Health Science Education and Climate Change

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Abstract

Health science outcomes such as increases in vector-borne diseases, and heat-related or pollution-related illness, have long been correlated with changes in climate. The present study seeks the best predictors of attitudes towards climate change, and the most successful policies for addressing them. Health care professionals in a university setting are in a unique position to provide information about attitudes about health science and climate change and lead the way in promoting good practice. Response to change requires accurate assessment of knowledge, attitudes, and behaviors. The present research addresses response to change and the most effective policies for education in a diffusion of innovation theory framework. The majority of health care professionals who responded to the survey agree that climate change is occurring, or they are interested in it or concerned about it, but may not agree with the focus on human causation. The types of educational activities that these respondents would accept included a majority saying that learning should take place in self-led online activities about health science and climate change.

Keywords: climate change, health science, diffusion of innovation theory, regression

Reasoning about health and climate change has been around as long as the writings of Hippocrates (Adams, 1891). Hippocrates is among the first people to believe that diseases were caused naturally. He wrote that disease is caused by environmental factors, diet, and living habits. Environmental factors are a part of the larger phenomenon, climate change. Weather is day to day, and climate is epoch to epoch. A climate epoch change can be defined as any length of time in which reliable changes in weather patterns can be said to be demonstrably different from a previous record. Some believe we are living in one such epoch. The purpose of the present research is to assess attitudes and beliefs about climate change among health science professionals in order to know how best to use educational techniques. Health science professionals are in the forefront of those able to address the implications of changing climate to health care outcomes but they have not, as yet, been formally asked about it. Reasoning about health and climate change is central to behavior change and learning.

The present research focusses *beyond* the controversial themes associated with climate change. Regardless of viewpoint or identity politics, proactive health professionals want to be ready for incidence changes in disease. Anticipating policy is therefore part of the surveyed questions, along with questions about climate change per se. Part of the controversy to be avoided is insistence on the *human* cause aspect of climate change. The critical question of the present survey and Morris et al. had five levels with three levels of acceptance of change, and two of denial. The three levels of acceptance state: 1) climate change is mostly caused by humans, 2) climate change is mostly caused by nature, 3) climate change occurs, but we don't know what causes it, and two denials: 1) there is not enough to say whether the climate is changing, and 2) there is enough evidence to say there is no climate change. Morris et al. found the best predictor of acceptance was political ideology, education level, employer, state of residence, gender, and years of forestry experience. Of these variables, political ideology most strongly predicted climate change acceptance. By giving climate change acceptance a range rather than a dichotomous quality, the present study seeks to determine the strongest predictors of attitudes and subsequent behaviors across the spectrum of identity politics. Those who accept climate change, but are uncertain as to cause or believe it is mostly beyond our control can still have a say in future health science and climate change connections.

The IPCC report presented below shows that the evidence is clear about the causes of climate change, but that information may not be accepted, and may disenfranchise health care professionals who are receptive to policy change. It may also reduce the number of who respond to a survey about climate change.

Kolbert (2013) and others have written about the current period as being the *Anthropocene*, but the formal name is *Holocene* because not all agree with human cause. The *Anthropocene* is hypothesized to be a geological period where humanity changes the environment and was popularized by Nobel Prize-winning chemist Paul Crutzen (Crutzen & Andreae,1990). The period began roughly during the Industrial Revolution (late eighteenth century). Crutzen first discovered evidence of ozone depletion caused by artificial fertilizers in 1970. His work was influential in starting discussion about health and climate change. Health science outcomes such as increases in vector-borne diseases, and heat-related or pollution-related illness, have long been correlated with changes in climate (Guzman, 2014). The following sections will describe each health outcome. Morris et al. were the first to apply research on forest science professional's beliefs and attitudes to climate change. A study based on an adapted survey will be described, followed by linear regression results and discussion. One prediction is that the majority of health care professionals who respond to the survey will agree that climate change is occurring, or they are interested in it or concerned about it, but may not agree with the focus on human causation.

