determinants and attitudes justifying IPVAV at country level.

## METHODS

### Survey data

Secondary data analysis was performed on data from the sixth wave of the World Values Survey (WVS) which included 85 000 participants from 60 countries.<sup>26</sup> Since there were not availability of Gender Inequality Indices (GII) for Taiwan, Palestine, Ghana, Hong Kong, Nigeria and Uzbekistan, we only analysed responses from 54 countries. Between 2010 and 2014, by means of multistage sampling method with a random selection (excepting five countries), local evaluators collected representative samples, establishing some of them by quota control to homogenise samples (ie, by age, gender and/or location). Mostly face-to-face interviews were conducted at the respondent's home through paper questionnaire or computer-assisted personal interviewing technique. When it was needed, an adapted version of the source questionnaire to capture linguistic and cultural nuances was developed (more specific information about study design by country is provided in online supplemental table S1). The final sample consists of 81 516 participants (47.8% male, 52.1% female, 0.1% no answer) from 54 countries. The mean age was 42.41 (SD=16.58). The overall response rate was 62.5% (SD=25.04) and an average of 1500 respondents per country (SD=611.57) (see online supplemental table S2). Full information about survey

data can be found in WVS website (<http://www.worldvaluessurvey.org/WVSDocumentationWV6.jsp>).

### Patient and public involvement

The research has been performed by analysing survey data from the World Value Survey and United Nations. Participants were not involved in the design, analysis, results and dissemination of the study.

### Measurements

Excepting the GII values, items for all variables was extracted from the WVS sixth wave questionnaire.<sup>27</sup> Respondents completed a shortened and revised version of the Portrait Values Questionnaire.<sup>28</sup> The measure of sexism was included in the WVS has been used in previous studies.<sup>9 29 30</sup> A full description of the item sets for each variable is in online supplemental table S3.

### Outcome

To measure individual attitudes justifying IPVAV, we used a multi-item survey question intended to know the extent to which participants would justify fifteen actions (eg, different types of violence, euthanasia, suicide, homosexuality, stealing property, etc). We focused on justification of IPVAV, which was highlighted by one item (ie, 'for a man to beat his wife'). The answers ranging from 1, never justifiable, to 10, always justifiable.

### Individual-level predictors

Sexism ( $\alpha=0.70$ ). The item set focused on hostile sexism<sup>23</sup> and includes five items (eg, 'When a mother works for pay, the children suffer'). The response scale ranged from 1 (strongly agree) to 4 (strongly disagree). All items were reverse-scored since higher scores indicate more hostile sexism.

Self-transcendence values ( $\alpha=0.72$ ). This item set consists of three items (eg, 'It is important to this person to do something for the good of society'). Responses were given on scales that ranged from 1 (very much like me) to 6 (not at all like me). Scores were reversed such that higher scores mean more self-transcendence values.

Conservation values ( $\alpha=0.62$ ). Measure comprised three items (eg, 'It is important to this person to always behave properly; to avoid doing anything people would say is wrong'). Ratings were the same that for self-transcendence values items.

Sociodemographic characteristics. We collected information about sex, age, marital status, educational level and perceived social status. Educational level was recoded into four categories (primary education, secondary education: technical or vocational type, secondary education: university-preparatory type and university-level education).

### Country-level predictors

We used an objective measure of gender equality, the GII from the United Nations Development Programme. In comparison to other GII, GII is a improved and sensitive measure that includes three relevant aspects<sup>10</sup>:

reproductive health, empowerment and economic status, ranging from 0 (the highest level of equality between females and males) to 1 (the lowest level of equality between females and males). For the GII country, the index was directly obtained from the United Nation Development Programme website (<http://hdr.undp.org/en/data#>) for the year in which the WVS was conducted in the country (see year of fieldwork for each country in online supplemental table S1). To develop the GII region, we clustered countries with similar GII indices in four gender inequality regions following their distribution in quartiles as proposed by United Nations Development Programme reports.<sup>10</sup> GII per region was the mean of country indices which form the region.

### Statistical analysis

Categorical variables were converted to dummy variables for analyses. The reference groups were: male, aged 16–24, married, no formal education and lower class. Following, descriptive statistics were obtained, revealing a small number of missing data (ranging from 0.1% for gender to 2.9% for perceived social status), so no imputation of missing data was conducted.

