

## WEBVTT

1 00:00:00.000 --> 00:00:03.180 - Hi all and welcome to the  
2 00:00:03.180 --> 00:00:07.220 Yale Center on Climate Change and Health  
seminar series.  
3 00:00:07.220 --> 00:00:10.797 So today is our first spring seminar series  
4 00:00:10.797 --> 00:00:14.180 and we are very fortunate to have  
5 00:00:14.180 --> 00:00:16.720 Dr. Sarah Lowe joining us today.  
6 00:00:16.720 --> 00:00:20.420 So Dr. Sarah Lowe is assistant professor  
7 00:00:20.420 --> 00:00:22.180 at the Yale School of Public Health  
8 00:00:22.180 --> 00:00:25.650 the Department of Social and Behavioral Sci-  
ences.  
9 00:00:25.650 --> 00:00:28.340 So her talk today will be mental health  
10 00:00:28.340 --> 00:00:29.850 after natural disasters,  
11 00:00:29.850 --> 00:00:32.820 state of the research and a future directions.  
12 00:00:32.820 --> 00:00:35.560 So I was told that this seminar  
13 00:00:35.560 --> 00:00:40.560 was one of the most popular seminar series we  
had.  
14 00:00:40.710 --> 00:00:43.920 There were more than 80 participants registered  
15 00:00:43.920 --> 00:00:46.920 and we have another roughly 10 students.  
16 00:00:46.920 --> 00:00:51.850 So hopefully we can have a large audience  
today.  
17 00:00:51.850 --> 00:00:56.330 And before handing over to Sarah,  
18 00:00:56.330 --> 00:01:01.270 I want to mention that we will have our Q&A  
section  
19 00:01:01.270 --> 00:01:03.870 at the end of this seminar.  
20 00:01:03.870 --> 00:01:07.330 So if you have any questions please type  
21 00:01:07.330 --> 00:01:12.330 in the chat box and I will raise the questions  
in the end.  
22 00:01:12.330 --> 00:01:16.133 So without further ado, Sarah the stages is  
yours.  
23 00:01:17.400 --> 00:01:19.906 - All right, thank you very much for that Kai  
24 00:01:19.906 --> 00:01:20.739 for that nice introduction.  
25 00:01:20.739 --> 00:01:25.590 I'm going to share my screen and get to it.

26 00:01:25.590 --> 00:01:29.250 Okay, so you can see my slides, yes?  
27 00:01:29.250 --> 00:01:30.083 - [Kai] Yes, yes.  
28 00:01:30.083 --> 00:01:31.980 - Okay, awesome.  
29 00:01:31.980 --> 00:01:34.940 So as Kai said, I'm going to be talking about  
30 00:01:34.940 --> 00:01:36.470 the research on mental health  
31 00:01:36.470 --> 00:01:39.120 after weather related disasters,  
32 00:01:39.120 --> 00:01:41.180 the state of the research and future directions.  
33 00:01:41.180 --> 00:01:43.180 And you'll know what that I actually changed  
the name  
34 00:01:43.180 --> 00:01:46.456 of my talk because the field is really moving  
away  
35 00:01:46.456 --> 00:01:49.550 from referring to weather related  
36 00:01:49.550 --> 00:01:53.010 or climate related disasters as natural disasters  
37 00:01:53.010 --> 00:01:58.010 and acknowledgement of increasing findings  
showing that  
38 00:01:58.560 --> 00:02:00.970 human beings are contributing to climate  
change  
39 00:02:00.970 --> 00:02:02.780 and in turn increasing the frequency  
40 00:02:02.780 --> 00:02:05.040 and severity of these types of events.  
41 00:02:05.040 --> 00:02:08.960 And also that these disasters affects human-  
made structures  
42 00:02:08.960 --> 00:02:10.440 and systems and people.  
43 00:02:10.440 --> 00:02:11.970 So it's really an interaction  
44 00:02:11.970 --> 00:02:14.673 between the environment and humanity.  
45 00:02:15.580 --> 00:02:19.096 So I wanted to start off by giving...  
46 00:02:19.096 --> 00:02:19.930 Hold on just a second.  
47 00:02:19.930 --> 00:02:22.370 An overview of my talk today.  
48 00:02:22.370 --> 00:02:24.610 I'm going to be first introducing myself  
49 00:02:24.610 --> 00:02:26.920 and discussing my program of research.  
50 00:02:26.920 --> 00:02:30.120 Then talking about the state of the literature  
51 00:02:30.120 --> 00:02:31.960 on mental health after disasters,  
52 00:02:31.960 --> 00:02:34.830 as well as some of the limitations they're in.

53 00:02:34.830 --> 00:02:37.310 And then give some examples of recent trends  
54 00:02:37.310 --> 00:02:38.800 in the literature.  
55 00:02:38.800 --> 00:02:41.350 I'm gonna end by discussing some of my current  
56 00:02:41.350 --> 00:02:43.383 and hopefully future work.  
57 00:02:45.360 --> 00:02:47.410 So starting off with my program of research.  
58 00:02:47.410 --> 00:02:51.010 So I am a clinical psychologist by training.  
59 00:02:51.010 --> 00:02:52.380 I received my doctorate  
60 00:02:52.380 --> 00:02:54.870 at the University of Massachusetts Boston  
61 00:02:54.870 --> 00:02:58.290 which has I think, unprecedented attention  
62 00:02:58.290 --> 00:03:02.050 to social justice and multiculturalism.  
63 00:03:02.050 --> 00:03:05.230 After getting my PhD, I did a post-doctoral  
fellowship  
64 00:03:05.230 --> 00:03:08.700 in psych Epi at Columbia Mailman School of  
Public Health.  
65 00:03:08.700 --> 00:03:10.410 And I stayed on there for a year  
66 00:03:10.410 --> 00:03:12.000 as an associate research scientist.  
67 00:03:12.000 --> 00:03:14.560 And that's where I really caught the public  
health bug  
68 00:03:14.560 --> 00:03:17.620 and discovered that this would be a good home  
for me.  
69 00:03:17.620 --> 00:03:19.030 I then actually spent four years  
70 00:03:19.030 --> 00:03:20.330 in the department of psychology  
71 00:03:20.330 --> 00:03:22.600 at Montclair State university in New Jersey  
72 00:03:22.600 --> 00:03:24.210 before coming to Yale.  
73 00:03:24.210 --> 00:03:26.550 This is my second year at the school of public  
health.  
74 00:03:26.550 --> 00:03:29.600 And I've had a really great experience so far  
75 00:03:29.600 --> 00:03:32.000 and I'm happy to be here today and to be  
affiliated  
76 00:03:32.000 --> 00:03:34.483 with the center for climate change and health.  
77 00:03:36.460 --> 00:03:39.470 My research program focuses on the long-term  
impacts  
78 00:03:39.470 --> 00:03:41.840 of a range of potentially traumatic events.

79 00:03:41.840 --> 00:03:44.760 So much of it has focused on climate related  
80 00:03:44.760 --> 00:03:46.550 and weather related disasters.  
81 00:03:46.550 --> 00:03:48.600 But I've also been involved in research projects  
82 00:03:48.600 --> 00:03:51.010 after the deep water horizon oil spill,  
83 00:03:51.010 --> 00:03:53.498 projects focusing on the impact of gun violence,  
84 00:03:53.498 --> 00:03:57.950 sexual assaults, child maltreatment, and community violence.  
85 00:03:57.950 --> 00:04:01.160 Work-related potentially trauma exposures  
86 00:04:01.160 --> 00:04:03.040 among first responders,  
87 00:04:03.040 --> 00:04:04.760 the impact of discrimination  
88 00:04:04.760 --> 00:04:06.650 on the mental health and Muslim youth.  
89 00:04:06.650 --> 00:04:09.550 And most recently I've been involved in studies  
90 00:04:09.550 --> 00:04:14.156 of the intergenerational impact of the 1994 genocide  
91 00:04:14.156 --> 00:04:15.984 against the Tutsi in Rwanda  
92 00:04:15.984 --> 00:04:19.390 and the impact of the COVID-19 pandemic on vulnerable groups  
93 00:04:19.390 --> 00:04:22.090 including healthcare workers and persons with disabilities.  
94 00:04:22.090 --> 00:04:23.010 And I'd be happy to talk  
95 00:04:23.010 --> 00:04:24.910 about any of this research in the Q&A.  
96 00:04:25.810 --> 00:04:28.960 So that is me in a nutshell, and I'm gonna move on  
97 00:04:28.960 --> 00:04:31.270 to discussing some of the work on mental health  
98 00:04:31.270 --> 00:04:34.893 after disasters and giving an overview of the literature.  
99 00:04:35.860 --> 00:04:39.590 So in 2018, my colleagues and I were asked  
100 00:04:39.590 --> 00:04:43.050 to do a review of a year of research  
101 00:04:43.050 --> 00:04:45.980 on the mental health impact of environmental disasters.  
102 00:04:45.980 --> 00:04:47.410 So climate related disasters,  
103 00:04:47.410 --> 00:04:51.590 as well as disasters like oil spills and nuclear explosions.

104 00:04:51.590 --> 00:04:54.560 And when agreeing to do this I thought back  
105 00:04:54.560 --> 00:04:57.050 to the Seminole Review by Fran Norris  
106 00:04:57.050 --> 00:05:00.460 and colleagues in 2002, that reviewed all of  
the literature  
107 00:05:00.460 --> 00:05:03.810 at the time on the psychosocial impacts of  
disaster.  
108 00:05:03.810 --> 00:05:08.517 And that review had included a total of 160  
papers  
109 00:05:10.470 --> 00:05:11.700 on mental health and disaster.  
110 00:05:11.700 --> 00:05:14.330 So I said to myself this is one year  
111 00:05:14.330 --> 00:05:15.690 it's probably gonna be less than that,  
112 00:05:15.690 --> 00:05:17.580 I can definitely handle that.  
113 00:05:17.580 --> 00:05:19.500 But then when my colleagues and I looked at  
the literature  
114 00:05:19.500 --> 00:05:22.620 in that single year, we found an enormous  
number.  
115 00:05:22.620 --> 00:05:26.140 We actually ended up narrowing our inclusion  
criteria  
116 00:05:26.140 --> 00:05:28.680 to those focused on PTSD and depression  
117 00:05:28.680 --> 00:05:30.420 as our two key outcomes  
118 00:05:30.420 --> 00:05:32.440 and only including quantitative research  
119 00:05:32.440 --> 00:05:35.240 just to manage our workload.  
120 00:05:35.240 --> 00:05:37.740 So I think this reflects the burgeoning interest  
121 00:05:37.740 --> 00:05:42.420 in mental health after disasters, which is very  
exciting.  
122 00:05:42.420 --> 00:05:44.090 Nonetheless, what we saw in the literature  
123 00:05:44.090 --> 00:05:47.630 was consistent with prior research  
124 00:05:47.630 --> 00:05:50.457 in that most studies were cross sectional  
125 00:05:50.457 --> 00:05:55.457 and some included representative samples,  
and some did not.  
126 00:05:56.720 --> 00:05:58.170 So I just wanted to review  
127 00:05:58.170 --> 00:06:01.300 some of the mental health conditions that  
have been found  
128 00:06:01.300 --> 00:06:04.160 across studies of mental health after disasters.

