



## **School-Based Needs Assessment Post Hurricane María: Report of Main Findings for Students and Teachers**

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**NOTE: THIS IS A PRELIMINARY REPORT. FINAL SAMPLE AND RESULTS WILL BE PUBLISHED SOON.**

**Background:** On September 20, 2017, Hurricane Maria devastated the island of Puerto Rico resulting in significant lasting impacts (i.e., massive destruction, disruption in utilities and access to basic needs, economic hardship, population loss, and sustained trauma). Well established post-disaster guidelines recommend that youth be screened for elevated symptoms of posttraumatic stress, depression, and anxiety, level of disaster exposure, and key risk factors (e.g., high hurricane/other life related stressors, low social support) around three months after the disaster (La Greca, 2017). In line with these recommendations, the MUSC team consulted experts in the post-disaster mental health field and provided consultation to the Department of Education on the content of a post-disaster mental health Needs Assessment for students and teachers. This report details the preliminary findings of that effort and provides suggestions for future directions.

**Measures:** The National Center for Child Traumatic Stress (NCTSN, housed at UCLA and Duke) developed the Hurricane Assessment and Referral Tool for use with the population of people affected by Hurricane Katrina (Steinberg et al., in progress). A subset of items in this measure came from the UCLA PTSD Reaction Index symptom scale (Pynoos, Steinberg & Kaplow, 2017), and others were derived from the Hurricane Related Traumatic Experiences-Revised (HURTE-R; La Greca et al., 2010). The MUSC team obtained permission from the instrument's author to convert the NCTSN Hurricane Assessment and Referral Tool into a self-report measure, reword items to fit the Puerto Rican context, and translate the measure to Spanish. Additional adaptations to the instrument (referred to as the "Needs Assessment") were also undertaken by the MUSC team in consultation with post disaster assessment and treatment experts.

*Part A* of the final Needs Assessment asked about experiences during and after the hurricane that are known to be risk factors (e.g., physical injury/death of loved ones, lack of access to basic needs, lack of social support) for subsequent development of Posttraumatic Stress Disorder (PTSD) and other mental health disorders. There were separate, but very similar, question sets targeting students and teachers with items requiring "yes" or "no" responses. *Part B* included 12 items assessing PTSD symptoms, where a score of 21 or higher indicated possible PTSD. Items 13, 14, 15, and 18 asked about depressive symptoms, and item 19 assessed drug/alcohol use post-hurricane. All surveys administered were in the Spanish language, translated by a fully bilingual psychology faculty member from a Southeastern mainland US academic medical center (who is also a native Puerto Rican, and thus familiar with cultural transliteration variables in addition to linguistic issues inherent in the translation process).

**Procedure:** Needs Assessment distribution and collection was made possible by a larger initiative that was already being rolled out by the Puerto Rico Department of Education. Consent from teachers and assent from students was required for participation, which was completely voluntary. Data collection began in February 2018 and concluded in June 2018. The current report presents results of surveys received and processed by May 15, 2018 (**N=64,077 students and N= 7,109 teachers**). School staff representatives, "champions" (e.g., teachers, principals, counselors), from each school received packets and deployment instructions at the end of a multi-day workshop as part of an already established PR DE initiative. Champions then distributed survey packets within their respective school districts and instructed teachers and school staff how to administer the surveys. Most students completed the survey during a class period in a group setting (e.g., classroom). To protect confidentiality and anonymity, students were instructed not to write their names or other identifying information on the surveys. Teachers also completed measures at school and returned these to the champions. Once surveys were completed, champions collected all surveys for that school, placed them in an envelope with no connection to identifying information, and submitted the packet to the district superintendent who then mailed or hand

delivered folders to Cameramundi staff. Cameramundi staff then ensured the quality of the data received, scanned all documents, converted documents to PDF and excel files, and shared the data files with the MUSC team using a secure, cloud-based service. Per the request of the Puerto Rico Department of Education, the MUSC team coordinated data management and analysis in order to produce a report that would be used to target efforts to promote post-hurricane psychological well-being in schools.

### Needs Assessment Results: Students

#### Part A: Hurricane-related stressors

- A total of **64,077 students** (Boys=30,873; Girls=31,036), grades 4-12, representing 428 public schools across the 7 Education Regions of Puerto Rico, completed the Needs Assessment (results summarized below) by May 15, 2018.