To assess the relevance of the newly introduced individual-level variables (basic values, sexism), we conducted a hierarchical multiple regression using stepwise method (introducing sociodemographic variables, sexism, self-transcendence values and conservation values consecutively). We also analysed multicollinearity through variance inflation factor (VIF). Since we assumed that responses of participants (level 1) from the same country or region could be correlated because of sharing the same (or very similar) context (level 2), we estimated a set of multilevel regressions to account for that.<sup>31</sup> These models allow the inclusion of additional error terms to reflect the intricate pattern of variation due to the hierarchical structure of the data.<sup>32</sup> Continuous variables were group-mean centred at level 1 and grand-mean centred at level 2. The multilevel analyses were carried out by steps. First, we ran a model to find out how much variance of individual attitudes justifying IPVAV is explained at country level (model 0; intercept-only model). After that, we evaluated the effects of the individual and societal variables on attitudes justifying IPVAV, assuming these effects as equal across countries (model 1; random intercepts and fixed slopes). Then, we let the effects of sexism and self-transcendence values changed across countries (model 2; random intercepts and random slopes).

Extending model 2, we introduced interactions between sexism, self-transcendence values and GII country (model 3). Finally, model 4 replicated previous model with another second level predictor: GII region. We used restricted maximum likelihood estimation method with robust SE.<sup>31</sup> Deviance, intraclass correlation (ICC), Akaike information criterion (AIC), Bayesian information criterion and the determination coefficient ( $R^2$ ) were estimated to find which model has a better fit to data. A likelihood ratio test was performed to compare

fit between models.<sup>33</sup> Multilevel analyses were performed with the lme4 package (V.1.1–V.21) implemented in R statistical software (V.3.5.3).<sup>34</sup>

## RESULTS

The distribution of sample characteristics by gender inequality regions<sup>10</sup> is shown in table 1. In general,

**Table 1** Sample demographics by gender inequality and descriptive statistics of measures

	Gender inequality							
	Low (0.05–0.16) (n=20 769)		Medium (0.16–0.34) (n=21 386)		High (0.34–0.42) (n=21 004)		Very High (0.42–0.83) (n=18 357)	
<b>Sex</b>								
Female	53.0		46.7		51.9		50.5	
<b>Age (years)</b>								
16–24	11.4		13.4		19.5		20.2	
25–34	16.3		19.9		25.6		27.4	
35–44	17.4		19.7		20.2		21.9	
45–54	17.8		18.8		15.5		15.3	
55–64	17.3		14.7		11.1		9.1	
65–74	13.5		8.5		5.7		4.4	
75–84	5.4		4.1		2.1		1.2	
85 or older	0.7		0.5		0.3		0.3	
<b>Marital status</b>								
Married	58		57.4		44.6		63.6	
Living as married	6.6		5.3		13.3		3.4	
Divorced	5.3		6.0		2.6		1.3	
Separated	1.6		1.4		3.3		1.5	
Widowed	6.6		8.0		5.6		4.3	
Single	21.2		21.6		30.4		25.8	
<b>Educational level</b>								
No formal education	1.7		2.6		3.0		19.1	
Primary school	15.1		12.2		19.2		20.6	
Secondary school (technical vocational)	25.6		25.8		23.6		27.3	
Secondary school (university preparatory)	25.2		26.5		32.7		16.9	
University education	29.9		32.1		21.1		15.8	
<b>Perceived social status</b>								
Upper class	2		2.1		1.1		2	
Upper middle class	19.8		21.1		17.8		19.2	
Lower middle class	35.2		36.1		35.7		32.6	
Working class	27.4		27.6		29.3		28.7	
Lower class	12.5		11		13.7		13.2	
	<b>Low (0.05–0.16)</b>		<b>Medium (0.16–0.34)</b>		<b>High (0.34–0.42)</b>		<b>Very High (0.42–0.83)</b>	
	<b>M (DT)</b>	<b>Median</b>	<b>M (DT)</b>	<b>Median</b>	<b>M (DT)</b>	<b>Median</b>	<b>M (DT)</b>	<b>Median</b>
Sexism	2.24 (0.57)	2.20	2.50 (0.64)	2.4	2.37 (0.63)	2.4	2.77 (0.64)	2.8
Self-transcendence values	4.18 (1.02)	4.0	4.48 (1.05)	4.5	4.66 (1.00)	5.0	4.69 (1.09)	5.0
Conservation values	4.02 (1.02)	4.0	4.60 (1.00)	4.7	4.60 (0.99)	4.7	4.76 (1.00)	5.0
Attitudes Justifying IPVAV	1.62 (1.57)	1.0	1.81 (1.78)	1.0	2.23 (2.20)	1.0	2.67 (2.50)	1.0
Gender inequality index	0.11 (0.04)	0.12	0.28 (0.06)	0.30	0.39 (0.02)	0.39	0.57 (0.10)	0.57

Percentages of each variable do not add up to 100% because missing data are not showed. IPVAV, intimate partner violence against women.



