

Mock jurors made mistakes assigning liability even though the civil standard of proof and the evidence were clear and precise: Mock jurors set aside the standard of proof

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Mock jurors made mistakes assigning liability even though the standard of proof and the evidence were clear and precise: Mock jurors set aside the civil standard

Abstract

By Krystal Lariviere

The standard of proof in Canadian civil litigation is: If it is “more likely than not”, or, at least 51% likely the defendant caused the plaintiff damage, the defendant is liable (Kaheiro & Stanton, 1985, p. 160; Redmayne, 2004, p. 171; F.H. v. McDougall, 2008). This study investigated the willingness of mock jurors to assign liability if the likelihood the defendant caused the damage was 5%, 50%, 51%, or 95%, and damages were \$5,000, \$1,000,000, or unspecified.

The number of participants, who correctly assigned liability when the evidence against the defendant was sufficient, or did not when it was insufficient, was only 57.6% (n=204, N=354), but 95.6% (n=86, N=90) if they reported they used the standard. In contrast, significantly fewer participants, 44.7% (n=118, N=264), who preferred more, or different evidence, before assigning liability to a defendant, made the correct decision ($z=8.432$, $p<.0001$, 95% C.I= 0.3908 - 0.6272).

March 23, 2015

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Dedication

I dedicate this thesis to Grammy, my grandmother. When I am done, it will be this thesis in her right hand, a chocolate in the left, a flutter of kisses on her cheek, and me singing, "This little light of mine". Age may have clouded her eyes, but that moment will bring back happy memories, and protect this one from the dark. I believe it.

Introduction

The number of cases of civil litigation is massive. In 2005, 7.4 million cases of civil litigation were filed in the U.S (Langton & Cohen, 2008). Yearly, the Courts assign billions of dollars in damages to defendants, or the cases against the defendants are dismissed and the plaintiffs suffer those losses without relief.

The standard of proof in North American civil litigation is probabilistic: If it is “more likely than not”, or if “on a balance of probabilities”, a defendant has caused damage then the defendant is liable for the harm and damage caused (Kaheiro & Stanton, 1985, p. 160; Redmayne, 2004, p. 171). This standard of proof is just and arguably the most fair standard, but it must also be recognized that in a significant number of cases in which the evidence against a defendant barely meets the standard, the defendant did not cause the damage.

It is reasonable to question whether jurors know enough about probability theory to apply the probabilistic standard to probabilistic evidence and decide against the defendant when the evidence satisfies, but barely satisfies the standard. Given the minimal threshold for assigning liability, it is also reasonable to imagine that jurors might worry about assigning liability to a defendant if the damages are significant. Understanding a juror’s ability and willingness to assign liability in civil litigation, and to ignore the cost of damages when deciding liability is crucial to ensuring fair and just outcomes in civil litigation (Finkelman, 2010).

As the exact probability that a defendant caused the damage cannot be known in most cases, if jurors employ a standard that is more conservative than “on a balance of probabilities”, one would not know that the jurors used a different standard.

Given the number of cases of civil litigation, the settlements awarded or the cases dismissed, and the difficulty of applying a probabilistic standard to probabilistic evidence the questions of interest in this study were: Are jurors willing to use the civil standard of proof when deciding liability in a civil case, and are jurors' decisions affected by the damages sought.

Wanting to create the "cleanest" investigation of the questions of interest, mock cases were created to present the mock jurors with sufficient information to decide the case. The intention was to restrict decision-making in jurors to consideration of:

- A) The standard of proof.
- B) The level of probabilistic evidence against the defendant.
- C) The cost of damages.

This study investigated the impact of different levels of probabilistic evidence that the defendant caused the plaintiff's damage on the assignment of liability, and the impact of the quanta of damages on the assignment of liability. In a 4x3 design, participants read that the defendant was either 5%, 50%, 51%, or 95% likely to have caused the plaintiff damage. In each of these groups, one third of the participants read that the damages were either \$5,000, \$1,000,000, or unspecified.

Civil Litigation

In civil litigation, the plaintiff asserts that a defendant has caused the plaintiff damages and then must prove the assertion using the civil standard of proof (*Snell v. Farrell*, 1990). The standard of proof in Canadian civil litigation is if it is "more likely than not", or if "on a balance of probabilities" a defendant has caused damage, the defendant is liable for the harm and damage caused (Kaheiro & Stanton, 1985, p. 160;

Redmayne, 2004, p. 171). "Balance of probabilities" has been defined numerically. If it is 51%, or more, likely that the defendant caused harm then the standard of proof is met (*F.H. v. McDougall*, [2008] 3 S.C.R. 41).

The probabilistic standard of proof in civil litigation is different from the criminal standard of "beyond a reasonable doubt" (Canadian Superior Court Judges Association, 2006), which relies on two abstractions, specifically, "reasonable" and "doubt". The civil standard is meant to be more precise and should be more easily understood and applied.

The tier of fact decides if the plaintiff will obtain relief from the defendant - the defendant will be deemed liable and pay for the damages - or the plaintiff will suffer the loss without relief. If liability is assigned to the defendant, the defendant pays for the damages whether or not the defendant actually caused the damages. An unsuccessful plaintiff or defendant, in addition to his own legal costs, may also be required to pay a proportion of the opposing party's legal fees.

In Court, liability is decided before damages are considered. The trier of fact should be blind to the damages and assign liability, or not, solely based on the evidence against the defendant.

Right to Disregard the Standard of Proof

A fair and just standard is a necessary but insufficient condition of ensuring justice in civil litigation. The trier of fact must also understand the standard, must be able to make sense of the evidence, must be able to apply the standard to the evidence, and must be willing to apply the standard and find against the defendant even though the evidence against the defendant barely meets the standard of proof.

Some juries are not constrained by the standard of proof that is relevant to the case. Ignoring the standard of proof, or jury nullification, is accepted (Horowitz & Willging, 1991), for example, if a jury in a criminal trial decides the punishment is too severe (Rembar, 1980 as stated by Horowitz, 1988). Jury nullification was useful when both the law, and the rules of evidence were ill-defined (Howe, 1939 as stated by Horowitz & Willging, 1991), whether jury nullification serves justice today is questionable. Berger (1997) argued that even if the standard of proof and the evidence are well-defined, a jury can be contrary and thwart justice. In a medical malpractice lawsuit against Berger- a psychiatrist, notwithstanding the jury being instructed during the trial and being explicitly told a second time during deliberations to use the professional-negligence standard, jurors found against the psychiatrist because he lacked good bedside manners, a decidedly inappropriate standard for the case (Berger, 1997).

Empirical research supports the concerns voiced by Berger (1997). In both a euthanasia, and an illegal possession trial, Horowitz (1988) demonstrated that providing information about jury nullification to criminal juries was followed by them showing questionable weighing of the evidence. The evidence and the law warranted convictions, but the jury acquitted the defendant out of mercy. Juries instructed that they could nullify the law, significantly more often than those not told, focus on non-evidentiary factors, for example, the morality of the defendant and give too little weight to the evidence (Horowitz & Willging, 1991). Similarly, when jury nullification is suggested as an option in deciding cases, juries faced with a sympathetic, but obviously guilty defendant, are more likely to show mercy and acquit, compared to those who read that a drunk driver killed the victim even if the evidence against this kind of defendant is ambiguous

(Horowitz, 1988). The possibility of juries ‘going their own way’ is not restricted to criminal trials. Konopasky and Lariviere (2014) demonstrated that mock jury members deciding cases of civil litigation can and do override instructions, and substitute a standard in accordance with their own sense of “fairness”.

There is mechanism for offsetting jury nullification: A judge can override a jury verdict if he/she believes the verdict has no legal basis, for example if a jury was swayed by emotional sympathy and did not consider the evidence (Horowitz & Willging, 1991).

Familiarity with the criminal standard might cause jurors to ignore civil standard. The criminal standard of "beyond a reasonable doubt" (Canadian Superior Court Judges Association, 2006) is commonly known. This standard intentionally sets a high-bar for finding a defendant guilty to avoid the mistake of wrongfully punishing defendants. Given the consequences of this kind of mistake, for example the loss of freedom by imprisoning the defendant, this standard is appropriately conservative.

The standard of proof in civil litigation is much lower, and should be. The outcomes of civil litigation are the defendant pays for the damages, or the plaintiff suffers losses without relief. In short, one party, or the other suffers a loss. If the defendant is “more likely than not” to have caused the damage, it is reasonable and fair for that person to pay the damage. If, instead, it is less likely than not that the defendant caused the damage, then it makes sense, and is fair for the loss to be suffered by the plaintiff.

Jurors are likely to be familiar with the criminal standard of proof of beyond a reasonable doubt, and, given their fear of sending an innocent person to prison, in civil litigation, they are likely to worry about the possibility of wrongly assigning liability against a defendant for whom the evidence barely meets the standard of proof. In those

cases, jurors might be unwilling to use a comparatively lax civil standard, and might set it aside in favor of the more stringent criminal standard, or a hybrid of the two.

Damages. Media coverage of civil litigation suggests a bias towards finding against defendants. The media suggests that juries are, and should, be sensitive to the harm caused to plaintiffs, and award high damages (Ruva, McEvoy, & Bryant, 2007; Connell, 2005) This suggests that size – cost of damages – might affect decisions on liability.

Personal bias. Trial judges encourage jurors to avoid being influenced by personal biases, and they explicitly state that jurors should not be acting on any sense of bias. However, social theorists suggest that jurors' judgments are swayed in the same way that other judgments are made, for example, judgements are based on emotions, or, even, stereotypes (Kassin & Dunn, 1997; Haegerich, Salerno, & Bottoms, 2013).