**Table 1: Percent Answering “Yes” to Questions 1-22 of Needs Assessment**

		% Answered YES (# of students)							
		Total N=64,077	Arecibo N=5,564	Bayamon N=4,893	Caguas N=6,812	Humacao N=11,887	Mayaguez N=14,782	Ponce N=12,246	San Juan N=7,803
Q1	Were you injured during Hurricane Maria?	4 (2,563)	3 (167)	5 (244)	4 (272)	5 (594)	3 (443)	4 (489)	4 (312)
Q2	Was any family member, neighbor, or friend injured during the hurricane?	15.7 (10,060)	14.8 (823)	17.4 (851)	17 (1,158)	16.4 (1,949)	14.3 (2,113)	15.1 (1,849)	16.9 (1,318)
Q3	Did any family member, neighbor, or friend die as a result of the hurricane?	6 (3,844)	7 (389)	7 (342)	7 (476)	8 (950)	6 (887)	7 (857)	6 (468)
Q4	Did you think you could have died during Hurricane Maria?	30.4 (19,479)	26.4 (1,468)	29.2 (1,428)	33.5 (2,282)	36.1 (4,291)	25 (3,695)	30.3 (3,710)	32.8 (2,559)
Q5	Was your house destroyed or greatly damaged (for example, roof top flew away, walls crumbled, windows break, water came inside) as a result of the hurricane?	44.7 (28,642)	40.9 (2,275)	51.7 (2,529)	52.6 (3,583)	53.4 (6,347)	34.7 (5,129)	41.3 (5,057)	47 (3,667)
Q6	Were your clothes, toys, or any other belongings damaged as a result of the hurricane?	30.2 (19,351)	25.3 (1,407)	33.7 (1,649)	34.9 (2,377)	37.7 (4,481)	22.6 (3,340)	28.4 (3,477)	32.9 (2,567)
Q7	Did you have to evacuate your home and stay at a safer place (for example a shelter, a family member or neighbor’s home) as a result of the hurricane?	26 (16,660)	24.4 (1,357)	28.1 (1,375)	24.9 (1,696)	23.4 (2,781)	26.7 (3,946)	30 (3,673)	23.3 (1,818)
Q8	Are you still living in another place that is not your home (for example a shelter, a family member or neighbor’s home) as a result of the hurricane?	5.6 (3,588)	6 (333)	7 (342)	7 (476)	7 (832)	4 (591)	5 (612)	5 (390)
Q9	Did you see houses or other places around you destroyed or greatly damaged (for example: flooding, destroyed homes or bridges, fallen light posts) as a result of the hurricane?	83.5 (53,504)	83.8 (4,662)	85.2 (4,168)	86.6 (5,899)	84.5 (10,044)	80.5 (11,899)	84.8 (10,384)	81.8 (6,382)
Q10	Did you lose a pet (for example: your dog or cat) because it got stranded, passed away, or you had to	7.7 (4,933)	8.2 (456)	8.2 (401)	8.4 (572)	8.8 (1,046)	6.8 (1,005)	7.5 (918)	6.9 (538)