Vector-borne diseases and climate change

Vector-borne diseases arise from human contact with bacterial and viral diseases transmitted by mosquitos, ticks, and fleas, among others, (CDCP, 2015). The most deadly and ubiquitous are dengue fever and malaria. Malaria is said to affect 45% of the world population because of where they live (Guzman, 2013). Tropical and subtropical mosquitos have spread these diseases to at least 5 million current people, (CDCP, 2015). Warmer conditions and changes in moisture and precipitation increase the insect population. The ecosystem responds to increasing numbers of mosquitos and other insects by increasing disease risk in humans and other hosts. Complexity defines the relationship. Climate change does not cause disease, but rather is a catalyst for existing disease connections with the environment (Guzman, 2013). The relationship between health and climate change is further exacerbated by poverty. Poverty and lack of good healthcare cause the need to ask questions of politics and policy to better understand attitudes and behavior about disease and climate change. The present study predicts that health care professionals will express knowledge, interest, and concern about changes to disease incidence and type, regardless of their own beliefs about the origins or causes of climate change. It is even possible to express disbelief in climate change by any means and still express strong interest and concern in being ready for any disease changes that may occur in the near future.

Heat-related disease

As with vector-borne disease, heat-related disease interacts with other risk factors. Warmer and dryer seasons, along with other changes, can lead to increases in dehydration in the young and the elderly (Washington & Cook, 2011). Dehydration coupled with bad drinking water leads to many possible illnesses. And as with many health outcomes and climate change, those living in less developed areas and with less economic and educational resources fair the worst. The recent Ebola epidemic was exacerbated by lack of clean hospital resources (CDC, 2015). Connection to change, and especially climate change, will promote behavior change. Acceptance of innovation, if not human-caused climate change per se, is essential to better health. Health care professionals are predicted to recognize evidence of increases in heat-related disease especially among the poor and underserved (Woodward et al., 2014). This recognition and concern may be accompanied by knowledge and interest even if the respondent does not agree with climate change as a phenomenon. One of the main points of this research is to show that all those that can make a difference to health care change do not have to adhere to any particular political view nor any particular stance to climate change or its causes.

Pollution-related disease

Air and water quality are among the first ecosystems that are affected by climate change. Poor air quality increases respiratory diseases and allergic reactions to pollutants. Again, the most vulnerable populations are affected the most. Poor water quality leads to diseases like cholera when clean drinking water is difficult to procure. Hemorrhagic diseases like Ebola are also more likely to increase among those with high-risk health systems in place. Ebola has made recent news as an epidemic among those living in the tropics, subtropics, and in poverty. This recipe of hot and poor serves as a catalyst in changing the dynamics of climate change and health science links. Health care professionals are predicted to be interested in and concerned about underserved populations who may be particularly vulnerable to diseases that may or may not be linked to climate change.

The present study

The latest Intergovernmental Panel on Climate Change or IPCC report summarizes with "very high confidence" that the health of human populations is sensitive to shifts in ecological disruptions like heat waves, fires, floods, droughts, and patterns in disease vectors (Woodward, Smith, Campbell-Lendrum, Chadee, Honda, Liu, Olwoch, Revich, Sauerborn, Chafe, Confalonieri and Haines, 2014). The present study will use a diffusion of innovation theoretical framework to help model the attitudes, behaviors, and actions of health profession faculty and staff in a large private university in America. Diffusion of innovation theory states that innovations diffuse through a social system via two distinct communication channels (Rogers, 2003). The survey adapted from Morris (2013) will assess those two channels, *awareness-knowledge and subjective evaluation*. This adaptation of the survey will reflect a review of research about health science connections to climate change (i.e. Guzman, 2014; Harris, 2013; Washington & Cook, 2011). Health care professionals in a university setting are in a unique position to provide information about attitudes about health science and climate change and lead the way in promoting good practice.