129 00:06:04.160 --> 00:06:05.780 So our review specifically focused  
130 00:06:05.780 --> 00:06:08.650 on post-traumatic stress disorder and major  
depression  
131 00:06:08.650 --> 00:06:10.920 but we know that these events are associated  
132 00:06:10.920 --> 00:06:14.186 with increases in a range of mental health  
conditions  
133 00:06:14.186 --> 00:06:16.700 such as acute stress disorder  
134 00:06:16.700 --> 00:06:19.650 which is sort of a precursor to PTSD,  
135 00:06:19.650 --> 00:06:22.150 other conditions like generalized anxiety dis-  
order  
136 00:06:22.150 --> 00:06:25.120 and substance use and other clinical phe-  
nomenon.  
137 00:06:25.120 --> 00:06:28.010 And these are symptoms that are concerning  
138 00:06:28.010 --> 00:06:29.610 but don't necessarily map nearly  
139 00:06:29.610 --> 00:06:32.030 on to psychiatric diagnoses.  
140 00:06:32.030 --> 00:06:34.090 Such as non-specific psychological distress  
141 00:06:34.090 --> 00:06:36.770 internalizing symptoms, such as mood  
142 00:06:36.770 --> 00:06:38.820 and anxiety symptoms in children.  
143 00:06:38.820 --> 00:06:40.900 Externalizing symptoms including attention  
144 00:06:40.900 --> 00:06:44.423 and conduct symptoms in children and ado-  
lescents,  
145 00:06:44.423 --> 00:06:46.860 suicidality and adverse health behaviors  
146 00:06:46.860 --> 00:06:50.180 including disruptions in sleep, eating and ex-  
ercise.  
147 00:06:50.180 --> 00:06:51.750 And what I would say is that  
148 00:06:51.750 --> 00:06:53.470 across all of the studies today,  
149 00:06:53.470 --> 00:06:55.890 there's been considerable variation  
150 00:06:55.890 --> 00:06:58.630 in the prevalence estimates of these conditions.  
151 00:06:58.630 --> 00:07:02.120 And this is likely due to divergences across  
the studies  
152 00:07:02.120 --> 00:07:04.240 for example, in the timing of assessment  
153 00:07:04.240 --> 00:07:07.660 relative to the disaster, the exposure severity

154 00:07:07.660 --> 00:07:10.717 of the sample included as well as the disaster itself

155 00:07:10.717 --> 00:07:14.723 as well as other characteristics samples.

156 00:07:16.360 --> 00:07:17.780 However, across this literature

157 00:07:17.780 --> 00:07:19.590 something that has been consistent

158 00:07:19.590 --> 00:07:22.320 is that we've identified individual level risk factors

159 00:07:22.320 --> 00:07:24.340 at least at the cross-sectional level

160 00:07:24.340 --> 00:07:26.460 of adverse mental health outcomes.

161 00:07:26.460 --> 00:07:28.980 And here I've organized them by timing relative

162 00:07:28.980 --> 00:07:32.800 to the disaster, starting with a predict disaster factor.

163 00:07:32.800 --> 00:07:34.040 So what we know about people

164 00:07:34.040 --> 00:07:36.420 going into these types of events.

165 00:07:36.420 --> 00:07:39.086 So studies have pretty consistently showed that women,

166 00:07:39.086 --> 00:07:42.200 those of low socioeconomic status,

167 00:07:42.200 --> 00:07:44.420 those who have preexisting health conditions

168 00:07:44.420 --> 00:07:46.730 and in particular mental health conditions

169 00:07:46.730 --> 00:07:48.500 who are socially isolated,

170 00:07:48.500 --> 00:07:50.720 who have experienced previous exposure

171 00:07:50.720 --> 00:07:53.640 not only to disasters but other events

172 00:07:53.640 --> 00:07:56.150 are at increased risk for mental health adversity.

173 00:07:56.150 --> 00:07:58.850 Whereas findings regarding race and ethnicity

174 00:07:58.850 --> 00:08:00.653 and age have been mixed.

175 00:08:01.810 --> 00:08:03.740 Turning to the peri-disaster period.

176 00:08:03.740 --> 00:08:06.620 So this is the period of the disaster itself

177 00:08:06.620 --> 00:08:08.250 and its immediate aftermath,

178 00:08:08.250 --> 00:08:10.300 we know that a range of experiences

179 00:08:10.300 --> 00:08:12.280 are associated with adversity

180 00:08:12.280 --> 00:08:14.940 including the perception that one's life was in danger

181 00:08:14.940 --> 00:08:18.820 experiences of physical injuries and bereavement and so on.

182 00:08:18.820 --> 00:08:21.450 We also know increasingly that media exposure,

183 00:08:21.450 --> 00:08:26.270 so exposure to versus details and images of disasters

184 00:08:26.270 --> 00:08:30.240 in their aftermath are associated with increased severity

185 00:08:30.240 --> 00:08:32.370 of psychiatric symptoms.

186 00:08:32.370 --> 00:08:34.610 Reflecting the potentially broader impact

187 00:08:34.610 --> 00:08:36.053 of these types of events.

188 00:08:37.020 --> 00:08:39.110 And then post disaster we know that

189 00:08:40.160 --> 00:08:41.500 when the storm clouds have cleared

190 00:08:41.500 --> 00:08:43.640 and the earth has stopped shaking

191 00:08:43.640 --> 00:08:46.440 disaster related stressors tend to persist.

192 00:08:46.440 --> 00:08:49.910 And those who experienced financial strain, unemployment,

193 00:08:49.910 --> 00:08:52.990 continue disruptions in their work and school lives,

194 00:08:52.990 --> 00:08:54.850 stressors in their relationships

195 00:08:54.850 --> 00:08:56.560 tend to be at increased risk.

196 00:08:56.560 --> 00:08:58.780 And that other stressful and traumatic life events,

197 00:08:58.780 --> 00:09:01.285 whether or not they're related to the disaster

198 00:09:01.285 --> 00:09:02.118 tend to exacerbate

199 00:09:02.118 --> 00:09:03.893 disaster related mental health conditions.

200 00:09:04.980 --> 00:09:08.360 So that in a nutshell is the research to date.

201 00:09:08.360 --> 00:09:11.156 And I think what we've seen in the past five years or so

202 00:09:11.156 --> 00:09:14.490 are some exciting ways in which researchers

203 00:09:14.490 --> 00:09:15.920 are trying to push the boundaries

204 00:09:15.920 --> 00:09:18.610 of disaster mental health research.



205 00:09:18.610 --> 00:09:22.140 So I have here some examples of recent trends.  
 206 00:09:22.140 --> 00:09:24.240 I know for those of you who read the review  
 207 00:09:24.240 --> 00:09:26.000 as part of the seminar  
 208 00:09:26.000 --> 00:09:28.061 you've seen examples of these already.  
 209 00:09:28.061 --> 00:09:30.980 But I'm gonna be focusing on on four trends  
 210 00:09:30.980 --> 00:09:33.240 and how my colleagues, students and I  
 211 00:09:33.240 --> 00:09:37.550 have in our work tried to push the field.  
 212 00:09:37.550 --> 00:09:40.200 So first focusing on long-term responses  
 213 00:09:40.200 --> 00:09:43.770 both in the general population and among  
 vulnerable groups.  
 214 00:09:43.770 --> 00:09:47.230 Pathways to adversity, characteristics of com-  
 munities  
 215 00:09:47.230 --> 00:09:49.680 and their impacts on mental health and treat-  
 ment.  
 216 00:09:51.630 --> 00:09:54.430 So first off long-term responses.  
 217 00:09:54.430 --> 00:09:58.090 So what happens in terms of effective popu-  
 lations  
 218 00:09:58.090 --> 00:10:00.270 mental health not just in the immediate af-  
 termath  
 219 00:10:00.270 --> 00:10:02.283 of disasters but in the longer term.  
 220 00:10:04.070 --> 00:10:05.550 And in this work, my colleagues and I  
 221 00:10:05.550 --> 00:10:07.290 have been very much influenced  
 222 00:10:07.290 --> 00:10:10.062 by the work of clinical psychologists and other  
 scholars  
 223 00:10:10.062 --> 00:10:12.810 such as George Bonanno at Columbia  
 224 00:10:12.810 --> 00:10:15.230 and their theories about resilience  
 225 00:10:15.230 --> 00:10:18.710 and other potential trajectories of mental  
 health symptoms  
 226 00:10:18.710 --> 00:10:21.737 after exposure to a potentially traumatic event  
 or PTE.  
 227 00:10:22.780 --> 00:10:24.390 And what Bonanno and colleagues have said  
 228 00:10:24.390 --> 00:10:27.000 is that most people when exposed to trauma  
 229 00:10:27.000 --> 00:10:30.110 will experience what has been termed re-  
 silience.

230 00:10:30.110 --> 00:10:32.380 And resilience here means a trajectory

231 00:10:32.380 --> 00:10:36.733 of chronically low symptoms of distress and well being.

232 00:10:37.570 --> 00:10:39.750 So across studies, more than 50%

233 00:10:39.750 --> 00:10:41.900 tend to fall into this trajectory.

234 00:10:41.900 --> 00:10:44.510 However, other trajectories are common.

235 00:10:44.510 --> 00:10:47.200 About 25% on average experience

236 00:10:47.200 --> 00:10:48.690 what has been termed recovery.

237 00:10:48.690 --> 00:10:51.230 So short term elevations and symptoms

238 00:10:51.230 --> 00:10:54.530 and then smaller percentages have exhibited

directories

239 00:10:54.530 --> 00:10:56.870 of chronic elevations and distress

240 00:10:56.870 --> 00:11:00.380 as well as delayed onset distress.

241 00:11:00.380 --> 00:11:02.740 So my colleagues and I have worked within this area

242 00:11:02.740 --> 00:11:04.850 while also trying to push its boundaries

243 00:11:04.850 --> 00:11:09.223 and question some of the key tenants of this theory.

244 00:11:10.130 --> 00:11:13.470 So as a first example, I'm going to be presenting data

245 00:11:13.470 --> 00:11:15.850 from the Galveston Bay Recovery Study.

246 00:11:15.850 --> 00:11:17.460 This was a study of...

247 00:11:17.460 --> 00:11:20.560 And I would say it's probably the gold standard

248 00:11:20.560 --> 00:11:23.540 of disaster mental health studies that Sandra Golia

249 00:11:23.540 --> 00:11:27.160 and Fran Norris led where they were able to gather data

250 00:11:27.160 --> 00:11:31.150 from a representative sample of areas that were

251 00:11:31.150 --> 00:11:33.192 most severely affected by Hurricane Ike.

252 00:11:33.192 --> 00:11:35.700 And they collected three waves of data

253 00:11:35.700 --> 00:11:38.340 within the first two years.

254 00:11:38.340 --> 00:11:40.593 So it's a really fantastic dataset.

255 00:11:41.540 --> 00:11:44.153 So what we did is we ran a trajectory analysis

256 00:11:44.153 --> 00:11:47.780 not just of PTSD, but also of depression,

257 00:11:47.780 --> 00:11:50.253 functional impairment and days of poor health.

258 00:11:51.510 --> 00:11:53.390 So I have our trajectory results here

259 00:11:53.390 --> 00:11:55.270 but they're very small and with good reason,

260 00:11:55.270 --> 00:11:59.780 which is that I want to put across the takeaway message.

261 00:11:59.780 --> 00:12:00.980 Which is that when we looked

262 00:12:00.980 --> 00:12:02.540 within each of these four domains

263 00:12:02.540 --> 00:12:05.050 resilience was indeed the modal outcome

264 00:12:05.050 --> 00:12:10.050 ranging from 45.1% to around 75% for PTSD.

265 00:12:10.330 --> 00:12:12.490 However, when we looked across all of these domains,

266 00:12:12.490 --> 00:12:14.932 we found that only 25% of our participants

267 00:12:14.932 --> 00:12:19.540 thereabouts had resilience across all four.

268 00:12:19.540 --> 00:12:22.730 Suggesting that a focus exclusively on PTSD

269 00:12:22.730 --> 00:12:26.150 or one other symptom domain might outscore

270 00:12:26.150 --> 00:12:28.870 the suffering and impacts of disasters

271 00:12:28.870 --> 00:12:30.840 on affected populations.

272 00:12:30.840 --> 00:12:34.520 Now, something I would know here is that all the data

273 00:12:34.520 --> 00:12:37.900 for the study were collected prior to Hurricane Ike.

