“Reasonable Degree of Certainty” During Expert Testimony

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Introduction

In many jurisdictions throughout the United States, expert witnesses are asked during deposition or trial whether their opinions were formulated to a “reasonable degree of professional (or medical, scientific, psychological, accounting, economic, etc.) certainty.” The determination of whether an expert’s testimony is “reasonably certain” is a requirement for admissibility (Lindsey v. Miami Dev. Corp., 1985). According to Lewin (1998), the term “reasonable degree of certainty” originated in Illinois between 1915 and 1930, spreading to at least twenty-two other jurisdictions between 1940 and 1960. Although the term is used throughout the United States, no consistent definition has ever been established. Bradford (2001) argues:

Given the broad popular usage and acceptance of the concept of “reasonable medical certainty,” it would be expected that the courts have given the phrase a precise and definite meaning. On the contrary, appellate opinions seem to use the phrase “reasonable medical certainty” as if its meaning were self-evident.

A problem exists since expert witnesses, including forensic accounting experts, are often expected to testify that their opinions are reasonably certain, without guidance regarding the meaning or importance of the phrase. Judges and justices determine whether an expert’s testimony is admissible, guided by the Federal Rules of Evidence, Rules 702, concerning who may testify as an expert in a federal court (Huber, 2014). They also receive guidance from the Federal Rules of Evidence, Rule 703, and various court cases, including Daubert v. Merrell Dow Pharmaceuticals (509 U.S. 579, 1993) and Kumho Tire Co. v. Carmichael (526 U.S. 137, 1999, 131F.3d 1433, reversed), regarding on what experts may base their testimony (Huber, 2014). There is no formal guidance for judges and justices, however, regarding use of the phrase reasonable degree of certainty during expert testimony.

Black’s Law Dictionary (2009) defines reasonable certainty as “a standard requiring a showing that the injury was more likely than not caused by a particular stimulus, based on the general consensus of recognized medical thought.” This definition suggests that a probability of fifty-one percent or better constitutes reasonable certainty. The Superior Court of Pennsylvania ruled in Griffen v. University of Pittsburgh Medical Center (2008) that a doctor who testified that there was a fifty-one percent chance that an action caused an injury did not provide a sufficient basis for testifying to a reasonable degree of medical certainty. Although it stated that fifty-one percent certainty was insufficient, the Court did not provide a percentage of certainty that would have been sufficient.

Given the discrepancy that exists between judges and justices interpreting the meaning of this phrase individually, this study contributes to the fields of many professions. Individuals in academia and the professional community are often called on to testify in court as expert witnesses. Once this study is published, those who testify as expert witnesses will have a peer-reviewed source to which they can refer during deposition or trial when asked to define reasonable degree of certainty. Being able to provide a peer-reviewed source for an expert witness’ opinions is critical when a court is determining the admissibility of that expert’s testimony (Daubert v. Merrell Dow, 1993). Judges and justices will also be able to determine how others in their position interpret the phrase. This study also contributes to research on testifying as an expert witness in any discipline, including forensic accounting. It uncovers a gap in the literature regarding the definition and importance of the phrase reasonable degree of certainty during expert testimony. Recognition of this deficiency in the literature will encourage further study of the topic. This study provides insights into how those who make the decision of whether an expert’s testimony is admissible—judges and justices—define the phrase. It is critical

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that testifying experts understand the issues surrounding this phrase, and how it can be interpreted. This study indicates whether judges and justices view use of the phrase in legal settings positively or negatively, and is first to survey judges and justices regarding use of the phrase reasonable degree of certainty, filling a void in the literature.

Review of the Literature

Research on forensic accountants who testify as expert witnesses is limited (DiGabriele, 2011, 2012), but some research exists on the skills required of a testifying forensic accountant (DiGabriele, 2008). Much research on use of the phrase reasonable degree of certainty focuses on testimony from medical experts, but regardless of whether the discipline of an expert is accounting, scientific, medical, or psychological, issues with use of the phrase are the same. Publications outside case law view the phrase negatively, and a push in the literature to discontinue its use is evident (NCFS, 2016). The opposite is found from a review of case law, where it is used extensively to support the quality of an expert’s testimony. When the phrase is absent from an expert’s testimony, it is used to have that expert excluded (Avangard Financial Group, Inc. v. Raich Ende Malter & Co, LLP, 2015). Some courts, however, have stated that use of the phrase is unnecessary to achieve a requisite degree of certainty or probability (Samuel v. Ford Motor Co., 2000).

In September 2016, the U.S. Department of Justice (DoJ), Office of Public Affairs, issued a statement regarding “new steps to advance and strengthen forensic science” (DoJ, 2016). The statement reads:

Department forensic laboratories will also review their policies and procedures to ensure that forensic examiners are not using the expressions “reasonable scientific certainty” or “reasonable (forensic discipline) certainty” in their reports or testimony. Department prosecutors will also abstain from using these expressions when presenting forensic reports or questioning forensic experts in court unless required by a judge or applicable law. This decision complements the department’s efforts announced earlier this year, to provide better guidance to forensic examiners and federal prosecutors on how to properly characterize the strength of forensic evidence in the courtroom.

In March 2016, the National Commission on Forensic Science (NCFS) issued a formal recommendation to the Attorney General regarding use of the term reasonable scientific certainty (NCFS, 2016). The Commission stated:

Forensic discipline conclusions are often testified to as being held “to a reasonable degree of scientific certainty’’ or “to a reasonable degree of [discipline] certainty.” These terms have no scientific meaning and may mislead factfinders about the level of objectivity involved in the analysis, its scientific reliability and limitations, and the ability of the analysis to reach a conclusion. There is no common definition within science disciplines as to what threshold establishes “reasonable” certainty. Therefore, whether couched as “scientific certainty’’ or “[discipline] certainty,’’ the term is idiosyncratic to the witness (NCFS, 2016).

The NCFS’s formal recommendations to the Attorney General were:

Recommendation #1: The Attorney General should direct all attorneys appearing on behalf of the Department of Justice (a) to forego use of these phrases when presenting forensic discipline testimony unless directly required by judicial authority as a condition of admissibility for the witness’ opinion or conclusion, and (b) to assert the legal position that such terminology is not required and is indeed misleading.