It is hypothesized that reasoning about health science and climate change will vary as a function of age cohort, education, political ideology, and type of health profession experience. It is also hypothesized that attitudes about policy delivery can be effective across a wide range of attitudes about climate change. Morris, Megalos, Hubbard and Boby (2013) found that the best predictors of climate change acceptance were age, gender, and political ideology. Women who were younger, more politically liberal or moderate and with a higher education level were more likely to accept climate change and the role it will play in an adequate health science response than other respondents. They did however, have a very small ratio of women to men in their sample. More importantly, those who accepted climate change were significantly more likely than doubters to see, connect, and adapt to climate change. The authors suggest that rather than focusing on anthropogenic climate change, the "connect" can be made by emphasizing minimizing risk, planning for uncertainty, and managing for resilience. The purpose of the present study is to replicate this model with health science professionals. The long-term goal is to help health science professionals and staff in a university setting begin to focus on strategies for lowering risk, planning for uncertainty, and managing patient resilience. Connection to change will promote behavior change. Acceptance of innovation, if not human-caused climate change per se, is essential to better health outcomes. Diffusion of innovation theory predicts that knowledge and persuasion factors will always proceed decision, implementation, and confirmation processes (Rodger, 2003). The present study uncovers the knowledge and persuasion factors about reasoning about health science and climate change.

Method

Participants and Instrument

An anonymous online survey of 21 questions was distributed to all health professions division faculty and staff at a large southeastern university in Florida. See Appendix A for a copy of the survey called RAHS for Reasoning about Health Science. The survey underwent a university-wide review process led by the provost of the university to determine if it was eligible to be delivered to the targeted groups of university employees via the software *Opinio* and through the Human Resources department. Approval was granted and the project was then reviewed by the university IRB. IRB approval was granted with, among other conditions, anonymity, no follow-up, no advertising, and passive consent. The first question of the survey had to ask if the respondent was willing to proceed after he or she had opened and seen the full contents of the survey. Under these conditions, and others mentioned below, the response rate is expected to be quite low, perhaps lower even then the 27% from Morris et al.

IRB review of ethics expressed concern about the "goals" of the project and the potential politics that might be presented to university or community audiences. Questions of what statistics would be used and to whom the written work would be shown were surprising given that the answer for this project was the same as the previous 100 from this author, namely those necessary and appropriate for a peer-review in a refereed journal with no political affiliations or agendas. Such is the social context in which reasoning about health science and climate change must exist.

There were 69 responses within 7 hours of the survey link being sent out, and only 79 after a week. There were potentially 911 faculty and staff who received the link. There was no advertising, but there was reassurance of anonymity. *Opinio* software was selected because the security choices are high; for example no URLs are linked to the computer on which the participant made his or her response. Still, a less than 10% response rate is low compared to the 27% Morris et al. found from forest scientists in North Carolina in 2014.

The political culture is usually not part of the science of attitudes about health care, but in this case, conjecture must be made that participants did not want their political or climate change information potentially available to anyone, even with assurances to the contrary. At the time of the survey, news in Florida shows that the governor of the state did not want the terms "global warming" or "climate change" to appear in any official state communications, reports, or emails (Korten, 2015). Although this study is at a private university, the ensuing publicity may have led potential participants to hesitate even more than they might otherwise have given their own attitudes and beliefs.

Results

The overall results were that 74% of all climate change acceptance (on a range from no climate change to human-caused climate change) could be explained by a model containing the role the participant played at the university (Role), the extent to which they believed significant change was necessary (SigChange), the amount of climate change science interest (CCInterest), and the inverse of the a mount of health science interest (HSInterest), and level of education truncated to an associate degree in college but no lower (Educ). A linear regression predicting climate change acceptance or CC found 74% explained, unique beta weights are: Role is .30, faculty say more CC caused by humans, SigChange is .38, more change needed by those with most CC caused by humans, CCInterest is .52, more interest more CC, HSInterest is -.38, less interest if more CC caused by humans, Educ is -.41, less educ more CC caused by humans, $F_{(14, 62)} = 9.87$, $p < .05$, $R = .86$, R squared = .74.

