

Judging the levels of violence: Factors that influence assessment of severity of violent acts and their consequences.

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Abstract

To what extent do people vary in their judgment of the severity of violent acts and their consequences? The present study investigates this in two experiments (total N=2490, US & UK adult sample) in which participants were presented with several tasks (Rating task, Ranking task, Financial compensation task) designed to assess consistent patterns in judgments of the severity of violent acts. As age and educational level increased so did judged severity of violent acts. However, overall ordering of the violent acts from least to most violent was the same across both experiments. Severity ratings were lower in the US compared with the UK sample (study 1), but compensation requests were on average higher in the US (M=\$160,235) compared with the UK sample (M=\$16,160) (Study 2). Moreover, as details of the consequences of the violent acts increased, so did compensation requests (Study 2). We conclude that the absolute ordering of violent acts by severity remains the same irrespective of individual differences. Individual differences account for differences in the judged degree of severity of violence, and in particular cultural factors influences the amount of financial compensation requested.

Keywords: Severity of violence, Individual differences, Financial compensation, Consequences of violence, Harm.

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Introduction

One might speculate that several demographic (i.e., age, gender, educational level) and social/cultural characteristics (nationality, degree of religiosity, political affiliation) are likely to influence how severe different violent acts are judged to be. Along with the consequences of the violent act, these factors may impact the kinds of expectations that people have when it comes to punitive compensation requests if one is a victim of a violent act. To date, there is limited empirical work examining the role of individual differences in the judgment of severity of violent acts, and even less so examining how severity judgments may vary depending on individual differences and the varying consequences of violent acts. The aim of the present study is to address this in two experiments designed to establish what if any demographic and social/cultural characteristics influence judgements of severity and the compensations requests they make, especially when the details of the consequences of the violent acts vary (i.e., physical harm, psychological harm, or no physical/psychological harm).

Individual differences

Several studies have examined the impact of gender, age and sociocultural factors on attitudes towards violence towards women [1,2]. Rather than age and gender, the findings show that across samples sociocultural factors based on sample differences (e.g., beliefs about gender roles, male dominance, and gender expectations) play a stronger role in determining the degree of blame attributed to violence towards women. The impact of educational background, in addition to age and gender, on victim blaming attitudes is mixed, with some work showing that lower educational levels increase the likelihood of blaming

the victim [3], whereas other work reporting an inconclusive link between attitudes on violence and education levels [4]. Political attitudes and religion have also been a consideration in work examining the link between individual differences and attitudes towards violence and victim support [2,4,5]. While conservatism, and strong religious beliefs are shown to impact attitudes, particularly victim-blaming attitudes, the difficulty has come in disentangling these factors from general cultural differences between samples, and the existing social structures that provide victim support that enable victims of crime, particularly women, to access easily support free from stigma. Clearly there is mixed evidence regarding the relationship between attitudes towards violence and individual differences based on sample, age, gender, educational background, political affiliation and religion. Moreover, the work thus far has predominately focused on individual differences in association to attitudes towards violence, rather than judgments about the severity of different violent acts.

Recently, Osman et al. provide evidence suggesting that there are minimal individual differences in the way people make rank ordering judgments based on educational background, nationality, age, and gender. However, despite the meta-analysis they conducted based on 211 sample of participants, it is quite possible that the sample size was not large enough to examine the extent to which individual differences impact the way people view the severity of violent acts. In their study, participants were required to make relative ranking judgments, this means that the consistency in the rank ordering of violent acts by severity, may likely have been facilitated by the presentation of all 8 violent acts at once (Osman et al. Experiment 2-4). Nevertheless, this simple experimental procedure lends itself to further examining

individual differences by comparing the level of severity of each violent act according to sample, age, gender, educational background, religion and political affiliation. Moreover, it provides a basis on which to examine the extent to which previously reported links between individual differences and attitudes towards violence extend to judgments regarding the severity of violent acts, and their rank ordering.

Compensations

In the UK the Criminal Injuries Compensation Act came into force in 1995. This was set up as a new scheme by which criminal injuries would be financially compensated for (Criminal Injuries Compensation Authority - GOV.UK. [6] (Table 2), which replaced a non-statutory version that was introduced in 1964 [7]. In the US, juries are challenged to award an amount that would involve estimating the costs of restoring the victim to the state prior to the violent crime [8]. The US also has publicly

funded compensation programs across different states (AMA guides to the evaluation of permanent impairment 6th edition); though the precise metrics for exact compensation requests that can be claimed for under different states varies considerably. Victims are eligible to claim compensation for medical and counselling expenses and lost wages, but unlike the UK, they cannot be compensated for their intangible losses. Intangible losses refer to pain, suffering and loss of quality of life, in fact in the UK there are now formal metrics to establish a systematic basis on which quality of life values can be assigned to a variety of physical and psychological effect of violent crimes (Quality-Adjusted Life-Year) [9]. Though, it is questionable as to whether Qalys are formally equivalent to financial compensation, which is also why the uptake of this method has been limited.

Generally, the basis on which legal judgments are made regarding the actual financial compensation that can be requested by a victim of a violent crime depends on the severity of the outcome

Table 1. Study 2, details of the violent act, the intentions of the assailant and their consequences of the violent act for each of the four conditions.

Baseline	Intention to harm - no harm experienced	Intention to harm - harm experienced	Intention to harm – psychological harm experienced
Spit	The assailant intended to spit at their victim but missed the target.	The assailant intended to spit at their victim and managed to spit in the face.	The assailant intended to spit at their victim, and managed to spit in the face, leading to the victim seeking counselling for 5 months.
Slap	The assailant intended to slap their victim but missed the target.	The assailant intended to slap their victim and managed to slap them in the face.	The assailant intended to slap their victim, and managed to slap them in the face, leading to the victim seeking counselling for 5 months
Kick	The assailant intended to kick their victim but missed the target	The assailant intended to kick their victim and managed to kick them in the head.	The assailant intended to kick their victim, and managed to kick them in the head, leading to the victim seeking counselling for 5 months
Punch	The assailant intended to punch their victim but missed the target	The assailant intended to punch their victim and managed to punch them in the head.	The assailant intended to punch their victim, and managed to punch them in the head, leading to the victim seeking counselling for 5 months
Head-butt	The assailant intended to head-butt their victim but missed the target	The assailant intended to head-butt their victim and managed to head-butt them.	The assailant intended to head-butt their victim, and managed to head-butt them, leading to the victim seeking counselling for 5 months
Threaten with a knife	The assailant intended to threaten their victim but failed to do so.	The assailant intended to threaten their victim and managed to threaten them with a knife to the neck.	The assailant intended to threaten their victim, and managed to threaten them with a knife to the neck, leading to the victim seeking counselling for 5 months
Choke	The assailant intended to choke their victim but failed to do so.	The assailant intended to choke their victim and managed to choke their neck.	The assailant intended to choke their victim, and managed to choke their neck, leading to the victim seeking counselling for 5 months
Stab	The assailant intended to stab their victim but missed the target.	The assailant intended to stab their victim and managed to stab them in the neck.	The assailant intended to stab their victim, and managed to stab them in the neck, leading to the victim seeking counselling for 5 months

Table 2. Details of mean compensation request for the UK and US sample from Study 2 (in USD at the time of study) and current corresponding compensations requests for injuries resulting from violent crimes (in USD at the time of study), based on UK government guidelines.