Recommendation #2: The Attorney General should direct all forensic science service providers and forensic science medical providers employed by Department of Justice not to use such language in reports or couch their testimony in such terms unless directed to do so by judicial authority.

Recommendation #3: The Attorney General should, in collaboration with NIST, urge the OSACs to develop appropriate language that may be used by experts when reporting or testifying about results or findings on observations of evidence and data derived from evidence (NCFS, 2016).

Lewin provides the most thorough analysis of the origin and use of the phrase (1998). Lewin argues:

Although judges expect, and sometimes insist, that expert opinions are expressed with “reasonable medical certainty,’’ and although attorneys ritualistically intone the phrase, no one knows what it means! No consensus exists among judges, attorneys, or academic commentators as to whether “reasonable medical certainty” means “more probable than not” or “beyond a reasonable doubt” or something in between.
Rule 702 of the Federal Rules of Evidence provides requirements for experts, intended to ensure quality and appropriate testimony from an expert. Rule 702 states that an expert can testify if the following conditions are met:

(a) the expert’s scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
(b) the testimony is based on sufficient facts or data;
(c) the testimony is the product of reliable principles and methods; and
(d) the expert has reliably applied the principles and methods to the facts of the case.

The Federal Rules of Evidence, however, do not require experts to testify that their opinions are reasonably certain (Myers, 2015). In Samuel v. Ford Motor Co. (2000), the Court stated:

An expert opinion based on speculation or guesswork will not meet the helpfulness requirements of Rule 702, nor will it be the product of reliable facts, as required by Rule 703. Thus, if speculative or conjectural, the opinion of an expert should be excluded by the trial judge under Rule 104(a). However, nowhere in any of these rules is there a requirement that before an expert's opinion testimony may be admitted, he or she must affirmatively state that the opinion is held to a “reasonable degree of certainty or probability.” If the court determines, following its Rule 104(a) inquiry, that the foundational requirements of Rules 401, 403, 702, and 703 are met, the opinion is admissible regardless of whether the "magic words" have been evoked to elicit it.

The case of Daubert v. Merrell Dow Pharmaceuticals, Inc. (1993) also did not require an expert witness to use some variation of the terminology reasonable degree of certainty. Daubert instead focused on tests of reliability and relevance, stating that all expert witnesses are required to adhere to these tests, not just scientific experts.

Although the Federal Rules of Evidence and case law do not require testimony to be reasonably certain, some states mandate reasonable certainty. Coleman (2009) suggests:

For more than seventy years, the law in Florida has been that lost future profit damages are recoverable for an established business only as long as the loss is the natural result of the wrong and the amount can be established with reasonably certainty. Once the causation element is satisfied, certainty as to damages must be considered.

Florida case law indicates that the reasonable certainty standard means that “the mind of a prudent impartial person should be satisfied that the damages are not the result of speculation or conjecture” (Shadow Lakes, Inc. v. Cudlipp Const. et al., 1995). Various courts have attempted to define the term reasonably certain, or some variation of it, commonly using burden of proof to establish the meaning of the phrase. In Bobb Forest Prod., Inc. v. Morbark Indus., Inc. (2002) the Court stated, “A fact is ‘reasonably certain’ if it is probable or more likely than not.” In Cook Assoc., Inc. v. Warnick (1983), the Court defined reasonable certainty as “sufficient certainty that reasonable minds might believe from a preponderance of the evidence that the damages were actually suffered”. In Pietrzak v. Eggen, (1980), the Court stated, “The plaintiff must prove the reasonable certainty of future damages by a fair preponderance of the evidence.” In Boose v. Digate (1969), the Court stated:

When a Doctor is asked to base his opinion on a reasonable degree of medical certainty the certainty referred to is not that some condition in the future is certain to exist or not to exist. Rather, the reasonable certainty refers to the general consensus of recognized medical thought and opinion concerning the probabilities of conditions in the future based on present conditions.

This definition is cited and used again in Schrantz v. Luancing, (1986). The Court in each of these cases, however, did not address whether the experts in the case needed to state that their opinions were held to a reasonable degree of certainty. Some cases provide numerical probabilities of what constitutes reasonable certainty. In Bertram v. Wunning (1967), the expert, Dr. Niesen, was asked for his opinion, “based upon reasonable medical certainty,” about whether the cause of action caused an injury. Dr. Niesen answered, “I would say it would be about a ninety percent chance that it was caused by that and ten percent it wasn’t.” He was then asked whether his opinion was based on reasonable medical certainty, and he answered, “That’s the only way I could answer such a question.” Despite the answer, the Court held that the doctor’s testimony was insufficient evidence of a causal connection between the cause of action and injury. Many other cases simply indicate that the reasonable degree of certainty standard is met when evidence shows that some event was more probable than not, or fifty-one percent likely (Dallas v. Burlington N., Inc., 1984; Sanderson v. International Flavors, 1996).
In *Avangard Financial Group, Inc. v. Raich Ende Malter & Co, LLP* (2015), the defendant argued that an accounting expert’s opinions should be excluded since Kirwin, the expert, failed to state in his expert report that his opinions were held to a reasonable degree of accounting certainty. The Court rejected the argument, stating that under Pennsylvania law, experts are not required to use this terminology when issuing reports. The Court further stated that there was enough in Kirwin’s report “to lead the Court to conclude that his opinions are set forth with the requisite degree of certainty.” In Virginia, experts are required to state their opinions to a reasonable degree of certainty or probability (*Lone Mt. Processing, Inc. v. Bowser-Morner, Inc.*, 2005), and the phrase is also used in Georgia. In *Thompson v. Zwieren*, (2002), the Court gave the following instructions to the jury:

In order for the Plaintiff to show a medical cause and effect relationship, Plaintiff must present expert medical testimony show[ing] within a reasonable degree of medical certainty[,] as proven by a preponderance of the evidence[,] that the injury in question was proximately caused by the negligence of the Defendant. Expert testimony on the issue of causation cannot be based on speculation or possibilities. It’s not sufficient for the expert testimony to show the negligence, if any, is only a possible cause of the plaintiff’s injury, or that the alleged neglect merely might have caused the damages. If you find the Plaintiff has not proven to a reasonable degree of medical certainty by a preponderance of the evidence that the alleged damages were proximately caused by the Defendant’s neglect, then you would return a verdict for the Defendants.