274 00:12:37.900 --> 00:12:41.607 So we don't know how the participants were doing beforehand.

275 00:12:41.607 --> 00:12:43.320 And it's fairly likely

276 00:12:43.320 --> 00:12:46.483 that those who were experiencing elevated symptoms

277 00:12:46.483 --> 00:12:49.220 that this had something to do with their wellbeing

278 00:12:49.220 --> 00:12:51.470 and health beforehand.

279 00:12:51.470 --> 00:12:53.910 So in another study, I've been a part of

280 00:12:53.910 --> 00:12:56.700 the Resilience in Survivors of Katrina Project,  
281 00:12:56.700 --> 00:12:59.250 we've been able to address this limitation.  
282 00:12:59.250 --> 00:13:01.340 And so what the RISK project is,  
283 00:13:01.340 --> 00:13:04.480 is a longitudinal study of about 1000 women.  
284 00:13:04.480 --> 00:13:08.150 Most of them are single low-income African-American mothers  
285 00:13:08.150 --> 00:13:10.800 who all experienced Hurricane Katrina.  
286 00:13:10.800 --> 00:13:12.390 What's very interesting about this study  
287 00:13:12.390 --> 00:13:14.380 was that all of the participants  
288 00:13:14.380 --> 00:13:17.580 were part of a study that was already going on  
289 00:13:17.580 --> 00:13:20.920 prior to the hurricane called the Opening Door Study.  
290 00:13:20.920 --> 00:13:24.390 But the Opening Door Study was a multi-site RCT  
291 00:13:24.390 --> 00:13:26.630 of a community college intervention  
292 00:13:26.630 --> 00:13:30.030 that sought to increase retention and graduation rates  
293 00:13:30.030 --> 00:13:32.380 from community colleges throughout the country.  
294 00:13:32.380 --> 00:13:35.960 And two of those colleges happened to be in New Orleans.  
295 00:13:35.960 --> 00:13:39.580 So the hurricane hit in August of 2005  
296 00:13:39.580 --> 00:13:41.440 and both of those colleges were closed  
297 00:13:41.440 --> 00:13:44.253 for the fall 2005 semester.  
298 00:13:44.253 --> 00:13:46.590 But my colleagues, Jean Rhodes and Mary Waters  
299 00:13:46.590 --> 00:13:50.210 were able to secure funding to launch a new study  
300 00:13:50.210 --> 00:13:52.740 of resilience among those participants.  
301 00:13:52.740 --> 00:13:55.920 And we've not collected data three times after the hurricane  
302 00:13:55.920 --> 00:13:59.360 at approximately one, four and 12 years after Katrina.

303 00:13:59.360 --> 00:14:01.506 And we just got back in the field last week  
304 00:14:01.506 --> 00:14:03.360 to do an additional assessment  
305 00:14:03.360 --> 00:14:06.650 of how they're fairing amidst the pandemic.  
306 00:14:06.650 --> 00:14:08.650 So I'm gonna be talking about two analysis  
307 00:14:08.650 --> 00:14:12.483 we did with these data, looking at trajectories  
over time.  
308 00:14:13.800 --> 00:14:16.402 The first was actually my dissertation.  
309 00:14:16.402 --> 00:14:19.500 And for this project, we looked at patterns  
310 00:14:19.500 --> 00:14:22.570 of non-specific psychological distress  
311 00:14:22.570 --> 00:14:24.530 from prior to the hurricane  
312 00:14:24.530 --> 00:14:26.940 to four years after the hurricane.  
313 00:14:26.940 --> 00:14:30.830 So at the time, and actually I would say  
probably still  
314 00:14:30.830 --> 00:14:33.450 it's one of the few trajectory studies that had  
access  
315 00:14:33.450 --> 00:14:34.840 to pre trauma data.  
316 00:14:34.840 --> 00:14:38.000 So we were really able to look at how the  
patterns  
317 00:14:38.000 --> 00:14:40.700 of symptoms over time might have been influ-  
enced  
318 00:14:40.700 --> 00:14:42.300 by how people were doing before.  
319 00:14:44.130 --> 00:14:47.460 And in a nutshell, we found a six trajectory  
solution  
320 00:14:47.460 --> 00:14:49.260 and I know that this is a lot to look at.  
321 00:14:49.260 --> 00:14:51.610 So I'm gonna try to break it down a little bit.  
322 00:14:52.500 --> 00:14:54.859 So consistent with prior research,  
323 00:14:54.859 --> 00:14:58.950 the modal trajectory was what we called re-  
silience  
324 00:14:58.950 --> 00:15:01.690 exhibited by over 60% of our participants.  
325 00:15:01.690 --> 00:15:03.490 But what we can see is that those participants  
326 00:15:03.490 --> 00:15:06.740 actually were doing well in terms of having  
low distress  
327 00:15:06.740 --> 00:15:08.900 prior to the hurricane.

328 00:15:08.900 --> 00:15:13.260 Similarly, other common trajectories in our sample

329 00:15:13.260 --> 00:15:17.070 were marked by consistency from pre to post disaster.

330 00:15:17.070 --> 00:15:19.190 So we had a coping trajectory

331 00:15:19.190 --> 00:15:21.140 which may have looked like recovery

332 00:15:21.140 --> 00:15:22.370 and an increased trajectory

333 00:15:22.370 --> 00:15:25.000 which may have looked like chronically elevated symptoms.

334 00:15:25.000 --> 00:15:27.440 But again, here we see that prior to the hurricane

335 00:15:27.440 --> 00:15:29.930 they had significantly higher psychological distress

336 00:15:29.930 --> 00:15:31.453 than those who were resilient.

337 00:15:32.340 --> 00:15:35.499 Despite this consistency, we saw evidence

338 00:15:35.499 --> 00:15:39.780 for meaningful changes in distress.

339 00:15:39.780 --> 00:15:42.560 So we actually had two trajectories that were marked

340 00:15:42.560 --> 00:15:44.690 by decreasing symptoms.

341 00:15:44.690 --> 00:15:46.860 The first which we termed simply decreased

342 00:15:46.860 --> 00:15:49.160 had severe distress prior to the storm

343 00:15:49.160 --> 00:15:51.890 that decreased pretty consistently thereafter.

344 00:15:51.890 --> 00:15:54.470 Another trajectory that we termed improved

345 00:15:54.470 --> 00:15:58.220 also had a severe distress prior to the storm.

346 00:15:58.220 --> 00:16:01.410 And post disaster distress that was indistinguishable

347 00:16:01.410 --> 00:16:03.040 from those in the resilience trajectory.

348 00:16:03.040 --> 00:16:05.150 So had we only had post-disaster data

349 00:16:05.150 --> 00:16:07.410 we would have assumed resilience.

350 00:16:07.410 --> 00:16:09.120 And then we had a delayed trajectory

351 00:16:09.120 --> 00:16:11.223 consistent with prior research.

352 00:16:12.880 --> 00:16:17.280 In a more recent analysis, we used our latest data

353 00:16:17.280 --> 00:16:18.740 to run a trajectory analysis

354 00:16:18.740 --> 00:16:21.580 this time specifically of PTSD symptoms.

355 00:16:21.580 --> 00:16:24.630 So because their PTSD symptoms had ties to the disaster,

356 00:16:24.630 --> 00:16:27.280 we only have them after the disaster.

357 00:16:27.280 --> 00:16:29.060 And here we did a trajectory analysis

358 00:16:29.060 --> 00:16:32.313 and examined pre trauma predictors of our trajectories.

359 00:16:34.220 --> 00:16:37.090 What was notable here is that we did not find

360 00:16:37.090 --> 00:16:39.860 what would typically be termed a resilience trajectory.

361 00:16:39.860 --> 00:16:42.860 That is a trajectory of consistently low symptoms.

362 00:16:42.860 --> 00:16:44.730 The healthiest trajectory in the sample

363 00:16:44.730 --> 00:16:47.360 had actually moderate PTSD symptoms

364 00:16:47.360 --> 00:16:50.040 that consistently decreased over time.

365 00:16:50.040 --> 00:16:52.250 So in my more recent work,

366 00:16:52.250 --> 00:16:55.530 I have been trying actually not to use the term resilience

367 00:16:55.530 --> 00:16:58.085 although I hate to muddy the waters.

368 00:16:58.085 --> 00:17:01.730 I think that resilience as a trajectory

369 00:17:01.730 --> 00:17:05.870 of consistently low symptoms maybe does not capture

370 00:17:05.870 --> 00:17:08.282 what it means to be resilience

371 00:17:08.282 --> 00:17:11.473 in terms of people's lived experiences.

372 00:17:12.700 --> 00:17:14.170 So that's one thing.

373 00:17:14.170 --> 00:17:16.540 The other thing we found in this analysis

374 00:17:16.540 --> 00:17:20.950 that I think is notable is that the most robust predictor

375 00:17:20.950 --> 00:17:22.670 of trajectory membership

376 00:17:22.670 --> 00:17:27.623 was having probable pre disaster mental illness.

377 00:17:28.550 --> 00:17:31.566 Disaster related exposures, including bereavement,

378 00:17:31.566 --> 00:17:35.160 lack of vital resources like food, water and medical care

379 00:17:35.160 --> 00:17:38.100 and property damage were also predictive.

380 00:17:38.100 --> 00:17:42.530 Whereas other pre trauma factors seem to be mediated

381 00:17:42.530 --> 00:17:47.330 by either pre trauma mental illness or disaster exposure.

382 00:17:47.330 --> 00:17:51.550 So for example, we looked at pre disaster social support

383 00:17:51.550 --> 00:17:53.230 and at the university level

384 00:17:53.230 --> 00:17:55.370 this was associated with trajectory membership

385 00:17:55.370 --> 00:17:59.826 but not when we controlled for pre trauma mental illness.

386 00:17:59.826 --> 00:18:02.350 Similarly, we had access to data

387 00:18:02.350 --> 00:18:05.647 on pre disaster physical health conditions.

388 00:18:05.647 --> 00:18:08.690 And we found that its association with trajectory membership

389 00:18:08.690 --> 00:18:10.570 reduced to non-significant

390 00:18:10.570 --> 00:18:13.044 once we control for disaster exposure.

391 00:18:13.044 --> 00:18:16.190 Suggesting that there might be some mediational pathways

392 00:18:16.190 --> 00:18:18.453 from these risk factors to outcomes.

393 00:18:19.370 --> 00:18:22.600 Which brings me to the second area

394 00:18:22.600 --> 00:18:24.160 that I'm gonna be talking about today

395 00:18:24.160 --> 00:18:26.750 that I've observed in the disaster mental health literature

396 00:18:26.750 --> 00:18:29.900 which is an increasing focus on pathways.

397 00:18:29.900 --> 00:18:33.070 So pathways to both disaster exposure

398 00:18:33.070 --> 00:18:38.070 and even more so to post disaster mental health problems.

399 00:18:39.329 --> 00:18:42.350 Here my colleagues and I used what's called

400 00:18:42.350 --> 00:18:45.030 a pre peri post disaster framework

401 00:18:45.030 --> 00:18:47.520 thinking about how risk factors



402 00:18:47.520 --> 00:18:48.900 at these different time periods

403 00:18:48.900 --> 00:18:51.753 work together to shape disaster mental health.

404 00:18:52.930 --> 00:18:55.620 So for example, we would think that pre disaster factors

405 00:18:55.620 --> 00:18:58.920 not only increase post disaster mental health directly

406 00:18:58.920 --> 00:19:01.300 but they also increase adversity

407 00:19:01.300 --> 00:19:04.680 by influencing the extent to which people are exposed

408 00:19:04.680 --> 00:19:06.730 as well as the stressors they experience

409 00:19:06.730 --> 00:19:09.470 in the aftermath of disasters.