	give it to someone else as a result of the hurricane?								
Q11	Has your family struggled to find food or water after the hurricane?	32.8 (21,017)	35.1 (1,953)	32.8 (1,605)	33.5 (2,282)	32.9 (3,910)	30.5 (4,508)	33.4 (4,090)	34.2 (2,668)
<b>% Answered YES (# of students)</b>									
		<b>Total N=64,077</b>	<b>Arecibo N=5,564</b>	<b>Bayamon N=4,893</b>	<b>Caguas N=6,812</b>	<b>Humacao N=11,887</b>	<b>Mayaguez N=14,782</b>	<b>Ponce N=12,246</b>	<b>San Juan N=7,803</b>
Q12	Have things been stolen from your home or in your neighborhood since the hurricane?	17.6 (11,277)	19.3 (1,073)	16.3 (797)	18.8 (1,280)	20.1 (2,389)	16.1 (2,380)	16.8 (2,057)	16.1 (1,256)
Q13	Have you seen fights or violence in your home or neighborhood since the hurricane?	12.2 (7,817)	10.1 (562)	12.1 (592)	14.1 (960)	13.8 (1,640)	9.8 (1,448)	11 (1,347)	16.4 (1,279)
Q14	Did you move to a different school (different than that one you used to attend before the hurricane) as a result of the hurricane?	6.1 (3,908)	4.4 (244)	3.7 (181)	8.6 (585)	5.4 (641)	7.1 (1,049)	4.7 (575)	8 (624)
Q15	Did you help to save or rescue people during the hurricane?	24 (15,378)	21.7 (1,207)	26.8 (1,311)	25.6 (1,743)	22.8 (2,710)	22.8 (3,370)	25.5 (3,122)	24.1 (1,880)
Q16	Did any of your parents lose their job as a result of the hurricane?	11.4 (7,304)	12 (667)	10.8 (528)	13.1 (892)	14.2 (1,688)	9.5 (1,404)	8.9 (1,089)	13.5 (1,053)
Q17	Has electricity been restored (did the lights come back) where you live?	82.5 (52,863)	86.7 (4,824)	69.5 (3,400)	80.3 (5,470)	65.7 (7,809)	93.5 (13,821)	84.6 (10,360)	91.2 (7,116)
Q18	Has water service been restored where you live?	92.5 (59,271)	91.9 (5,113)	90.6 (4,433)	93.6 (6,376)	92 (10,936)	92.5 (13,673)	93.1 (11,401)	92.6 (7,225)
Q19	Do you have any friends or family members that have moved to the mainland US after the hurricane?	57 (36,523)	56.9 (3,166)	60.4 (2,955)	59.1 (4,025)	61.5 (7,310)	54.1 (7,997)	53.3 (6,527)	57.6 (4,494)
Q20	Do you have any adult in your life (like your parents, family member) in whom you can trust and know they will be there for you?	92.6 (59,335)	92.9 (5,169)	92.7 (4,535)	93.8 (6,389)	92 (10,936)	92.9 (13,732)	93.3 (11,425)	90.9 (7,092)
Q21	Do you have any friend in your life in whom you can trust and know they will be there for you?	82.6 (52,927)	82.8 (4,607)	84.5 (4,134)	84.2 (5,735)	80.5 (9,569)	83.4 (12,328)	83.8 (10,262)	79.8 (6,226)
Q22	Do you have any teacher or counselor in your life in whom you can trust and know they will be there for you?	61.6 (39,471)	62.4 (3,472)	61.4 (3,004)	65.2 (4,441)	59.8 (7,108)	59.6 (8,810)	63.6 (7,788)	61.7 (4,814)

### Risk Factor Calculation:

- The post-disaster literature suggests that certain stressors experienced during and after the disaster place children at an increased risk of experiencing subsequent mental health problems. These risk factors include things such as: perceived threat to one's life or that of a loved one, level of loss and life disruption during and after the disaster (e.g., destroyed home, loss of belongings, lack of access to basic needs), and ongoing life disruption and loss post-disaster (e.g., continued difficulties with access to basic needs, displacement).

- Questions 1-19 in Part A of the Needs Assessment ask about these risk factors in order to better understand stressors experienced during and after Hurricane Maria by Puerto Rican students within the Puerto Rico Department of Education.
- In the tables that follow, percentages shown are indicative of students who experienced *significant exposure to stressors during and after the hurricane*. Individuals in the “Total Risk” category are at the greatest risk of developing subsequent mental health problems.
- 9.3% of students across the island (N=5,959) experienced significant exposure to stressors during and after the hurricane, placing them at greatest risk of developing subsequent mental health problems. Results are broken down by school regions below.

**Table 2: Percentage of Students Experiencing Significant Stressors During and After the Hurricane**

		% Elevated (# of students)							
		Total N=64,077	Arecibo N=5,564	Bayamon N=4,893	Caguas N=6,812	Humacao N=11,887	Mayaguez N=14,782	Ponce N=12,246	San Juan N=7,803
	Tangible Risk to Life (*percentage above the 90 <sup>th</sup> percentile, indicative of significant adverse experiences placing their lives or that of a loved one at risk during/after the hurricane- Qs#1,2,3,5,10,15 Part A)	8.6 (5,510)	7.8 (433)	10.8 (528)	9.5 (647)	10.1 (1,200)	6.8 (1,005)	8.3 (1,016)	8.7 (678)
	Loss/Disruption (*percentage above the 90 <sup>th</sup> percentile, indicative of significant life disruption during/immediately after the hurricane- Qs#6,7,9,11,12,13,14,16 Part A)	5.9 (3,780)	5.5 (306)	5.6 (274)	7 (476)	7 (832)	4.8 (709)	5.5 (673)	6.8 (530)
	Ongoing Loss/Disruption (*percentage above the 90 <sup>th</sup> percentile, indicative of significant life disruption after the hurricane that continues at point of survey completion- Qs#8,17,18,19 Part A)	2.7 (1,730)	2.4 (133)	5 (244)	2.7 (183)	4.3 (511)	1.4 (206)	2.5 (306)	1.6 (124)
	Total Risk (*percentage above the 90 <sup>th</sup> percentile, indicative of significant exposure to stressors during and after the hurricane, placing these students at greatest risk of developing subsequent mental health problems- Qs#1-19 combined)	9.3 (5,959)	7.5 (417)	10.4 (508)	11.4 (776)	12.9 (1,533)	6.3 (931)	8.5 (1,040)	9.3 (725)