The jury found for the defendants. The Court of Appeals in Georgia reversed the trial court’s judgement, stating that the trial court committed harmful error when it included in the jury instruction the phrase reasonable degree of medical certainty. The Georgia Supreme Court reversed the judgment of the Court of Appeals, finding no reversible error.

In *Freudeman v. Landing of Canton* (2012), the Court stated, “In Ohio, when testifying to proximate causation, an expert must testify that an event was the probable cause of the injury, that is, that it is more than fifty percent likely that the event caused the injury.” In West Virginia, experts are expected to use the phrase reasonable degree of certainty. In *Jordan v. Bero*, (1974), the Court stated, “Medical or other expert opinion testimony is required to establish the future effects of the injury to a reasonable degree of certainty.” Language from a South Carolinian case incorporates both reasonable certainty and probability. The Court in *Ellis v. Oliver* (1996) stated, “If the opinions of medical experts are relied on to establish proximate cause, the expert must state with reasonable certainty that, in his or her professional opinion, the plaintiff’s injuries most probably resulted from the negligence of the defendant.”

A reoccurring theme in the literature is a wide discrepancy regarding use of the phrase reasonable degree of certainty. Extant literature, and lack of it, prompted this study, whose purpose is to determine how judges and justices across the United States define and regard the phrase as it relates to expert testimony. The following research questions were used to address this gap in the literature:

- **RQ 1**: Do judges and justices define the phrase reasonable degree of certainty as having met a specific legal burden of proof?
- **RQ 2**: Do judges and justices believe that the definition and required use of the phrase reasonable degree of certainty depends on the testifying expert’s discipline?
- **RQ 3**: How do judges and justices regard use of the phrase reasonable degree of certainty by expert witnesses?
- **RQ 4**: Do judges and justices believe that the phrase reasonable degree of certainty lacks a consistent definition?

**Methodology**

Survey participants responded to fifteen items using a five-point, Likert-type scale to register their agreement or disagreement with a statement (Boone and Boone, 2012). The survey also allowed individual written responses to four questions in case the statements did not address the participant’s thoughts and opinions fully. The survey was anonymous, and participation was voluntary. Analysis of results included means, ranges, frequencies, and standard deviations. Two thousand surveys were mailed to a randomly selected group of judges and justices across the United States, and a purposive sample of 156 judges and justices completed the survey. A Likert-type scale that ranged from strongly disagree (1) to strongly agree (5) was used on the survey, which included fifteen statements that focused on the meaning and importance of the phrase reasonable degree of certainty (Boone and Boone, 2012). The survey also included four discursive questions that allowed participants to provide more thorough responses in case the previous questions did not address their thoughts and opinions fully. Questions that address RQ1 were:
Q1. When a testifying expert states that his/her opinions were formulated to a reasonable degree of certainty, the phrase “reasonable degree of certainty” means that there is a “preponderance of the evidence” in support of his/her opinion.

Q2. When a testifying expert states that his/her opinions were formulated to a reasonable degree of certainty, the phrase “reasonable degree of certainty” means that there is “clear and convincing evidence” in support of his/her opinion.

Q3. When a testifying expert states that his/her opinions were formulated to a reasonable degree of certainty, the phrase “reasonable degree of certainty” means that the expert’s opinion is accurate “beyond a reasonable doubt”.

Questions that address RQ2 were:

Q4. When a testifying expert states that his/her opinions were formulated to a reasonable degree of certainty, the phrase “reasonable degree of certainty” means different things depending on the testifying expert’s discipline.

Q9. The phrase “reasonable degree of certainty” should be used by scientific experts testifying to causation.

Q10. The phrase “reasonable degree of certainty” should be used by medical experts testifying to causation.

Q11. The phrase “reasonable degree of certainty” should be used by financial experts in determining damages.

Questions that address RQ3 were:

Q5. In order for expert testimony to be admissible, it must be “reasonably certain”.

Q6. If an expert does not state in writing that his/her opinion is “reasonably certain”, that expert’s opinion should be excluded.

Q7. If an expert does not state verbally that his/her opinion is “reasonably certain”, that expert’s opinion should be excluded.

Q8. Use of the phrase “reasonable degree of certainty” is not required as long as the expert’s opinion is sufficiently probative to be reliable.

Q12. The phrase “reasonable degree of certainty” should not be used in legal settings.

Q13. The legal and scientific community should not promote the use of the phrase “reasonable degree of certainty”.

Q14. The phrase “reasonable degree of certainty” should be left out of jury instructions.

Questions that address RQ4 were:

Q15. The phrase “reasonable degree of certainty”, when used in legal settings, lacks a consistent definition.

The discursive questions were:

Q16. Please provide your definition of the phrase “reasonable degree of certainty”.

Q17. Should the phrase “reasonable degree of certainty” be used in legal settings?

Q18. What has been your personal experience with the phrase “reasonable degree of certainty”?

Q19. In an effort to determine whether there is a relationship between the judges’/justices’ definition of “reasonable degree of certainty” and their jurisdiction or region, please provide the state in which you currently work:

Results

Analysis of responses to the first fifteen questions is discussed below. Written responses to Q16 through Q19 are shown in Appendices I, II, III, and IV, respectively. While no analysis of these written responses is provided, the authors hope that inclusion of these discursive statements within this study may assist the readers in better understanding the inconsistent views of the judges and justices that participated in the survey. Table 1 shows questions and frequency distributions of respondents’ answers for RQ1.
Most respondents (52.6%) agreed or strongly agreed that the phrase reasonable degree of certainty means that there is a preponderance of the evidence in support of his/her opinion (Q1). 32.7% of respondents agreed that when a testifying expert states that his/her opinions were formulated to a reasonable degree of certainty, the phrase reasonable degree of certainty means that there is clear and convincing evidence in support of his/her opinion (Q2). 58.2% of respondents disagreed or strongly disagreed with this statement. 92.9% of respondents disagreed or strongly disagreed that when a testifying expert states that his/her opinions were formulated to a reasonable degree of certainty, the phrase reasonable degree of certainty means that the expert’s opinion is accurate “beyond a reasonable doubt” (Q3). This was the most consistent answer that respondents gave to any of the statements. Consequently, judges and justices do not appear to perceive that an expert’s opinion must be accurate beyond a reasonable doubt.