Baseline	UK-Based Compensation (Intention to harm - harm experienced)	UK (average)	US (average)	UK-Based Compensation (Intention to harm – psychological harm experienced, counselling for 5 months)	UK	US
Spit	124 – 1,237	997	1,067	(+) 1,237	716	13,663
Slap	1,237 – 4,331	741	1,253	(+) 1,237	1100	12,436
Kick	1,237 – 390,350	4,978	9,160	(+) 1,237	3,480	86,137
Punch	1,237 – 390,350	6,407	17,699	(+) 1,237	3,908	99,344
Threaten with a knife	1,856	23,623	12,275	(+) 1,237	2,987	51,849
Head-butt	1,237 – 390,350	6,138	2,17,318	(+) 1,237	4,962	99,779
Choke	1,237 – 13,611	25,765	5,05,440	(+) 1,237	26,720	1,05,891
Stab	1,237 – 390,350	11,25,042	10,37,803	(+) 1,237	69,084	8,76,673

in terms of harm experienced (i.e., physical and psychological pain and suffering) [10-12] (Boyce & Wood, 2010; Miers, 2014b, Robbennolt, 2002a), and in the US in particular, as mentioned, the cost incurred concerns the result of harm (i.e., through medical bills, lost wages, counselling expenses). There is considerable work in the social sciences literature examining participants' judgments, assuming the role of jurors, about what financial compensation ought to be requested, and typically the actual amount of compensation awarded increases with the severity of the injury incurred [13-17]. In addition, others have considered that the harm experienced by the victim as well as the perpetrator's intention to do harm need to be taken into account when evaluating the level of financial compensation awarded [18]. There is some contention that rather than harm, the focus of compensation amounts that ought to be awarded should focus exclusively on the severity of the violent act itself – namely how heinous it is [19,20]. Taken together this suggests that judgments about the amounts to be awarded by jurors and court judges is based on three key factors, the consequences of the violent act – namely the level of harm experienced (physical and/or psychological), the severity of the act itself, and the intention to do harm, each of which may have varying impact on the compensation estimates awarded. Currently, there is limited empirical assessment of the extent to which estimates of financial compensation reflect systematic differences in the judged severity of violent acts [21-23]. For instance, Osman et al. study show that the magnitude of compensation requests varies by country (i.e., Austrians request overall more financial compensation when experiencing 8 violent acts as compared to those from the UK), but the rank ordering of the same violent acts inferred from these compensation estimates remains the same across samples. However, this study did not examine the impact of financial compensation requests when details of the violent acts included whether physical harm was experienced, psychological harm was experienced, and whether there was no harm experienced but the intention of the perpetrator was to do harm (which would mean that for some definitions of compensation, no financial compensation requests are warranted). More to the point, it is possible that individual differences in those making the assessments of allocation of financial compensation may likely impact the actual estimated amounts of compensation that should be awarded depending on the consequences of the acts on the victim. Also, to date, there is limited evidence examining whether factors such as age, gender, education, political affiliation, religiosity and nationality impact the amounts that are estimated.

Research purposes and hypotheses

The overall research purpose is to assess the extent to which lay people's responses to different judgment tasks reveal reliable general underlying conceptualizations of the severity of violent acts.

1. **Hypothesis 1:** Regardless of judgment tool (relative item judgments [ranking] vs. independent item judgment [rating]), people tend to consider the severity of the following 8 violent acts *spit, slap, kick, punch, head-butt, threaten with a knife, choke, and stab* in the same way
2. **Hypothesis 2:** Demographics as well as social/cultural

characteristics are more likely to be detected by more sensitive measures (e.g., judgment tools with scales such as severity judgments, compensation requests).

3. **Hypothesis 3:** When people are considering financial compensation estimates, the amounts will be influenced by the consequences of the violent act, such that, when harm (physical, psychological) is experienced, the magnitude of the financial requests will increase relative to conditions where violent acts do not incur harm.

Study 1: Individual Difference in Judgments of Severity of 8 Violent Acts

If the way in which people judge the severity of violent acts is relatively stable, then in support of Hypothesis 1, we would expect to replicate the same rank ordering of the 8 violent acts, as reported by Osman et al.: spit, slap, kick, punch, and head-butt, threaten with a knife, choke, and stab. To explore Hypothesis 2, we contrast a rating task with a ranking task, and record several demographic and social/cultural characteristics: Sample (UK vs. US), Age, Gender, Level of Education, Political affiliation, and Religiosity.

Methods and participants

Study 1 included two samples (UK and US) that each completed either a rating task (US $N=686$, UK $N=526$) or a ranking task (US $N=434$, UK $N=418$). Both tasks were presented via Qualtrics and launched via Prolific Academic a crowd sourcing system for participant recruitment worldwide, and all were financially compensated for their time (70 cents).

The US sample ($N=1120$) were US residents, and US nationals and their first language was English, with a total of 534 participants (48% females), the mean age was 32.35 ($SD=12.03$) ranging from 18-74. Their educational background was mixed, 60.9% were qualified with a degree (at graduate level or above postgraduate level). Political affiliation also varied, with 56.3% identifying themselves as left, 10.6% as centre, 18.9% as right, and 14.1% as other. When indicating their religion, 43.7% reported that they did not have one, 14.4% reported that they were not sure, and 42% reported that they had a religion. There were approximately 86 participants randomly allocated to one of the 8 violent acts, for which they were required to give a single severity judgment. In the ranking task, all participants were presented with the same task.

The UK sample ($N=942$) were UK residents, and UK nationals and their first language were English, with a total of 415 participants (44% females), the mean age was 31.74 ($SD=11.58$) ranging from 18-69. Their educational background was mixed, 53.8% were qualified with a degree (at graduate level or above postgraduate level). Political affiliation also varied, with 41.8% identifying themselves as left, 11.8% as centre, 24.7% as right, and 21.7% as other. When indicating their religion, 52.7% reported that they did not have one, 5% reported that they were not sure, and 42.4% reported that they had a religion. In the rating task approximately 68 participants randomly allocated to one of the 8 violent acts, for which they were required to give a single severity judgment. In the ranking task, all participants were presented with the same task.