**Table 2** Random effects and fit indices of multilevel regression models with random intercepts between countries (from model 0 to model 4), and random slopes for sexism and self-transcendence (from model 2 to model 4)

Random effects	Model 0	Model 1	Model 2	Model 3	Model 4
Individual variance	3.52	3.37	3.32	3.32	3.32
Intercept variance	0.65	0.47	0.47	0.47	0.51
Sexism			0.06	0.05	0.06
Self. values			0.02	0.02	0.02
Correlation sexism × intercept			0.38	0.38	0.42
Correlation self. values × intercept			0.08	0.09	0.09
ICC	0.16	0.12	0.14	0.14	0.15
R <sup>2</sup>	0.16	0.17	0.18	0.18	0.19
AIC	328 409.5	30 8901.4	308 029.9	308 030.2	308 163
BIC	328 437.4	309 150.9	308 325.6	308 344.4	308 476.9
Deviance	328 403.5	308 847.4	307 965.9	307 962.2	307 962.3
Log-lik		-15 4490	-15 4047	-15 4048	-154047
χ <sup>2</sup>			885.4***	0.19	0.19
N (L1)	80 096	76 139	76 139	76 139	76 139
N (L2)	54	54	54	54	4

\*\*\*p<0.001.

AIC, Akaike information criterion; BIC, Bayesian information criterion; ICC, intraclass correlation; L1, level 1; L2, level 2; Log-lik, Log-likelihood; R<sup>2</sup>, coefficient of determination; Self. values, Self-transcendence values.

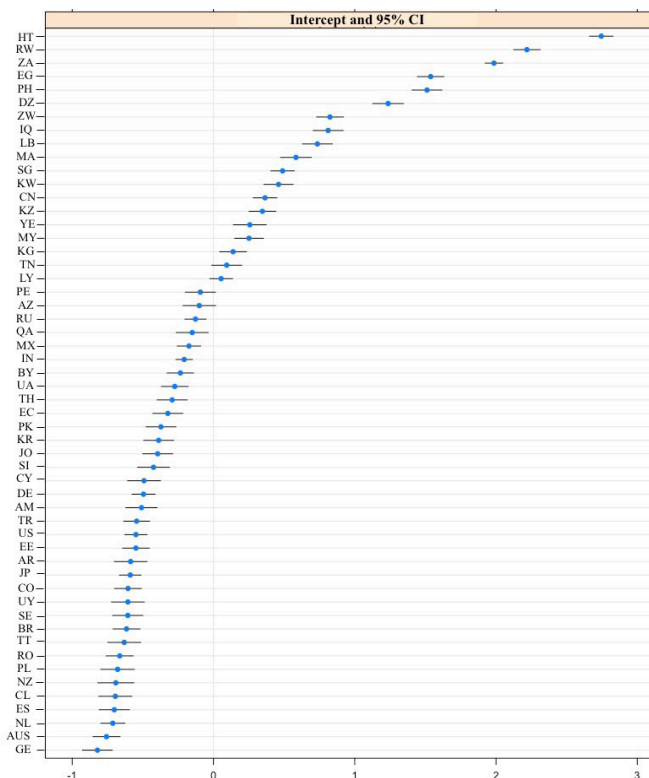
attitudes justifying IPVAW, sexism, self-transcendence and conservation values means scores were higher in gender unequal regions. The stepwise hierarchical regression model revealed that the incorporation of conservation values did not explain an additional proportion of the variance beyond sociodemographic, sexism and self-transcendence individual-level predictors in attitudes justifying IPVAW, so we excluded it from multilevel models. All VIFs were in the range 1–4 (from 1.02, separated marital status, to 3.84, university educational level) and no reversal of the predictors-outcome link between models were found. Therefore, no multicollinearity problems were detected<sup>35</sup> (see online supplemental table S4).