**Part B: PTSD, Depression, Alcohol/Substance Use**

- 7.2% of students across the island (n=4,613) scored above the clinical PTSD cut-off suggestive of probable PTSD.
- 8.2% of students across the island (n=5,254) scored above the 90<sup>th</sup> percentile for depressive symptoms, suggestive of possible depression.
- 4.7% of students across the island (n=3,011) reported using drugs or alcohol since the hurricane.
- There were no significant differences when comparing boys vs. girls or between grades. Results are broken down by school regions below.

**Table 3: Percentage of PTSD, Depression, and Alcohol/Drug Use Post-Hurricane**

		% Elevated (# of students)							
		Total N=64,077	Arecibo N=5,564	Bayamon N=4,893	Caguas N=6,812	Humacao N=11,887	Mayaguez N=14,782	Ponce N=12,246	San Juan N=7,803

PTSD (*Percent scoring above the clinical cut-off, which indicates probable PTSD diagnosis)	7.2 (4,613)	5.6 (311)	7.4 (362)	7.8 (531)	8 (951)	6.3 (931)	7.6 (930)	7.5 (585)
Depression (*percentage above the 90 <sup>th</sup> percentile, indicative of probable depression)	8.2 (5,254)	6.6 (367)	8.8 (430)	8.4 (572)	9.7 (1,153)	6.8 (1,005)	8.5 (1,040)	8.4 (655)
Drug or Alcohol Use (*percent reporting using drugs/alcohol after the hurricane)	4.7 (3,011)	3.5 (194)	4.6 (225)	4.5 (306)	4.8 (570)	5.1 (753)	4.8 (587)	5.2 (405)

#### Schools to Target:

- Schools with the most students both (1) identified with PTSD and (2) “At Risk” (i.e., responded yes to a significant number of hurricane-related stressors in Part A) are identified below. It is recommended that these schools be targeted for second-or third-tier interventions (i.e., trauma-focused mental health services).
- Please see attached Excel file for a list of student Needs Assessment data for all the schools per region. Of note, higher percentages do not necessarily mean more students identified given the varying samples sizes (i.e., number of students who actually completed and returned the survey) of some schools. We highlight in yellow our recommended “target schools”, per Region, if the focus were on PTSD only, Total Risk only, or combined PTSD and Total Risk (arranged in separate tabs in the Excel file). As stated above, the literature supports taking into account PTSD rates in combination with Risk Factors (i.e., stressors experienced during and after the hurricane) to inform which students are most likely in need of mental health services.

**Table 4: Schools Identified as Being at “Greater Risk” Due to Greater Number of Students with PTSD and At-Risk Scores**

	# of students who completed Needs Assessment	PTSD % (# of students)	At Risk % (# of students)
<b>Arecibo (N=5,564)</b>			
Abelardo Martinez Otero	416	7 (29)	6.7 (28)
Petra Corretjer De O'Neill	458	5.5 (25)	5.7 (26)
Su Manuel Ruiz Gandia	262	6.5 (17)	7.3 (19)
<b>Bayamon (N=4,893)</b>			
Adolfina Irizarry De Puig	367	10.6 (39)	23.4 (86)
Basilio Milan Hernandez	477	7.8 (37)	6.5 (31)
Alberto Melendez	248	9.7 (24)	12.5 (31)
Carlos Orama Padilla	124	19.4 (24)	21 (26)
<b>Caguas (N=6,812)</b>			
Luis Munoz Marin	704	5.7 (40)	10.7 (75)
Juana Colon	350	9.4 (33)	13.4 (47)
Su Jose Celso Barbosa	311	8 (25)	15.1 (47)
<b>Humacao (N=11,887)</b>			
Teodoro Aguilar Mora	357	10.1 (36)	17.4 (62)
Su Jesus T. Sanabria Cruz	218	15.1 (33)	24.3 (53)
Rafalina E. Lebron Flores	366	9 (33)	11.2 (41)
Fulgencio Pinero Rodriguez	228	12.3 (28)	17.5 (40)
<b>Mayaguez (N=14,782)</b>			
Manuel Mendez Liciaga	818	7.1 (58)	8.1 (66)
Dr. Carlos Gonzalez	653	5.1 (33)	5.8 (38)