Presentation of case. The literature reports three factors of case presentation that affect decision-making in juries:

1) Reading the evidence, rather than just listening to it, improves decision-making (Chaiken & Eagly, 1976; Horowitz & ForsterLee, 2001).

2) Allowing access to trial transcripts and/or allowing jurors to take notes improves decision-making (Cacioppo & Petty, 1979; Petty & Cacioppo, 1986; ForsterLee, Horowitz, & Bourgeois 1994; Horowitz & ForsterLee, 2001; Horowitz & Bordens, 2002).

3) Non-complex evidence reduces differences in interpretation of the evidence, and yields more unanimous decisions (Holstein, 1985; Horowitz & ForsterLee, 2001).

Real jurors or mock jurors. Decision-making by jurors in civil trials was the interest of this study. There are two ideal approaches to studying actual jurors. The first involves questioning jurors after the trial concludes, a practice that is disallowed in Canada. The second involves manipulating variables of interest within actual trials, a technique that is saddled with logistical and ethical problems (Bornstein, 1999).

Simulated jury trials have become common in spite of the admission that many mock cases are unrealistically brief, and replicating results is challenging (Bray & Kerr, 1979). Notwithstanding these concerns, the literature reports few differences between the decisions of mock jurors and real jurors (Bornstein, 1999).

Juror education. Either the plaintiff or the defendant can request that the trial be deliberated by a jury (Bogart, 1999), though the percentage of jury trials in the U.S is considerably larger than in Canada. It is reasonable to worry about the lack of legal education in jurors, but the research is not clear about the relationship between education and good decision-making in jurors (Daftary-Kapur, Dumas, & Penrod, 2010). Konopasky and Lariviere (2013) demonstrated University students' inability to use the probabilistic civil standard in complex cases of mock civil litigation, and suggested that this was due to a lack of advanced knowledge regarding probability theory. Offering a tutorial on how to apply the Canadian civil standard of proof to a civil lawsuit significantly increased the number of correct assignments of liability in a mock jury of University students (Konopasky & Lariviere, 2013).

As one cannot manipulate real-world trials for the sake of research, mock jurors were used in this study of decision-making in simple cases of civil litigation. It was assumed that University students would have at least as good a grasp of probability theory

as the average juror, and the study could investigate whether this informed group was willing to find against a defendant for whom the evidence barely met, but did meet the standard of proof.

Compensating participants. Past research (Konopasky & Lariviere, 2013) demonstrated that offering compensation for participation in research yielded advantages and no disadvantage: More participants volunteered for the study, compensated participants showed equal persistence at the task, and compensated participants performed as well on a task requiring careful thought.

Effect of delaying decisions. The gap of time between the presentation of information and the decision matters for jurors. Sherrod (1985) reported that when a decision on damages was delayed for two or more years, the decision was different than it would have been immediately after the original verdict.

Discussion amongst jurors. Recent research has demonstrated that permitting jurors to discuss trial evidence during the trial increased individual juror confidence, however, it also increased the conflict between jury members, which resulted in fewer unanimous decisions (Hannaford, Hans, & Munsterman, 2000).

Instructions to jury. Ordinarily judges provide general instructions that serve to orient and socialize jurors to the courtroom at the outset of the trial. At the end of the trial, jurors receive information about case-specific law. Jurors are then required to apply these legal principles to the trial evidence to render a verdict, a complex cognitive task (ForsterLee, Horowitz, & Bourgeois, 1994; Daftary-Kapur, Dumas, & Penrod, 2010).

Some researchers argue that instructing jurors at the onset of the trial, and immediately before the assignment of liability improves comprehension of the evidence

and information presented (Elwork, Sales, & Alfini, 1977; Smith, 1991; ForsterLee, Horowitz, & Bourgeois, 1994; Kassin & Wrightsman, 1979). Conversely, others argue that pre-instructing jurors failed to make improvement comprehension, but only increased the number of guilty verdicts (Heuer & Penrod, 1989; Cruse & Browne, 1987; Scott, 1989).

Final arguments. The closing arguments are the last opportunity for lawyers to persuade the trier of fact to decide in favor of their clients. Their belief in a strong closing argument is supported by outcomes, for example, recommending the death penalty, an improper procedure by the prosecutor, jeopardizes a defendant's right to a fair trial (Connell, 2005, Platania & Moran, 1999). This was true even if the arguments had no effect on the judge's instructions, understanding of the reasonable doubt standard, verdict confidence, or, surprisingly, consideration of sympathy for the defendant (Platania & Moran, 1999).

Summary of Design

Given the number of injured plaintiffs, the total quantum of damages assigned by the Courts, or cases dismissed and losses suffered by the plaintiffs, the challenge posed by having to use a probabilistic standard of proof, and apply it to potentially probabilistic evidence, as well as the lack of experience of the average juror, it makes sense that plaintiffs and defendants involved in civil litigation, and those who represent them, worry that cases will be decided as they should.

The Canadian civil standard of proof is that if it is “more likely than not” that the defendant caused the plaintiff's damage, then the correct legal decision is to assign liability to the defendant for the damages. The literature has yet to explore the willingness

and the ability of Canadian jury members to apply this standard when the evidence against a defendant is precise and probabilistic, but barely satisfies the standard, especially when damages are costly.

Investigating the Questions of Interest

Mock civil litigation, in which the facts were completely under the control of the experimenter, and the likelihood the defendant caused the plaintiff's damage was defined numerically, offered the opportunity to determine the willingness of mock jurors to find against a defendant for whom the evidence just barely satisfies the standard, or to show a preference for more compelling evidence. Written mock civil cases were presented to well-educated mock jurors who were compensated for their participation. The descriptions of the cases were brief and provided the mock jurors with sufficient information to decide the case. The description of the case was similar to good and detailed notes a juror might take during the trial. To avoid eliciting mock jurors' personal biases, there were no descriptions of either the defendant, or the plaintiff, no descriptions of the defendants' or plaintiff's actions, no discriminatory statement of the defendants reputation, and no closing arguments by attorneys.

One quarter of the mock participants read that the probability the defendant caused the plaintiff's damages were: 5%; 50%; 51%; and, 95%. One-third of the mock participants, reading each of these cases, read that the damages were: unspecified; \$5000; and, \$1,000,000. Immediately before assigning liability the participants in this study were told that the civil standard of proof in civil litigation is that if it is "more likely than not" a defendant has caused damage, then the defendant is liable for the harm and damage caused. Participants decided on liability immediately after reading the case.

Method

Participants

Students participated in return for course credit and were recruited from:

1) Undergraduate psychology courses

and

2) An introductory sociology course taught by Dr. G. Barrett.

Design

This study investigated the effect of different levels of probabilistic evidence, specifically, 5%, 50%, 51%, or 95% that a defendant caused damage to a plaintiff on the assignment of liability to a defendant. As the level of probabilistic evidence against two defendants, specifically 51% and 95%, met or exceeded the current civil standard of proof, mock jurors should have found these defendants liable. As the evidence against the defendants in two cases, specifically 5%, and 50%, did not satisfy the civil standard of proof, mock jurors should have found them not liable.

The study also investigated the effect of quantum of damage on assignments of liability. For three kinds of cases the damages were: \$5,000, \$1,000,000, unspecified. As cost of damages is not evidence of liability, the differences in cost of damages should not have affected assignment of liability.

As this study employed a 4 (levels of probability) x 3 (quantum of damages) design, there were 12 cells. Participants were randomly assigned to one cell. Table 1 describes the cells.

Consent. Students who attended the Saint Mary's SONA site and elected to participate in this study, clicked on the study title. Having done so, they read a full

description of the study (see Appendix B for this description of the study). To reach the study, students clicked on the online link to the study that was administered by Qualtrics' online survey software.

Before being presented with the study, participants read the informed consent form (see Appendix A for the informed consent form). To participate, participants were required to click on, or mark a check-box that certified their consent to participate. Once participants provided consent, the study commenced. If consent was not given, a participant's connection to the study was terminated.

Table 1: *Questionnaire cells*

Number of Bearings	Damages
Cell 1: Defendant supplied 5 bearings	\$5,000 in damages
Cell 2: Defendant supplied 5 bearings	\$1,000,000 in damages
Cell 3: Defendant supplied 5 bearings	Unspecified damages
Cell 4: Defendant supplied 50 bearings	\$5,000 in damages
Cell 5: Defendant supplied 50 bearings	\$1,000,000 in damages
Cell 6: Defendant supplied 50 bearings	Unspecified damages
Cell 7: Defendant supplied 51 bearings	\$5,000 in damages
Cell 8: Defendant supplied 51 bearings	\$1,000,000 in damages
Cell 9: Defendant supplied 51 bearings	Unspecified damages
Cell 10: Defendant supplied 95 bearings	\$5,000 in damages
Cell 11: Defendant supplied 95 bearings	\$1,000,000 in damages
Cell 12: Defendant supplied 95 bearings	Unspecified damages

Cases. (See Table 1). The cells differed according to 4 precisely defined levels of probabilistic evidence against the defendant, and 3 quanta of damages suffered by the plaintiff.

In all cases, the participants read that the plaintiff was a company that purchased a specific number of ball bearings from the defendant for use in a rocket motor test. The plaintiff's motor was tested with 100 ball bearings.

The number of bearings supplied by the defendant varied. Participants read:

- 1) The defendant supplied 5 of the 100 bearings used in the test of the motor.
or
- 2) The defendant supplied 50 of the 100 bearings used in the test of the motor.
or
- 3) The defendant supplied 51 of the 100 bearings used in the test of the motor.
or
- 4) The defendant supplied 95 of the 100 bearings used in the test of the motor.