A stepwise linear regression analysis was also was conducted to find the best model for predicting acceptance of human-caused climate change, the strongest level of acceptance, level 5 only. The best fitting model accounted for 66% of the variance in the likelihood of choosing that climate change is occurring and is caused by human activity, $R = .86$, R square = .66, $F_{(14, 46)} = 9.307$, $p < .05$. Unique predictors included Role, agreement with the statement significant change (SigChange) is needed, stating "very interested" in both climate science and health science (CCInterest and HSInterest), and EDUC, bachelor degree status. Therefore, predicting overall level of acceptance to climate change has the same best model as predicting who chooses the highest level of acceptance (the one containing explicit and primary human causation).

The next section will discuss the response frequencies of each of the questions The first question asked if the respondent wanted to proceed. Five percent of the 82 respondents opened the survey and then opted out. In question two, of the remaining 95%, 43% were faculty, 20% were administrators, 7% were coordinators of staff, and 29% were staff. In question 3, 30% strongly agreed that they could see evidence of climate change, another 30% agreed, but not as strongly; 18% chose neither, 6% disagreed, and 14% strongly disagreed with the statement that the climate was changing in their own lifetime. At least 60% then agreed that climate change is visible and happening now.

Question 4 asked about seeing or hearing about increasing frequency or severity of disease linked to climate change. Ninety-three percent listed at least one such disease on the rise. The breakdown was18% listing all 5 disease options on the rise, 9% listing 4, 10% listing 3, 21% listing two and 33% listing one disease.

Question 5 was of primary importance. This question asked how strongly the respondent felt about climate change and health science. A full 40% of all respondents said that they were "very concerned" about the long-term impact of climate change on health. "Moderate concern" was chosen by 23%, "somewhat concerned" by 14%, and "slight concern" by 4%. Only 12% said that they were "not concerned". It is important to note that 88% of all respondents expressed some degree of concern, before any qualifications from other responses they may have made about political views or policies.

Question 6 asked if health science policies and strategies needed to be ready to change given future and present climate changes. Again, as there was great concern, there was great agreement for the need for new science. Forty-three percent chose the strongest statement of support for "significant change needed". Only 10 % said no change was needed with 4% saying slight change, 13% some change, and 24% moderate change.

Question 7 gets to the heart of the question of climate change and whether it exists, and if so, what causes it. A full 58% agreed that the climate is changing and it is mostly caused by humans. Another 16% agreed that the climate is changing but it is mostly caused by nature. Seven, 8, and 7% respectively said that they "did not know", or there was "insufficient evidence" or "there was no climate change". It can be concluded that nearly 75% of all respondents agree that the climate is changing.

Questions 8, 9, and 10 were yes/no questions about whether people ask them about health science and climate change, how confident they were when asked, and whether climate change science to help improve health science, respectively. Only 17% said yes they were asked, but 40% went on the answer the next question about confidence. Of those responding about confidence, 24% were not confident. The overwhelming majority of 75% said that more climate science could help better understand health science.

Questions 11 and 12 were about knowledge and interest in climate change science, respectively. Only 5% reported being "very knowledgeable", 32% moderately, 26% somewhat, 20% slightly, and 13% not knowledgeable. In contrast, 31% were "very interested" in learning more, another 29% moderately interested, 18% somewhat, 12% slightly, and 7% not interested. These healthcare professionals were not that knowledgeable, but were interested in being more so.

Questions 13 and 14 were about knowledge and interest in health science strategies for getting ready for climate change. As with knowledge and interest in climate science, knowledge was low for health science, but interest was high. No one said they were "very knowledgeable". 17% were moderate, 35% somewhat, 20% slightly, and 22% not knowledgeable. Interest was at a higher than 80% mark with only 8 and 9% respectively choosing slight or no interest in learning more. Question 15 showed that that learning should take place predominately in self-led online activities. Question 16 indicated that 17% had PhDs, 34% had other types of doctorates, 26% had master's degrees, 16% had bachelors, and only 3% less that bachelors.   Question 17 showed a preponderance of women choosing to respond; 70% of respondents were women. Question 18 showed that most respondents worked with college students at 64%.   Politics were a major predictor in Morris et al. and they were dispersed along conservative and liberal lines in the present study: 14% were "very liberal", 20% were "liberal", 42% were "moderate", 13% were "conservative", and 4% were "very conservative".   Question 20 showed that all participants were mostly Floridians. Question 21 showed a good age range; 10% were over 65, 14% were in their 60s, 29% in their 50s, 20% in their 40s, 14% in their 30s, 7% in their 20s, and 1% less than 20.