Materials

Participants were presented with the questions online via the online platform Qualtrics. Participants were given 6 questions in total. They were asked to type their age in a text box [continuous measure], and provide details of their gender (Female [score 1], Male [score 2], Rather not say [Score 3]), along with their political affiliation (Left [Score 1], Centre [Score 2], Right [Score 3], Other [Score 4]), their educational background (High school [Score 1], diploma/foundation [Score 2], Bachelor's degree [Score 3], Master's degree [Score 4], PhD [Score 5], Other [Score 6]), and religious orientation (Definitely religious [Score 1], Not sure [Score 2], Definitely not religious [Score 3]). These formed the basic question regarding demographics and social/cultural characteristics. Then participants were randomly allocated to one of 8 violent acts (*spit, slap, kick, punch, head-butt, threaten with a knife, choke, and stab*), and where asked, please indicate on a scale from 1 (not at all severe) to 8 (extremely severe) the severity of the violent act. The alpha for response to the rating task was acceptable at the level of ($\alpha=0.69$). For the ranking task each participant was presented with all 8 violent acts on screen and were required to drag and click the 8 items and stack them in order from least to most violent.

Procedure

Participants were required to consent to taking part. Once consent was given, they were given a brief introduction to the study explaining that they would be asked a set of simple questions about themselves, that they were free to avoid, if they did not wish to reveal any response to them, and that they would be asked about a violent act. After providing these, each of which was presented separately on screen, they were then presented with the main task. They were randomly allocated to either complete the rating task or the ranking task. For the rating task a violent act was presented in bold, and then participants were simply asked to rate on a scale provided the level of severity of the violent act from 1 (least) to 8 (most). For the ranking task 8 violent acts were presented (*Spit, Slap, Kick, Punch, Head-butt, threaten with a knife, Choke, Stab*), and they were required to rank order them from least to most severe. After completing either the ranking or rating task, the experiment was over.

Results

Rating task

A Univariate ANOVA was conducted examining ratings of severity, with Violent act (*Spit, Slap, Kick, Punch, Head-butt, Threaten with a knife, Choke, Stab*) and Sample (US, UK) as fixed factors. Judgments of severity differed by violent act, $F(7, 1196)=81.42, p=0.00009, \eta_p^2=0.32$. All pairwise comparisons were significantly different ($p<0.05$) with the exception of Spit and Slap ($t(299)=1.82, p=0.07$). In order of severity from least to most severe, Spit ($M=3.45, SD=1.83$) < Slap ($M=3.81, SD=1.58$) < Kick ($M=4.47, SD=1.68$) < Punch ($M=4.99, SD=1.61$) < Head-butt ($M=5.01, SD=1.58$) < Threaten with a Knife ($M=5.95, SD=1.32$) < Choke ($M=6.23, SD=1.37$) < Stab ($M=6.53, SD=1.20$). This ordering is consistent with the rank ordering of violent acts reported by Osman et al. (*Spit, slap, kick, punch, head-butt, threaten with a knife, choke, and stab*

and provides support for Hypothesis 1).

Generally, judgements of severity were higher in the UK sample ($M=5.44, SD=1.81$) than the US sample ($M=4.77, SD=1.84$), $F(1, 1196)=61.81, p=0.00008, \eta_p^2=0.05$ (Figure 1). However, the ordering of violent acts by judgments of severity were the same in both samples. Where there was an interaction, $F(1, 1196)=3.26, p=0.002, \eta_p^2=0.02$, the UK sample gave higher severity judgments than the US sample, spit ($t(150)=5.46, p=0.0005$), slap ($t(147)=3.75, p=0.0005$), Kick ($t(149)=2.79, p=0.006$) and head-butt ($t(150)=3.58, p=0.0005$).

To examine whether individual differences impacted judgments of severity overall, we entered the ratings along with the predictor variables (sample, violent act, age, gender, education, political affiliation, religious orientation) into a regression analysis. A significant regression equation was found ($F(7,1204)=88.00, p=0.0002$), with an R^2 of 0.34. Predicted severity judgments is equal to $1.350 + 0.44$ (violent act) + 0.70 (sample) + 0.02 (age) + 0.08 (education). Ratings increased by .44 on the severity scale by violent act, and by 0.70 on the severity scale in the UK sample compared to the US sample. In addition, judgments of severity increased by 0.02 on the scale by age (ranging from 18-74), and by 0.08 on the scale as participant educational level increased (high school-to PhD level). Religion, gender and political affiliation were not significant predictors of judgments of severity of violent acts ($p>0.05$).

Ranking task

The responses to the ranking task were used to determine the ordering of violent acts from least to most severe. For each participant the ranks were subjected to a Kendall's coefficient of concordance (W) test. Separate analyses were conducted on the UK and the US sample, since it was possible that there would be sample differences, particularly given the results of the rating task. For the UK sample there was a concordance of $W=0.68, (p=0.67, \text{moderate correlation})$, and a rejection of the null hypothesis that there is no agreement $\chi^2(7)=1966.15, p=.000001$. For the US sample there was a concordance of $W=0.66, (p=0.66, \text{moderate correlation})$, and a rejection of the null hypothesis that there is no agreement $\chi^2(7)=1997.89, p=0.000001$. For both samples, the ordering of violent acts based on Kendall's W , from least to most severe, were the same. This ordering is consistent with the rank ordering of violent acts reported by Osman et al. (*Spit, slap, kick, punch, head-butt, threaten with a knife, choke, and stab* and provides support for Hypothesis 1).

In addition, both Krustall- Wallis H, and Jonckheere-Terpstra tests were used to examine gender differences, and sample differences. In addition, responses to questions regarding demographic and social/cultural factors were based on two discrete categories to facilitate analyses in order to examine their impact on ranks: political affiliation (1=Left, 2=Right), educational background (1=no university degree, 2=university degree), and religiosity (1=not religious, 2=religious). With the exception of sample, in which the US tended to rank Punch lower than the UK ($J-T=2.21, p=0.027$), no other individual differences significantly impacted the rank ordering of the 8 violent acts.