<b>Ponce (N=12,246)</b>			
Maria Libertad Gomez	471	9.1 (43)	11.5 (54)
<b>San Juan</b>			
Dr. Modesto Rivera Rivera	200	12 (24)	26.5 (53)
Margarita Janer Palacios	614	5.4 (33)	6.5 (40)
Paul G. Miller	184	21.7 (40)	17.4 (32)
Angel P Millan Rohena	375	6.4 (24)	8.3 (31)

### Needs Assessment Results: Teachers

#### Part A: Hurricane-related stressors

- A total of **7,109 teachers** (Women=5,536; Men =1252), representing 415 public schools across the 7 Education Regions of Puerto Rico, completed the Needs Assessment (results summarized below).

**Table 1: Percent of Teachers Answering “Yes” to Questions 1-25 of Needs Assessment**

		% Answered YES (# of teachers)							
		Total N=7,109	Arecibo N=696	Bayamon N=507	Caguas N=728	Humacao N=1,275	Mayaguez N=1,441	Ponce N=1,621	San Juan N=841
Q1	Were you injured during Hurricane Maria?	3.3 (233)	3 (21)	4.3 (22)	3.2 (23)	4.5 (58)	2.7 (39)	2.5 (41)	3.4 (29)
Q2	Was any family member, neighbor, or friend injured during the hurricane?	12 (852)	10.5 (73)	15.4 (78)	15.4 (112)	12.9 (164)	10.7 (154)	10.9 (177)	11.2 (94)
Q3	Did any family member, neighbor, or friend die as a result of the hurricane?	12.2 (867)	9.9 (69)	11.6 (59)	13.7 (100)	13.2 (168)	11.6 (167)	12.3 (199)	12.5 (105)
Q4	Did you think you could have died during Hurricane Maria?	50.5 (3588)	46.8 (326)	53.6 (272)	54.7 (398)	56.5 (720)	46.8 (675)	49.2 (797)	47.6 (400)
Q5	Was your house destroyed or greatly damaged (for example, roof top flew away, walls crumbled, windows break, water came inside) as a result of the hurricane?	39.1 (2,778)	34.3 (239)	46.9 (238)	45.3 (330)	49.1 (626)	30 (432)	32.5 (526)	46 (387)
Q6	Were your clothes or any other belongings damaged as a result of the hurricane?	41.6 (2,956)	33.9 (236)	47.3 (240)	52.6 (383)	53.4 (681)	30.8 (444)	36.2 (587)	45.8 (385)
Q7	Did you have to evacuate your home and stay at a safer place (for example a shelter, a family member or neighbor’s home) as a result of the hurricane?	21.4 (1,522)	17.1 (119)	23.1 (117)	20.2 (147)	20.6 (263)	21.9 (315)	22.4 (363)	23.5 (198)
Q8	Are you still living in another place that is not your home (for example a shelter, a family member or neighbor’s home) as a result of the hurricane?	4.1 (292)	2.9 (20)	6.9 (35)	5.4 (39)	4.7 (60)	2.8 (40)	3.6 (59)	4.6 (39)
Q9	Did you see houses or other places around you destroyed or greatly damaged (for example: flooding, destroyed homes or bridges, fallen light posts) as a result of the hurricane?	86.8 (6,170)	84.8 (590)	89.9 (456)	90.8 (661)	88.4 (1,127)	83.6 (1,205)	86.8 (1,407)	86.1 (724)
Q10	Did you lose a pet (for example: your dog or cat) because it got stranded,	4.2 (296)	3.9 (27)	3.2 (16)	5.1 (37)	5.2 (66)	4.2 (61)	3.3 (53)	4.3 (36)