Table 2 shows questions and frequency distributions of respondents’ answers for RQ2.

Results indicate that 48.1% of respondents agreed or strongly agreed that the phrase reasonable degree of certainty means different things depending on the testifying expert’s discipline (Q4). 39.0% disagreed or strongly disagreed with this statement. More research is needed to determine how the definition differs based on discipline. Q9 through Q11 were used to determine whether experts should be required to use the phrase reasonable degree of certainty based on their discipline. The percentage of respondents agreeing or strongly agreeing that scientific and medical experts testifying to causation should be using the phrase reasonable degree of certainty was 72.1% and 77.9%, respectively. Respondents
agreeing or strongly agreeing that financial experts should use the phrase were less at 58.7%. Results suggest that the phrase is sufficiently important to be used by scientific, medical, and financial experts.

Table 3 shows questions and frequency distributions of respondents’ answers for RQ3.

### Table 3: RQ 3 Frequency Distribution

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q5. In order for expert testimony to be admissible, it must be “reasonably certain”</td>
<td>16</td>
<td>36</td>
<td>9</td>
<td>62</td>
<td>26</td>
</tr>
<tr>
<td>Q6. If an expert does not state in writing that his/her opinion is “reasonably certain”, that expert’s opinion should be excluded.</td>
<td>36</td>
<td>67</td>
<td>22</td>
<td>25</td>
<td>5</td>
</tr>
<tr>
<td>Q7. If an expert does not state verbally that his/her opinion is “reasonably certain”, that expert’s opinion should be excluded.</td>
<td>18</td>
<td>55</td>
<td>20</td>
<td>46</td>
<td>15</td>
</tr>
<tr>
<td>Q8. Use of the phrase “reasonable degree of certainty” is not required as long as the expert’s opinion is sufficiently probative to be reliable.</td>
<td>18</td>
<td>38</td>
<td>17</td>
<td>68</td>
<td>12</td>
</tr>
<tr>
<td>Q12. The phrase “reasonable degree of certainty” should not be used in legal settings.</td>
<td>44</td>
<td>63</td>
<td>33</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Q13. The legal and scientific community should not promote the use of the phrase “reasonable degree of certainty”.</td>
<td>26</td>
<td>55</td>
<td>52</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>Q14. The phrase “reasonable degree of certainty” should be left out of jury instructions.</td>
<td>20</td>
<td>53</td>
<td>32</td>
<td>31</td>
<td>18</td>
</tr>
</tbody>
</table>

Results for questions related to RQ3 showed inconsistencies regarding the importance of the phrase reasonable degree of certainty. 59.1% of respondents agreed or strongly agreed that for expert testimony to be admissible, it must be reasonably certain (Q5). The percentage disagreeing or strongly disagreeing with the statement was 34.9%. More research is needed to determine how these 34.9% of respondents determine admissibility of expert testimony. When an expert prepares a formal written report, a decision must be made concerning whether to include a statement similar to “these opinions were formulated to a reasonable degree of accounting or economic certainty.” When experts do not include such a statement in a written report, they gamble on whether a judge will view its absence as cause to exclude the expert (Avangard Financial Group, Inc. v. Raich Ende Malter & Co, LLP, 2015). This is also true when experts are asked during deposition or trial whether their opinions were formulated to a reasonable degree of certainty. If experts state that they do not know what reasonable degree of certainty means, or if they state no, they risk being excluded.

Q6 through Q8 determined how respondents view the importance of including the phrase in the written report or stating the phrase verbally. 19.4% of respondents agreed or strongly agreed that if an expert does not state in writing that his/her opinion is reasonably certain, the expert’s opinion should be excluded (Q6). Most disagreed with this statement (66.5%); an expert who leaves the statement out of a report risks getting the one in five judges who believe its absence is grounds for exclusion. 39.6% believed that if experts do not state verbally that their opinions are reasonably certain, the expert should be excluded (Q7). 47.4% of respondents disagreed with the statement. Regarding Q8, 52.3% of respondents agreed or strongly agreed that use of the phrase is not required as long as an expert’s opinion is sufficiently probative to be reliable. This result conflicts with responses to Q9 through Q11 from RQ2, which indicate that scientific, medical, and financial experts should use the phrase.

To assess validity of responses, Q12 through Q14 asked the questions in a negative voice. Consistent with questions for RQ2, the importance of the phrase was clear in respondents’ answers. 69.9% of respondents disagreed or strongly disagreed that the phrase reasonable degree of certainty should not be used in legal settings (Q12). 52.3% disagreed or strongly disagreed that the legal and scientific community should not promote use of the phrase (Q13). Q13 had the
highest number of respondents answering neutral (33.5%), and the second highest was Q14, which asked whether the phrase should be left out of jury instructions; 47.4% of respondents believed that the phrase should not be left out, 31.8% believed that is should, and 20.8% were neutral.

Table 4 shows questions and frequency distributions of respondents’ answers for RQ4.

**Table 4: RQ 4 Frequency Distribution**

<table>
<thead>
<tr>
<th>Q15. The phrase “reasonable degree of certainty”, when used in legal settings, lacks a consistent definition.</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8</td>
<td>32</td>
<td>30</td>
<td>56</td>
<td>28</td>
</tr>
</tbody>
</table>

Results indicate that 54.5% of respondents agreed or strongly agreed that when used in legal settings, reasonable degree of certainty lacks a consistent definition. 26.0% of respondents disagreed with this statement, and 19.5% were neutral. Consequently, it appears that there is no consistent definition of the phrase. Forty respondents disagreed or strongly disagreed with Q15, that the phrase reasonable degree of certainty lacks a consistent definition when used in legal settings. These respondents must believe that a consistent definition of the phrase exists, and it would be interesting to determine whether there was consistency among these forty respondents regarding how they define the phrase. Table 5 shows a frequency distribution to determine whether there was some consistency to how these forty respondents answered Q1 through Q4, which attempts to define the phrase.