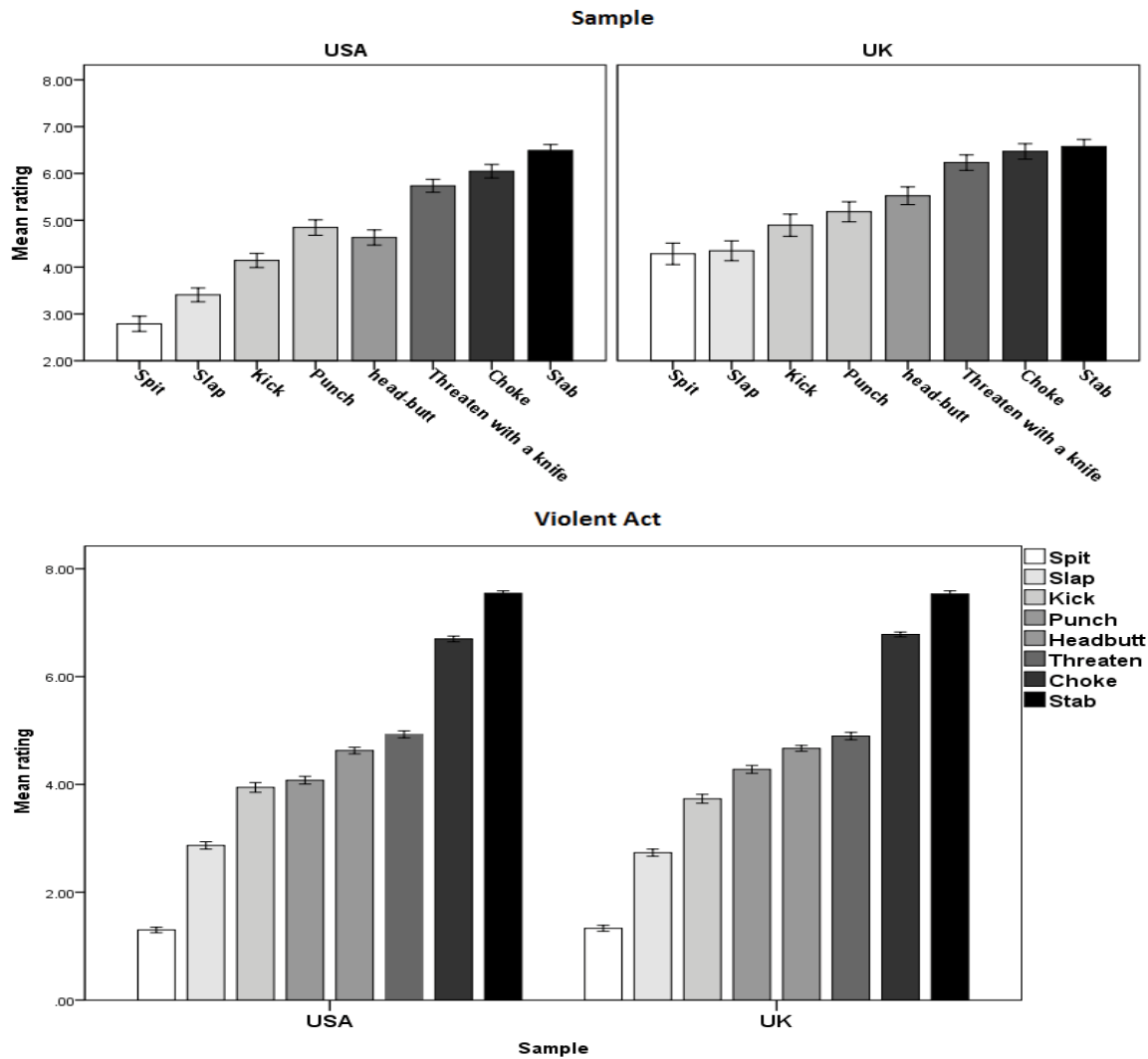


Figure 1. Ratings and rankings of each of 8 violent acts. (a) The figure presents the mean (SE ± 1) ratings, in which participants (UK, USA) were asked to report the rating of severity of a single violent act on a rating scale from 1-8 (from least 1 to most 8). (b) The figure presents the mean (SE ± 1) ranks, in which participants (UK, USA) were asked to rank order 8 violent acts from least to most violent.

In summary, the findings from Study 1 find support for Hypothesis 1 and 2. Overall, regardless of whether people are independently rating a violent act in terms of its severity, or making relative judgments by rank ordering violent acts according to their severity, the overall rank ordering of the 8 violent acts is consistent with that reported by Osman et al.: spit, slap, kick, punch, head-butt, threaten with a knife, choke, and stab. While the rank ordering of the violent acts did not reveal differences by sample (with one exception), or other individual differences, there were sample differences by magnitude, suggesting that the UK sample gave higher severity rating judgments of violent acts (particularly spit, slap, kick, head-butt) than the US sample. There was also evidence that overall severity judgments of violent acts increased by age, and by educational level.

Study 2: Financial Compensation With and Without Consequences

The purpose of Study 2 was to investigate the extent to which additional details regarding the consequences of the violent

acts impacted the rank ordering and compensation requests of the 8 violent acts referred to in Study 1. Along with the baseline condition (similar to the details of the violent acts provided in Study 1), we include three other conditions in which we systematically varied the information regarding the consequences of the violent act on the victim. In condition No-Harm, the details provided indicated that the victim experienced no harm, in the Harm condition, participants were presented with specific details regarding the fact that the violent act caused some physical harm, and in the Harm+ Psychological impact, we provided details concerning the fact that the victim sought counselling as a result of the violent act they experienced. This allowed us to examine Hypothesis 3.

Methods and participants

Study 2 compared responses from two samples (UK and US). The survey was presented via Qualtrics and was launched via Prolific Academic a crowd sourcing system for participant recruitment worldwide, and all were financially compensated for their time (90 cents). They were randomly allocated to one of

four conditions: Baseline (US $N=55$; UK $N=57$), Intention-No Harm (US $N=53$; UK $N=54$), Intention + Harm (US $N=53$; UK $N=53$), Intention + Psychological Harm (US $N=55$; UK $N=48$).

The US sample ($N=216$) were US residents, and US nationals and their first language was English, with a total of 104 participants (48% females), the mean age was 33.9 ($SD=11.54$) ranging from 18-66. Their educational background was mixed, 57.4% were qualified with a degree (at graduate level of above postgraduate level). Political affiliation also varied, with 47.2% identifying themselves as left, 9.7% as centre, 25.5% as right, and 17.6% as other. When indicating their religion, 50.9% reported that they did not have one, 10.6% reported that they were not sure, and 38.4% reported that they had a religion.

The UK sample ($N=211$) were UK residents, and UK nationals and their first language was English, with a total of 116 participants (55% females), the mean age was 37.27 ($SD=12.3$) ranging from 18-69. Their educational background was mixed, 59.48% were qualified with a degree (at graduate level of above postgraduate level). Political affiliation also varied, with 53.8% identifying themselves as left, 11.8% as centre, 18.9% as right, and 15.6% as other. When indicating their religion, 44.8% reported that they did not have one, 10.8% reported that they were not sure, and 44.3% reported that they had a religion.

Design

Participants were first presented with the same set of questions as those presented in Study 1 regarding demographics and social/cultural characteristics. Participants were randomly allocated to one of four conditions: Baseline, Intention to harm - no harm experienced (Intention-No Harm), Intention to harm - harm experienced (Intention + Harm), Intention to harm - psychological harm experienced (Intention + Psychological Harm). In each condition participants were required to answer three questions related to their personal experiences of crime and their general views on measuring violence, after this, they were either presented with a ranking task, and then the financial compensation task; they were required to complete both. The ordering of the ranking task and the financial compensation task was randomized for each participant.

Materials

Participants were presented with the questions online via the online platform Qualtrics. They were asked to type their age in a text box, and provide details of their gender (Male, Female, Rather not say) and their age. They were asked three questions related to crime and violence. The following alphas were reported as acceptable for responses to experience of crime ($\alpha=0.89$), responses to the plausibility of ranking violent acts ($\alpha=0.85$), and responses to the validity of ranking violent acts ($\alpha=0.85$).