In all cases, participants read that the other bearings used in the test of the motor were taken from the plaintiff's stock of bearings. Participants read that the reputations of the defendant, and the manufacturers of the bearings in the plaintiff's stock were exactly the same, and that the manufacturers guaranteed their bearing's would rotate one billion times without defect.

One third of the participants in each of the groups listed above above read that the damages were:

- 1) \$5000.
or

2) \$1,000,000.

or

3) Unspecified.

In all cases, participants read that one bearing failed. It was unknown whether the bearing came from the defendant, or the plaintiff's stock.

Mock jurors could calculate the likelihood that the defendant supplied the faulty bearing by dividing the number of bearings supplied by the defendant by 100, for example, if the defendant supplied 5 bearings, the likelihood of the defendant supplying the faulty bearings was 5%.

Participants were asked to imagine that he/she was a Canadian juror in a civil suit. They were asked to consider all information carefully and without bias in order to decide the liability of the defendant (see Appendix B for a copy of the cases presented to participants). All of the participants were provided with the standard of proof in Canadian Civil Litigation: If it was "more likely than not" that the defendant caused the damages, then the defendant did cause the damage".

Participant responses.

1) Participants were asked to report their assignment of liability by "marking" a check box next to one of the following options:

The defendant is liable for the plaintiff's damages.

or

The defendant is not liable for the plaintiff's damages.

2) Participants were asked to explain why they made their decision regarding liability by typing a description of their reasoning in the provided text box.

3) Participants were asked to explain how they would assign liability if they were not constrained by the standard of proof provided to them; they were asked to type a description of their reasoning in the provided text box.

4) Participants were asked to report whether they responded as if they were jurors in an actual trial by “marking” a check box next to one of the following options:

A) No, the results do not reflect the way I would act in a real case. In a real case, I would have considered the evidence more carefully.

or

B) Yes, I acted as I would in a real case. I was careful in considering the evidence.

Debriefing participants. After completing the questionnaire, participants were provided with an electronic version of the debriefing form, and thanked for their participation (see Appendix D) .

Hypotheses

1. As everyone was expected to assign liability correctly, the level of probabilistic evidence against the defendant will not affect the correct assignments of liability.
2. As damages do not change the standard of proof, quantum of damage will not affect the correct assignments of liability.
3. The interaction between levels of probabilistic evidence and quanta of damages, will not affect the correct assignment of liability.
4. The level of probabilistic evidence against the defendant will affect participants' assignments of liability. It should be noted that assignment of liability is

assignment without regard to whether the assignment is correct; in contrast, correct assignment indicates whether or not the assignment was correct.

5. The quantum of damages will not affect participants' assignments of liability.

6. The interaction of the level of probabilistic evidence and the quantum of damages, will not affect the assignment of liability.

7. As participants were instructed to use the current standard of proof in civil litigation, they will use that standard of proof.

Results

Participants

This study attracted 640 participants: 499 were students from psychology courses and 141 were students from a first-year sociology course.

Adopting four rules, which are shown below, the data of 286 participants (229 from psychology and 57 from sociology) were set aside.

The data from sociology and psychology participants were grouped.

The following rules for excluding participants were applied sequentially; some participants "met" more than one rule for exclusion.

1) Thirty-one participants did not complete the study and dropped out before assigning liability. Of 640 starting participants, only 609 assigned liability.

2) Participants were instructed to act as though they were jurors in a real civil litigation trial. At the end of the study, participants were asked whether they "acted as they would have done in a real trial." The data of any participant, who did not report that they acted as they would in a trial, were excluded from the analyses. Using this rule, the data of 189 participants were set aside, leaving the data of 420 participants.

3) Participants were also asked to report:

A) Why they assigned liability the way they did.

and

B) How they would assign liability if they had the freedom to do it in anyway they wanted.

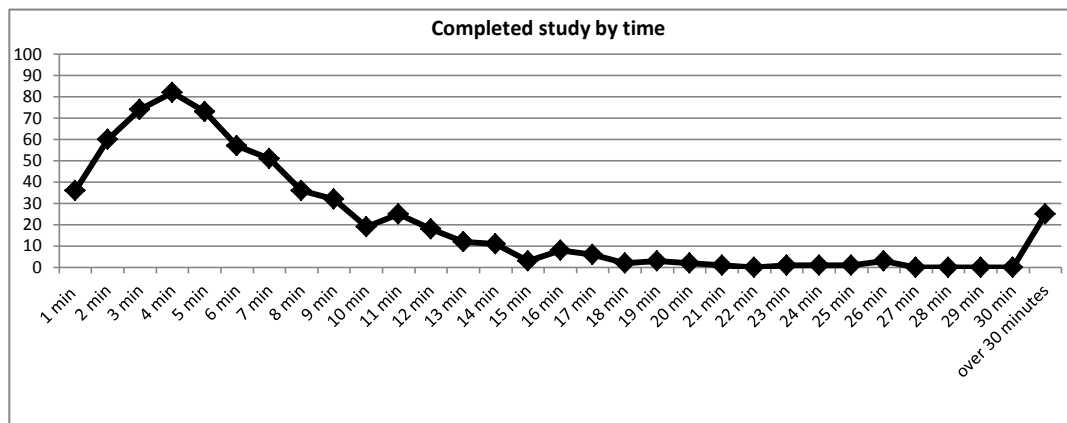
The data of participants, who did not explain how they made their decision, or if the reason reported was blatantly bizarre, were excluded from the analyses, for example, a participant reported the reason he/she assigned liability as “he hit the driver on the left hand side of the vehicle”. Some participants offered a preference for a bizarre standard of proof, for example, “I assigned liability based on emotion and would assign it based on peace and love”. The total number of participants, who did not explain their reasoning, or whose reasoning was bizarre, or who offered odd preferences for a standard of proof, was 51, reducing the number of “good” participants to 369.

4) No one could have read all of the information presented, considered it thoughtfully, assigned liability, provided written reasoning for how they assigned liability, and provided a written explanation for how they would assign liability given the freedom to assign it in anyway they wanted, in fewer than 2 minutes. Figure 1 shows the number of participants who completed the study at each time interval between 1 and 30 minutes. The data from participants taking 30 minutes or more were grouped.

The data from any participant, who quit the study in less than 2 minutes, were set aside. As such, the data from 15 participants were excluded, leaving the data for only 354 participants for analysis.

Time spent and correct assignment of liability. The number of correct assignments of liability by participants who spent 5 minutes or less ($n=76$, $N=128$, 59.37%), was similar to that of participants who spent 10 minutes or more ($n=52$, $N=86$, 60.47%), ($\chi^2(1) = .005$, $p = .946$).

Figure 1: *Time taken by participants to complete the study*



Data that was set aside compared to data in the analyses. The data that was set aside because of poor participation were compared with the data analyzed for the study.

When the evidence against the defendant met the standard, all participants should have assigned liability. When it did not, no participants should have assigned liability. As such, the particular level of probability of the evidence against the defendant should not have affected whether liability was assigned correctly.

For participants whose data were included in the analyses, the absolute level of probabilistic evidence against the defendant did not have a significant effect on correct assignment of liability. This was not true for participants whose data were excluded from the analyses. Wrongly, for these participants, the absolute level of probability of evidence against the defendant did significantly impact whether or not they correctly assigned

liability ($\chi^2(3) = 62.195, p < .0001$). This analysis was carried out after the rules were struck for setting aside data, and supported excluding some participants' data. There is a substantial relationship between the absolute level of evidence against the defendant and the correct assignments of liability, for the participants for whom the data were set aside (Cramer's $V = .493$).

Liability Data

There are two different ways of coding the assignment of liability. Table 2, below, shows the number of correct and incorrect assignments for the different levels of evidence against the defendant and the different quanta of damages, as well as the number of assignments of liability for the different levels of evidence against the defendant and the different quanta of damages.

Whether or not the person assigned liability correctly. If a participant assigned liability when the likelihood that the defendant caused the damage met the standard of proof, that is, the likelihood was 51% or higher, the assignment was correct, and coded as "1". If a participant did not assign liability when the likelihood that the defendant caused the damage did not meet the standard, that is, the likelihood was 50% or lower, the assignment was also correct, and coded as "1".

If a participant did not assign liability when the likelihood that the defendant caused the damage met the standard of proof, that is, the likelihood was 51% or higher, the assignment was incorrect, and coded as, "0". If a participant did assign liability when the likelihood that the defendant caused the damage did not meet the standard, that is, the likelihood was 50% or lower, the assignment was also incorrect, and coded as "0".

The number of participants who assigned liability correctly was counted for each group who read one of the four cases that varied the probability that the defendant caused the damage, that is, 5%, 50%, 51%, 95%, regardless of the quantum of damages.

Whether or not the person assigned liability. An assignment of liability was coded as “1”, whether or not the assignment of liability was legally correct; no assignment of liability was coded as “0”. The number of participants who assigned liability to the defendant in each of the four cases, whether or not the assignment was correct, was counted.

Table 2: *Number of participants*

	5%	50%	51%	95%	\$5000	\$1 mil	Unknown
Correctly Assigned Liability	47	33	57	67	72	62	70
Incorrectly Assigned Liability	38	39	37	36	52	56	42
Assigned Liability	38	39	57	67	70	62	69
Did Not Assign Liability	47	33	37	36	54	56	43

Analyses. The dependent variables were dichotomous. Participants assigned liability correctly or did not, and participants assigned liability or did not. Chi-square analysis and a proportional z-score test were used to analyze the data. The probability of type 1 error was held at 5% throughout the post hoc analysis; bonferonni was used to maintain this error rate.

Chi-square analysis is appropriate to determine whether there are differences in number of responses coded as “1” or “0” by participants operating under different conditions, for example, reading different levels of probability that the defendant caused harm.