**Table 5: Frequency Distribution of Forty Respondents Who Disagreed with Q15**

<table>
<thead>
<tr>
<th>Q1. When a testifying expert states that his/her opinions were formulated to a reasonable degree of certainty, the phrase “reasonable degree of certainty” means that there is a “preponderance of the evidence” in support of his/her opinion.</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>8</td>
<td>2</td>
<td>13</td>
<td>12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q2. When a testifying expert states that his/her opinions were formulated to a reasonable degree of certainty, the phrase “reasonable degree of certainty” means that there is “clear and convincing evidence” in support of his/her opinion.</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15</td>
<td>9</td>
<td>1</td>
<td>11</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Q3. When a testifying expert states that his/her opinions were formulated to a reasonable degree of certainty, the phrase “reasonable degree of certainty” means that the expert’s opinion is accurate “beyond a reasonable doubt”.</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>22</td>
<td>17</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q4. When a testifying expert states that his/her opinions were formulated to a reasonable degree of certainty, the phrase “reasonable degree of certainty” means different things depending on the testifying expert’s discipline.</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>13</td>
<td>11</td>
<td>4</td>
<td>10</td>
<td>2</td>
</tr>
</tbody>
</table>

From Table 5, 62.5% of the forty respondents who disagreed or strongly disagreed with Q15 indicated that the phrase means that there is a preponderance of the evidence in support of an expert’s opinion, and 37.5% indicated that the phrase means that there is clear and convincing evidence. These respondents consistently disagreed that the phrase means beyond a reasonable doubt, with none agreeing or strongly agreeing with Q3. The number of observations, means, standard deviations, and minimum and maximum values for Q1 through Q15 appear in Table 6.
Analysis supports the argument that inconsistent definitions of the phrase reasonable degree of certainty exist. Analysis also suggests consistency regarding the importance of the phrase, and that it should be used by medical, scientific, and financial experts.

Limitations

Survey results were limited to the 156 participants. The surveys were mailed to 2,000 judges and justices across the United States. Surveys sent to professionals who are overworked often return poor results since the respondents do not have the time to complete a survey. Using a different method of gathering the data might result in a larger sample. Additional questions or revisions to existing questions would benefit a future study. When asked “If an expert does not state verbally that his/her opinion is ‘reasonably certain’, that expert’s opinion should be excluded” (Q7), 39.6% of participants agreed or strongly agreed with the statement. A future study should address whether those who agreed with this statement would still believe that the expert’s opinions should be excluded if the expert was not formally asked whether his/her opinions were formulated to a reasonable degree of certainty. Although forty-two of fifty states were represented in the sample, no state had enough responses to analyze them with reliable results. Q19 read “In an effort to determine whether there is a relationship between the judges’/justices’ definition of ‘reasonable degree of certainty’ and their jurisdiction or region, please provide the state in which you currently work”. Given the limited sample size, this study could not determine whether a jurisdictional relationship existed regarding how judges and justices define reasonable degree of certainty.

Conclusion

Myers (2015) recommends that experts ask themselves the following questions when determining the appropriateness of their testimony:

In formulating my opinions, did I consider all relevant facts? Do I have adequate understanding of pertinent clinical and scientific principles? Did I use methods of assessment that are appropriate, reliable, and valid? Are my inferences, assumptions, and conclusions reasonable and defensible?

Each expert is responsible for ensuring that his/her testimony is reliable and relevant, and meets requisite standards of reasonable certainty or probability in his/her jurisdiction. In the case Samuel v. Ford Motor Co. (2000), the plaintiff filed a motion for a new trial by stating, “The opinion testimony of the defendant's expert should have been stricken because it was not stated to a reasonable degree of engineering certainty.” Discussed earlier, the Court denied the motion, finding no requirement for experts to use the “magic words.” The Court stated:

<table>
<thead>
<tr>
<th>Question</th>
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Much labor could have been spared if the Defendant had used the “magic words” and directly asked [the expert] whether his opinions were held to a reasonable degree of certainty or probability. Indeed, cautious counsels, anxious to avoid motions such as this one, frequently do use them, just to play it safe.

Despite the apparent move seen in the literature to use terms other than reasonable degree of certainty during testimony, it is safe to assume that these magic words will not disappear from experts’ testimonies in the near future.
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Cook Assoc., Inc. v. Warnick, 664 P.2d 1161 (Utah 1983).


Freudeman v. Landing of Canton, 702 F.3d 318 (6th Cir. 2012).


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Myers, J. (2015). What is the meaning of “reasonable medical certainty”? Your guess is as good as mine. 50 Child Abuse & Neglect, The International Journal. 228–231.


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Appendix I:

Participant responses to the question: “Please provide your definition of the phrase ‘reasonable degree of certainty.’” (Q16)