The critical difference between the four conditions was the details of the violent acts (Table 1). In the baseline condition, the violent acts were presented neutrally, just as in Study 1 (*spit, slap, kick, punch, head-butt, threaten with a knife, choke, and stab*). In the condition Intention - No harm participants were presented with the following details for each violent act 'The assailant intended to [violent act] their victim but missed the

target'. In the condition Intention + Harm participants were presented 'The assailant intended to [violent act] at their victim and managed to [violent act] in the face'. In the condition Intention + Psychological harm the details that were presented for each violent act were as follows 'The assailant intended to [violent act] their victim and managed to [violent act] in the face, leading to the victim seeking counselling for 5 months.

Participants in the main three experimental conditions were instructed to imagine themselves as the victim when considering the appropriate level of compensation that they would request for experiencing each violent act. With these exceptions, the ranking task and the compensation task were presented as follows.

Participants were presented with a list of 8 violent acts (*Choke, Head-butt, Kick, Punch, Slap, Spit, Stab, Threaten with a knife*) in random order in a small screen. Responses were provided by moving the items from the list into a separate box on screen, in which they could order the items by dragging and dropping them into the appropriate slot from least violent at the top, to most violent at the bottom of the list.

When presented with the compensation task, participants were shown one violent act at a time, and were asked to report the compensation amount in British pounds (for the US identical instructions were given but compensation was in USD). The alpha reported as acceptable for scale reliability of responses to the compensation task was ($\alpha=0.78$).

Procedure

Once participants had read the instructions and consented to take part, they were then shown the first screen in which they entered in their basic details, and once completed, they answer three questions related to their personal experiences of crime and their general views on measuring violence, they were presented with a ranking task they then proceeded to the next task, either the ranking task, or the compensation task, once they had completed both tasks, a final screen provided them with details about the basic rationale behind the study.

Results

Compensation requests

Both currencies (GPB, and USD) were made equivalent, and converted into USD (conversion was carried out as appropriate of the time of study). The mean and SD for requested compensation for each violent act is presented in Figure 2. The scores converted into USD were then used as a basis to conduct the following analyses. A Shapiro-Wilk Test of normality revealed that for each violent act the responses significantly deviated from a normal distribution. Log transformations reduced the deviancy from normality, but the responses still deviated significantly from normal. Though analyses conducted before and after transformation revealed no differences in the pattern of results, the results are reported for the log transformed data. Mauchly's test indicated that the assumption of sphericity had been violated, $\chi^2(27)=807.95$, $p=0.00009$, therefore Greenhouse-Geisser corrected tests are reported ($\epsilon=0.58$).

A repeated measures ANOVA with Violent act (8 violent acts),

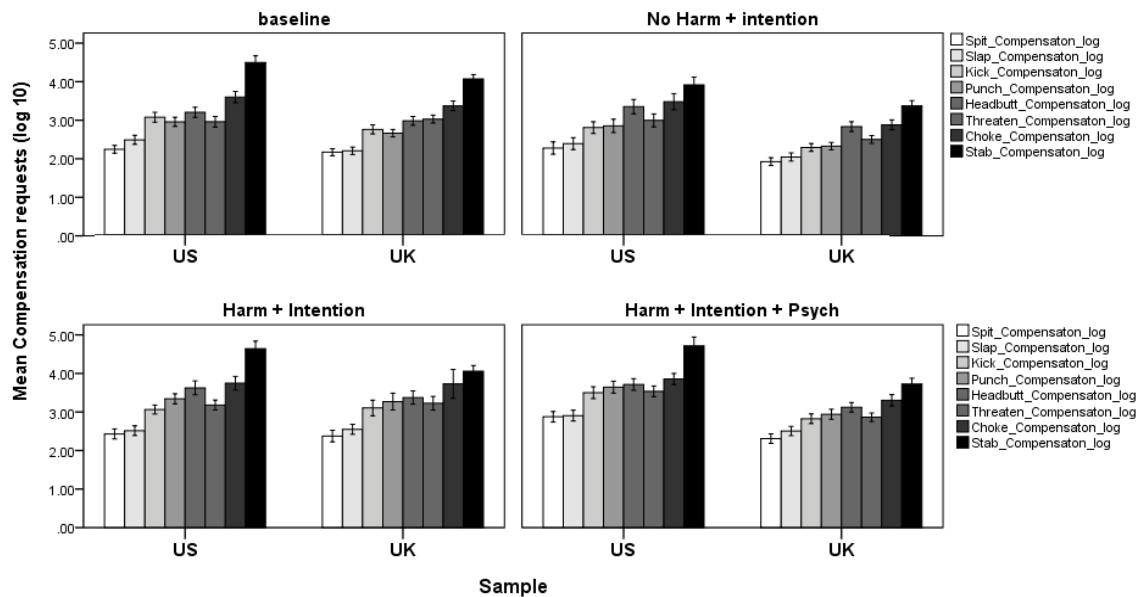


Figure 2. Compensation requests. The figure presents the mean ($SE \pm 1$) compensation requests (converted into USD, and log transformed [\log_{10}]) in Study 3, in which participants (UK, USA) were asked to report the amount of compensation they would request upon experiencing each of the 8 violent acts. Each panel corresponds to one of the four conditions (Baseline, Intention – No Harm, Intention + Harm, Intention + Psychological harm).

Condition (baseline, Intention – No Harm, Intention + Harm, Intention + Psychological Harm), Sample (US, UK) showed a main effect of violent acts on the amount of compensation requested. This suggests that people asked for different amounts depending on the violent act that had been performed, $F(4.06, 1375.17)=344.64$, $p=0.000001$, $\eta_p^2=0.50$. Applying Bonferroni correction, all pairwise comparisons were significantly different with the exception of punch and threaten with a knife ($t(386)=1.61$, $p=0.11$). Condition influenced the compensation estimates that participants gave, $F(3, 339)=6.49$, $p=0.00002$, $\eta_p^2=0.05$. Applying Bonferroni correction, Intention–No Harm resulted in the lowest compensation requests overall, when compared with the baseline ($t(208)=-2.47$, $p=0.07$) which approached significance, Intention + Harm ($t(200)=-4.18$, $p=0.0001$), and Intention + Psychological Harm ($t(200)=-3.99$, $p=.0005$). Condition interacted with Violent act, $F(12.17, 1375.17)=3.22$, $p=0.00001$, $\eta_p^2=0.03$. When there were consequences explicitly detailed for each of the violent acts presented (i.e. Intention + Harm, Intention + Psychological Harm) then there no differences between the compensation requests for each of the 8 violent acts ($p>0.05$). When it was explicitly detailed that no harm was experienced by the victim (Intention – No Harm), then compensation requests were systematically lower for each of the 8 violent acts, when compared with the Intention + Harm condition ($p<0.03$) and when compared with Intention + Psychological Harm condition ($p<0.02$).

Overall the US sample requested higher amounts of compensation compared to the UK sample, $F(1,339)=16.00$, $p=0.0005$, $\eta_p^2=0.05$. There was also a significant Sample by Violent act interaction, $F(4.06, 1375.17)=4.13$, $p=0.000078$, $\eta_p^2=0.01$. Independent sample t-tests were conducted with Bonferroni correction, and revealed that for all 8 violent act, the US sample systematically requested higher amounts compared to the UK ($p<0.001$).