	passed away, or you had to give it to someone else as a result of the hurricane?								
Q11	Has your family struggled to find food or water after the hurricane?	37.7 (2,680)	37.8 (263)	42.4 (215)	39.6 (288)	38 (484)	39.6 (571)	33.1 (536)	38.4 (323)
<b>% Answered YES (# of teachers)</b>									
		Total N=7,109	Arecibo N=696	Bayamon N=507	Caguas N=728	Humacao N=1,275	Mayaguez N=1,441	Ponce N=1,621	San Juan N=841
Q12	Have things been stolen from your home or in your neighborhood since the hurricane?	24.5 (1,744)	26 (181)	28 (142)	28.8 (217)	32.6 (416)	18.7 (270)	19.6 (317)	23.9 (201)
Q13	Have you seen fights or violence in your home or neighborhood since the hurricane?	16.8 (1,191)	13.4 (93)	17.2 (87)	19.9 (145)	20.5 (261)	12.9 (186)	15.1 (244)	20.8 (175)
Q14	Did you move to a different school (different than the one you used to work at before the hurricane) as a result of the hurricane?	8.1 (575)	6.8 (47)	5.7 (29)	8.7 (63)	5.4 (69)	12.5 (180)	7.6 (123)	7.6 (64)
Q15	Did you help to save or rescue people during the hurricane?	12.6 (895)	11.2 (78)	14.4 (73)	12.5 (91)	12.1 (154)	12.2 (176)	13 (211)	13.3 (112)
Q16	Has a close family member (including your partner) lost their job as a result of the hurricane?	25.6 (1,823)	23 (160)	28.2 (143)	29.5 (215)	34 (433)	20.7 (299)	21.5 (349)	26.6 (224)
Q17	Has electricity been restored (did the lights come back) where you live?	81.7 (5,807)	88.5 (616)	66.1 (335)	75.3 (548)	64.5 (822)	92.7 (1,336)	87 (1,410)	88 (740)
Q18	Has water service been restored where you live?	92.8 (6,595)	94.8 (660)	87.4 (443)	93.8 (683)	91.8 (1,171)	93.7 (1,350)	92.4 (1,498)	93.9 (790)
Q19	Do you have any friends or family members that have moved to the mainland US after the hurricane?	69.4 (4,931)	72.4 (504)	73.4 (372)	72.5 (528)	74.3 (947)	65.4 (943)	64.7 (1,048)	70 (589)
Q20	Do you have a friend in your life in whom you can trust and know they will be there for you?	87.8 (6,242)	89.2 (621)	87 (441)	88.3 (643)	87.5 (1,116)	88.2 (1,271)	87.5 (1,419)	86.9 (731)
Q21	Has electricity been restored (did the lights come back) where you work?	84.1 (5,979)	83.5 (581)	72.4 (367)	87.2 (635)	64.5 (822)	96.5 (1,391)	89.2 (1,446)	87.6 (737)
Q22	Has water services been restored where you work?	95.9 (6,818)	97.4 (678)	93.3 (473)	97.9 (713)	94.4 (1,203)	96.8 (1,395)	95.8 (1,553)	95.5 (803)
Q23	Do you have frequent conversations with your students to see how they are doing and what they are feeling?	86.1 (6,124)	87.6 (610)	86.4 (438)	85.9 (625)	83.5 (1,064)	86.5 (1,246)	89 (1,442)	83.1 (699)
Q24	Are you worried about your students after the hurricane?	79.4 (5,642)	79.2 (551)	86.4 (438)	80.9 (589)	81.4 (1,038)	75.6 (1,090)	81.4 (1,320)	73.2 (616)
Q25	Are you feeling more stressed than you did before the hurricane?	73.4 (5,219)	71.1 (495)	83 (421)	78 (568)	75.5 (963)	70.4 (1,014)	71.8 (1,164)	70.6 (594)



## Risk Factor Calculation:

- The post-disaster literature suggests that certain stressors experienced during and after the disaster place people at an increased risk of experiencing subsequent mental health problems. These risk factors things such as: perceived threat to one’s life or that of a loved one, level of loss and life disruption during and after the disaster (e.g., destroyed home, loss of belongings, lack of access to basic needs), and ongoing life disruption and loss post-disaster (e.g., continued difficulties with access to basic needs, displacement).
- Questions 1-19 in Part A of the Needs Assessment ask about these risk factors in order to better understand stressors experienced during and after Hurricane Maria by Puerto Rican teachers within the Puerto Rico Department of Education.
- In the tables that follow, percentages shown are indicative of teachers who experienced *significant exposure to stressors during and after the hurricane*. Individuals in this category are at the greatest risk to develop subsequent mental health problems.