1. That degree of certainty permitting conclusions or actions by those in the field or discipline at issue.
2. So far as I am aware, there is no consistent definition.
3. More likely than not; probable.
4. That based on the expert's training and experience, the facts and data presented lead the expert to the conclusion stated.
5. Opinion/testimony that is (1) based on sufficient facts or data and (2) is the product of reliable principles and methods and (3) that the witness has applied the principles and methods reliably to the facts in the case.
6. Much more likely than not.
7. That an expert would reasonably rely on the information in their specialty.
8. That degree of certainty an individual would require in making important decisions in his/her individual lives.
9. The expert has confidence in his/her opinion expressed, confident it is correct.
10. Based on the expert's knowledge and review, the expert has reached an opinion based on being more likely this statement of opinion.
11. Reasonable degree of certainty means the w's has adequate education, skill, training, and experience to state an opinion—rather than opinion based on speculation or lacking adequate foundation.
12. Depends on expert area, discipline, etc.
13. Definition varies depending on the specialized technical knowledge, experience, and foundation of expert's opinion under *Kumho Tires*.
14. Same as preponderance—fifty-one percent.
15. That the proposition is considered to be certain by a reasonable person.
16. More likely than not.
17. Generally accepted opinion w/in given field of expert.
18. An opinion expressed by an expert of which he/she is reasonably certain.
19. Depends on the expert—part of credibility of the witness.
20. Experts like to testify as to what is possible. We must have a phrase that makes experts reliable. An expert must base their opinion on something that is highly probable.
21. Based on education, experience, review of all facts opinion based on same to the extent that the expert is reasonably certain he/she has an opinion based on scientific or other parallel principles.
22. A degree of certainty on which the expert would rely in making decisions in his or her field of expertise.
23. That quantum of evidence from which the expert can conclude that the opinion or fact is more probably than not—not a possibility.
24. That an expert in the field is reasonably certain that what he or she is opining would be the basis of the expert doing the same thing or relying on the same opinion in a non-litigation case.
25. I don't know what it means. We use "reasonable degree of probability".
26. The evidence or research in support of this position is sufficiently persuasive that I am willing to act on it with confidence.
27. More likely than not.
28. That the particular expert using the phrase is satisfied that based on his/her experience, the proposition being testified to is established.
29. > (greater than) reasonable degree of probability and < (less than) certainty.
30. Consensus in the particular scientific community.
31. Similar to circumstantial evidence - that, taken as a whole, all the evidence indicates that X is a reasonably certain opinion. Although there could be other explanations, X is the most likely (especially if other likely explanations can be excluded).
32. Pleadings: A calculation that is approximately correct given the known or knowable facts. Expert Testimony: Expert opinion that goes beyond mere speculation, but rests short of absolute knowledge of causation or fact.
33. A standard showing ______ (of the "expert") was more likely than not ______ based upon the general consensus of the recognized (field) of thought.
34. The expert should be asked to define the meaning of the term as he or she uses it.
35. There is a sufficient scientific and factual basis to make the conclusion reliable.
36. Opinion is based on sufficient information and analysis for expert to conclude it is reasonably probable to be true and generally acceptable in the scientific community.
37. That level of dependability of the opinion within the discipline of the witness. Again, in Nevada, the test is e.g., "to a reasonable degree of medical probability".
38. The expert believes it to be true based on his experience and standard of his profession.
39. Supported by the facts—most experts would agree if provided with the same facts.
40. The degree of confidence in a deductive statement of fact that a reasonable expert in a scientific or technical field would require as support for a proposed course of action.
41. Sufficient evidence and explanation has been provided to convince a reasonable person that certain things or facts exist or certain conclusions and/or opinions are acceptable.
42. What is sought to be proved is more likely so than not so.
43. More than "more likely than not" and less than "beyond a reasonable doubt".
44. The degree of certainty that the expert would use in making a decision/recommendation in their everyday practice.
45. I have no definition. Question is for the expert.
46. Something similar to a lay person's idea of the preponderance of the evidence.
47. Our jury instruction states: "In Delaware, an expert may not speculate about mere possibilities. Instead, the expert may offer an opinion only if it is based on a reasonable probability." Although I speak to every jury following every verdict, never has one person indicated any confusion with that instruction, and never have I had a single question during deliberations about that concept.
48. Level of certainty upon which experts in the field rely in practice.
49. The degree to which one can be reasonably certain a correct decision is being made and where one's conscience will not be offended.
50. Depends. In med mal cases, it means a professional standard approximately "convincing evidence". In other cases it should be held to the same, high standard.
51. Clear and convincing.
52. More likely than not - maybe a little higher of a standard.
53. That the expert's conclusion is more probable than not.
54. "Reasonable Degree of Certainty" must directly relate to methodology and expert credentials and conclusion must be established with these factors.
55. Reasonable to believe the matter being considered happened for sure.
56. The experts opinion will more than likely occur and not speculation.
57. More probable than not; same as "reasonable degree of probability".
58. Similar to probably cause, i.e., more likely than not.
59. Depends on the topic of expertise—psych to scientific to accident reconstruction.
60. Under certain conditions, the event will or should result.
61. More probable than not.
62. Equals middle burden of proof.
63. Hard to define without confusion—just like "beyond a reasonable doubt".
64. I don't know what it means. An expert should base an opinion on accepted methods and verifiable work and simply present it without vouching for it.
65. That degree of certainty formulated and tempered by the expert's education, training, discipline, and experience.
66. That the opinion is probably accurate.
67. Likelier true than not true.
68. It is reasonable to conclude that something shall certainly occur.
69. Reasonable degree of probability or certainty means the opinion is not based on speculation or conjecture. Testimony that something is possible is no evidence at all.
70. High level of confidence in the accuracy of his/her opinion.
71. The facts sought to be established by the evidence are established by more than a mere preponderance of the evidence.
72. I do not have a definition. In our state, an expert opinion must be based on a "reasonable degree of probability" in the expert's field.
73. My own definition is irrelevant. It must be remembered that this is an adversarial process and expert's opinions are challenged by cross examination and the introduction of contradictory evidence and testimony.
74. Something more probable than not.
75. Means that the finder of fact is persuaded based upon a rational consideration of all the evidence and that the expert witness is a credible witness with good reasons for his/her opinion.
76. More likely than not.
77. I don't have one. The phrase can be tested by competent cross examination.
78. More than "preponderance of evidence", less than "beyond a reasonable doubt" like or close to "clear & convincing evidence" not exactly the same.
79. Sufficient certainty that the conclusion in question can be relied upon for purposes of analysis or diagnosis in the expert's chosen field.
80. Just below proof beyond a reasonable doubt.
81. It is a scientific standard namely, whatever that discipline would consider a "reasonable degree of certainty" by peers.
82. Proof beyond a reasonable doubt.
83. Somewhere between clear and convincing evidence vs. beyond a reasonable doubt.
Appendix II