If the data from more than 2 groups are analyzed, Chi-square does not indicate which particular group, or which particular groups, are different from the others. In this study of the effect of 4 different levels of probability on the assignment of liability, for example, it would not indicate the differences between the group, which read that it was 5% likely that the defendant caused the plaintiff damage and the group which read that it was 95% likely that the defendant caused the plaintiffs damage. A z-score analysis provided that information.

Assignments of Liability

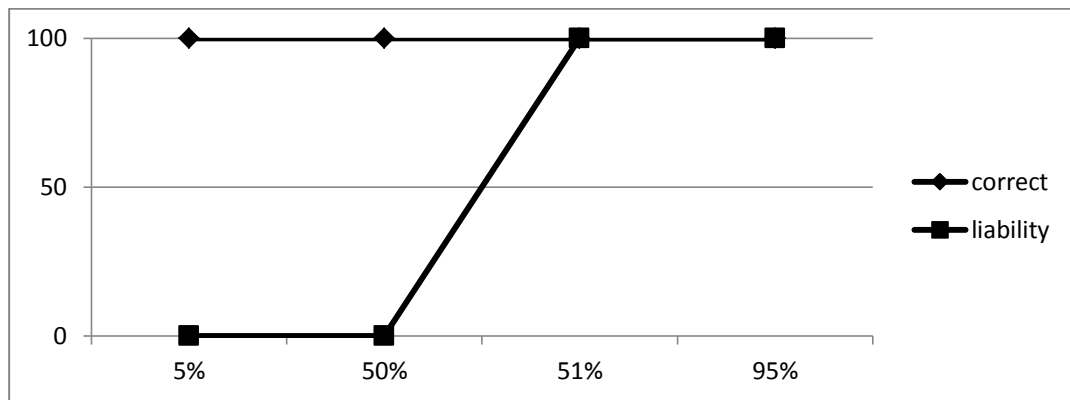
Assignment of correct liability. The level of probabilistic evidence against the defendant should not affect whether or not liability was assigned correctly, that is, liability should be assigned if the evidence against the defendant satisfies the standard of proof, specifically, defendants who are 51%, or 95% likely to have caused the damage. Liability should not be assigned if the evidence against the defendant does not meet the standard of proof, specifically, defendants who are 5%, or 50% likely to have caused the damage. No matter the level of probability, all participants should have assigned liability correctly.

A total of 197 participants, who read that the defendant was 51 % or 95% likely to have caused the plaintiff's damage, should have assigned liability to the defendant. A total of 157 participants, who read that the defendant was 5% or 50% likely to have caused the plaintiff damage, should not have assigned liability to the defendant. Participants were randomly assigned to the 12 cells of the study. The difference in the number of participants in the cells issued from the application of the exclusionary criteria. Of these 354 participants, only 204, or 57.6%, correctly assigned liability.

Assignment of liability. The level of probabilistic evidence against the defendant should affect whether or not liability was assigned. As such, 197 should have assigned liability, and 157 should not have assigned liability. Of these 354 participants, 201 or 56.8%, assigned liability to the defendant.

Figure 2 shows the relationship between correct assignment of liability and assignment of liability.

Figure 2: *Expectation of correct assignment of liability and assignment of liability.*



Hypotheses. Hypothesis 1) As everyone was expected to assign liability correctly, the level of probabilistic evidence against the defendant will not affect the correct assignments of liability.

One independent variable was 4 levels of probabilistic evidence against the defendant (5%, 50%, 51%, 95%). The dependent variable was whether participants correctly assigned liability or not. A Chi-square was used to determine if there was a significant difference in the percentage of correct assignments of liability in the 4 groups. The level of probabilistic evidence did not significantly affect the percentage of correct assignments of liability in the four groups ($\chi^2 (3) = 6.963, p = .073$).

Hypothesis 2) As damages do not change the standard of proof, quantum of damage will not affect the correct assignments of liability.

The second independent variable was 3 quanta of damages (\$5,000, \$1,000,000, unspecified). The dependent variable was whether participants correctly assigned liability, or not. A Chi-square was used to determine if there was a significant difference in the percentage of correct assignments of liability in the 3 groups. The quanta of damage did not significantly affect the percentage of correct assignments of liability in the 3 groups ($\chi^2 (2) = 2.348, p = .309$).

Hypothesis 3) The interaction between levels of probabilistic evidence and quanta of damages, will not affect the correct assignment of liability.

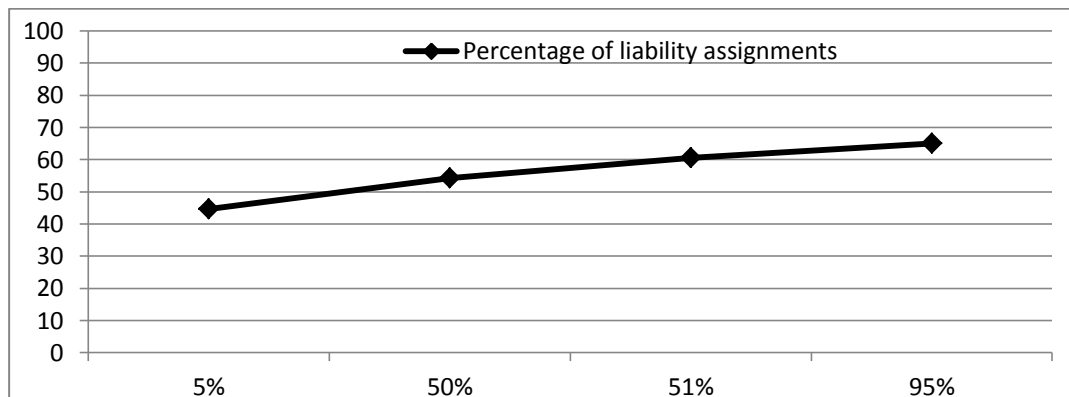
The two independent variables were the level of probabilistic evidence against the defendant, and the quanta of damages. The dependent variable was whether participants correctly assigned liability, or not. A Chi-square was used to determine whether the interaction between the two independent variables significantly affected the correct assignment of liability. The interaction did not significantly affect the percentage of correct assignments of liability ($\chi^2 (11) = 14.145, p = .225$).

Hypothesis 4. The level of probabilistic evidence against the defendant will affect participants' assignments of liability.

As participants should assign liability to the defendant when the evidence satisfies the standard, specifically, a 51%, or 95% likelihood of the defendant having caused the plaintiff damage, and should not assign liability when the evidence against the defendant does not satisfy the standard, the level of probabilistic evidence against the defendant should significantly affect the assignment of liability.

One independent variable was 4 levels of probabilistic evidence against the defendant (5%, 50%, 51%, 95%). The dependent variable was whether participants assigned liability, or not. A Chi-square was used to determine if there was a significant difference in the percentage of assignments of liability in the 4 groups. The level of probabilistic evidence did significantly affect the percentage of assignments of liability in the four groups ($\chi^2(3) = 8.690, p = .034$). A significantly greater percentage in groups who read that the evidence against the defendant was high, assigned liability, compared to those who read that the evidence against the defendant was low. Figure 3 shows this effect. There is a medium-sized relationship between the levels of probabilistic evidence and the assignments of liability (Cramer's $V = .157$).

Figure 3: *Percentage of liability assignments for each level of probabilistic evidence*



Additional analyses revealed that significantly more participants, who read that the defendant was 95% likely to have caused the plaintiff damage ($n=67, N=103, 65\%$) assigned liability, compared to those, who read that the defendant was only 5% likely to have caused the damage ($n= 38, N=85, 44.7\%$), ($z= 2.7956, p = .00512, 95\% \text{ C.I} = 0.0604 - 0.3456$). Additionally, significantly more participants, who read that the defendant was

51% likely to have caused the plaintiff damage (n=57, N=94, 60.6%), assigned liability, compared to those who read that the defendant was only 5% likely to have caused the damage (n=38, N=85, 44.7%), ($z=2.1329$, $p = .03318$, 95% C.I.= 0.0126 - 0.3054).

There was no significant difference in the number of assignments of liability by participants who read that a defendant was 50% likely to have caused the plaintiff's damage, compared to those, who read that the defendant was 51% likely to have caused the plaintiff damage.

Hypothesis 5. The quantum of damages will not affect the participants' assignments of liability.

As participants should ignore the quanta of damages when assigning liability, or not assigning, the quanta of damages should not affect the assignment of liability. The second independent variable was 3 quanta of damages (\$5,000, \$1,000,000, unspecified). The dependant variable was whether participants assigned liability, or not. A Chi-square was used to determine if there was a significant difference in the percentage of assignments of liability in the 3 groups. The quanta of damage did not significantly affect the percentage of assignments of liability in groups who read different costs of damages ($\chi^2 (2) = 1.932$, $p = .381$).

Hypothesis 6. The interaction of the level of probabilistic evidence and the quantum of damages, will not affect the assignment of liability.

A Chi-square was used to determine whether the interaction between the two independent variables significantly affected the assignment of liability. The interaction did not significantly affect the percentage of assignments of liability ($\chi^2 (11) = 15.836$, $p = .147$).

Reasoning For Assignment of Liability

After the mock jury members made their decisions regarding liability, they were asked to report their reasons for assigning liability, or not.

Hypothesis 7. As participants were instructed to use the current standard of proof in civil litigation, they will use that standard of proof.

Coding of reasons for assigning liability. The reasons for assigning liability were coded:

If participants stated that they assigning liability by utilizing the civil standard of proof, their reasoning was coded as “1”.

or

If participants stated that they did not use the civil standard of proof to assign liability, their reasoning was coded as “0”.

Every participant was instructed to use the civil standard. It was expected that every participant would use the civil standard, but only 25.4% did, which is significantly fewer than the 100%-expected participants ($z = -10.9545$ $p < .0001$, 95% C.I= 0.5621 - 0.7079).