Table 2 show random effects and fit indices of multilevel models performed. Thus, model 0 supported nested data structure, and indeed, allows having a multilevel approach.<sup>31</sup> Random variance of attitudes justifying IPVAW within (3.52) and between (0.65) countries was relevant. Specifically, 16% of the random variance in attitudes justifying IPVAW was explained by variation between countries. Country residuals from this model were plotted. Figure 1 shows the countries ranked according to attitudes justifying IPVAW compared with the overall mean of such attitudes in the full sample. On average, Georgia, Australia and The Netherlands presented the lowest endorsement of attitudes justifying IPVAW while South Africa, Rwanda and Haiti showed the highest endorsement. Azerbaijan, Peru, Libya, Tunisia and Kyrgyzstan showed values close to the global mean.

When random slopes for self-transcendence and sexism were introduced, a better fit of model 2 in comparison to model 1 ( $\chi^2=885.4$ ,  $df=5$ ,  $p<0.001$ ) indicated that the

effect of sexism and self-transcendence values on attitudes justifying IPVAW differs depending on the country, being greater in countries with stronger attitudes justifying IPVAW. Likewise, after introducing targeted predictors, and its interactions, the decrease of random variance in attitudes justifying IPVAW at individual and country level, and the lower values of deviance, AIC, DIC and higher of R<sup>2</sup> pointed toward a better fit of model 3 over model 0. No differences emerged between model 2 and model 3 and 4 ( $\chi^2=0.19$ ,  $df=2$ ,  $p=0.92$ ).

The country pooled estimations for regression coefficients of individual, country, regional predictors, as well as its interplay are presented in table 3. Women (vs men), older (vs younger, excluding 25–34 years and 85 or older groups), more educated (vs less educated, excluding primary school and secondary school technical vocational), married respondents (vs living as married, divorced, separated and single, excluding widowed), those with higher level of self-transcendence values, and respondents with lower sexism were less likely to justify IPVAW. Significant effects on attitudes justifying IPVAW were not found for the participants from excluded groups. Gender inequality had a direct cross-level effect. Countries with higher levels of gender inequality were more likely to perceive IPVAW as justifiable in comparison to more gender equal countries. In addition, a significant effect was found for regional gender inequality at country level. Hence, countries with a higher regional gender inequality tended to endorse greater attitudes justifying IPVAW. However, the strength of the association between sexism and self-transcendence values with attitudes justifying IPVAW did not vary, neither as a result of the degree



**Figure 1** Countries ranked according to the endorsement of attitudes justifying IPVAV. AM, Armenia; AR, Argentina; AUS, Australia; AZ, Azerbaijan; BR, Brazil; BY, Belarus; CL, Chile; CN, China; CO, Colombia; CY, Cyprus; DE, Germany; DZ, Algeria; EC, Ecuador; EE, Estonia; EG, Egypt; ES, Spain; GE, Georgia; HT, Haiti; IN, India; IPVAV, intimate partner violence against women; IQ, Iraq; JO, Jordan; JP, Japan; KG, Kyrgyzstan; KR, South Korea; KW, Kuwait; KZ, Kazakhstan; LB, Lebanon; LY, Libya; MA, Morocco; MX, Mexico; MY, Malaysia; NL, The Netherlands; NZ, New Zealand; PE, Peru; PH, Philippines; PK, Pakistan; PL, Poland; QA, Qatar; RO, Romania; RU, Russia; RW, Rwanda; SE, Sweden; SG, Singapore; SI, Slovenia; TH, Thailand; TN, Tunisia; TR, Turkey; TT, Trinidad and Tobago; UA, Ukraine; US, United States; UY, Uruguay; YE, Yemen; ZA, South Africa; ZW, Zimbabwe.

of country gender inequality ( $B=0.22$ ,  $p=0.26$ ;  $B=-0.18$ ,  $p=0.12$ ), nor regional gender inequality ( $B=0.10$ ,  $p=0.66$ ;  $B=-0.21$ ,  $p=0.10$ ).

## DISCUSSION

The present study is to our knowledge the first one performing a multilevel approach in order to explain the variability of attitudes justifying IPVAV across 54 global countries, taking into account individual (sociodemographics, sexism, self-transcendence and conservation values) and societal (gender inequality) predictors, and their interplay at different levels. According to our objectives, the results showed: (1) attitudes justifying IPVAV changed within and between countries, being explained by individual and country context; (2) sociodemographic characteristics, sexism, self-transcendence values and country and regional gender inequality were explanatory

factors of attitudes justifying IPVAV; (3) differences in attitudes justifying IPVAV between sexist and not sexist, and self-transcendent and not self-transcendent respondents changed across countries and (4) values of the regional and country GII do not explain the above differences across countries.

