An Analysis of the Methods Social Scientists Use to Study Extreme Events

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American Behavioral Scientist Special Issue: Methods Matter in Disaster Research

Edited by: Kelly Frailing and Bethany Van Brown

What Methods Do Social Scientists Use to Study Disasters? An Analysis of the Social Science Extreme Events Research Network

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Abstract

Methods matter. They influence what we know and who we come to know about in the context of hazards and disasters. Research methods are of profound importance to the scholarly advancement of the field and, accordingly, a growing number of publications focus on research methods and ethical practices associated with the study of extreme events. Still, notable gaps exist. The National Science Foundation-funded Social Science Extreme Events Research (SSEER) network was formed, in part, to respond to the need for more specific information about the status and expertise of the social science hazards and disaster research workforce. Drawing on data from 1,013 SSEER members located across five United Nations (UN) regions, this article reports on the demographic characteristics of SSEER researchers; provides a novel inventory of methods used by social science hazards and disaster researchers;
Background and Context

- The Committee on Disaster Research in the Social Sciences “does not have a precise accounting of the numbers of social scientists from respective disciplines currently engaged in hazards and disaster research.” …

- This represents an important gap because, without such information, it is impossible to ensure that the field “will be of adequate size, reflect the diversity of the nation, and include researchers who have both basic and applied research interests and are capable of carrying out disciplinary, multidisciplinary, and interdisciplinary research” (NRC, 2006, pp. 319-320).
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# Data: SSEER Member Survey

1. Name

   First Name

   Last Name

2. Job Title (if you have multiple professional titles, list them all here)

3. Department, Center, or Unit (if you are affiliated with multiple units, list them all here)

4. University, Institution, Organization, or Agency

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https://converge.colorado.edu/research-networks/sseer
• SSEER Mission:
  • **Identify** and **map** social scientists involved in hazards and disaster research;
  • **Highlight** their expertise;
  • **Connect** social science researchers to one another, to interdisciplinary teams, and to communities at risk to and affected by hazards and disasters.

[https://converge.colorado.edu/research-networks/sseer](https://converge.colorado.edu/research-networks/sseer)
SSEER is part of a larger ecosystem of NSF-funded research and reconnaissance networks.
I'm studying the Flint Water Crisis. Who else has done work on this?
Location and Demographic Composition of SSEER Respondents

• 1,013 Respondents (as of March 2020)

• Geographic Location
• Age
• Years of Experience
• Educational Attainment
• Gender
• Race/Ethnicity
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Demographic Composition of SSEER Respondents

- 1,013 Respondents (as of March 2020)

- **Female**: 52.02%
- **Male**: 42.05%
- **Some other Answer**: 5.92%
Demographic Composition of SSEER Respondents

- White: 59.62%
- Asian: 13.23%
- Hispanic/Latino: 13.03%
- Black/African American: 4.64%
- Two+ Identities: 5.92%
- Other: 2.76%
- Missing: 0.79%

Image credit: University of Colorado Boulder, NSF, CONVERGE, NHERI, and the Natural Hazards Center.
About 80% of SSEER respondents indicated they use 4 or more primary methods in their research.
How do methods vary by specific researcher attributes?

• Such as…
  • Researcher Discipline
  • Professional Status
  • Researcher Type (core, periodic, situational, emerging)
  • Disaster Phases Studied
  • Types of Hazards and Disasters Studied
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## Top 10 Selected Research Methods by Researcher Professional Status

<table>
<thead>
<tr>
<th>Method</th>
<th>Academic Researchers</th>
<th>Students</th>
<th>Government Researcher</th>
<th>Non-Profit Researcher</th>
<th>Independent Researcher</th>
<th>Private-Sector Researcher</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Study</td>
<td>60.07</td>
<td>55.11</td>
<td>53.19</td>
<td>73.91</td>
<td>88.37</td>
<td>65.38</td>
<td>57.14</td>
</tr>
<tr>
<td>Survey Research</td>
<td>65.70</td>
<td>48.86</td>
<td>51.06</td>
<td>58.70</td>
<td>48.84</td>
<td>69.23</td>
<td>42.86</td>
</tr>
<tr>
<td>In-Depth Interviews</td>
<td>61.95</td>
<td>59.09</td>
<td>40.43</td>
<td>60.87</td>
<td>62.79</td>
<td>53.85</td>
<td>50.00</td>
</tr>
<tr>
<td>Qualitative Content Analysis</td>
<td>51.02</td>
<td>48.86</td>
<td>52.13</td>
<td>58.70</td>
<td>58.14</td>
<td>42.31</td>
<td>45.24</td>
</tr>
<tr>
<td>Community-Based Participatory Research</td>
<td>44.54</td>
<td>43.75</td>
<td>39.36</td>
<td>63.04</td>
<td>44.19</td>
<td>46.15</td>
<td>45.24</td>
</tr>
<tr>
<td>Statistical Analyses of Primary/Secondary Data</td>
<td>50.85</td>
<td>38.64</td>
<td>29.79</td>
<td>34.78</td>
<td>32.56</td>
<td>42.31</td>
<td>23.81</td>
</tr>
<tr>
<td>Focus Groups</td>
<td>45.22</td>
<td>33.52</td>
<td>41.49</td>
<td>56.52</td>
<td>41.86</td>
<td>53.85</td>
<td>45.24</td>
</tr>
<tr>
<td>Observation</td>
<td>35.67</td>
<td>32.95</td>
<td>38.30</td>
<td>47.83</td>
<td>44.19</td>
<td>42.31</td>
<td>54.76</td>
</tr>
<tr>
<td>Quantitative Content Analysis</td>
<td>33.96</td>
<td>28.41</td>
<td>28.72</td>
<td>34.78</td>
<td>20.93</td>
<td>26.92</td>
<td>23.81</td>
</tr>
<tr>
<td>Geospatial Analysis / GIS</td>
<td>30.03</td>
<td>35.80</td>
<td>29.79</td>
<td>23.91</td>
<td>13.95</td>
<td>30.77</td>
<td>23.81</td>
</tr>
<tr>
<td><strong>Total N by Professional Status</strong></td>
<td><strong>586</strong></td>
<td><strong>176</strong></td>
<td><strong>94</strong></td>
<td><strong>46</strong></td>
<td><strong>43</strong></td>
<td><strong>26</strong></td>
<td><strong>42</strong></td>
</tr>
</tbody>
</table>
Conclusion

- Teams of social scientists have been studying disasters systematically since late 1940s
- This research responds to increasingly urgent calls to learn more about the composition of the research workforce
  - Size of the workforce (best guess estimates to 1,013 identified researchers)
  - Functional and demographic diversity of the field
  - Disciplinary and methodological background and training
  - Researcher involvement in hazards and disaster research
- Implications for research training and mentoring investments
• SSEER Goals:
  • **Amplify** the contributions of social scientists,
  • **Advance** the field through expanding the available social science evidence base,
  • **Enhance** collective well-being.
Thank you!
Lori Peek*, Heather Champeau, Jessica Austin, Mason Mathews, and Haorui Wu

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More information: https://converge.colorado.edu/research-networks/sseer