Reasoning for assigning liability. The percentage of people using 5 kinds of reasoning for assigning liability are listed in descending order of magnitude.

1) *Muddled reasoning I*: 39.5%. These participants ignored the likelihood the defendant supplied the faulty bearing; rather they emphasized that the defendant guaranteed the reliability of the bearings rather than considering whether or not the faulty bearing was likely to have been supplied by the defendant.

2) *Civil standard*: 25.4%. These participants used the “more likely than not” civil standard.

3) *Criminal standard*: 25.4%. These participants used the more stringent “beyond a reasonable doubt”, criminal standard rather than the “more likely than not” civil standard.

4) *Proportional liability*: 1.7%. These participants felt that the defendant was only partially liable, or should only be liable for the amount of damage that was proportional to the number of bearings provided.

5) *Muddled reasoning II*: 7.9%. These participants opined that as the plaintiff used the bearing, the defendant was not at fault.

Three groups, or a total of 52.5%, used standards that are arguably reasonable. They used the *Civil standard*, the *Criminal standard*, and the *Proportional liability standard*. Two groups or a total of 47.4%, suggested standards that revealed muddled reasoning.

Preferences for assigning liability. Participants were also asked to report their preferences for assigning liability. Their preferences were coded as follows:

1) *Muddled reasoning I*: 31.1%. These participants preferred this standard: As there was one defendant, and the defendant supplied bearings, it was the defendant's fault without regard to the probability that the faulty bearing was the defendant's bearing.

2) *Criminal standard*: 28.8% These participants preferred the “beyond a reasonable doubt” criminal standard.

3) *Proportional liability*: 16.7%. These participants believed that the defendant should be only partially liable because other manufacturers produced some of the

bearings used in the test, and one of these manufacturers might have produced the faulty bearing.

4) *Civil standard*: 15.5%. These participants preferred the “more likely than not” civil standard.

5) *Muddled Reasoning II*: 7.9%. These participants believed the plaintiff should suffer the loss without relief because the plaintiff mixed up the defendant’s bearings with other bearings, or even simpler, the plaintiff made use of the bearing.

The number of participants, who reported using the civil standard to assign liability, is larger than the number of participants who preferred the civil standard to a different standard.

The number of participants who used the standard of proportional liability is smaller than the number of participants who preferred this standard to other standards.

There is a statistically significant difference ($z = 8.432$, $p < .0001$, 95% C.I. = 0.3908 - 0.6272) between the number of participants who used the civil standard and correctly assigned liability ($n = 86$, $N = 90$, 95.6%), compared to those who used a different standard and assigned liability correctly ($n = 118$, $N = 264$, 44.7%). It is note-worthy that the group who used a standard different than the prescribed standard, did no better than chance in their assignment of liability. The most important factor in predicting the correct assignment of liability is, it seems, whether or not participants used the standard they were instructed to use. Apparently not ignorance, not rushing through the study, and not lack of care in completing the study, but the simple willingness to use the standard was the critical factor in assigning liability correctly.

Discussion

Problems with Online Research

Concerning, 44.69% of (n =286, N=640) the participant's data were excluded due to poor participation. The high percentage of participants who did not complete the study, offered bizarre answers, or, it seemed, went out of their way to prove their unwillingness to participate conscientiously, raises concerns about the integrity of the data collected in online studies.

Too many participants rushed through the study. Still, students who took 5 minutes or less, made as many correct legal decisions (n=78, N=130, 60%) as those who took 10 minutes or more (n=52, N=86, 60.5%), ($z = -0.0684$, $p = .9414$, 95% C.I= -0.1284 - 0.1384).

Participants were expected to have assigned liability correctly because the standard was clear and precise, and the probabilistic evidence against the defendant in all cases was clear and precise, but 43.2% got it wrong. If so few individually correct decisions were made in a real trial, an unacceptable number of incorrect jury decisions would be made.

The standard of proof in Canadian civil litigation is if it is "more likely than not" that the defendant caused the plaintiff's damage, the correct legal decision is to hold the defendant liable for all damages (Kaheiro & Stanton, 1985, p. 160; Redmayne, 2004, p. 171). This standard is arguably the fairest standard. The Courts must decide if the plaintiff will obtain relief from the defendant - the defendant will be deemed liable and pay for the damage - or the plaintiff will suffer the loss without relief. As such, the Courts have elected this standard: If the defendant is "more likely than not" to have caused the

plaintiff's damage, the defendant pays for the damage; if the defendant is not more likely than not to have caused the plaintiff's damage, the plaintiff suffers the loss without relief. However, given the potential knife-edge difference between the evidence against the defendant meeting the standard - 51% likelihood the defendant caused the damage - and evidence against the defendant not meeting the standard - 49% likelihood the defendant caused the damage - it is reasonable to wonder if laypeople were willing apply what seems to be a lax standard, in deciding against a defendant and making the defendant cover the plaintiff's loss.

Only 57.6% (n=204, N= 354) of the participants assigned liability correctly, though this is significantly better than chance ($z=2.0354$, $p = .04136$, 95% C.I.= 0.0026 - 0.1494). This includes those who correctly assigned liability to a defendant who was either 51% or 95% likely to have caused the plaintiff damage, and those who correctly did not assign liability to a defendant who was either 5% or 50% likely to have caused the damage. Only 44.7% of the group, who read that it was only 5% likely the defendant caused the damage, assigned liability. Only 65% of the group, who read that it was 95% likely that the defendant caused the damage, assigned liability. A total of 35% of the participants found the evidence insufficient to decide "Let the defendant pay."

Canadian civil juries are comprised of seven members (Legal Information Society of Nova Scotia, 2012; The Executive Office of the Nova Scotia Judiciary, 2012). In a civil case, if the jury reaches a decision within the first four hours of deliberation it must be unanimous. If deliberations go beyond four hours, only a majority (five out of seven) verdict is necessary (Legal Information Society of Nova Scotia, 2012). If only 57.6%, roughly 4 out of 7, participants assign liability correctly, then it is more likely that a jury

comprised of such jurors would more often make the wrong decision than the right one. The binomial probability formula, or $nCr p^r q^{(n-r)}$, allows for randomly constructing seven person “juries” from the participants in this study, repeatedly. Using this formula, the probability of a correct jury verdict made up of the participants in this study is only .239. Odd for an experimenter, one hopes that the participants in this study are not representative of real world jurors.

It is not clear whether participants set aside the standard of proof, because it did not set a sufficiently high-bar for deciding against the defendant. or could not apply a probabilistic standard to probabilistic evidence. Certainly, many participants, 74.6%, indicated a preference for a different standard of proof.

A positive finding was that the specific likelihood the defendant caused the damage did not affect whether or not the liability was assigned correctly, rather it was whether the evidence against the defendant met the standard of proof. After all, if the defendant was either 51%, or 95% likely to have caused the damage, the evidence met the standard, and liability should have been assigned; if the evidence was 5% or 50% likely that the defendant caused the damage, the evidence did not meet the standard, and liability should not have been assigned. These results suggest that the participants correctly did not discriminate between likelihood the defendant caused the damage and only focussed on whether the evidence against the defendant met the standard of proof. Alternately, it could be that there was no effect of the specific likelihood the defendant caused the damage because only 57.6% of the participants correctly assigned liability.

Apart from the standard, should the cost of damages be considered in assigning liability? Does it make sense to have a higher-bar for reaching into the pocket of the

defendant if the costs are high, for example, \$1,000,000, compared to low costs, say \$5,000? It is easy to argue that the costs of damages are independent of the likelihood of a defendant having caused harm, but it is also reasonable to wonder if they should be connected somehow.

Correctly in this study, quantum of damage did not affect the percentage of correct assignments of liability. One reaction to this finding is that these participants showed discipline and disregarded the cost of damages. In the alternative, it can be argued that there was no effect of cost of damages because only 57.6% of the participants correctly assigned liability.

It was expected that about half of the participants ($n=197$, $N=354$, 55.65%), those who read a 51%, or 95% likelihood of the defendant having caused the damage, would assign liability to the defendant, while the other half ($n= 157$, $N=354$, 44.35%), those who read a 5% or 50% likelihood of the defendant having caused the plaintiff harm, would not assign liability. More participants should have assigned liability to defendants when the evidence against them met the standard than when it did not; participants made this discrimination ($\chi^2 (1) = 6.878$, $p = .009$). There is a small relationship between the assignment of liability and whether the evidence against the defendant met the standard of proof (Cramer's $V= .139$) While participants did not discriminate between a 50% or a 51% likelihood the defendant caused damage as the law instructs, these results suggest that participants did assign liability more often if the evidence against the defendant was greater.

Participants' reasons for not using the standard vary. Ignoring irrational, muddled, or obtuse reasoning, many participants decided liability by relying on the fact that the

defendant had made a guarantee to the plaintiff, or by using a more conservative standard, one akin to the criminal standard.

Conclusion

Prior to this study the willingness and ability of Canadian jurors to apply the probabilistic civil standard to probabilistic evidence against a defendant that barely met the standard, and a case in which a mistaken assignment would be costly to the defendant, had not been investigated. By presenting mock civil cases in writing, this study offered the opportunity to collect this data. The cases were brief, simple, and the evidence against the defendant was defined numerically. Participants were advised of the civil standard of proof and decided liability immediately after reading the case. Participants were informed of the cost of damages but were not asked to consider it. To avoid personal biases, there were no descriptions of either party or their actions, no discrimination in reputation of the manufacturers, and no closing arguments were presented.