410 00:19:09.470 --> 00:19:12.370 Similarly, we think disaster related experiences

411 00:19:12.370 --> 00:19:14.320 are important for post disaster mental health

412 00:19:14.320 --> 00:19:16.210 both directly and in so far

413 00:19:16.210 --> 00:19:19.413 as they increase risk for further stressors downstream.

414 00:19:20.270 --> 00:19:22.850 And then finally we see the relationship

415 00:19:22.850 --> 00:19:25.070 between post-disaster stressors

416 00:19:25.070 --> 00:19:27.670 and mental health as being bi-directional

417 00:19:27.670 --> 00:19:30.940 in that post disaster stressors likely increased risk

418 00:19:30.940 --> 00:19:33.680 for mental health symptoms, but mental health symptoms

419 00:19:33.680 --> 00:19:35.810 in turn, make it more difficult to cope

420 00:19:35.810 --> 00:19:38.740 with post disaster stressors and actually can lead

421 00:19:38.740 --> 00:19:41.633 to more stressors in the post disaster environment.

422 00:19:43.590 --> 00:19:46.820 My colleagues and I recently published a paper

423 00:19:46.820 --> 00:19:49.910 testing such a model using data from the risk project.

424 00:19:49.910 --> 00:19:51.370 And we were specifically interested

425 00:19:51.370 --> 00:19:53.780 in the pathway from pre disaster trauma.

426 00:19:53.780 --> 00:19:57.610 So we assessed trauma exposures separate from disasters

427 00:19:57.610 --> 00:20:00.012 including assaulted violence,

428 00:20:00.012 --> 00:20:04.790 bereavements, physical assaults, that sort of thing.

429 00:20:04.790 --> 00:20:07.430 And then we looked at both PTSD symptoms

430 00:20:07.430 --> 00:20:10.360 and generalized psychological distress symptoms.

431 00:20:10.360 --> 00:20:11.730 And today I'm just gonna be presenting

432 00:20:11.730 --> 00:20:13.273 the results from PTSD.

433 00:20:14.850 --> 00:20:17.900 So what we hypothesized was a bit of a complex model

434 00:20:17.900 --> 00:20:19.390 at least to look at.

435 00:20:19.390 --> 00:20:23.600 But we essentially thought that pre disaster trauma exposure

436 00:20:23.600 --> 00:20:25.330 would be directly associated

437 00:20:25.330 --> 00:20:29.010 with long-term post-disaster PTSD symptoms.

438 00:20:29.010 --> 00:20:32.040 So PTSD symptoms directly tied to one's experience

439 00:20:32.040 --> 00:20:35.550 of Hurricane Katrina assessed at around 12 years

440 00:20:35.550 --> 00:20:37.240 after the hurricane.

441 00:20:37.240 --> 00:20:40.170 But we thought even more so there would be indirect pathways

442 00:20:40.170 --> 00:20:42.000 to variables downstream.

443 00:20:42.000 --> 00:20:45.730 Among them pre disaster psychological distress

444 00:20:45.730 --> 00:20:48.160 that these would work together and the likelihood

445 00:20:48.160 --> 00:20:51.030 of exposure to disaster related trauma,

446 00:20:51.030 --> 00:20:54.400 to short term post disaster PTSD symptoms

447 00:20:54.400 --> 00:20:58.363 and then also to post disaster trauma experiences.

448 00:20:59.320 --> 00:21:00.420 - And in a nutshell,

449 00:21:00.420 --> 00:21:03.010 we found support for this type of model.  
 450 00:21:03.010 --> 00:21:04.690 The model had good fit with the data  
 451 00:21:04.690 --> 00:21:07.480 and most of our pathways were significant  
 452 00:21:07.480 --> 00:21:09.120 and they expect a direction.  
 453 00:21:09.120 --> 00:21:11.120 Although notably in this model  
 454 00:21:11.120 --> 00:21:12.830 the path from pre disaster trauma  
 455 00:21:12.830 --> 00:21:15.583 to long-term symptoms was non-significant.  
 456 00:21:16.970 --> 00:21:19.500 - However, it had a significant indirect effect  
 457 00:21:19.500 --> 00:21:24.070 on long-term PTSD through other variables  
 downstream  
 458 00:21:24.070 --> 00:21:27.150 and in particular by increasing risk for disaster  
 related  
 459 00:21:27.150 --> 00:21:29.000 and post disaster trauma.  
 460 00:21:29.000 --> 00:21:32.480 Suggesting that people might have factors  
 that increase  
 461 00:21:32.480 --> 00:21:36.240 their vulnerability to trauma across the board  
 462 00:21:36.240 --> 00:21:38.803 disaster related trauma and other types of  
 trauma.  
 463 00:21:39.740 --> 00:21:41.960 Which brings me to the third area of research  
 464 00:21:41.960 --> 00:21:44.340 that my colleagues and I have been focusing  
 on,  
 465 00:21:44.340 --> 00:21:47.010 which is attention to community level factors  
 466 00:21:47.010 --> 00:21:49.500 and characteristics and exposures of commu-  
 nities  
 467 00:21:49.500 --> 00:21:54.003 that could increase or mitigate the impact of  
 disasters  
 468 00:21:55.300 --> 00:21:56.333 on mental health.  
 469 00:21:58.330 --> 00:22:00.540 So much of this research has been using data  
 470 00:22:00.540 --> 00:22:04.060 from the community resilience after hurricane  
 Sandy study.  
 471 00:22:04.060 --> 00:22:06.809 Which is a study we launched in New York  
 city  
 472 00:22:06.809 --> 00:22:10.550 after the hurricane in 2012.

473 00:22:10.550 --> 00:22:13.380 And what we did is a serial cross-sectional approach

474 00:22:13.380 --> 00:22:18.110 where we sampled two representative sub samples of survivors

475 00:22:18.110 --> 00:22:21.600 from highly effective neighborhoods within New York City.

476 00:22:21.600 --> 00:22:25.000 We gathered data from around 500 participants

477 00:22:25.000 --> 00:22:28.250 a year after the storm and 500 participants

478 00:22:28.250 --> 00:22:29.860 two years after the storm.

479 00:22:29.860 --> 00:22:32.020 We would have loved for the study to have been longitudinal

480 00:22:32.020 --> 00:22:34.450 but we did not have the funding to run that type of study

481 00:22:34.450 --> 00:22:36.493 so we took this approach instead.

482 00:22:37.860 --> 00:22:40.550 And we also gathered data on where our participants

483 00:22:40.550 --> 00:22:43.870 were living and community characteristics

484 00:22:43.870 --> 00:22:47.160 including property damage within the communities

485 00:22:47.160 --> 00:22:50.020 as well as demographic data

486 00:22:50.020 --> 00:22:51.823 from the American Community Survey.

487 00:22:53.080 --> 00:22:55.830 We were fortunate to have a health geographer on the team

488 00:22:55.830 --> 00:22:59.540 Oliver Grooner who did geospatial analysis

489 00:22:59.540 --> 00:23:02.600 including spatial autocorrelation analysis.

490 00:23:02.600 --> 00:23:05.100 In which we were able to identify clusters

491 00:23:05.100 --> 00:23:08.670 of low and high PTSD that were related to exposure

492 00:23:08.670 --> 00:23:10.838 but not entirely so.

493 00:23:10.838 --> 00:23:14.260 Suggesting that there might be unique characteristics

494 00:23:14.260 --> 00:23:16.950 of these different neighborhoods that could have increased

495 00:23:16.950 --> 00:23:18.193 or mitigate risk.

496 00:23:19.890 --> 00:23:22.630 In another study, we looked at the interaction  
497 00:23:22.630 --> 00:23:25.492 between exposures experience at the individual level.  
498 00:23:25.492 --> 00:23:28.430 These included stressors like financial losses,  
499 00:23:28.430 --> 00:23:31.140 displacement, and bereavement.  
500 00:23:31.140 --> 00:23:34.100 Participants in communities that either experienced  
501 00:23:34.100 --> 00:23:37.130 high or low levels of damages.  
502 00:23:37.130 --> 00:23:39.210 And what we found was perhaps not surprisingly  
503 00:23:39.210 --> 00:23:42.400 that individual and community level exposure  
504 00:23:42.400 --> 00:23:46.070 had a synergistic effect on the likelihood  
505 00:23:46.070 --> 00:23:48.630 of perceived need for mental health services.  
506 00:23:48.630 --> 00:23:51.350 And that it was those who experienced both  
507 00:23:51.350 --> 00:23:53.440 stressors themselves and who lived in communities  
508 00:23:53.440 --> 00:23:54.830 that were highly damaged  
509 00:23:54.830 --> 00:23:57.133 who had the greatest mental health needs.  
510 00:23:58.240 --> 00:24:01.540 We've also using the serial cross-sectional data  
511 00:24:01.540 --> 00:24:03.170 been able to look at interactions  
512 00:24:03.170 --> 00:24:05.650 between individual and community level factors  
513 00:24:05.650 --> 00:24:08.083 in shaping mental health risks over time.  
514 00:24:09.350 --> 00:24:12.420 So there's one example we looked at the interaction  
515 00:24:12.420 --> 00:24:16.710 between again individual level disaster related stressors  
516 00:24:16.710 --> 00:24:18.580 in participants who are living in communities  
517 00:24:18.580 --> 00:24:21.670 with either high or low unemployment.  
518 00:24:21.670 --> 00:24:24.860 And what we found was that a year after the hurricane  
519 00:24:24.860 --> 00:24:27.410 it didn't matter whether our participants lived  
520 00:24:27.410 --> 00:24:29.520 in higher or low unemployment areas

521 00:24:29.520 --> 00:24:31.580 at least for their PTSD symptoms.

522 00:24:31.580 --> 00:24:34.010 Across the board, hurricane related stressors

523 00:24:34.010 --> 00:24:38.003 were associated with elevated risk for PTSD symptoms.

524 00:24:39.510 --> 00:24:41.270 However, two years after the storm,

525 00:24:41.270 --> 00:24:43.390 the picture dramatically changed.

526 00:24:43.390 --> 00:24:46.220 And at this point, a disaster related stressors

527 00:24:46.220 --> 00:24:48.480 experienced at the individual level,

528 00:24:48.480 --> 00:24:50.900 their impact on post-traumatic stress disorder symptom

529 00:24:50.900 --> 00:24:54.380 severity was grossly exacerbated among our participants

530 00:24:54.380 --> 00:24:57.160 who were living in a high unemployment neighborhoods.

531 00:24:57.160 --> 00:24:59.940 And what this suggests is that the impact

532 00:24:59.940 --> 00:25:03.110 of community vulnerability might not manifest

533 00:25:03.110 --> 00:25:06.800 until the longer aftermath of disasters.

534 00:25:06.800 --> 00:25:09.620 And this is problematic because oftentimes the resources

535 00:25:09.620 --> 00:25:11.770 that are funneled to vulnerable communities

536 00:25:12.741 --> 00:25:14.050 are cut off at about the one-year anniversary.

537 00:25:14.050 --> 00:25:17.233 So this suggests greater needs over time.

538 00:25:18.990 --> 00:25:21.210 Which brings me to my fourth area

539 00:25:21.210 --> 00:25:24.790 that I've been seeing Burgeon in the research,

540 00:25:24.790 --> 00:25:28.090 which is a focus on treatment approaches.

541 00:25:28.090 --> 00:25:30.100 And I should say, I have not been involved

542 00:25:30.100 --> 00:25:32.800 in this research as much as I would like.

543 00:25:32.800 --> 00:25:34.970 But there are many different treatment approaches

544 00:25:34.970 --> 00:25:37.450 that I have received empirical support,

545 00:25:37.450 --> 00:25:39.560 including Psychological First Aid,

546 00:25:39.560 --> 00:25:42.320 Skills for Psychological Recovery,

547 00:25:42.320 --> 00:25:44.410 Project Hope in New York City,

548 00:25:44.410 --> 00:25:48.630 Bounce Back Now which is a smartphone-based app

549 00:25:48.630 --> 00:25:51.210 that focuses on a variety of mental health symptoms

550 00:25:51.210 --> 00:25:54.090 that could be experienced after disasters.