A principal components factor analysis was conducted to investigate the commonalities and structure of the survey responses. Four components were significant with Eigen values over 1. Component 1 Concern included 35% of all question responses and was mostly aligned with views about concern, climate change acceptance, and interest in change. Component 2 Role included 17% and was mainly about the role, faculty, clinician, administrator, or staff and degree of education. Component 3 Influence loaded mostly on a single question about to whom this person most often discussed health science issues and included 9% of the matrix. Component 4 Gender had 8% of the variability in responses and was mostly loaded on gender with some on noticing climate change in the present. The survey adapted from Morris (2013) also yielded at least two factors or channels, *awareness-knowledge and subjective evaluation*. Awareness-knowledge is part of Component 2 Role, Component 3 Influence, and 4 Gender. Subjective evaluation includes the largest, Component 1 Concern. Since these factors are mostly organized as a small subset of questions that are in fact, the best unique predictors of climate change perspective, no further analyses were conducted. In other words, the 21 question survey is an efficient and effective instrument with no need for further data reduction and limited redundancy or unnecessary questions.

A second regression was a model of the 3 levels of acceptance against the two levels of denial. Only the degree to which the participant believed that significant change was needed (SigChange), interest in climate change science (CCInterest), and interest in health science (HSInterest) were reliable predictors of whether the dichotomy of acceptance (last three choices about climate change occurring) versus no climate change, all $p < .05$ in a one-way ANOVA. Those who said there was no climate change represented only 11 of 82 responses and were only reliably different in that they had less need for significant change, and less interest in climate change or health science research. Surprisingly, and with a wide and normal distribution of identity politics, conservatives were no more likely to refute climate change than liberals, although a simple bivariate correlation was reliable and modest, $r = .27$, $p < .05$. When all the variables from the survey were entered together, politics no longer has a unique contribution to climate change beliefs.

Discussion

The main prediction was confirmed that the majority of health care professionals who respond to the survey agree that climate change is occurring, that they are interested in it and concerned about it. The majority also believe that it is also mostly caused by human action.

Junior faculty and administrators who believe that significant change is necessary, have great interest in climate change science but feel confident that existing health science is adequate to the task that is coming with change, are most likely to accept climate change as caused by, and therefore can be alleviated by human actions. Nearly 10% responded even though recent news suggests a harsh climate for even using the phrases "climate change" or sustainability" in state government (Korten, 2015). Respondents were not given more than one chance to respond to an email assuring them anonymity and even with software designed to hide the local URL of the computer, a lower than expected response rate was obtained. Unlike Morris et al. (2013) identity politics did not predict climate change attitude, interest, and knowledge. A wide range of political identities was captured by the small response set and it was a non-significant predictor.

Diffusion of innovation theory works best with a knowledge of where on the "curve" of acceptance a particular viewpoint is held (Rogers, 2003). Climate change attitudes, knowledge and interest are in flux and are colored by local, state, and national media. The respondents were mostly in agreement about the human cause of climate change, regardless of their identity politics or other variables. The respondents expressed great concern and interest in significant change. They believed they already knew exactly what needed to be done in health science, but not in climate science as it related to health science. Role and degree of education mattered. Junior faculty and upper administrators were more likely to agree with human caused climate change than those more or less education than they were at present.