Participant responses to the question: “Should the phrase ‘reasonable degree of certainty’ be used in legal settings?” (Q17)

1. I am not persuaded otherwise.
2. Should not be used without establishment of consistent definition.
3. No; it adds an imprimatur to the opinion that is at best unclear and at worst a signal that the preponderance of the evidence (or other standard applicable to the case) doesn't apply to expert opinions.
4. Yes, in cases where the conclusion is based on facts and data that can be evaluated by objective standards.
5. Yes, with some explanation of how the opinion is a correct one.
6. Certainly.
7. It’s ok. Good lawyer should then ask the expert to explain what is meant by that phrase.
8. "Reasonable degree of medical certainty" seems to be a vague "gateway" or "gate keeping" prerequisite to medical testimony. Ultimately, fact finders should weigh credibility and decide what to believe and what not to believe and what weight to give testimony.
9. Yes, but should be tailored to the field of expertise.
10. Yes, needed to help jury understand evidence/opinion.
11. Sure—however, in civil cases the only time it is used is when there are medical issues. For example, "Doctor, do you have an opinion based upon a reasonable medical certainty that Jane Doe's injuries are permanent."
13. Yes—but I think an expert testifying can answer questions about possibilities, but to be admissible, should be able to exclude all but his final opinion.
14. Yes, but this phrase is not the exclusive language that is appropriate.
15. It isn't necessary. If the expert isn't reasonably certain of his/her conclusions and the methods he/she used to arrive at that conclusion, he/she shouldn't even be disclosed in the case as an "expert".
16. No—we ought to use the same standard for all expert opinions.
17. Probably in civil cases; rarely in criminal cases, if ever.
18. I am not at all averse to its use in legal settings; but I am always open to better alternatives.
19. Only until a better "standard" is established, which hopefully will come soon.
21. No strong feeling one way or another, but is not often used in Indiana. Does not seem to have a definitive meaning across different legal contexts.
22. Not a fan.
23. Yes, if defined.
24. Yes, for want of a better combination of words.
25. I think it is useful so long as it does not become a "gotcha" tool against the unwary expert.
26. I do not think it makes much of a difference whether or not the expert uses such "buzz words" while testifying.
27. Yes, if it is used meaningfully and if parties have an opportunity to test it.
28. Absolutely—that is why the phrase exists.
29. It does not matter. Perhaps we need the "magic words" during a Daubert hearing, but it does not really matter in most proceedings.
30. Yes but it is vague and will need explanation in some cases.
31. Given that, in Delaware, "probability" equates to "certainty" in these contexts, yes.
32. Yes, with some definition.
33. Not without further definition in instructions to the jury.
34. I don't see why not.
35. Not as a term of art, unless and until defined by statute or appellate court.
36. Yes, but it is a question of law for the judge as the gatekeeper of evidence to determine.
37. Our courts use reasonable degree of probability.
38. Well, it's misleading in the sense that the word "certainty" implies something more than probability. Should be reasonable degree of probability.
39. I don't have a strong position either way.
40. With a clear and concise use of the terminology based upon the case.
41. Probably not.
42. Yes, but only if additional instructions are given to put its definition in the proper context.
43. I don't know of anything better.
44. Yes, particularly since Daubert, there must be competence in the subject matter about which the expert is opining and factual and substantive basis for the opinion.
45. Not sure what is meant by legal settings. If in context of a jury trial it is important and should be used.
46. It should be eliminated as unnecessary and meaningless.
47. I have no opinion about whether it is used as long as the phrase is clearly defined.
48. Yes, by experts.
49. Not really sure. It is subject, hopefully, to rigorous cross examination.
50. Yes, unless better terms are proposed.
51. I prefer "reasonable degree of probability".
52. It should be better explained.
53. Yes, there is well established jurisprudence on this issue in our state.
54. Yes, if properly explained.
55. 32 survey participants simply answered “Yes”
56. 4 survey participants simply answered “No”
Appendix III

Participant responses to the question: “What has been your personal experience with the phrase ‘reasonable degree of certainty’?” (Q18)