551 00:25:54.090 --> 00:25:57.110 And TF-CBT and cognitive behavioral interventions

552 00:25:57.110 --> 00:26:00.603 in schools have also been investigated in literature.

553 00:26:01.500 --> 00:26:05.040 So I've been involved, not in these treatment studies,

554 00:26:05.040 --> 00:26:08.871 but in studies using a system science approach

555 00:26:08.871 --> 00:26:13.310 to simulate populations

556 00:26:13.310 --> 00:26:15.750 or communities exposed to disasters

557 00:26:15.750 --> 00:26:19.570 and the potential impact of different ways of providing care

558 00:26:19.570 --> 00:26:22.720 on levels of PTSD, DK, Snus.

559 00:26:22.720 --> 00:26:25.970 So in this first study, we use data from

560 00:26:25.970 --> 00:26:29.900 our Hurricane Sandy study as well as studies

561 00:26:29.900 --> 00:26:32.600 of the effectiveness of different treatment approaches

562 00:26:32.600 --> 00:26:35.280 to create an agent-based model of New York City

563 00:26:35.280 --> 00:26:37.053 after Hurricane Sandy.

564 00:26:38.090 --> 00:26:41.692 And we tested two different approaches to providing care.

565 00:26:41.692 --> 00:26:44.800 First was termed care, which was skills

566 00:26:44.800 --> 00:26:47.850 for psychological recovery applied broadly

567 00:26:47.850 --> 00:26:52.850 irrespective of our agent's PTSD symptoms.

568 00:26:53.100 --> 00:26:56.130 We also then tried a step care approach

569 00:26:56.130 --> 00:27:00.280 where our agents were screened for their levels of PTSD.

570 00:27:00.280 --> 00:27:02.750 And those with lower moderate symptoms were given

571 00:27:02.750 --> 00:27:05.330 the skills for psychological recovery intervention.

572 00:27:05.330 --> 00:27:08.400 And those who had like the PTSD were given

573 00:27:08.400 --> 00:27:12.200 a more intensive treatment of cognitive behavioral therapy.

574 00:27:12.200 --> 00:27:13.680 And through the simulation study,

575 00:27:13.680 --> 00:27:16.610 we found that the step care approach

576 00:27:16.610 --> 00:27:21.610 had benefits in decreasing the prevalence of PTSD over time

577 00:27:22.360 --> 00:27:24.653 as well as lead to cost savings.

578 00:27:25.870 --> 00:27:27.910 We did a follow-up using the same data

579 00:27:27.910 --> 00:27:31.950 and adding on a social service case management approach.

580 00:27:31.950 --> 00:27:34.020 And what we found here was that this approach

581 00:27:34.020 --> 00:27:36.900 had even greater benefits and reducing PTSD

582 00:27:36.900 --> 00:27:40.820 and across our population of agents in our simulation.

583 00:27:40.820 --> 00:27:45.290 And in particular for those who experienced greater exposure

584 00:27:45.290 --> 00:27:48.090 to the hurricane characterizes having been displaced

585 00:27:48.090 --> 00:27:50.000 or losing income.

586 00:27:50.000 --> 00:27:51.720 So while this is not a direct test

587 00:27:51.720 --> 00:27:54.140 of these types of interventions

588 00:27:54.140 --> 00:27:57.930 it represents an approach to system science to simulate

589 00:27:57.930 --> 00:28:01.833 and test different possibilities in effected populations.

590 00:28:03.360 --> 00:28:05.700 So now I'm gonna turn to some of my current

591 00:28:05.700 --> 00:28:07.390 and hopefully future directions.

592 00:28:07.390 --> 00:28:09.513 And for these, I have three.

593 00:28:10.700 --> 00:28:14.080 The first is considering cumulative exposure

594 00:28:14.080 --> 00:28:16.150 which we think is important given that



595 00:28:16.150 --> 00:28:19.010 we know that there are some areas within the United States

596 00:28:19.010 --> 00:28:21.350 and beyond that are disaster prone

597 00:28:21.350 --> 00:28:23.049 and have unfortunately experienced

598 00:28:23.049 --> 00:28:25.930 more than one environmental disaster

599 00:28:25.930 --> 00:28:27.793 as well as other stressors.

600 00:28:29.170 --> 00:28:31.440 So one example of this is an analysis

601 00:28:31.440 --> 00:28:33.080 my colleagues and I did using data

602 00:28:33.080 --> 00:28:35.580 from the Gulf long-term follow-up study.

603 00:28:35.580 --> 00:28:38.160 And what we did is we looked at exposure

604 00:28:38.160 --> 00:28:41.070 amongst the sample to hurricane Katrina

605 00:28:41.070 --> 00:28:45.090 to clean up work after the deep water horizon oil spill.

606 00:28:45.090 --> 00:28:48.490 And then the combination of these two different exposures.

607 00:28:48.490 --> 00:28:51.110 And what we found was that participants who were exposed

608 00:28:51.110 --> 00:28:53.700 to both disasters, both oil spill cleanup

609 00:28:53.700 --> 00:28:56.080 and to hurricane Katrina tended to have

610 00:28:56.080 --> 00:28:59.520 higher mental health symptoms, including PTSD, depression

611 00:28:59.520 --> 00:29:02.810 and anxiety symptoms, as well as physical health symptoms,

612 00:29:02.810 --> 00:29:06.943 including headaches, back pain and digestive problems.

613 00:29:08.672 --> 00:29:11.811 In a future project, I mentioned that we're collecting data

614 00:29:11.811 --> 00:29:16.180 on the COVID-19 experiences of our risk sample.

615 00:29:16.180 --> 00:29:18.803 And what we're hoping here is to investigate

616 00:29:18.803 --> 00:29:21.740 the impact of the pandemic on this group

617 00:29:21.740 --> 00:29:24.550 that has already been exposed to a major disaster

618 00:29:24.550 --> 00:29:26.850 and their perceptions of whether having experienced

619 00:29:26.850 --> 00:29:30.910 hurricane Katrina exacerbated the impact of the pandemic

620 00:29:30.910 --> 00:29:32.373 or help them cope.

621 00:29:35.530 --> 00:29:37.420 Another future direction is that

622 00:29:37.420 --> 00:29:39.914 I've been increasingly interested

623 00:29:39.914 --> 00:29:44.580 in the broader impacts of climate change

624 00:29:44.580 --> 00:29:47.860 both on people living in areas that are affected

625 00:29:47.860 --> 00:29:50.820 by disasters and other climate change indicators,

626 00:29:50.820 --> 00:29:54.640 but more generally in the population

627 00:29:54.640 --> 00:29:57.033 even in less affected areas.

628 00:29:58.190 --> 00:30:01.450 So for this work, I have had the honor

629 00:30:01.450 --> 00:30:03.640 of working with Susan Clayton,

630 00:30:03.640 --> 00:30:05.570 who is an environmental psychologist

631 00:30:05.570 --> 00:30:07.420 at the college of Wooster.

632 00:30:07.420 --> 00:30:10.590 And she, this past year developed and validated

633 00:30:10.590 --> 00:30:13.380 a measure of climate change anxiety.

634 00:30:13.380 --> 00:30:14.840 So the two of us are working

635 00:30:14.840 --> 00:30:17.260 with a former classmate of mine, Sarah Schwartz,

636 00:30:17.260 --> 00:30:19.960 who's a psychologist at Suffolk University

637 00:30:19.960 --> 00:30:23.250 on a study looking at college and graduate students

638 00:30:23.250 --> 00:30:25.760 climate change anxiety, its relationship

639 00:30:25.760 --> 00:30:27.380 with mental health indicators

640 00:30:27.380 --> 00:30:30.850 such as depression and generalized anxiety disorder.

641 00:30:30.850 --> 00:30:35.130 And the protective role of constructs such as climate hope

642 00:30:35.130 --> 00:30:38.710 and climate activism, and mitigating this relationship.

643 00:30:38.710 --> 00:30:41.430 And some of you in the climate change and health seminar

644 00:30:41.430 --> 00:30:43.690 may have been invited to participate

645 00:30:43.690 --> 00:30:45.893 in this study last semester.

646 00:30:48.150 --> 00:30:50.823 And then finally, I've been increasingly interested

647 00:30:50.823 --> 00:30:54.540 in other climate change indicators beyond disasters

648 00:30:54.540 --> 00:30:57.676 including some of those that are more chronic and persistent

649 00:30:57.676 --> 00:31:00.290 as well as other environmental exposures

650 00:31:00.290 --> 00:31:02.873 that are likely to affect mental health.

651 00:31:04.480 --> 00:31:07.581 An example of this work I have had the honor

652 00:31:07.581 --> 00:31:08.960 of working with Kai Chen

653 00:31:08.960 --> 00:31:12.570 from the Yale Center for Climate Change and Health

654 00:31:12.570 --> 00:31:16.470 on a study looking at particulate matter, air pollution

655 00:31:16.470 --> 00:31:19.360 and its association with outpatient visits

656 00:31:19.360 --> 00:31:21.990 for mental health problems in Nanjing China.

657 00:31:21.990 --> 00:31:24.280 And what we found that was on days

658 00:31:24.280 --> 00:31:27.720 where there was greater levels of particulate matter

659 00:31:28.890 --> 00:31:31.940 the use of outpatient services increased.

660 00:31:31.940 --> 00:31:34.070 Suggesting that this environmental indicator

661 00:31:34.070 --> 00:31:36.830 could increase the demand for mental health services

662 00:31:36.830 --> 00:31:40.023 and also impact the likelihood of mental health symptoms.

663 00:31:41.500 --> 00:31:44.660 And then I've been collaborating on a systematic review

664 00:31:44.660 --> 00:31:48.610 trying to conceptualize climate change indicators

665 00:31:48.610 --> 00:31:51.440 and look at their impact on mental health.

666 00:31:51.440 --> 00:31:53.260 This has been sort of slow going.  
667 00:31:53.260 --> 00:31:55.430 I think in our initial screening  
668 00:31:55.430 --> 00:31:58.840 we looked at around 12,000 abstracts  
669 00:31:58.840 --> 00:32:01.570 and in doing so recognize the challenges  
670 00:32:01.570 --> 00:32:06.570 of measuring chronic climate change impacts  
671 00:32:06.860 --> 00:32:09.410 and their potential influence on mental health.  
672 00:32:09.410 --> 00:32:13.290 So, hopefully that will come out in the next  
few years.  
673 00:32:13.290 --> 00:32:15.560 So that is actually all I've got for today.  
674 00:32:15.560 --> 00:32:18.327 I think that was faster than I expected.  
675 00:32:18.327 --> 00:32:21.710 But I have my email here and I would be  
happy  
676 00:32:21.710 --> 00:32:26.710 to answer questions about this work both  
today and offline.  
677 00:32:27.000 --> 00:32:29.737 So feel free to email me and reach out.  
678 00:32:29.737 --> 00:32:33.320 I love connecting with people, hearing from  
students  
679 00:32:33.320 --> 00:32:34.630 and so on.  
680 00:32:34.630 --> 00:32:35.993 So, thank you very much.  
681 00:32:37.880 --> 00:32:41.220 - Great, thank you Sarah for this wonderful  
presentation,  
682 00:32:41.220 --> 00:32:44.126 giving the state or the knowledge regarding  
683 00:32:44.126 --> 00:32:48.190 the mental health after all these weather re-  
lated disasters.  
684 00:32:48.190 --> 00:32:51.630 And thank you very much for sharing your  
future  
685 00:32:51.630 --> 00:32:53.980 and the current directions in this field.  
686 00:32:53.980 --> 00:32:55.960 It's all, it's very fantastic.  
687 00:32:55.960 --> 00:32:59.320 And I'm sure the audience will have a lot of  
questions.  
688 00:32:59.320 --> 00:33:01.730 So while the audience is preparing the question  
689 00:33:01.730 --> 00:33:03.410 and typing in the chat box,  
690 00:33:03.410 --> 00:33:07.200 we do have already clacking a question from  
the students.