A qualitative review of the types of activities that these respondents would accept about the next steps in response to health science and climate change included a majority saying that learning should take place in self-led online activities. This would be a natural extension, and validation of the diffusion of innovation theory. Innovation typically diffuses from an adaptation of known tools and systems. A hybrid model of online and on campus learning is the norm at this university. The respondents wanted the online activities to be for sharing and interacting, not just passively reading. They would also accept to a lesser extent videos or personal meetings. Rogers (2003) theorizes that awareness following by evaluation will promote adoption of new things, especially if the new things are like the old things but better. These respondents want to learn like the best online students for whom and with the respondents works of today. Active participation in discussion of reports like the latest IPCC report (Woodward et al., 2014) seem to fit the bill for this group of responders. Diffusion of innovation theory shows that knowledge and persuasion factors will always proceed decision, implementation, and confirmation processes (Rodger, 2003). The present study uncovers the knowledge and persuasion factors about reasoning about health science and climate change. Not age, not politics, not a simple positive correlation with education or gender, but a nuanced, and hesitant to respond sample, say that significant change is needed. Severson and Coleman (2015) found that frames that emphasize science, secular morality, and economy equity are most likely to lead to support for climate change policies. Health science research is ready for it. Climate change science needs to connect better with already existing health science research and policy.

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Appendix A: Reasoning About Health Science (RAHS)

Reasoning About Health Science (RAHS) Thank you for taking your valuable time to respond to the RAHS. All of your responses are anonymous.[Edit   Delete]

Split section   New text   New question   New question from library

Question 1   Edit   Add to library   Delete

1. Participation in this survey is voluntary.

- ○ I'm ready to proceed
- ○ I'd prefer not to participate

Split section   New text   New question   New question from library

Question 2   Edit   Add to library   Delete

2. What is your primary responsibility in HPD?

- ○ HPD faculty
- ○ HPD clinicians
- ○ HPD administrators
- ○ HPD coordinators
- ○ HPD staff

Split section   New text   New question   New question from library

Question 3   Edit   Add to library   Delete

3. Please indicate your level of agreement with the following statement: "In my lifetime, I have noticed a change in the climate (longer, hotter summers; warmer, drier winters; cooler, moister summers; earlier, drier springs, etc.)"

- ○ Strongly disagree
- ○ Disagree
- ○ Neither disagree or agree
- ○ Agree
- ○ Strongly Agree

Split section   New text   New question   New question from library

Question 4   Edit   Add to library   Delete

4. The following are some of the health science outcomes that healthcare professionals have experienced over the past few years. To what extent have your or your clients witnessed or heard about any of these in the past several years? You may select more than one.

- ☐ greater frequency and/or severity of vector-borne diseases like malaria or dengue fever
- ☐ greater frequency and/or severity of hemorrhagic diseases like Ebola
- ☐ greater frequency and/or severity of disease attributed to poor water quality like cholera
- ☐ greater frequency and/or severity of allergy-related diseases like asthma
- ☐ greater frequency and/or severity of thermal-related mortality like skin cancer

Split section   New text   New question   New question from library

Question 5   Edit   Add to library   Delete

5. To what extent do you feel concerned about the long term impacts of the following weather and climate related factors involved in disease?

- ○ not concerned
- ○ slightly concerned
- ○ somewhat concerned
- ○ moderately concerned
- ○ very concerned

Split section   New text   New question   New question from library

Question 6   Edit   Add to library   Delete

6. To what extent do you think that health science management strategies will need to change to better respond to future weather and climate uncertainties?

- ○ no change needed
- ○ slight change needed
- ○ some change needed
- ○ moderate change needed
- ○ significant change needed

Split section   New text   New question   New question from library

Question 7   Edit   Add to library   Delete

7. Please select the statement that best reflects your perspective concerning climate change:

- ○ sufficient evidence exists that shows that climate change is not occurring
- ○ sufficient evidence does not exist to know with certainty whether climate change is occurring or not
- ○ climate change is occurring, but we don't know its cause
- ○ climate change is occurring, and it is mostly caused by natural changes in the environment in addition to contributions from human activities
- ○ climate change is occurring, and it is mostly caused by human activities in addition to contributions from natural factors

Split section   New text   New question   New question from library

Question 8   Edit   Add to library   Delete

8. Do your clients, patients or students ask you about changes in climate or extreme weather and how it might affect health science and health care?