Attitudes justifying IPVAV changed across the 54 studied countries. In comparison to the overall average of all studied countries, Haiti, Rwanda and South Africa showed the highest means on attitudes justifying IPVAV while Georgia, The Netherlands and Spain showed the lowest endorsement of attitudes justifying IPVAV. In general, although we cannot consider IPVAV justification to be an accurate reflection of the target behaviour, since the WVS does not include specific causes of IPVAV, our results provide a gradient across a variety of countries differing between geographical location, education, industrialisation, wealth and democracy that allow us detect globally which countries may benefit from increased efforts in prevention toward IPVAV. Likewise, our results reveal higher variation of attitudes justifying IPVAV within countries. According to previous results, the most variability between attitudes towards IPVAV is found within countries and depend on the belonging to certain groups. For instance, in Nepal, IPVAV derived from a wife arguing back was less likely to be justified by women in comparison to other socio-demographic groups.<sup>8</sup> In Bangladesh, women who live in poorer communities tended to condemn IPVAV to a larger extent.<sup>14</sup> Future research should aim to continue analysing distribution of attitudes toward IPVAV across specific groups or settings within countries according to not only residential area (ie, rural vs urban) or income status but also gender-related norms, age or education segregation.<sup>36</sup>

At individual level, we replicated the significant role of well-studied individual factors on attitudes justifying IPVAV in a wider sample from countries that differ in geographical location, education, industrialisation, wealth and democracy. Thus, men, older, more educated, married and sexist respondents were more likely to justify IPVAV.<sup>8 17 37</sup> In addition, we found that respondents who endorse self-transcendence values tended to justify IPVAV to a lesser extent.<sup>18</sup> Conversely, our data did not provide consistent results about conservation values, indeed, the measure from the WVS questionnaire neither showed an adequate reliability nor explained attitudes justifying IPVAV beyond sociodemographic, sexism and self-transcendence values.

Basic values allow for an understanding of what contexts and societies at large would be more or less conducive to endorse attitudes justifying IPVAV in terms of normative discourse. Prior research has mainly focused on the critical role of self-transcendence and conservation values, indicating a comparatively non-traditional versus traditional outlook on society. Evidence points towards self-transcendence (vs self-enhancement) values relating positively to fairness/proenvironmental and care/prosocial attitudes, and conservation (vs openness-to-change)

**Table 3** Unstandardised regression coefficients (95% CIs) and p values of multilevel regression analysis with random intercepts between countries and random slopes for sexism and self-transcendence, estimates for fixed effects (model 0, model 3, model 4)

Fixed effect	Model 0	Model 3	Model 4†
(Intercepts)	1.99*** (1.77 to 2.21)	2.27*** (2.07 to 2.48)	2.27*** (2.06 to 2.48)
Male		Reference	Reference
Female		-0.24*** (-0.27 to -0.22)	-0.24*** (-0.27 to -0.22)
16–24 years		Reference	Reference
25–34 years		0.002 (-0.04 to 0.05)	0.002 (-0.04 to 0.05)
35–44 years		-0.08** (-0.13 to -0.03)	-0.09** (-0.13 to -0.03)
45–54 years		-0.11*** (-0.17 to -0.06)	-0.11*** (-0.17 to -0.06)
55–64 years		-0.15*** (-0.21 to -0.09)	-0.15*** (-0.21 to -0.09)
65–74 years		-0.20*** (-0.26 to -0.13)	-0.20*** (-0.26 to -0.13)
75–84 years		-0.25*** (-0.34 to -0.16)	-0.25*** (-0.34 to -0.16)
85 or older years		-0.19 (-0.40 to 0.02)	-0.19 (-0.4 to 0.02)
Married		Reference	Reference
Living as married		0.09*** (0.04 to 0.15)	0.09*** (0.04 to 0.15)
Divorced		0.13*** (0.06 to 0.20)	0.13*** (0.06 to 0.20)
Separated		0.23*** (0.14 to 0.33)	0.23*** (0.14 to 0.33)
Widowed		0.04 (-0.02 to 0.10)	0.04 (-0.02 to 0.10)
Single		0.04* (0.002 to 0.08)	0.04* (0.002 to 0.08)
No formal education		Reference	Reference
Primary school		-0.06 (-0.13 to 0.001)	-0.06 (-0.13 to 0.001)
Secondary school: technical vocational		-0.06 (-0.12 to 0.006)	-0.06 (-0.12 to 0.005)
Secondary school: university-preparatory		-0.10** (-0.17 to -0.04)	-0.10** (-0.17 to -0.04)
University level		-0.14*** (-0.20 to -0.07)	-0.14*** (-0.20 to -0.07)
Lower class		Reference	Reference
Working class		-0.04 (-0.09 to 0.002)	-0.04 (-0.09 to 0.001)
Lower middle class		-0.04 (-0.08 to 0.004)	-0.04 (-0.08 to 0.004)
Upper middle class		0.006 (-0.04 to 0.05)	-0.01 (-0.04 to 0.05)
Upper class		0.07 (-0.03 to 0.17)	-0.07 (-0.03 to 0.17)
Sexism		0.21*** (0.15 to 0.28)	0.21*** (0.14 to 0.28)
Self. values		-0.16*** (-0.20 to -0.12)	-0.16*** (-0.20 to -0.12)
GII (L2)		2.18*** (1.09 to 3.26)	2.23*** (1.04 to 3.42)
Sexism (L1) × GII (L2)		0.22 (-0.17 to 0.62)	0.10 (-0.33 to 0.52)
Self. values (L1) × GII (L2)		-0.18 (-0.42 to 0.05)	-0.21 (-0.46 to 0.04)