To examine whether indeed individual differences impacted compensation requests, these were entered along with the predictor variables (condition, sample, age, gender, education, political affiliation, religious orientation) into a regression analysis. The regression equation was not found to be significant ($F(12,399)=1.19$, $p=0.29$). With the exception of Condition (0.14), no other variables significantly predicted compensation requests.

Ranking responses

The responses to the direct ranking task were subjected to a Kendall's coefficient of concordance (W) test. In addition, the responses to the compensation task were used to infer the rank ordering of violent acts from least to most severe, these responses were also subjected to the same Kendall's coefficient of concordance (W) test. Separate analyses were conducted based on the four conditions that participant were randomly allocated.

For the direct ranking task for the baseline condition there was a concordance of $W=0.771$, ($\rho=0.75$, Strong correlation), and a rejection of the null hypothesis that there is no agreement $\chi^2(7)=604.85$, $p=0.00002$. The ordering of violent acts based on Kendall's W , from least to most severe, from the ranking task was: *Spit, Slap, Kick, Punch, Head-butt, Threaten with a knife, Choke, Stab*. The same analyses were conducted on the inferred ranking ordering of violent acts from the compensation task. There was a concordance of $W=0.685$, ($\rho=0.65$, moderate correlation), and $\chi^2(7)=460.39$, $p=0.00006$. The ordering of violent acts based on Kendall's W , from least to most severe, as inferred from the compensations were slightly different from the ranking task: *Spit, Slap, Punch, Kick, Threaten with a knife, Head-butt, Choke, Stab*.

For the direct ranking task for the Intention-No Harm condition there was a concordance of $W=0.657$, ($\rho=0.64$, moderate

correlation), and a rejection of the null hypothesis that there is no agreement $\chi^2(7)=497.89$, $p=0.000002$. The ordering of violent acts based on Kendall's W, from least to most severe, based on the ranking task was: *Spit, Slap, Kick, Punch, Threaten with a knife, Head-butt, Choke, Stab*. The same analyses were conducted on the inferred ranking ordering of violent acts from the compensation task. There was a concordance of $W=0.662$, ($\rho=.62$, moderate correlation), and $\chi^2(7)=347.30$, $p=0.000004$. The ordering of violent acts based on Kendall's W, from least to most severe, as inferred from the compensations were slightly different from the ranking task: *Spit, Slap, Punch, Kick, Threaten with a knife, Head-butt, Choke, Stab*.

For the direct ranking task for the Intention + Harm condition there was a concordance of $W=0.694$, ($\rho=0.69$, moderate correlation), and a rejection of the null hypothesis that there is no agreement $\chi^2(7)=515.24$, $p=0.000005$. The ordering of violent acts based on Kendall's W, from least to most severe, as determined by the ranking task: *Spit, Slap, Kick, Punch, Head-butt, Threaten with a knife, Choke, Stab*. The same analyses were conducted on the inferred ranking ordering of violent acts from the compensation task. There was a concordance of $W=0.640$, ($\rho=0.64$, moderate correlation), and $\chi^2(7)=380.77$, $p=0.00003$. The ordering of violent acts based on Kendall's W, from least to most severe, as inferred from the compensations were slightly different from the ranking task: *Spit, Slap, Kick, Threaten with a knife, Punch, Head-butt, Choke, Stab*.

For the direct ranking task for the Intention + Psychological harm condition there was a concordance of $W=0.652$, ($\rho=0.65$, moderate correlation), and a rejection of the null hypothesis that there is no agreement $\chi^2(7)=469.91$, $p=0.000007$. The ordering of violent acts based on Kendall's W, from least to most severe, based on the ranking task: *Spit, Slap, Head-butt, Punch, Kick, Threaten with a knife, Choke, Stab*. The same analyses were conducted on the inferred ranking ordering of violent acts from the compensation task. There was a concordance of $W=0.619$, ($\rho=0.61$, moderate correlation), and $\chi^2(7)=394.44$, $p=0.00003$. The ordering of violent acts based on Kendall's W, from least to most severe, as inferred from the compensations were slightly different from the ranking task: *Spit, Slap, Threaten with a knife, Kick, Punch, Head-butt, Choke, Stab*.

For the direct ranking task, both Krustall- Wallis H, and Jonckheere-Terpstra tests were used to examine sample, gender, political affiliation (1=Left, 2=Right), educational background (1=no university degree, 2=university degree), and religiosity (1=not religious, 2=religious). The US tended to rank Punch higher than the UK (Table 1) ($J-T=2.81$, $p=0.005$) and Threaten with a knife as lower than the UK ($J-T=2.75$, $p=0.006$). In addition, male participants ranked Slapping as higher than Women ($J-T=-4.33$, $p=0.00002$), but ranked Kicking as lower than Women ($J-T=2.69$, $p=0.007$). With these exceptions, no other individual differences significantly impacted the rank ordering of the 8 violent acts.

Attitudinal judgments

In Study 2 participants indicated their response to the question regarding whether they had been a victim of a crime on a scale (1 definitely yes to 5 definitely not). Their responses were

compared by sample (UK: $M=2.10$, $SD=1.45$.; US: $M=2.52$, $SD=1.61$), there were no significant sample difference ($p>0.05$). In addition, participants were asked their views on whether it is in fact possible in reality to rank order violent acts. Rating were compared by sample (UK: $M=2.02$, $SD=0.86$; US: $M=1.87$, $SD=0.88$), and whether this type of measurement should be carried out (UK: $M=2.14$, $SD=0.94$; US: $M=2.12$, $SD=0.09$), for both tasks the scale ranged from 1- definitely yes, to 5- definitely no. There were no significant differences between samples for both judgments task ($p>0.05$). In addition, the judgments regarding attitudes towards using ranks of violent acts in assessment were correlated with the responses to whether participants had judged themselves to be victims of violent crimes. There was no evidence of a correlation between their compensation requests and the extent to which a participant had been a victim of a crime, and their attitudes towards using ranking tasks as methods of assessment of violent acts.

Overall, the pattern of findings indicated that there was general agreement in the rank ordering and compensation requests of the violent acts in both samples, this supports Hypothesis 1, and also suggests that the pattern of findings reported by Osman et al. generalize to a US sample. The use of judgment tasks with scales, such as the compensation estimation task was not more sensitive to the ranking task in detecting the impact of sample, demographic and Social/Cultural characteristics on judgments, which does not support Hypothesis 2. The critical differences found in the ranking and compensation task was determined by the presence of additional information regarding the consequences of the violent acts that were intentionally committed by the assailant, which supports Hypothesis 3. Compensation requests were lowest of all when there were no reported consequences of the violent acts, and highest when there was physical/physical + psychological harm. Crucially, the baseline condition was similar to the conditions in which there were physical consequences of the violent acts, which suggest that even when presented neutrally, people are likely making their compensation estimates based on imagining a violent act that carries consequences, even if those consequences are not explicitly described.