- ○ yes
- ○ no

Split section   New text   New question   New question from library

Question 9   Edit   Add to library   Delete

9. If you answered yes to the previous question, did you feel confident in answering their question?

   ○ yes
   ○ no
   ○ unsure

Split section   New text   New question   New question from library

Question 10   Edit   Add to library   Delete

10. Do you think climate change research might provide any benefits to improving health science and health care?

   ○ yes
   ○ no
   ○ unsure

Split section   New text   New question   New question from library

Question 11   Edit   Add to library   Delete

11. How knowledgeable do you feel you are about the science behind climate and the climate change discussion?

   ○ not knowledgeable
   ○ slightly knowledgeable
   ○ somewhat knowledgeable
   ○ moderately knowledgeable
   ○ very knowledgeable

Split section   New text   New question   New question from library

Question 12   Edit   Add to library   Delete

12. How interested are you in learning more about the science behind climate and the climate change discussion?

   ○ not interested
   ○ slightly interested
   ○ somewhat interested
   ○ moderately interested
   ○ very interested

Split section   New text   New question   New question from library

Question 13   Edit   Add to library   Delete

13. In general, how knowledgeable are you about health care resiliency strategies, options, and concepts that help promote health and productivity under increasingly uncertain future scenarios?

   ○ not knowledgeable

   ○ slightly knowledgeable

   ○ somewhat knowledgeable

   ○ moderately knowledgeable

   ○ very knowledgeable

Split section   New text   New question   New question from library

Question 14   Edit   Add to library   Delete

14. How interested are you in learning more about health science and healthcare management strategies that promote health and resiliency?

   ○ not interested

   ○ slightly interested

   ○ somewhat interested

   ○ moderately interested

   ○ very interested

Split section   New text   New question   New question from library

Question 15   Edit   Add to library   Delete

15. Would you be willing to participate in the following types of learning activities? You may select more than one.

   ○ self-led online courses

   ○ instructor-led courses

   ○ videos/dvds

   ○ in-person workshops

   ○ an online community for sharing information and interacting

Split section   New text   New question   New question from library

Question 16   Edit   Add to library   Delete

16. What is the highest level of education you have reached?

   ○ associates or technical degree

   ○ bachelors degree

   ○ masters degree

   ○ doctorate or professional degree other than PhD

   ○ PhD

Split section   New text   New question   New question from library

Question 17	Edit Add to library Delete

17. What is your gender?

- ⚪ male
- ⚪ female

Split section   New text   New question   New question from library

Question 18	Edit Add to library Delete

18. If you work with clients, patients, or students directly, which categories best describe them? Please check all that apply.

- ⚪ patients or clients in a hospital setting
- ⚪ patients or clients outside a hospital setting
- ⚪ healthcare students
- ⚪ fellow healthcare professionals
- ⚪ I don't work with any of these groups directly

Split section   New text   New question   New question from library

Question 19	Edit Add to library Delete

19. How do you identify yourself politically?

- ⚪ very liberal
- ⚪ liberal
- ⚪ moderate
- ⚪ conservative
- ⚪ very conservative

Question 20   Edit   Add to library   Delete

20. In which of the following states do you, or have you, performed healthcare or healthcare science or education work? Please check all that apply.

- ○ alabama
- ○ arkansas
- ○ georgia
- ○ florida
- ○ kentucky
- ○ louisiana
- ○ mississippi
- ○ north carolina
- ○ oklahoma
- ○ south carolina
- ○ texas
- ○ tennessee
- ○ virginia
- ○ other states (please specify) [   ]

Question 21   Edit   Add to library   Delete

21. What is your approximate age?

- ○ 65+
- ○ 60-64
- ○ 50-59
- ○ 40-49
- ○ 30-39
- ○ 20-29
- ○ under 20