691 00:33:07.200 --> 00:33:10.410 So there are a lot of student questions.

692 00:33:10.410 --> 00:33:14.610 But the first question the student is wondering is

693 00:33:14.610 --> 00:33:19.530 you have shown different types of disasters

694 00:33:19.530 --> 00:33:21.816 especially in your review paper.

695 00:33:21.816 --> 00:33:24.610 Several students are kind of wondering

696 00:33:24.610 --> 00:33:28.950 is there a way to compare the mental health matters

697 00:33:28.950 --> 00:33:31.820 across different types of disasters?

698 00:33:31.820 --> 00:33:35.100 Like when you compare the different types of disasters,

699 00:33:35.100 --> 00:33:36.730 does this matter?

700 00:33:36.730 --> 00:33:40.710 Is a particular type of disaster has a strong effect

701 00:33:40.710 --> 00:33:43.653 on a particular mental health outcome?

702 00:33:44.950 --> 00:33:46.560 - That is a really good question.

703 00:33:46.560 --> 00:33:49.650 So I know that it used to be said

704 00:33:49.650 --> 00:33:54.430 that disasters that were clearly human made

705 00:33:54.430 --> 00:33:58.000 such as oil spills and terrorism

706 00:33:58.000 --> 00:34:02.000 we're likely to trigger more severe impacts on mental health

707 00:34:02.000 --> 00:34:04.390 because there was someone to blame

708 00:34:04.390 --> 00:34:07.640 and they seemed less fateful.

709 00:34:07.640 --> 00:34:10.910 However, I don't think that has been shown empirically

710 00:34:10.910 --> 00:34:14.176 although perhaps someone else in this seminar

711 00:34:14.176 --> 00:34:16.163 knows more than I do.

712 00:34:17.890 --> 00:34:20.890 And I do think that it is again worth emphasizing that

713 00:34:20.890 --> 00:34:23.874 what we've typically seen as natural disasters

714 00:34:23.874 --> 00:34:28.710 do have a clear tie to climate change and human impacts

715 00:34:28.710 --> 00:34:31.490 and affects human made systems.

716 00:34:31.490 --> 00:34:35.750 And I think that that can lead to feelings of anger

717 00:34:35.750 --> 00:34:39.360 and blame and neglect that can exacerbate risks

718 00:34:39.360 --> 00:34:42.200 sort of in the same way that would happen

719 00:34:42.200 --> 00:34:45.520 after a technological disaster or terrorism.

720 00:34:45.520 --> 00:34:50.200 So I think it's difficult to really make the comparison.

721 00:34:50.200 --> 00:34:53.130 But my sense is that both have the potential

722 00:34:53.130 --> 00:34:55.743 to trigger symptoms across the board.

723 00:34:57.630 --> 00:35:00.760 - Thanks, so another type of question follows

724 00:35:00.760 --> 00:35:03.720 the interventions you mentioned.

725 00:35:03.720 --> 00:35:06.290 So the students are wondering,

726 00:35:06.290 --> 00:35:08.460 you mentioned give some examples

727 00:35:09.330 --> 00:35:13.100 more from the clinical science clinical based interventions.

728 00:35:13.100 --> 00:35:16.667 And you have also mentioned your own research

729 00:35:16.667 --> 00:35:21.667 and other papers has shown some individual level

730 00:35:21.720 --> 00:35:25.160 or community level characteristics

731 00:35:25.160 --> 00:35:27.970 such as the employment rate

732 00:35:27.970 --> 00:35:30.910 that it can kind of modify the risk.

733 00:35:30.910 --> 00:35:34.190 So is there wave, can you talk about

734 00:35:34.190 --> 00:35:38.270 more this nonclinical intervention strategies?

735 00:35:38.270 --> 00:35:42.440 And are there community-based programs are happening

736 00:35:42.440 --> 00:35:45.703 or are there any further readings for the students?

737 00:35:47.000 --> 00:35:49.480 - Yeah, so that is a really good question.

738 00:35:49.480 --> 00:35:54.350 So yeah, so as a clinical psychologist, I'm most well-versed

739 00:35:54.350 --> 00:35:58.610 in trauma-focused CBT and those types of treatments

740 00:35:58.610 --> 00:36:03.400 for people who have moderate or severe symptoms.

741 00:36:03.400 --> 00:36:06.100 But I think that there are public health approaches

742 00:36:06.100 --> 00:36:08.250 to treating mental health across the board

743 00:36:08.250 --> 00:36:10.560 including psychological first aid.

744 00:36:10.560 --> 00:36:13.460 And I think a key here is that psychological first aid

745 00:36:14.368 --> 00:36:17.940 acknowledges that most people are going to be resilient

746 00:36:17.940 --> 00:36:19.750 in terms of their mental health.

747 00:36:19.750 --> 00:36:24.530 And so aren't going to benefit from more intensive services.

748 00:36:24.530 --> 00:36:27.840 And in fact, you know, therapeutic approaches

749 00:36:27.840 --> 00:36:30.190 might actually impede their coping processes

750 00:36:30.190 --> 00:36:32.240 and increase their risk.

751 00:36:32.240 --> 00:36:34.230 So psychological first aid as I understand,

752 00:36:34.230 --> 00:36:36.369 I have not been trained in it

753 00:36:36.369 --> 00:36:37.600 and I would love to at some point,

754 00:36:37.600 --> 00:36:41.090 focuses on assessing how people are doing,

755 00:36:41.090 --> 00:36:44.960 providing them information and then referring them

756 00:36:44.960 --> 00:36:46.450 to resources that help them

757 00:36:46.450 --> 00:36:48.030 either with their mental health problems

758 00:36:48.030 --> 00:36:49.923 or other social service needs.

759 00:36:51.800 --> 00:36:54.470 I think a social service approach that integrates

760 00:36:54.470 --> 00:36:57.870 both psychological first aid and that assesses

761 00:36:57.870 --> 00:37:00.490 the broader range of post disaster needs

762 00:37:00.490 --> 00:37:02.080 and provides some case management

763 00:37:02.080 --> 00:37:04.160 in navigating the various systems

764 00:37:04.160 --> 00:37:06.890 that disaster survivors come into contact with

765 00:37:06.890 --> 00:37:08.580 is very important.

766 00:37:08.580 --> 00:37:11.540 And I know that in our Katrina study

767 00:37:11.540 --> 00:37:13.550 so that was a mixed methods project

768 00:37:14.610 --> 00:37:18.049 a lot of our, not a lot, some of our survivors

769 00:37:18.049 --> 00:37:21.970 talked about how their encounters with social services

770 00:37:21.970 --> 00:37:25.620 after Katrina was actually their first touch point

771 00:37:25.620 --> 00:37:29.940 to getting mental health services for preexisting problems.

772 00:37:29.940 --> 00:37:31.670 So I think the post disaster period

773 00:37:31.670 --> 00:37:34.730 could actually be in some cases, an opportunity

774 00:37:34.730 --> 00:37:37.880 for people to get help that they needed all along.

775 00:37:37.880 --> 00:37:40.250 And it's unfortunate that it takes a disaster to do that

776 00:37:40.250 --> 00:37:44.590 but could actually facilitate not just psychological growth

777 00:37:44.590 --> 00:37:47.730 but access to social and economic resources

778 00:37:47.730 --> 00:37:50.403 that foster their wellbeing across the board.

779 00:37:51.730 --> 00:37:52.563 - Oh, thanks, Sarah.

780 00:37:52.563 --> 00:37:55.790 I think there's a question from the audience relate to this

781 00:37:55.790 --> 00:37:57.910 from Pat Haney.

782 00:37:57.910 --> 00:38:00.830 Just thank you, Sarah, can you give an explanation

783 00:38:00.830 --> 00:38:04.493 of the step heard care you discuss in your model?

784 00:38:05.350 --> 00:38:08.130 - Yeah, so that was a really interesting project

785 00:38:08.130 --> 00:38:09.380 to be a part of.

786 00:38:09.380 --> 00:38:11.790 So we use what's called agent-based modeling

787 00:38:11.790 --> 00:38:15.960 which you actually put in, you create a population

788 00:38:15.960 --> 00:38:18.510 within a computer programming software.



789 00:38:18.510 --> 00:38:22.910 We use Python and then you put in various inputs.

790 00:38:22.910 --> 00:38:26.056 So you distribute disaster exposure,

791 00:38:26.056 --> 00:38:30.690 you distribute risk factors for psychopathology

792 00:38:30.690 --> 00:38:33.920 and then you can apply an intervention to that population.

793 00:38:33.920 --> 00:38:36.740 So intercept care approach, what I believe we did

794 00:38:36.740 --> 00:38:39.350 is we screened our participants

795 00:38:39.350 --> 00:38:42.533 meaning that we assign them different levels of PTSD.

796 00:38:43.500 --> 00:38:45.370 And then those who met a certain level

797 00:38:45.370 --> 00:38:47.860 I think we said seven PTSD symptoms

798 00:38:47.860 --> 00:38:51.240 who likely had the disorder were then given

799 00:38:51.240 --> 00:38:55.680 in the simulation cognitive behavioral therapy for PTSD.

800 00:38:55.680 --> 00:38:58.270 And that others who had non-zero

801 00:38:58.270 --> 00:39:02.280 but less than seven symptoms of PTSD were given

802 00:39:02.280 --> 00:39:05.560 quote unquote skills for psychological recovery.

803 00:39:05.560 --> 00:39:10.090 And based on the findings of prior research

804 00:39:10.090 --> 00:39:11.960 on the effectiveness

805 00:39:11.960 --> 00:39:14.810 of these two different intervention approaches

806 00:39:14.810 --> 00:39:18.290 our agents within the model, their symptoms declined

807 00:39:18.290 --> 00:39:19.420 in a way we would expect

808 00:39:19.420 --> 00:39:21.900 based on their socioeconomic demographics.

809 00:39:21.900 --> 00:39:25.070 So again, it was a simulation, it was not a test

810 00:39:25.070 --> 00:39:27.500 of an approach, but more of a demonstration

811 00:39:27.500 --> 00:39:30.340 that screening participants and providing services

812 00:39:30.340 --> 00:39:32.620 that meet their mental health needs

813 00:39:32.620 --> 00:39:36.333 could more effectively lead to decreases in PTSD over time.

814 00:39:38.520 --> 00:39:42.500 - Oh, great, I think another, it's not maybe a question

815 00:39:42.500 --> 00:39:46.100 but a comment from Massey asking

816 00:39:46.100 --> 00:39:49.310 as a clinician and a public health practitioner

817 00:39:49.310 --> 00:39:52.180 how best to translate this information

818 00:39:52.180 --> 00:39:57.010 to first advocate clinician to be aware now of these issues.

819 00:39:57.010 --> 00:40:00.123 So I think it's first within the interaction question.

820 00:40:02.158 --> 00:40:06.690 There has been other questions from students as well.

821 00:40:06.690 --> 00:40:10.070 So while the students is asking

822 00:40:10.070 --> 00:40:13.245 like we study the association between disaster

823 00:40:13.245 --> 00:40:16.390 and the mental health, is that a case that is

824 00:40:16.390 --> 00:40:21.030 some solution, will there be some underestimation

825 00:40:21.030 --> 00:40:23.930 of their mental health status due to the stigma

826 00:40:24.839 --> 00:40:26.020 of the mental illness

827 00:40:26.020 --> 00:40:29.853 especially in a lot of surveys you have performed?