General Discussion

Overall, the present study found support for two of the three main hypotheses. In support of Hypothesis 1, the evidence suggests that regardless of what measurements of judgments were used (ranking, rating, compensation requests) across both studies participants generally treated the 8 violent acts they were presented as increasing in severity of violence in the following manner (from least to most violent): *spit, slap, kick, punch, head-butt, threaten with a knife, choke, and stab*. Moreover, this replicates the same pattern reported by Osman et al. and extends it to a US sample. In support of Hypothesis 3, the evidence suggests that the magnitude of compensation estimates is sensitive to details regarding the consequences of the violent act on the victim. In both US and UK samples, the highest overall compensations estimates made for violent acts in which explicit details were provided regarding the physical harm (to the head and neck area) experienced, and the psychological harm experienced (amount of counselling sought), as well as

when no explicit details were provided about intentions or harm (namely the baseline condition). There was mixed support for Hypothesis 2. In Study 1 severity judgments were indeed more sensitive in detecting the impact of individual differences than ranking judgments, revealing that the UK sample gave higher severity rating judgments of violent acts (particularly *spit, slap, kick, head-butt*) than the US sample, and overall, severity judgments of violent acts increased by age, and by educational level. However, in Study 2, overall the US sample estimated higher amounts of compensation compared to the UK sample, but in addition, for ranking judgments, differed to a minor degree by sample (the US ranked Punch higher than the UK, and Threaten with a knife lower than the UK. Also ranking judgments revealed that male participants ranked Slapping as higher than Women but ranked Kicking as lower than Women.

Two particular findings of interest in the present study were: 1) The overall magnitude of severity judgments was lower in the US than in the UK, but the overall magnitude of compensation estimates was higher in the US than the UK. 2) Compensation estimates for violent acts in which there were explicit details about the harm experienced did not significantly differ from the baseline where no details about intention or harm was presented.

For the UK the average financial compensation estimates (with the exception of threaten with a knife, choke) were within the ranges that can actually be requested (Criminal Injuries Compensation Authority - GOV.UK, 2017, Table 2). Whereas, for the US, where it was hard to estimate the general range (across states) for compensation requests, it is clear that the average estimates exceed any of the amounts that are stipulated in the UK. Therefore, the compensation estimates clearly reflect sample differences that are sensitive to the country of residence. Why might this be the case? When compared with Australia, Canada, France, Japan, and U.K./ England, the US is shown to be a significantly more litigious society [24,25].

Also, the financial compensation structures regarding victims of violent crimes in the US include cost incurred as a result of the harm such as medical bills, for which the costs are likely to be higher than the UK, particularly because the UK has a national health service, which provides free medical care. So, for these reasons, the differences in the overall magnitude of compensation estimates between the US and the UK may be accounted for. However, the differences based on the magnitude of severity judgments may reflect differences in the nature of the judgment task which requires people to base their judgments of criteria on factors that are different to those regarding financial compensation. One criterion may in fact be the exposure to violent acts, and the prevalence of violent acts in society. Epidemiological work suggests that the US as compared to other *established market economies* such as the UK, Australia, New Zealand, Japan, Canada, have higher rates of homicides, physical assaults, and bullying (per 100,000 population) [26,27] though this may also reflect the nature in which violent acts are recorded in the US. Other factors such as personal experience of crime may also be a factor that informs judgments of severity, however, the findings from the present study do not show that this is the case. In the present study and in previous work, the evidence suggests that judgments of severity of violence are

not correlated with personal experiences of crime. Thus the speculation here is that cues from the environment, such as levels of exposure to violence media, portrayal of violence, as well as prevalence of violence may inform people's judgments of severity of violence, such that the more exposure through various mediums, may reduce the degree to which violence is judged as severe. However, when considering a specific victim of a violent act, the details regarding the consequences involve assessments that require a different range of factors, such as the overall cost of returning the victim to a state that they were in prior to the violent act (i.e., that they experience wellbeing, physical health).

It is clear that the consequence of violent acts, particularly the psychological and physical harm that is experienced informs people's judgments about estimated financial compensation. Given the three factors that have been examined as factors to be considered, harm (physical, psychological), intention, and the act itself, our findings show that they appear to be treated equally. However, the absence of a difference between the three conditions (baseline, Intention to Harm + physical harm, Intention to harm + psychological harm), does not mean that they are necessarily equivalent. For instance, the presentation of the act itself, may not mean that people are simply focusing on it, isolated from the consequences of the act, but rather the lack of difference between the baseline and the other two conditions in which the consequences were explicitly detailed, was simply because people were spontaneously imagining a variety of consequences that resulted from the act. In support of this speculation, the moral cognition literature [28], suggests that people make judgments regarding whether an act is morally permissible based on the consequences, even if they are not presented. Moreover, even when there are logical inconsistencies between the act and the consequence [29,30], participants still base their judgments on the consequences [31].

Study Limitations

A limitation of the present study is that the range of violent acts was restricted to just 8, the reason for this being that the present study was designed to replicate and extend the original findings of Osman et al.. However, violent acts range, and people are likely to experience more than just a single act of violence at any one time. Moreover, the details regarding the perpetrator were absent, so it is likely that judgments of severity, as well as compensation requests are going to be sensitive to the particulars of the perpetrator (i.e., age, gender, previous criminal history), as well as the particulars of the victim (e.g. race, attractiveness, economic wealth) [10,23]. Future work designed to surmount these limitations would involve extending the present paradigm to further explore the impact of individual differences, and the rank ordering of violent acts, as well as compensation estimates, based on a richer combination of violent acts.

Research Implications

Several researchers have highlighted the importance of establishing a reliable means of estimating compensation requests for victims of crime [8,10,32,33]. More to the point, researchers have highlighted concerns regarding the difficulty that jurors face in deciding on appropriate levels of compensation, and whether

they are able to do so free from various biases that would likely influence their judgments. In addition, work examining the range of factors that should be used to base estimates of compensation focus on the following three: 1) the nature of the violent act itself, 2) the consequences of the act regarding psychological and physical harm, 3) intention to do harm. The present study is able to show that when making estimates, people are strongly influenced by the consequences of the violent acts, and that even when no information is presented, people make estimates that are equivalent to cases where these details are provided. In others, when there are no details of the consequences provided, people are likely to imagine a range of consequences in order to estimate an appropriate level of compensation. In addition, another detail of the present study is that, while there is variability in the magnitude of the compensation estimates, this does not significantly affect the way in which people conceptualize the ordering of severity of violent acts. Moreover, while jurors will differ in their age, gender, political affiliation, religious background and educational level, as well as varying in their personal experiences of crime, these factors do not appear to fundamentally influence their conceptualization of the severity of violent acts, or their compensation estimates [34]. Taken together, this suggests that the source of influence in compensation estimates is more likely to come from the details of the cases they are presented regarding the level of harm experienced by the victim, rather than any critical issues regarding personal demographic and socio-cultural factors, or their conceptualization of the severity of violent acts themselves. On this basis, the implication of the present study is that, when there are concerns about the possibility of biased judgments in compensation estimates, the details about the consequences of the violent act need to be considered in more depth. Efforts need to be made in examining how best to present the details of the consequences in order to minimize potential variability in the estimates that lay people are required to make in a court room context.