**Table 2: Percentage of Teachers Experiencing Significant Stressors During and After the Hurricane**

		% Elevated (# of teachers)							
		Total N=7,109	Arecibo N=696	Bayamon N=507	Caguas N=728	Humacao N=1,275	Mayaguez N=1,441	Ponce N=1,621	San Juan N=841
	Tangible Risk to Life (*percentage above the 90 <sup>th</sup> percentile, indicative of significant adverse experiences placing their lives or that of a loved one at risk during/after the hurricane- Qs#1,2,3,5,10,15 Part A)	19.5 (1,385)	15.9 (111)	25 (127)	24.2 (176)	22.8 (291)	16.3 (235)	15.9 (258)	22.2 (187)
	Loss/Disruption (*percentage above the 90 <sup>th</sup> percentile, indicative of significant life disruption during/immediately after the hurricane- Qs#6,7,9,11,12,13,14,16 Part A)	12.6 (895)	10.1 (70)	15.2 (77)	15 (109)	17.1 (218)	8.8 (127)	10.4 (168)	15 (126)
	Ongoing Loss/Disruption (*percentage above the 90 <sup>th</sup> percentile, indicative of significant life disruption after the hurricane that continues at point of survey completion- Qs#8,17,18,19 Part A)	10.4 (740)	6.9 (48)	20.7 (105)	9.1 (66)	21.6 (275)	4.2 (61)	7.8 (127)	6.9 (58)
	Total Risk (*percentage above the 90 <sup>th</sup> percentile, indicative of significant exposure to stressors during and after the hurricane, placing these students at greatest risk of developing subsequent mental health problems- Qs#1-19 combined)	12 (856)	7.6 (53)	17.9 (91)	14.3 (104)	19.8 (253)	6.7 (96)	10.3 (167)	10.9 (92)

## Part B: PTSD and Depression

- 3.4% of teachers across the island (n=243) scored above the clinical PTSD cut-off suggestive of a probable PTSD diagnosis
- 10.4% of teachers across the island (n=739) scored above the 90<sup>th</sup> percentile for depressive symptoms, suggestive of possible depression

**Table 3: Percentage of Teacher PTSD and Depression Post-Hurricane**

		% Elevated (# of teachers)							
		Total N=7,109	Arecibo N=696	Bayamon N=507	Caguas N=728	Humacao N=1,275	Mayaguez N=1,441	Ponce N=1,621	San Juan N=841



PTSD (*Percent scoring above the clinical cut-off, which indicates probable PTSD diagnosis)	3.4 (243)	4 (28)	3.4 (17)	4 (29)	3.5 (44)	3.3 (47)	3.3 (54)	2.9 (24)
Depression (*percentage above the 90 <sup>th</sup> percentile, indicative of probable depression)	10.4 (739)	10.9 (76)	11.8 (60)	10.4 (76)	11.7 (149)	9.7 (140)	9.6 (156)	9.8 (82)

**Schools to Target:**

- Unfortunately, few teachers from each school responded to the survey (for many schools only 1-10 teachers completed the survey), thus making recommendations of which specific schools to target difficult.
- It is our recommendation to use Regional level data to inform teacher initiatives. If the desire is to target schools in regions where the most teachers responded to the Needs Assessment, this would be Humacao, Mayaguez, and Ponce. If the desire is to target school regions with the highest percentage “At Risk” teachers, that would be Humacao. We encourage providers of such initiatives to use the teacher data presented in this report to best inform their next steps.

**Next Steps:**

- Per MOU, MUSC team will continue to work on analyzing these results. Additional surveys from students and teachers came in after our May 15<sup>th</sup> cut-off date. This data set will continue to be examined to answer questions defined in ongoing consultation and collaboration with PR DE leadership.
- Per MOU, MUSC will begin publishing findings in scientific journals.
- As discussed prior to changes in the potential for funding, MUSC can assist the PR DE in creating an interactive map that displays these results in a visually appealing, interactive, and easy-to-understand way. This map could also be designed to allow ongoing changes by non-expert users, which could be adapted to display numerous forms of educational, epidemiological, or other data. To the extent PR DE leadership is interested in this option, we are happy discuss what resources would be necessary.
- It is our sincere hope that the results of this Needs Assessment will inform next steps in helping the children of Puerto Rico recover post-Hurricane Maria. It is our honor and pleasure to serve Puerto Rico, which we hope to continue to do in collaboration with everyone who made this project possible.

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