The study attracted 640 participants. Too few participated conscientiously. The data of 286 participants were excluded from analyses because they rushed through the study, or offered bizarre responses. Excluding 44.7% of participant responses suggests a problem in online research. Future research must concern itself with the number of participants who begin a study, but who show a lack of care in responding to it. Researchers might benefit from a return to in-house research, a proven avenue to gathering data, and accessing members of the public as well as University students.

Of the 354 participants whose data were analyzed, only 204 or 57.6%, correctly assigned liability. A possible explanation for this poor performance may be that 74.6% of the participants did not follow the instructions and use the standard they were instructed

to use. In the group, which used a different standard, only 44.7% of participants made the correct decisions.

Of 354 participants, 90 used the civil standard to assign liability. In this group, 86 participants, or 95.6%, made the correct legal decision.

Correctly, this group assigned liability differently to defendants who differed in the likelihood of having caused the damage: They assigned liability significantly more often in the cases in which the level of evidence against the defendant satisfied the standard, specifically, the defendant was 51% likely, or 95% to have caused the damage, compared to those cases in which the level of evidence against the defendant failed to satisfy the standard, specifically, the defendant was only 5%, or 50% likely to have caused the damage ($\chi^2(3)=74.752$, $p < .0001$). There is a large relationship between the absolute level of probabilistic evidence against the defendant and participants' assignments of liability (Cramer's $V = .911$).

Even more impressive, and these results suggest a perfect understanding of the standard in these 90 participants: Not one assigned liability to a defendant who was 50% likely to have caused the damage, but 91.3% of the participants who read that the defendant was 51% likely to have caused the damage assigned liability to the defendant, a significant difference ($z=5.2337$, $p < .0001$, 95% C.I.= 0.5711 - 1.2549). These 90 participants offer reason to hope that some jurors have a firm grasp of probability theory, can apply it to probabilistic evidence and correctly discriminate between differences in probabilistic evidence as small as 1%.

A total of 264 did not use the standard. The chance of assigning liability correctly was .5, and fewer than half of this group, 118, assigned liability correctly. However, even

in this group, the correct assignments of liability were not random. Incorrectly, participants discriminated between cases in which the evidence against the defendant satisfied the standard, specifically, the defendant was 51% likely, or 95% to have caused the damage, compared to those cases in which the level of evidence against the defendant failed to satisfy the standard, specifically, the defendant was only 5%, or 50% likely to have caused the damage ($\chi^2(1)=4.033$, $p = .045$). There was a small relationship between the level evidence against the defendant and the correct assignments of liability for participants that did not use the standard to decide liability (Cramer's $V = -.124$).

This study does not explain why so few participants used the standard they were instructed to use. Many used a more stringent standard. It is unknown whether this preference issued from an unarticulated preference for a higher standard, or a purposeful rejection of a less stringent standard.

Future studies need to find a way to access well-educated and motivated participants. Studies should identify those participants who can understand the current standard of proof and apply it to probabilistic evidence and those who cannot. Even if participants understand probability theory, understand the standard of proof, and can apply the standard to probabilistic evidence, to avoid jurors disregarding a standard that they think "leans" unfairly against the defendant, a judge might have to persuade jurors that the standard is fair.

In actual cases, the Court should consider a means for ensuring competence in understanding probability theory, the probabilistic standard, the ability to apply the standard to probabilistic evidence, and the willingness of a juror to apply the standard. If a juror did not understand English, would the juror not be excused? If the juror does not

understand probability theory, the foundation of the standard of proof, should this juror not be excused? The need to face the legal issues of this kind of culling of would-be jurors depends, it seems, on studies that identify the impact of competence in this area, and then the will of the legal system to find an acceptable way to test for this competence.

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Appendices

Appendix A- Informed Consent Form

REB File # 12-288

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Principal Investigator: Krystal Lariviere –krystal.lariviere@smu.ca - 902.414.4550

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REB File # 12-288

INTRODUCTION

My name is Krystal Lariviere, and I am administering this research study. Dr.

Konopasky is my supervisor for this study.

As you read the consent form, you will be asked 3 questions about it. This is intended to enhance participant understanding of the study. Correctly answering a question on one part of the form is necessary before you proceed to the next part of the form.

PURPOSE OF THE/THIS RESEARCH

The nature of this research study is to explore how individuals think about law suits, or court cases in which one party sues another, and involves gathering responses in circumstances where a person must assign liability in the context of a civil suit.

WHAT ARE THE POTENTIAL BENEFITS OF THIS RESEARCH?

A direct benefit is the opportunity for you to participate in psychological research.

WHAT ARE THE POTENTIAL RISKS FOR YOU AS A PARTICIPANT?

There are no potential, reasonably foreseeable, risks that may emerge from this study.

You are free to withdraw at any time without penalty. We ask that you withdraw if you experience any stress or anxiety.

WHO IS BEING INVITED TO PARTICIPATE?

The participants for this study will be Saint Mary's University undergraduate students who have signed-up online for the study on the Saint Mary's SONA system.

You will be compensated for registering to do the study and going to the website for it with one-half (.5) of a bonus points.

Full credit of one point will be granted only to those who read all the material, make a decision about liability, and provide minimal biographical information.

NOTICE TO STUDENTS UNDER AGE OF 18

For this particular study, you must be 18 years of age to be able to consent to participate.

And, to serve on a jury, one person must be 18 or more years of age. As we want you to act as a mock juror, it is better if you are 18 years or more years of age.

If you are not 18 years of age, we ask that you not to "sign" this form, and not to complete the questionnaire.

If under the age of 18, we ask that, you to log-off the Qualtrics site now.

WHAT WILL YOU HAVE TO DO?

The entire study process (starting with reading this Informed Consent Form for this research experience) is expected to require not more than fifteen (15) minutes of your time.

You will be asked to read this Informed Consent Form. To show consent, we ask that you "check off" the consent box.

You will be asked to read about a civil lawsuit, in which a Plaintiff sues a Defendant for

having caused damage to the Plaintiff.

Your responses will be anonymous. You will not provide any information that could be used to link a completed questionnaire to you.

HOW CAN YOU WITHDRAW FROM THIS STUDY?

You are free to withdraw at any time without penalty.

You may terminate participation at any time by closing any window in which the survey appears in at any time.

You cannot withdraw after completing the web questionnaire. Once the study is completed, the answers are automatically stored with group data. However, the information you provide will not be linked to you, and cannot be linked to you.

WHAT WILL BE DONE WITH YOUR INFORMATION? (OR WHO WILL HAVE ACCESS TO IT?)

Your responses are confidential and anonymous. Completed questionnaire data will be downloaded electronically by Ms. Lariviere and retained in a data storage device, which will be kept in a locked filing cabinet in a locked office in 310G McNally main Building of Saint Mary's University. The data will be retained for a period of no more than 7 years, when it will be destroyed.

Having completed this particular research study, you will not be eligible to participate in similar studies that Ms. Lariviere administers.

Anticipated uses of the group or aggregate data gathered by this study may include presentation at psychology conferences or publication.

HOW CAN A PARTICIPANT LEARN ABOUT THE OUTCOME OF THE STUDY?

A summary of the outcome of the study will be available after November 1, 2013.

Results of the study will be posted outside of MM310G from November 1, 2013 to December 1, 2013, or you may contact me or my faculty supervisors at the following coordinates:

Faculty supervisor: Dr. Robert Konopasky – rkonopasky@me.com or 902.420.5855

Principal Investigator: Krystal Lariviere- Krystal.lariviere@smu.ca or 902.414.4550

This contact information is for the sole purpose of scholarly discussions about this research or reporting adverse events related to this research.

REPORTING AN ADVERSE EVENT THAT A PARTICIPANT EXPERIENCES

If you experienced an adverse event as a result of participating in the study, you are encouraged to contact the Faculty Researcher Dr Robert Konopasky, or the Principal Investigator Krystal Lariviere.

Any adverse event that is made known to the Faculty Supervisor, Robert Konopasky, or Principal Investigator Krystal Lariviere, will be reported to the Research Ethics Board (“REB”).

Certification: This research has been reviewed and approved by the Saint Mary’s University Research Ethics Board. If you have any questions or concerns about ethical matters, you may contact the Chair of the Saint Mary's University Research Ethics Board, at ethics@smu.ca or 420-5728.

Checking box below to confirm Agreement: I understand what this study is about and appreciate the risks and benefits.

I have had adequate time to think about this and have had the opportunity to ask questions. I understand that my participation is voluntary and that I can end my participation at any time.

[ONLINE BOX PLACED HERE, LABELLED 'I CONSENT']

[ONLINE BOX PLACED HERE, LABELLED 'I DO NOT CONSENT']

Appendix B- Questionnaire

REB File # 12-288

Faculty Supervisor: Dr. Robert Konopasky – rkonopasky@me.com - 902.489.9611
Principal Investigator: Krystal Lariviere –krystal.lariviere@smu.ca - 902.414.4550

Psychology Department
Saint Mary’s University
Halifax, NS
B3H 3C3

Please refer to Appendix A for Informed Consent.

PART I – GENERAL INSTRUCTIONS

For this study, please imagine that you are a Canadian juror who will decide whether a Defendant was liable in a civil suit. Please consider all information carefully and without bias.

We ask for your serious consideration of the materials.

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PART II- THE CASE and JUDGE’S INSTRUCTIONS

This is a 3 (quantum of damages) X 2 (probability of the Defendant having caused damages study.

See the table below for a summary of the design.