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001.

†In model 4, we used GII regions.

GII, Gender Inequality Index; L1, level 1; L2, level 2; Self. values, Self-transcendence values.

values relate to purity/religious and authority/political attitudes.<sup>38</sup> Therefore, such generalised values might affect orientations towards what is perceived as acceptable behaviour towards different life domains, such as toward IPVAV—associated with them. In other words, our findings seem to note that self-transcendence values and their focus on universalism and benevolence provide an overlooked background against which to understand how interest about collective safety could prevent to legitimise IPVAV. Likewise, conservation values, focusing on tradition, conformity and security, may help to understand how more traditional gender roles could legitimise such

transgressions. Nevertheless, further research should test the real effect of paying attention to psychometric limitations of available of conservation values measures.

Our work also shows that the effect of self-transcendence basic values hold above and beyond the effect of sexism, which provides evidence relevant for the ongoing debate about the general versus group-specific nature of prejudice as a mechanism that legitimises discriminatory or violent behaviours.<sup>39 40</sup> The generalised prejudice hypothesis stems from the idea that holding negative attitudes towards particular outgroups (eg, gay people, immigrants, etc) could be linked to a dislike of other outgroups like,



in our case, women.<sup>41</sup> Thereby, while a part of prejudice would be common to all target groups, another part would be specific to one group. Specifically, cultural values have been identified as a driver of generalised prejudice.<sup>42</sup> Our data speak to this notion, suggesting that self-transcendence basic values explain attitudes justifying IPVAV via generalised prejudice, irrespective of whether people are sexist or not. However, further research should provide more evidence about the mechanisms through which (generalised and specific) prejudice works on attitudes towards IPVAV. The normative societal context may be one important factor, as, for example, to live in societies with egalitarian values decrease generalised prejudice,<sup>42 43</sup> as well as group-specific prejudice (ie, hostile sexism).<sup>29 30</sup> Probably, in societies where there is more gender inequality (as opposed to gender equality), people could endorse higher attitudes justifying IPVAV through specific rather than general prejudice (eg, sexism). This represents a future avenue for research using a cross-cultural perspective.

Regarding country level, our results confirmed that a low level of country or regional gender inequality is particularly important for reducing individual attitudes justifying IPVAV across countries.<sup>9 12 16</sup> Otherwise, prior research indicated that people from countries with higher gender inequality endorsed higher conservation values, sexist beliefs, as well as, lower self-transcendence values.<sup>29 44</sup> That seems to point towards level of gender inequality could moderate relations at individual level. Nonetheless, gender inequality of country or region did not explain country differences in the effects of sexism and self-transcendence values on such attitudes justifying IPVAV.