Conclusion

The aim of the present study was to examine two issues, the extent to which individual differences influenced peoples' judgments of severity of violent acts, and the extent to which these as well as details regarding the consequences of violent acts influenced compensation estimates. The findings revealed that the magnitude of severity of violent acts was influenced primarily by the sample (US lower than the UK) as was compensation estimates (US high than the UK). Individual differences based on age and educational level influenced severity judgments, in the direction that as age and education levels increased the overall magnitude of judgments increased; other factors such as gender, religiosity, and political affiliation did not significantly influence severity judgments. Across both studies, judgments of the order of severity of violent acts remained stable, which suggests that the way in which people conceptualize severity of violence acts by ranking them, are perceived in similar ways. When it comes to compensation estimates, people are highly sensitive to the consequences of the violent acts in terms of the psychological and physical harm of the acts on the victim; both of which are treated as equivalent.

Taken together, the findings from this study help to inform work concerned with investigating factors that feed into the ways in which lay people estimate the financial compensation requested for victims of violent crimes.

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Geolocation Information

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References

1. Flood M, Pease B. Factors influencing attitudes to violence against women. *Trauma, violence, & abuse*. 2009;10(2):125-142.
2. Nayak MB, Byrne CA, Martin MK, et al. Attitudes toward violence against women: A cross-nation study. *Sex Roles*. 2003;49(7-8):333-342.
3. Gracia E, Tomás JM. Correlates of victim-blaming attitudes regarding partner violence against women among the Spanish general population. *Violence against women*. 2014;20(1):26-41.
4. Palermo T, Bleck J, Peterman A. Tip of the iceberg: reporting and gender-based violence in developing countries. *Am J Epidemiol*. 2014;179(5):602-612.
5. Pratto F, Stallworth LM, Sidanius J. The gender gap: Differences in political attitudes and social dominance orientation. *Br J Soc Psychol*. 1997;36(1):49-68.
6. <https://www.gov.uk/criminal-injuries-compensation-a-guide>.
7. Miers D. Compensating deserving victims of violent crime: The Criminal Injuries Compensation Scheme 2012. *Legal Studies*. 2014a;34(2):242-278.
8. Cohen MA, Rust RT, Steen S, et al. Willingness-to-pay for crime control programs. *Criminology*, 2004;42(1):89-110.
9. Johnston DW, Shields MA, Suziedelyte A. Victimization, wellbeing and compensation: Using panel data to estimate the costs of violent crime. (No. 9311). Institute for the Study of Labor (IZA). 2015.
10. Boyce CJ, Wood AM. Money or mental health: The cost of alleviating psychological distress with monetary compensation versus psychological therapy. *Health Econ Policy Law*. 2010;5(4):509-516.
11. Miers D. Offender and state compensation for victims of crime: Two decades of development and change. *International Review of Victimology*, 2014b;20(1):145-168.
12. Robbenolt JK. Punitive damage decision making: The decisions of citizens and trial court judges. *Law and Human Behavior*. 2002a;26(3):315-41.

13. Kahneman D, Schkade D, Sunstein CR. Shared outrage and erratic awards: The psychology of punitive damages. *Journal of Risk and Uncertainty*, 1998;16(1):49-86.
14. Robbennolt JK. Determining punitive damages: Empirical insights and implications for reform. *Buff L Rev*. 2002b;50:103.
15. Rustad, M. In defense of punitive damages in products liability: Testing tort anecdotes with empirical data. *Iowa L Rev*. 1992;78:1-88.
16. Rustad M. Unraveling punitive damages: Current data and further inquiry. *Wis L Rev*. 1998;98:15-69.
17. Taragin MI, Willett LR, Wilczek AP, et al. The influence of standard of care and severity of injury on the resolution of medical malpractice claims. *Ann Intern Med*. 1992;117(9):780-98.
18. Howe ES, Loftus TC. Integration of intention and outcome information by students and circuit court judges: Design economy and individual differences. *Journal of Applied Social Psychology*. 1992;22(2): 102-116.
19. Hampton J. Correction harms versus righting wrongs: The goal of retribution. *Ucla L Rev*. 1991;39:1659-1702.
20. Galanter M, Luban D. Poetic justice: Punitive damages and legal pluralism. *Am. UL Rev*. 1993;42:1393-1463.
21. Cohen MA. Pain, suffering, and jury awards: A Study of the cost of crime to victims. *Law & Soc'y Rev*. 1988;22:537-556.
22. Osman M, Pupic D, Baigent N. How Many slaps is equivalent to One Punch? New Approaches to Assessing the Relative Severity of Violent Acts. *Psychology of Violence*. 2017;7(1):69-81.
23. Ubel PA, Loewenstein G. Pain and suffering awards: They shouldn't be (just) about pain and suffering. *Journal of Legal Studies*. 2008;37(S2):S195-S216.
24. Ramseyer JM, Rasmusen EB. Are Americans more litigious? Some Quantitative Evidence. *The American Illness: Essays on the Rule of Law*. 2013;69-99.
25. Ramseyer JM. *Second-best justice: The virtues of Japanese private law*. University of Chicago Press. 2015.
26. Mercy JA, Krug EG, Dahlberg LL, et al. Violence and health: The United States in a global perspective. *American Journal of Public Health*. 2003;93(2):256-261.
27. Reza A, Mercy JA, Krug E. Epidemiology of violent deaths in the world. *Injury Prevention*. 2001;7(2):104-111.
28. Osman M, Wiegmann A. Explaining moral behavior: A minimal moral model. *Experimental Psychology*. 2017;64(2):68-81.
29. Spranca M, Minsk E, Baron J. Omission and commission in judgment and choice. *Journal of experimental social psychology*. 1991;27(1):76-105.
30. Stein EW, Ahmad N. Using the analytical hierarchy process (AHP) to construct a measure of the magnitude of consequences component of moral intensity. *Journal of Business Ethics*. 2009;89(3):391-407.
31. Wiegmann A, Waldmann MR. Transfer effects between moral dilemmas: A causal model theory. *Cognition*. 2014; 131(1):28-43.
32. Geistfeld M. Placing a price on pain and suffering: A method for helping juries determine tort damages for nonmonetary injuries. *Calif L Rev*. 1995;83:773-852.
33. McCollister KE, French MT, Fang H. The cost of crime to society: New crime-specific estimates for policy and program evaluation. *Drug and Alcohol Dependence*, 2010;108(1-2):98-109.
34. Adams GS, Mullen E. Punishing the perpetrator decreases compensation for victims. *Social Psychological and Personality Science*. 2014;6(1):31-38.

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