1. Medical causation cases.
2. 1) Lawyers prepare their experts to say it even though the experts don't really understand it; 2) When inexperienced lawyers fail to prepare their experts to say it, it turns into a legal dispute over whether the "magic words" are required. (I have ruled that they are not required.)
3. Only in medical situations—influenced by statute.
4. The issue of "reasonable degree of certainty" has never come up in any of my cases in which experts have testified. If it did, I would treat it as a question of law and ask counsel to brief the issue for my consideration. I believe it is actually a term of art which simply means that the declarant believes that his/her opinion is sound and accurate.
5. Lawyers seem to think this phrase or "reasonable degree of probability" is required; basically lore; it's never further explained or defined.
6. The testimony is compelling if the expert can explain the basis for the opinion through facts and data that are not subject to subjective evaluation.
7. No problem.
8. Medical negligence defendants love it.
9. Used by most experts.
10. Depends on the burden of proof in each individual case.
11. Works.
12. Often used and understood to more likely than not or preponderance of evidence. Some experts can get confused thinking their opinion must be absolutely correct. The attorney should properly explain this before trial or before a deposition is given.
13. No problems with it—feel some lawyers want to avoid it - concerned it "bolsters" a witness—I disagree and give an explanatory instruction at time expert is "qualified" before the jury.
14. Sure, but we don't know what it means unless expert is held to fire. Gotta ask that next question.
15. Minimal.
16. It is a pro forma phrase that has no real definition to fact finders; is subjective in the minds of testifying expert.
17. Usually explained fifty-one percent.
18. Very little.
19. It works.
20. Significant use in med mal cases and forensic testimony in criminal cases.
21. Lots of trials.
22. Trial attorneys and judges.
23. Hear it all the time (and read it). Again, depends on credibility of witness.
24. In Ohio, expert opinions are required to be expressed in terms of "reasonable probability". This means greater than fifty percent likelihood. See Stinson v. England, 69 Ohio St. 3d 451.
25. As a trial judge, I required experts to use that phrase—I made sure counsel knew that was the standard—I think it is clearly the law in our state.
26. Repeated as practitioner in state and federal courts—malpractice strict liability and toxic tort litigation.
27. I think most experts' opinions are based on more certainty than this standard, but lawyers do not emphasize that fact. Aside from that, I believe jurors are not swayed by that language.
28. See it on a fairly steady basis in appellate writing.
29. A useless expression.
30. It is useful, and can be fleshed out or exposed as flawed during cross examination.
31. It is a mine field. More often it is used carelessly by those who really have not taken to study it.
33. Unclear, confusing.
34. Lawyers and judges do not have a consistent definition.
35. It's gibberish to most judges and jurors who base their determinations on how well the methodology is explained in testimony.
36. This was one prior standard for medical expert testimony.
37. Unnecessary but can be useful.
38. I'm honestly not certain that jurors give it much thought. I've never had a juror ask for clarification of that phrase.
39. Little to no experience with this phrase.
40. Fact finders (juries) tend to disregard.
41. Legal and scientific concepts of the term differ.
42. Extensive, both in civil litigation for twenty years and on the federal bench for the past seven.
43. Lawyers, experts, and judges quibble over defining the "reasonableness" of expert's conclusions but jurors do a good job of applying common sense evaluation of expert testimony.
44. There are occasions with non-professional witnesses who are qualified to give opinion evidence on an issue, where the test has created unnecessary confusion, but, generally it is a useful "gatekeeper" test.
45. I have tried many cases, homicides and personal injury, and it was never an issue.
46. It has become part of the accepted lexicon in civil cases.
47. When counsels are competent, it helps focus the testimony supporting or criticizing a course of action. When counsels are not competent, it can give credence to sloppy conclusions.
48. Good. It's a workable phrase capable of being understood and applied by a vast majority of those in the legal community.
49. Whenever an opinion witness (expert), his opinion must be soundly based in fact and specialized education. As the judge, I am the gatekeeper to exclude junk science, etc.
50. Recently, testimony of doctors or psychologists at competency hearings.
51. It is something experts say/write in reports because the lawyer has told them to say it.
52. Ninety-five percent of medical mal practice matters.
53. Not sure to a reasonable degree of judicial certainty.
54. It is entirely manageable by juries who apply it appropriately.
55. It assists the trier of fact in understanding if any of the relevant testimony has been tested and fits the issues presented.
56. It is a functional concept.
57. No problems. Seems to be a good phrase/description.
58. Jurors get hung up thinking it is "beyond all or a shadow of doubt."
59. It's a mess!
60. Everyone seems to understand.
61. It doesn't seem very persuasive except as to damages.
62. None. It is not used in my state, as far as I know.
63. Expert opinions in civil and criminal trials.
64. Our appellate opinions in our state reflect an "ends to justify the means" to determine the legal sufficiency of "reasonable degree of certainty". A very difficult analysis and evaluation by the trial judge hearing these motions.
65. The phrase was used in our jurisdiction, but changed several years ago to reasonable degree of probability.
66. Must be used by each expert who testifies, if not, the testimony is excluded.
67. It's used in Connecticut interchangeably with "reasonable degree of probability". No particular issues that I've encountered.
68. It is a "buzz phrase" that every expert is asked about at the time an expert opinion is given.
69. I've sat over proceedings in all dockets & find w/ each expert they too have a different definition.
70. No problems - depends upon usage.
71. Has been used in jury instructions along with an alternative definition to set forth the correct requirements in future financial awards or medically necessary procedures.
72. No problem.
73. Acceptable.
74. It is misleading and used to make things appear to be scientific that are not and provides more apparent value to testimony that should be ascribed very little weight.
75. No problem.
76. It works - out juries, attorneys, and judges are comfortable with it.
77. More probable than not is standard in civil cases which I think translates very closely to "reasonable degree of certainty".
78. In questions of causation.
79. Delaware law requires that an expert's opinion be stated in a "reasonable degree of [medical, scientific, etc.] certainty." No expert can state an opinion unless it meets this standard.
80. It should be used to guard against inappropriate opinions or opinions that lack the degree of confidence that the expert should have in rendering a persuasive opinion in court.
81. Attorneys seem comfortable with the phrase and its use.
82. Only experts use the term. It is never used in instructions to the jury.
83. When I first started practicing law that was the catch phrase used by lawyers. Upon further study, it became clear that "certainty" was not required in a civil case and a reasonable probability was all that was required.
84. I have found it to be unremarkable in either jury or bench trials.
85. A term primarily concocted by the defense bar, which until recently judges and courts have just accepted, by vote. It is difficult enough for plaintiffs to succeed. As a judge, I have not seen/taken a plaintiff's verdict in a PI case in several years—without further tilting the playing field. And don't get me started on "Daubert hearings".
86. Ohio jury instructions use "reasonable certainty", "reasonable degree of certainty", and "reasonable probability" interchangeably. The latter phrase is preferable.
87. Good! It is not an ambiguous concept. Jurors do not have problems understanding what it means.
88. In a sexual abuse case, the doctor refused to say his "opinion" that a rape had occurred—he would only say that his "diagnosis" was that a rape had occurred. The evidence came in over objection—affirmed by the court of appeals.
89. As a judge, limited.
90. During trial work as an attorney and as a judge.
91. It is always on or almost always used in testifying by medical experts - physicians, specialists, etc.
92. Generally, juries figure it out.
93. Out of state lawyers who practice in states using that standard will frequently question expert witnesses using that phrase, although our state evaluates admissibility based upon a reasonable degree of scientific (or medical) probability. Scientists are rarely "certain" about anything—except as to the substantial probability that their conclusions are accurate based on existing data.
94. I have had witnesses testify as a prosecutor who have used the term. I have also cross examined expert witnesses as a defense attorney.
95. It has not presented a problem.
96. Professional witness experts use this expression to mean nothing other than this is what I believe and feel like testifying to. When pressed, some will say it means the legal preponderance standard, one testified it varied by legal jurisdiction.
97. Generally, favorable.
98. None.
Appendix IV

The following is a frequency distribution of the number of responses received from each state (Q19).

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