See a detailed description of the 6 cells in the study below: (*Make sure the numbering of the cells makes sense in terms of the layout of the table.*)

Case One

1. This civil law suit, involves two private companies.

2. One Company tests rocket motors (the Plaintiff), and one Company produces ball bearings (the Defendant).
3. The Plaintiff requires 100 ball bearings for use in a rocket motor test. The Plaintiff bought and used 5 bearings supplied by the Defendant. The Defendant guaranteed that the bearings would rotate one billion times without defect.
4. The Plaintiff used 5 of the Defendant's bearings, and 95 bearings that came from stock the Plaintiff had.
5. All of the suppliers, including the Defendant, and the suppliers of the other bearings, offered the same warranty of their bearings rotating one billion times without defect.
6. All of the suppliers, including the Defendant, have the same reputation.
7. During a test of the rocket motor, a heat problem developed quickly in the motor, and within fewer than 10,000 rotations of the bearings. A sensor pinpointed one single ball bearing as causing the problem: The bearing had stopped rotating, the motor seized-up, and exploded. As a result, the motor was completely destroyed.
8. The Plaintiff is suing the Defendant for \$5,000.00, to cover the cost of the motor that was damaged.
9. The judge states that the standard of proof in civil litigation is that if it is more likely than not that the Defendant caused damage, then the Defendant did cause damage.

Case Two

1. This civil law suit, involves two private companies.
2. One Company tests rocket motors (the Plaintiff), and one Company produces ball bearings (the Defendant).
3. The Plaintiff requires 100 ball bearings for use in a rocket motor test. The Plaintiff

bought and used 5 bearings supplied by the Defendant. The Defendant guaranteed that the bearings would rotate one billion times without defect.

4. The Plaintiff used 5 of the Defendant's bearings, and 95 bearings that came from stock the Plaintiff had.

5. All of the suppliers, including the Defendant, and the suppliers of the other bearings, offered the same warranty of their bearings rotating one billion times without defect.

6. All of the suppliers, including the Defendant, have the same reputation.

7. During a test of the rocket motor, a heat problem developed quickly in the motor, and within fewer than 10,000 rotations of the bearings. A sensor pinpointed one single ball bearing as causing the problem: The bearing had stopped rotating, the motor seized-up, and exploded. As a result, the motor was completely destroyed.

8. The Plaintiff is suing the Defendant for \$1,000,000.00, to cover the cost of the motor that was damaged.

9. The judge states that the standard of proof in civil litigation is that if it is more likely than not that the Defendant caused damage, then the Defendant did cause damage.

Case Three

1. This civil law suit, involves two private companies.

2. One Company tests rocket motors (the Plaintiff), and one Company produces ball bearings (the Defendant).

3. The Plaintiff requires 100 ball bearings for use in a rocket motor test. The Plaintiff bought and used 5 bearings supplied by the Defendant. The Defendant guaranteed that the bearings would rotate one billion times without defect.

4. The Plaintiff used 5 of the Defendant's bearings, and 95 bearings that came from stock

the Plaintiff had.

5. All of the suppliers, including the Defendant, and the suppliers of the other bearings, offered the same warranty of their bearings rotating one billion times without defect.
6. All of suppliers, including the Defendant, have the same reputation.
7. During a test of the rocket motor, a heat problem developed quickly in the motor, and within fewer than 10,000 rotations of the bearings. A sensor pinpointed one single ball bearing as causing the problem: The bearing had stopped rotating, the motor seized-up, and exploded. As a result, the motor was completely destroyed.
8. The Plaintiff is suing for damages to the motor.
9. The judge states that the standard of proof in civil litigation is that if it is more likely than not that the Defendant caused damage, then the Defendant did cause damage.

Case Four

1. This civil law suit, involves two private companies.
2. One Company tests rocket motors (the Plaintiff), and one Company produces ball bearings (the Defendant).
3. The Plaintiff requires 100 ball bearings for use in a rocket motor test. The Plaintiff bought and used 50 bearings supplied by the Defendant. The Defendant guaranteed that the bearings would rotate one billion times without defect.
4. The Plaintiff used 50 of the Defendant's bearings, and 50 bearings that came from stock the Plaintiff had.
5. All of the suppliers, including the Defendant, and the suppliers of the other bearings, offered the same warranty of their bearings rotating one billion times without defect.
6. All of the suppliers, including the Defendant, have the same reputation.

7. During a test of the rocket motor, a heat problem developed quickly in the motor, and within fewer than 10,000 rotations of the bearings. A sensor pinpointed one single ball bearing as causing the problem: The bearing had stopped rotating, the motor seized-up, and exploded. As a result, the motor was completely destroyed.

8. The Plaintiff is suing the Defendant for \$5,000.00, to cover the cost of the motor that was damaged.

9. The judge states that the standard of proof in civil litigation is that if it is more likely than not that the Defendant caused damage, then the Defendant did cause damage.

Case Five

1. This civil law suit, involves two private companies.

2. One Company tests rocket motors (the Plaintiff), and one Company produces ball bearings (the Defendant).

3. The Plaintiff requires 100 ball bearings for use in a rocket motor test. The Plaintiff bought and used 50 bearings supplied by the Defendant. The Defendant guaranteed that the bearings would rotate one billion times without defect.

4. The Plaintiff used 50 of the Defendant's bearings, and 50 bearings that came from stock the Plaintiff had.

5. All of the suppliers, including the Defendant, and the suppliers of the other bearings, offered the same warranty of their bearings rotating one billion times without defect.

6. All of the suppliers, including the Defendant, have the same reputation.

7. During a test of the rocket motor, a heat problem developed quickly in the motor, and within fewer than 10,000 rotations of the bearings. A sensor pinpointed one single ball bearing as causing the problem: The bearing had stopped rotating, the motor seized-up,

and exploded. As a result, the motor was completely destroyed.

8. The Plaintiff is suing the Defendant for \$1,000,000.00, to cover the cost of the motor that was damaged.

9. The judge states that the standard of proof in civil litigation is that if it is more likely than not that the Defendant caused damage, then the Defendant did cause damage.

Case Six

1. This civil law suit, involves two private companies.

2. One Company tests rocket motors (the Plaintiff), and one Company produces ball bearings (the Defendant).

3. The Plaintiff requires 100 ball bearings for use in a rocket motor test. The Plaintiff bought and used 50 bearings supplied by the Defendant. The Defendant guaranteed that the bearings would rotate one billion times without defect.

4. The Plaintiff used 50 of the Defendant's bearings, and 50 bearings that came from stock the Plaintiff had.

5. All of the suppliers, including the Defendant, and the suppliers of the other bearings, offered the same warranty of their bearings rotating one billion times without defect.

6. All of the suppliers, including the Defendant, have the same reputation.

7. During a test of the rocket motor, a heat problem developed quickly in the motor, and within fewer than 10,000 rotations of the bearings. A sensor pinpointed one single ball bearing as causing the problem: The bearing had stopped rotating, the motor seized-up, and exploded. As a result, the motor was completely destroyed.

8. The Plaintiff is suing for damages to the motor.

9. The judge states that the standard of proof in civil litigation is that if it is more likely

than not that the Defendant caused damage, then the Defendant did cause damage.

Case Seven

1. This civil law suit, involves two private companies.
2. One Company tests rocket motors (the Plaintiff), and one Company produces ball bearings (the Defendant).
3. The Plaintiff requires 100 ball bearings for use in a rocket motor test. The Plaintiff bought and used 51 bearings supplied by the Defendant. The Defendant guaranteed that the bearings would rotate one billion times without defect.
4. The Plaintiff used 51 of the Defendant's bearings, and 49 bearings that came from stock the Plaintiff had.
5. All of the suppliers, including the Defendant, and the suppliers of the other bearings, offered the same warranty of their bearings rotating one billion times without defect.
6. All of the suppliers, including the Defendant, have the same reputation.
7. During a test of the rocket motor, a heat problem developed quickly in the motor, and within fewer than 10,000 rotations of the bearings. A sensor pinpointed one single ball bearing as causing the problem: The bearing had stopped rotating, the motor seized-up, and exploded. As a result, the motor was completely destroyed.
8. The Plaintiff is suing the Defendant for \$5,000.00, to cover the cost of the motor that was damaged.
9. The judge states that the standard of proof in civil litigation is that if it is more likely than not that the Defendant caused damage, and then the Defendant did cause damage.

Case Eight

1. This civil law suit, involves two private companies.

2. One Company tests rocket motors (the Plaintiff), and one Company produces ball bearings (the Defendant).
3. The Plaintiff requires 100 ball bearings for use in a rocket motor test. The Plaintiff bought and used 51 bearings supplied by the Defendant. The Defendant guaranteed that the bearings would rotate one billion times without defect.
4. The Plaintiff used 51 of the Defendant's bearings, and 49 bearings that came from stock the Plaintiff had.
5. All of the suppliers, including the Defendant, and the suppliers of the other bearings, offered the same warranty of their bearings rotating one billion times without defect.
6. All of the suppliers, including the Defendant, have the same reputation.
7. During a test of the rocket motor, a heat problem developed quickly in the motor, and within fewer than 10,000 rotations of the bearings. A sensor pinpointed one single ball bearing as causing the problem: The bearing had stopped rotating; the motor seized-up, and exploded. As a result, the motor was completely destroyed.
8. The Plaintiff is suing the Defendant for \$1,000,000.00, to cover the cost of the motor that was damaged.
9. The judge states that the standard of proof in civil litigation is that if it is more likely than not that the Defendant caused damage, then the Defendant did cause damage.

Case Nine

1. This civil law suit, involves two private companies.
2. One Company tests rocket motors (the Plaintiff), and one Company produces ball bearings (the Defendant).
3. The Plaintiff requires 100 ball bearings for use in a rocket motor test. The Plaintiff

bought and used 51 bearings supplied by the Defendant. The Defendant guaranteed that the bearings would rotate one billion times without defect.

4. The Plaintiff used 51 of the Defendant's bearings, and 49 bearings that came from stock the Plaintiff had.

5. All of the suppliers, including the Defendant, and the suppliers of the other bearings, offered the same warranty of their bearings rotating one billion times without defect.