828 00:40:31.400 --> 00:40:33.500 - Yeah, so the question is whether

829 00:40:34.800 --> 00:40:36.600 mental consequences will be exacerbated

830 00:40:36.600 --> 00:40:38.573 if there's stigma experienced?

831 00:40:39.490 --> 00:40:42.250 - Or maybe underestimated in the service.

832 00:40:42.250 --> 00:40:45.730 Some people would maybe reclined

833 00:40:45.730 --> 00:40:47.793 to answer these questions, so.

834 00:40:48.770 --> 00:40:50.363 - That is a good question.

835 00:40:51.690 --> 00:40:54.210 I don't think I have a good answer for you.

836 00:40:54.210 --> 00:40:56.180 I think it's certainly possible

837 00:40:56.180 --> 00:41:00.240 that people who experienced mental health stigma

838 00:41:00.240 --> 00:41:03.880 might be less likely to report symptoms.

839 00:41:03.880 --> 00:41:06.440 That being said in these studies

840 00:41:06.440 --> 00:41:11.070 we use validated scales that ask about specific behaviors

841 00:41:11.070 --> 00:41:13.700 and experiences, not disorders.

842 00:41:13.700 --> 00:41:17.190 So for example someone who experienced mental health stigma

843 00:41:17.190 --> 00:41:20.700 might be more likely to say I haven't had good sleep

844 00:41:20.700 --> 00:41:23.460 over the past two weeks, or I've been feeling

845 00:41:23.460 --> 00:41:25.063 like a lack of pleasure.

846 00:41:25.900 --> 00:41:29.653 Than saying that they experienced depression per se.

847 00:41:30.610 --> 00:41:35.460 So they are sort of behaviorally anchored questions.

848 00:41:35.460 --> 00:41:39.880 And it's interesting 'cause I think people are more likely

849 00:41:39.880 --> 00:41:43.550 to report symptoms if they're doing so anonymously,

850 00:41:43.550 --> 00:41:46.620 such as via an online survey or something like that.

851 00:41:46.620 --> 00:41:48.830 But a lot of, especially the epidemiologic studies

852 00:41:48.830 --> 00:41:51.760 are done over the phone, at least historically.

853 00:41:51.760 --> 00:41:54.780 And that having that personal contact could potentially

854 00:41:54.780 --> 00:41:58.490 be a barrier to reporting.

855 00:41:58.490 --> 00:42:02.201 And then absolutely stigma is a barrier to service seeking

856 00:42:02.201 --> 00:42:04.800 but you know, there are other barriers too.

857 00:42:04.800 --> 00:42:06.550 So in one study we looked at the frequency

858 00:42:06.550 --> 00:42:07.970 of different barriers

859 00:42:07.970 --> 00:42:11.650 and a major one was a lack of resources.

860 00:42:11.650 --> 00:42:14.400 So not knowing where services were,

861 00:42:14.400 --> 00:42:17.580 not having time, needing childcare,  
862 00:42:17.580 --> 00:42:19.147 not having transportation.  
863 00:42:19.147 --> 00:42:21.397 And I think those can get in the way as well.  
864 00:42:23.380 --> 00:42:26.681 - Yes, another question kind of related  
865 00:42:26.681 --> 00:42:29.100 to the respondents characteristics is,  
866 00:42:29.100 --> 00:42:31.460 there's one question from Peter asking,  
867 00:42:31.460 --> 00:42:34.990 has any of the current research considered the  
difference  
868 00:42:34.990 --> 00:42:38.781 in PTSD among first responders and long-  
term  
869 00:42:38.781 --> 00:42:43.781 community responders versus those who are  
impacted  
870 00:42:43.970 --> 00:42:46.653 but did not assist them with the response?  
871 00:42:47.530 --> 00:42:49.180 - Yeah, that is a really good question.  
872 00:42:49.180 --> 00:42:54.060 So from the research that I've seen,  
873 00:42:54.060 --> 00:42:55.790 epidemiologic studies have shown that people  
874 00:42:55.790 --> 00:42:57.680 who are involved in the response  
875 00:42:57.680 --> 00:43:00.590 tend to be at increased risk for mental health  
problems  
876 00:43:00.590 --> 00:43:02.940 relative to the general population.  
877 00:43:02.940 --> 00:43:05.920 However, there is substantial variability  
878 00:43:05.920 --> 00:43:07.780 amongst first responders.  
879 00:43:07.780 --> 00:43:12.780 So those who are exposed to atrocities, such  
as,  
880 00:43:13.820 --> 00:43:16.060 dead bodies, people who are harmed  
881 00:43:16.060 --> 00:43:18.100 really severe property damage,  
882 00:43:18.100 --> 00:43:20.320 who are exposed to environmental toxins,  
883 00:43:20.320 --> 00:43:23.333 like mold and things of that nature  
884 00:43:23.333 --> 00:43:27.330 and who have not received adequate training.  
885 00:43:27.330 --> 00:43:30.370 So I know for example, I think there was a  
study  
886 00:43:30.370 --> 00:43:33.300 after the Deepwater horizon oil spill, or maybe  
not,

887 00:43:33.300 --> 00:43:34.133 I'm trying to think.

888 00:43:34.133 --> 00:43:37.050 This may have been a disaster in one of the ones in Japan

889 00:43:37.050 --> 00:43:41.340 that was conducted that showed that people who were

890 00:43:41.340 --> 00:43:43.961 police officers or who had previously been involved

891 00:43:43.961 --> 00:43:47.653 in response work tended to have fewer

892 00:43:47.653 --> 00:43:49.230 adverse mental health impacts

893 00:43:49.230 --> 00:43:51.123 relative to those who volunteered.

894 00:43:52.040 --> 00:43:55.070 Which suggests the benefits and importance

895 00:43:55.070 --> 00:43:58.680 of resilience training prior to these exposures,

896 00:43:58.680 --> 00:43:59.860 which is really hard to do, right?

897 00:43:59.860 --> 00:44:03.100 Because these events by their very nature are unexpected

898 00:44:03.100 --> 00:44:05.160 and people are going to volunteer

899 00:44:05.160 --> 00:44:07.050 which is great to help out.

900 00:44:07.050 --> 00:44:10.280 There might not be adequate time to really prepare them,

901 00:44:10.280 --> 00:44:12.603 but probably at least some.

902 00:44:15.190 --> 00:44:19.140 - Great, so there's a couple of other questions

903 00:44:19.140 --> 00:44:21.543 relating to the study.

904 00:44:22.990 --> 00:44:25.400 Actually to the review paper you presented.

905 00:44:25.400 --> 00:44:28.050 One of them is actually asking

906 00:44:28.050 --> 00:44:31.640 about not weather related disaster, but

907 00:44:31.640 --> 00:44:34.150 a question from the audience asking,

908 00:44:34.150 --> 00:44:37.970 have you worked on research interests such as

909 00:44:37.970 --> 00:44:42.220 with manmade disaster, such as armed conflict?

910 00:44:42.220 --> 00:44:44.330 And looking into the displacement

911 00:44:44.330 --> 00:44:46.580 and how these may impacted them in the house?

912 00:44:47.820 --> 00:44:50.506 - Absolutely, that's a very good question.

913 00:44:50.506 --> 00:44:54.770 So I have been involved in studies of human made disasters,

914 00:44:54.770 --> 00:44:57.090 namely the study, I mentioned with the workers

915 00:44:57.090 --> 00:44:59.240 after the deep water horizon oil spill

916 00:44:59.240 --> 00:45:00.400 but that seems very different

917 00:45:00.400 --> 00:45:01.700 than what the student is asking about

918 00:45:01.700 --> 00:45:04.680 which is armed conflict and displacement.

919 00:45:04.680 --> 00:45:07.390 I would love to get involved in this type of work.

920 00:45:07.390 --> 00:45:09.570 I haven't yet had the opportunities.

921 00:45:09.570 --> 00:45:14.570 But what I can say is that there are some clear parallels

922 00:45:16.150 --> 00:45:18.670 to weather related disasters

923 00:45:18.670 --> 00:45:21.550 as well as some clear distinctions.

924 00:45:21.550 --> 00:45:25.750 So a parallel is that being displaced from your community

925 00:45:25.750 --> 00:45:29.330 not by choice can be really stressful

926 00:45:29.330 --> 00:45:31.130 and potentially traumatic.

927 00:45:31.130 --> 00:45:34.080 And that we found in our Katrina study,

928 00:45:34.080 --> 00:45:36.660 that those who relocated which was a good percentage

929 00:45:36.660 --> 00:45:39.240 of our sample tended to be at increased risk

930 00:45:39.240 --> 00:45:41.490 for mental health problems.

931 00:45:41.490 --> 00:45:43.500 Both those who like stably relocated

932 00:45:43.500 --> 00:45:44.660 who found a new place to live

933 00:45:44.660 --> 00:45:46.430 in a different state and settled there

934 00:45:46.430 --> 00:45:50.408 and those who had unstable housing trajectories.

935 00:45:50.408 --> 00:45:53.527 I think another commonality is that

936 00:45:55.000 --> 00:45:59.120 both types of community level trauma

937 00:45:59.120 --> 00:46:02.310 involve exposure to death and destruction.

938 00:46:02.310 --> 00:46:07.310 But I think the particulars of it are very distinctive

939 00:46:07.620 --> 00:46:12.620 and the level of violence who is perpetrating it,

940 00:46:14.960 --> 00:46:18.230 the extent of displacement could be very different

941 00:46:18.230 --> 00:46:21.500 in ways that could exacerbate mental health risks.

942 00:46:21.500 --> 00:46:22.990 So I think that there are some ways are similar

943 00:46:22.990 --> 00:46:24.840 and some ways they're very different.

944 00:46:25.760 --> 00:46:27.620 - Yeah, I wanted a follow up

945 00:46:27.620 --> 00:46:30.124 on the like displacement request.

946 00:46:30.124 --> 00:46:32.280 And we know what you also mentioned

947 00:46:32.280 --> 00:46:36.100 the kind of anxiety conscience is your future direction.

948 00:46:36.100 --> 00:46:40.500 So we know there's issue on the counter refugees

949 00:46:40.500 --> 00:46:44.690 especially considering even the whiteflies in the West.

950 00:46:44.690 --> 00:46:48.230 A lot of people just were displaced due to the whiteflies.

951 00:46:48.230 --> 00:46:52.270 So when talking about to the mental health burden

952 00:46:52.270 --> 00:46:54.443 of these kind of refugees,

953 00:46:56.090 --> 00:46:58.370 can you give more like an explanation

954 00:46:58.370 --> 00:47:00.160 on the state of the science on that?

955 00:47:00.160 --> 00:47:05.160 And are there any new directions that you want to ask?

956 00:47:06.480 --> 00:47:08.700 - Yeah, that is a really good question.

957 00:47:08.700 --> 00:47:10.290 In terms of the state of the science,

958 00:47:10.290 --> 00:47:12.810 I don't know a lot of good literature

959 00:47:12.810 --> 00:47:16.616 on climate refugees and displacement aside from

960 00:47:16.616 --> 00:47:20.520 like domestic displacement after hurricane Katrina.

961 00:47:20.520 --> 00:47:22.480 That doesn't mean that there's not good research going on,

962 00:47:22.480 --> 00:47:24.033 I just might not know about it.

963 00:47:24.930 --> 00:47:27.590 But my overall sense is there's probably not a lot of it

964 00:47:27.590 --> 00:47:30.593 going on and that this is to be a major issue

965 00:47:30.593 --> 00:47:33.810 'cause being displaced from one's home community

966 00:47:33.810 --> 00:47:36.380 either because your community has been destroyed

967 00:47:36.380 --> 00:47:40.570 or that it's at great risk is incredibly stressful.

968 00:47:40.570 --> 00:47:42.360 And not only can impact mental health

969 00:47:42.360 --> 00:47:45.750 but it can impact the things that foster mental health.