Theoretical and methodological arguments should be considered in interpreting our results. Basing on the Just World theoretical framework,<sup>45</sup> even today, people tend to believe world is a just place where people get what they deserve. Thus, when people have to evaluate unfair situations such as IPVAV, they try to seek a coherent explanation in order to maintain their psychological well-being. Basing on available keys such as circumstance of violence, they decide whether IPVAV is justified or not. Literature indicated that IPVAV because of women's behaviour transgresses patriarchal norms (eg, refusal sex), is more likely to be justify in gender inequality countries.<sup>8 16 46</sup> Likewise, research has found the moderator role of gender equality when respondents decided if they justify IPVAV answering to a questions with a wide range of options (eg, in all circumstances and always punishable, unacceptable in all circumstances and not always punishable, etc).<sup>17</sup> However, WVS participants respond to a general question about justification of IPVAV that does not include any circumstances. Consequently, specification of circumstance of IPVAV violence (eg, transgression vs no-transgression of patriarchal norms) could be necessary to clarify the role of gender inequality.

Otherwise, researchers, who used composite indices of gender inequality as our study, traditionally have

found contradictory results.<sup>9 16-19</sup> The indices of gender inequality that have been related to attitudes towards IPVAV are: Gender Equality Index (GEI) from European Institute of Gender Equality; Gender Empowerment Index (GEM) (and its new version GII) and GDI, Gender development index from United Nation Development Programme and SIGI, Social institutions and gender index from the Organisation for Economic Co-operation and Development. Reviewed studies that found a direct or moderator effect of gender inequality applied SIGI, and GEM, respectively, taking into account domains such women's and men's economic and political participation and entitlements, as well as, their level of education.<sup>16 17</sup> However, indices that introduce aspects related to women's health (eg, self-perceived health, life expectancy, maternal mortality) as GEI, GDI or GII found mixed effects,<sup>9 18 19</sup> most of them did not predict attitudes toward IPVAV<sup>18 19</sup> or not explain enough variance of such attitudes.<sup>9</sup> Future studies should disaggregate global GII in order to determine moderator effects cross-nationally (eg, the relevance of woman's health).

Some limitations related to design of WVS study indicate our findings should be interpreted with caution. First, although data were collected via probabilistic sampling, studies were conducted using a cross-sectional design prevents the possibility of establishing any causal connection of the associations found.<sup>47</sup> It would be advisable to collect data via longitudinal or (where possible) experimental designs to understand the causal direction of the relations obtained here. However, the manipulation of gender inequality, sexism or self-transcendence values is not ethically or logistically feasible intervention in representative and large samples from many countries. Further research should deepen the potential causal relations following analytical strategies in which outcome data are taken from a time point (ie, year) after to predictors.<sup>29</sup> Second, social desirability could affect the report about sensitive topic (eg, attitudes justifying IPVAV, sexism) because WVS data were obtained through face-to-face interviews. Two questions assessed same sources of responses bias (ie, assessment of interviewee's interest and privacy) but there was a high number of missing values across studied countries so we did not included this assessment in our analysis. Furthermore, prior research did not document a strong effect of social desirability measures in topics related to violence against women.<sup>48</sup> We argue that future efforts should address data collection methods to ensure adequate privacy in subsequent waves of the WVS (eg, a self-administered mode), and consequently, improving respondent's honesty.<sup>49</sup> Third, WVS questionnaires are developed to collect public opinions about relevant social topics in a large number of countries. Even though several quality controls are implemented, there is a challenge to reach equivalence across all countries. Moreover, cross-cultural equivalence of measures should be tested.<sup>50 51</sup> Once equivalent survey statistics across countries are available, research could cast a valid set of indicators to observe differences between



countries, focusing on how gender inequality could be an important factor for justifying IPVAV or not, depending on level of country's wealth, education, democracy and industrialisation.

Finally, our findings have practical implications for international organisations and national governments. Currently, primary prevention programmes are focusing on promoting local activism against IPVAV, as well as, men's commitment and dissemination of non-violent and gender equality through media.<sup>52</sup> We highlight regional and country gender inequality as a target factor in three domains: female reproductive health, empowerment through education, policy and labour market. Since laws send a clear message to society about the level of IPVAV acceptability, above aspects should be considered in national and international laws, policies and protocols, to reduce public attitudes justifying IPVAV.

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**Ethics approval** The original data were collected following approval by ethics committees in each of the participating countries as organised by the WVS, under the auspices of the teams collecting the data. In accordance with data protection regulations in participating countries, only anonymous data are available to users. Before contributing data to the WVS, each national team was responsible for checking their data with confidentiality in mind. Anonymity is maintained after merging of data files. See: <http://www.worldvaluessurvey.org/WVSContents.jsp?CMSID=intconduse>.

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