6. All of suppliers, including the Defendant, have the same reputation.

7. During a test of the rocket motor, a heat problem developed quickly in the motor, and within fewer than 10,000 rotations of the bearings. A sensor pinpointed one single ball bearing as causing the problem: The bearing had stopped rotating, the motor seized-up, and exploded. As a result, the motor was completely destroyed.

8. The Plaintiff is suing for damages to the motor.

9. The judge states that the standard of proof in civil litigation is that if it is more likely than not that the Defendant caused damage, then the Defendant did cause damage.

Case Ten

1. This civil law suit, involves two private companies.

2. One Company tests rocket motors (the Plaintiff), and one Company produces ball bearings (the Defendant).

3. The Plaintiff requires 100 ball bearings for use in a rocket motor test. The Plaintiff bought and used 95 bearings supplied by the Defendant. The Defendant guaranteed that the bearings would rotate one billion times without defect.

4. The Plaintiff used 95 of the Defendant's bearings, and 5 bearings that came from stock the Plaintiff had.

5. All of the suppliers, including the Defendant, and the suppliers of the other bearings, offered the same warranty of their bearings rotating one billion times without defect.
6. All of the suppliers, including the Defendant, have the same reputation.
7. During a test of the rocket motor, a heat problem developed quickly in the motor, and within fewer than 10,000 rotations of the bearings. A sensor pinpointed one single ball bearing as causing the problem: The bearing had stopped rotating, the motor seized-up, and exploded. As a result, the motor was completely destroyed.
8. The Plaintiff is suing the Defendant for \$5,000.00, to cover the cost of the motor that was damaged.
9. The judge states that the standard of proof in civil litigation is that if it is more likely than not that the Defendant caused damage, then the Defendant did cause damage.

Case Eleven

1. This civil law suit, involves two private companies.
2. One Company tests rocket motors (the Plaintiff), and one Company produces ball bearings (the Defendant).
3. The Plaintiff requires 100 ball bearings for use in a rocket motor test. The Plaintiff bought and used 95 bearings supplied by the Defendant. The Defendant guaranteed that the bearings would rotate one billion times without defect.
4. The Plaintiff used 95 of the Defendant's bearings, and 5 bearings that came from stock the Plaintiff had.
5. All of the suppliers, including the Defendant, and the suppliers of the other bearings, offered the same warranty of their bearings rotating one billion times without defect.
6. All of the suppliers, including the Defendant, have the same reputation.

7. During a test of the rocket motor, a heat problem developed quickly in the motor, and within fewer than 10,000 rotations of the bearings. A sensor pinpointed one single ball bearing as causing the problem: The bearing had stopped rotating, the motor seized-up, and exploded. As a result, the motor was completely destroyed.

8. The Plaintiff is suing the Defendant for \$1,000,000.00, to cover the cost of the motor that was damaged.

9. The judge states that the standard of proof in civil litigation is that if it is more likely than not that the Defendant caused damage, then the Defendant did cause damage.

Case Twelve

1. This civil law suit, involves two private companies.

2. One Company tests rocket motors (the Plaintiff), and one Company produces ball bearings (the Defendant).

3. The Plaintiff requires 100 ball bearings for use in a rocket motor test. The Plaintiff bought and used 95 bearings supplied by the Defendant. The Defendant guaranteed that the bearings would rotate one billion times without defect.

4. The Plaintiff used 95 of the Defendant's bearings, and 5 bearings that came from stock the Plaintiff had.

5. All of the suppliers, including the Defendant, and the suppliers of the other bearings, offered the same warranty of their bearings rotating one billion times without defect.

6. All of the suppliers, including the Defendant, have the same reputation.

7. During a test of the rocket motor, a heat problem developed quickly in the motor, and within fewer than 10,000 rotations of the bearings. A sensor pinpointed one single ball bearing as causing the problem: The bearing had stopped rotating, the motor seized-up,

and exploded. As a result, the motor was completely destroyed.

8. The Plaintiff is suing for damages to the motor.

9. The judge states that the standard of proof in civil litigation is that if it is more likely than not that the Defendant caused damage, then the Defendant did cause damage.

=====

PART III – Assignment of Liability

You are asked to assign liability, or not, to the Defendant for damages to the Plaintiff’s motor.

1) Please choose the response which best describes your assignment of liability:

A: The Defendant is liable for the damages caused to the Plaintiff’s motor.

B: The Defendant is not liable for the damages caused to the Plaintiff’s motor.

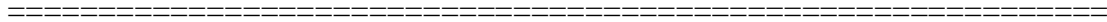
2) You were asked to assign or not assign liability, for damages for the cause of the motor. You selected answer (*participants choice will be generated here*). Please tell us why you assigned liability in this way.

_____ (*blank window participant can type inside*)

3) If you had the freedom to assign liability in anyway you wanted, how would you assign liability? Would it be the same as the liability you did assign or different.

Please fill in the box, with how you would assign liability if you had the freedom to choose any assignment of liability that seemed fair.

_____ (*blank window participant can type inside*)



PART IV – PARTICIPATION

I would appreciate it very much if you answer answering the following question honestly.

Did you consider the evidence in the way you would if you were a real juror serving on a real jury in a real law suit?

- A. No, the results do not reflect the way I would act in a real case. In a real case, I would have considered the evidence more carefully.
- B. Yes, I acted as I would in a real case. I was careful in considering the evidence.

Appendix C- Advertisement

REB File # 12-288

Faculty Supervisor: Dr. Robert Konopasky – rkonopasky@me.com - 902.489.9611
Principal Investigator: Krystal Lariviere –krystal.lariviere@smu.ca - 902.414.4550

**Psychology Department
Saint Mary's University
Halifax, NS
B3H 3C3**

Brief Description: You are asked to pretend to be jurors, in a civil law suit in Canada.

The Researchers: Krystal Lariviere, who is an MSc student at Saint Mary's University, is administering this study.

Purpose: The nature of this research study is to explore how individuals think about law suits, or court cases in which one party sues another, and involves gathering responses in circumstances where a person must assign liability in the context of a civil suit.

Participants: You will act as pretend ("mock") jurors. As jurors must be 18 years of age, you must be 18 years of age to participate in this study. The participants for this study will be undergraduate students attending Saint Mary's University, who register for the study on SONA.

This study will be open to participants from September, 4 2013 to November, 25 2013.

Background of this Study: Juror behavior has been studied in the US, but this study relates to juror behavior in Canadian civil litigation.

No Risks: There are no foreseeable risks associated with this study. The case is similar to what can be found in newspapers, textbooks, and electronic news and

entertainment communications. It is possible (though highly unlikely) that some level of stress or anxiety of a very small magnitude may be experienced when completing the study. If participants experience stress, they are asked to quit the study.

Anonymity: Individual participants in this study cannot, and will not, be identified directly or indirectly in any article, paper, or other form of report of the study. Only group data will be presented.

What You Will Do: You will be told the “Standard of Proof” for deciding civil litigation in Canada. You will be presented with a mock case of civil litigation. The study then asks that you decide liability -- who is legally responsible -- after reading the lawsuit.

Time and Compensation: The whole study should not require more than fifteen (15) minutes to complete. You will be compensated for your participation with one-half (.5) of a bonus points towards an eligible psychology course, which you select when you register with SONA system maintained by Saint Mary’s University.

One-half (.5) of one point will be granted only to those have read all of the material, make a decision about liability, and provide minimal biographical information.

Appendix D- Debriefing Form

REB File # 12-288

Faculty Supervisor: Dr. Robert Konopasky – rkonopasky@me.com - 902.489.9611
Principal Investigator: Krystal Lariviere –krystal.lariviere@smu.ca - 902.414.4550

Psychology Department
Saint Mary's University
Halifax, NS
B3H 3C3

Thank you for your participation in this online study.

If you registered and went to the study's website, you were assigned one-half (.5) of a bonus points for the eligible psychology course you designated when you registered with SONA.

If you read the materials, made a decision about liability and provided minimal biographical information, you were one bonus points for an eligible psychology course you designated when you registered with SONA.

As indicated on the informed consent, this study explored how individuals think about lawsuits.

Different participants read different about lawsuits. This allowed us to compare responses to different lawsuits.

SONA prevented identification of your responses to the study. Your responses are unknown to the investigators.

The data collected from this study will be stored on an electronic data storage device in a locked laboratory at Saint Mary's, and all data will be destroyed in seven (7) years.

The results of the study will be presented as group data; no individual participants will be identified.

If you are interested in knowing the results of this study, a summary of the outcome of the study can be obtained from Krystal Lariviere at krystal.lariviere@smu.ca after November 1, 2013.

If you suffered adverse effects from participation in this study; please contact the Saint Mary's University Counselling Service located on the 4th floor of the student centre at: (902) 420-5615, counselling@smu.ca, or fax (902)-491-6248.

And, if you experienced an adverse event as a result of participating in this study, you are encouraged to immediately contact the principal investigator Krystal Lariviere. Any concerns you may have will be passed on to the Saint Mary's University REB (Research Ethics Board).

If you have questions or concern regarding the study, you may contact:

Dr. Konopasky at 902-420-5855, or robert.konopasky@smu.ca;

[Krystal Lariviere at 902-414-4550, or krystal.lariviere@smu.ca](mailto:krystal.lariviere@smu.ca)

[Please note that this contact information is for research purposes only.](#)

This research has been reviewed and approved by the Saint Mary's University Research Ethics Board. If you have any questions or concerns about ethical matters, you may contact the Chair of the Saint Mary's University Research Ethics Board, at ethics@smu.ca or 420-5728.

Thank you for your participation in this online study.

Krystal Lariviere