970 00:47:45.750 --> 00:47:49.230 Such as social connections, employment,

971 00:47:49.230 --> 00:47:54.230 community attachment, things of that nature.

972 00:47:54.290 --> 00:47:57.130 So, you know, what I would say is that we need to be mindful

973 00:47:57.130 --> 00:47:59.120 that this is going to happen

974 00:48:00.060 --> 00:48:04.690 and trying to create communities that are accepting

975 00:48:04.690 --> 00:48:07.870 and supportive of people who are displaced.

976 00:48:07.870 --> 00:48:10.200 You know, I know for our Katrina sample

977 00:48:10.200 --> 00:48:12.380 one of the things qualitatively that was very difficult

978 00:48:12.380 --> 00:48:15.560 for them was moving to places where they were not welcome,

979 00:48:15.560 --> 00:48:16.750 where they were stigmatized,

980 00:48:16.750 --> 00:48:18.930 where they had difficulty getting jobs,

981 00:48:18.930 --> 00:48:21.927 because they were from New Orleans.

982 00:48:21.927 --> 00:48:24.860 Or heard people say things about people

983 00:48:24.860 --> 00:48:27.260 from New Orleans and the culture of New Orleans

984 00:48:27.260 --> 00:48:28.930 and this is within the same country.



985 00:48:28.930 --> 00:48:30.920 So I could only imagine, you know, when we're talking about

986 00:48:30.920 --> 00:48:32.390 people crossing international borders

987 00:48:32.390 --> 00:48:34.860 that these types of issues within communities

988 00:48:34.860 --> 00:48:36.060 are gonna be heightened.

989 00:48:39.650 --> 00:48:41.650 - Yeah, another question kind of related

990 00:48:43.090 --> 00:48:45.840 to the culture inference, one of the students is asking

991 00:48:45.840 --> 00:48:48.573 among these community level characteristics,

992 00:48:50.270 --> 00:48:54.480 do you expect these different characteristics

993 00:48:54.480 --> 00:48:57.970 such as the culture inference can be a factor

994 00:48:57.970 --> 00:49:01.040 influencing the substantial variability

995 00:49:01.040 --> 00:49:03.570 you observed in the review paper

996 00:49:03.570 --> 00:49:07.190 on the premise of the PTSD and the depression?

997 00:49:07.190 --> 00:49:08.357 - Yeah, that is a really good question.

998 00:49:08.357 --> 00:49:10.720 And I don't know, offhand I'd have to actually look closely

999 00:49:10.720 --> 00:49:12.560 at the review paper that you all read

1000 00:49:12.560 --> 00:49:16.118 to see what literature was came out at that particular year.

1001 00:49:16.118 --> 00:49:18.640 What I would say having been involved in this research

1002 00:49:18.640 --> 00:49:21.397 you know, we try to get community level data

1003 00:49:21.397 --> 00:49:25.850 from the Census Bureau and the American Community Survey.

1004 00:49:25.850 --> 00:49:28.582 And oftentimes when you run these analysis

1005 00:49:28.582 --> 00:49:33.210 they explained very little variability in outcomes.

1006 00:49:33.210 --> 00:49:36.080 And I think part of the reason is because

1007 00:49:36.080 --> 00:49:39.130 census tracks and census blocks don't necessarily

1008 00:49:39.130 --> 00:49:42.600 map onto what people perceive as their communities.

1009 00:49:42.600 --> 00:49:45.450 Like I know in after Hurricane Sandy

1010 00:49:45.450 --> 00:49:48.112 like I technically I was eligible for the study that we did.

1011 00:49:48.112 --> 00:49:51.800 I have no idea what my census track was.

1012 00:49:51.800 --> 00:49:54.020 And it would be hard to imagine

1013 00:49:54.020 --> 00:49:57.360 that it really mapped onto what I saw as my community

1014 00:49:57.360 --> 00:49:59.870 given that the people that I interacted with

1015 00:49:59.870 --> 00:50:01.770 on a day-to-day basis didn't necessarily even live

1016 00:50:01.770 --> 00:50:04.463 in that particular census track.

1017 00:50:04.463 --> 00:50:06.230 So I think it's tricky.

1018 00:50:06.230 --> 00:50:08.590 And then an alternative source that people sometimes use

1019 00:50:08.590 --> 00:50:11.150 is they ask people about their perceptions

1020 00:50:11.150 --> 00:50:13.360 of their own community and that's going to be biased

1021 00:50:13.360 --> 00:50:15.600 by their mental health and functioning.

1022 00:50:15.600 --> 00:50:17.440 So I think, you know, there are advantages

1023 00:50:17.440 --> 00:50:19.913 and drawbacks to different approaches

1024 00:50:19.913 --> 00:50:23.270 and very likely community level characteristics

1025 00:50:23.270 --> 00:50:26.400 do shape mental health after disasters.

1026 00:50:26.400 --> 00:50:27.940 But I don't think we've been able to

1027 00:50:27.940 --> 00:50:29.563 very precisely estimate that.

1028 00:50:31.910 --> 00:50:34.570 - Great, so due to the time limitation

1029 00:50:34.570 --> 00:50:36.470 we will have the last two questions.

1030 00:50:36.470 --> 00:50:39.983 So the one is from Diane,

1031 00:50:41.310 --> 00:50:43.450 excuse me, if I pronounce it wrong

1032 00:50:44.640 --> 00:50:48.190 from the audience, what might the considerations be

1033 00:50:48.190 --> 00:50:53.190 for substance misuse services pre and post disaster?

1034 00:50:53.190 --> 00:50:56.933 And what has to be ensured to help these populations most?

1035 00:50:58.390 --> 00:51:00.253 - That is a really good question.

1036 00:51:01.160 --> 00:51:06.160 So I am not super well versed in substance abuse services.

1037 00:51:07.560 --> 00:51:09.370 I can say that there have been studies

1038 00:51:09.370 --> 00:51:13.450 that have shown increases in alcohol use

1039 00:51:13.450 --> 00:51:17.550 and use of other substances including non-medical use

1040 00:51:17.550 --> 00:51:20.440 of prescription drugs after disasters

1041 00:51:20.440 --> 00:51:23.520 and often they're endorsed as a means of coping with stress.

1042 00:51:23.520 --> 00:51:24.750 And I think certainly we've seen that

1043 00:51:24.750 --> 00:51:27.700 with the COVID-19 pandemic as well.

1044 00:51:27.700 --> 00:51:30.163 So I think in general a population-based approach

1045 00:51:30.163 --> 00:51:32.840 could be to acknowledge that that is something

1046 00:51:32.840 --> 00:51:34.370 that people do to cope

1047 00:51:34.370 --> 00:51:36.910 as well as the potential negative consequences of that

1048 00:51:36.910 --> 00:51:40.813 and alternative ways of coping if people feel like using.

1049 00:51:40.813 --> 00:51:44.090 I do know anecdotally I have

1050 00:51:46.340 --> 00:51:48.220 colleagues, not super close colleagues

1051 00:51:48.220 --> 00:51:49.930 but contacts who have done some work

1052 00:51:49.930 --> 00:51:54.190 with opioid and methadone maintenance after hurricanes.

1053 00:51:54.190 --> 00:51:56.290 And I think it's really challenging

1054 00:51:56.290 --> 00:51:59.680 because the people who run these clinics are also impacted.

1055 00:51:59.680 --> 00:52:03.690 And when people are displaced, they have disruptions in care

1056 00:52:03.690 --> 00:52:08.040 that can be really devastating for their recovery.

1057 00:52:08.040 --> 00:52:09.850 So I think it is a major issue

1058 00:52:09.850 --> 00:52:12.400 both in terms of people using substances to cope

1059 00:52:12.400 --> 00:52:16.010 and then people in recovery not only experiencing

1060 00:52:16.010 --> 00:52:17.410 an additional stressor

1061 00:52:17.410 --> 00:52:20.053 that can exacerbate their risk of abusing

1062 00:52:20.053 --> 00:52:23.453 but also major disruptions in their care.

1063 00:52:25.690 --> 00:52:29.560 - Okay, so last question is actually from the student

1064 00:52:29.560 --> 00:52:32.250 is asking one of your future director

1065 00:52:32.250 --> 00:52:35.110 is the community disaster exploring.

1066 00:52:35.110 --> 00:52:38.840 So the students are wondering, do you know any study

1067 00:52:38.840 --> 00:52:41.520 exploring the potential interaction facts

1068 00:52:41.520 --> 00:52:44.710 from these individual characteristics you observed

1069 00:52:44.710 --> 00:52:47.250 and also the community characteristics

1070 00:52:47.250 --> 00:52:49.573 including some of the pre disaster finding?

1071 00:52:51.030 --> 00:52:54.410 - Yeah, so I'm trying to think if there are good examples

1072 00:52:54.410 --> 00:52:56.470 other than the one that I presented today

1073 00:52:56.470 --> 00:52:59.503 which looked at individual and community level exposures.

1074 00:53:01.020 --> 00:53:05.150 I don't know of any offhand

1075 00:53:05.150 --> 00:53:08.040 that have looked at community level factors,

1076 00:53:08.040 --> 00:53:12.170 such as indicators of socioeconomic status

1077 00:53:12.170 --> 00:53:14.110 and individual level impacts.

1078 00:53:14.110 --> 00:53:15.580 There is some work that has been done

1079 00:53:15.580 --> 00:53:18.110 by Elizabeth Frankenberg and colleagues

1080 00:53:18.110 --> 00:53:21.600 after the Nepal earthquake and tsunami

1081 00:53:21.600 --> 00:53:24.513 that I believe found something in that effect.

1082 00:53:25.815 --> 00:53:30.230 But I can't remember offhand what exactly they found.

1083 00:53:30.230 --> 00:53:32.020 And then there's another study that was conducted

1084 00:53:32.020 --> 00:53:34.770 after flooding in England by Compro,

1085 00:53:34.770 --> 00:53:36.070 is the author Winden and Compro,

1086 00:53:36.070 --> 00:53:37.970 I know are their last names

1087 00:53:37.970 --> 00:53:40.515 that found interactions I believe between exposure

1088 00:53:40.515 --> 00:53:43.110 and social cohesion.

1089 00:53:43.110 --> 00:53:46.290 But social cohesion in that case was measured

1090 00:53:46.290 --> 00:53:49.540 based on the participant's own perceptions

1091 00:53:49.540 --> 00:53:52.410 of social cohesion across the area.

1092 00:53:52.410 --> 00:53:55.300 So, yeah, those are two examples

1093 00:53:55.300 --> 00:53:57.660 but I don't know a ton of literature in that area.

1094 00:53:57.660 --> 00:53:59.210 And I think that is an open area

1095 00:53:59.210 --> 00:54:01.953 for further explanation or examination.

1096 00:54:02.960 --> 00:54:04.837 - Great, thank you Sarah.

1097 00:54:04.837 --> 00:54:08.550 And I think there's a lot of excitement to conduct research

1098 00:54:08.550 --> 00:54:12.040 in this field and thank you all for listening today.

1099 00:54:12.040 --> 00:54:15.330 And just a reminder that this seminar is recorded

1100 00:54:15.330 --> 00:54:17.730 and will be posted online

1101 00:54:17.730 --> 00:54:20.460 on the Yale Center for Climate Change and Health

1102 00:54:20.460 --> 00:54:21.880 so check out later.

1103 00:54:21.880 --> 00:54:23.740 With that, thank you Sarah.

1104 00:54:23.740 --> 00:54:26.210 - Yeah, feel free to be in touch.

1105 00:54:26.210 --> 00:54:27.630 - Thanks Sarah.

1106 00:54:27.630 --> 00:54:28.700 - [Sarah] Thanks Rob.

1107 00:54:28.700 --> 00:54:29.923 - Bye everyone.

1108 00:54:29.923 --> 00:54:31.923 - [Sarah] Bye everyone.