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Abstract

In the context of the COVID-19 pandemic, we asked Extension professionals about sources used to inform their work, means used to inform clientele, and management of their own health and well-being. Survey data revealed that Extension professionals sought information from trusted sources and that large majorities were involved in disseminating online information to clientele. Extension professionals felt well supported, were prepared to address the pandemic's challenges, and were practicing recommended health behaviors. However, respondents reported high levels of stress and difficulty balancing professional and personal needs. Recommendations focus on collaborative opportunities for Extension as well as professional development and other resources for Extension personnel.

Keywords: [COVID-19](#), [Extension personnel](#), [information methods](#), [work capacity](#), [work-life balance](#)

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Introduction

The global COVID-19 pandemic presents unique challenges and service opportunities for Cooperative Extension systems nationwide (Fawcett et al., 2020; Narine & Meier, 2020), with virtually all communities and stakeholder groups likely to be affected in a variety of profound ways. Extension is well positioned to address a wide range of related issues, including farm safety, farm business operations, community and economic development, health and well-being, family financial management, youth development, and emergency preparedness and management. Further, Extension has a strong history of working with communities to respond to natural disasters and crises, including hurricanes (Cathey et al., 2007; Grattan et al., 2020; Telg et

al., 2008; Tootle, 2007; Wiener et al., 2020), extreme weather events (Borrelli et al., 2018; Hendrickson et al., 2017), oil spills (Lindsey, 2020; Sempier et al., 2018), wildfires (Warren, 2017), farmer mental health (Inwood et al., 2019), financial recovery after disasters (Hendrickson et al., 2017), and youth development (Arnold & Rennekamp, 2020). As a reliable and trusted source of science-based information (Buys & Rennekamp, 2020; Telg et al., 2008), Extension can play a critical role in helping stakeholders respond to issues related to COVID-19 by partnering with communities to understand the emerging issues and by developing and adapting Extension programming for this remarkable challenge.

Fawcett et al. (2020) have created an organizational framework for helping understand the role of Extension in responding to the COVID-19 pandemic, with strategies presented in the areas of assisting non-Extension colleagues, continuing existing services to clients, and addressing novel needs and opportunities that arise as a result of the pandemic. In their needs assessment of Extension personnel relative to COVID-19, Narine and Meier (2020) identified three factors related to Extension capacity—online education, engagement of residents, and external partnerships. These are key factors for professional development and capacity building within areas of need, especially telehealth and homeschooling of children, which have emerged as critical issues within the context of COVID-19.

In addition, it is critical that Extension identify and address the personal and professional issues confronting its personnel, including stress-related and work-life balance issues that arise as a result of disruptions to normal work routines (Centers for Disease Control and Prevention, 2020). In the context of Extension, Harder and Narine (2020) identified three components of personal competency—personal health management, time management, and role management—all of which are seen as critical to optimal performance on the job but also are likely to be affected by the work-life balance strains brought on by COVID-19, social distancing, and major disruptions to the daily conditions of Extension work.

Purpose and Objectives

There is an urgent need to understand the role of Extension in addressing emerging issues that communities and stakeholder groups are facing during the COVID-19 pandemic. Learning from this experience can assist Extension personnel with continuing to serve as effective and resilient frontline supports for communities facing ongoing and future crises. We were involved in a study to assess pandemic-related perceptions of Extension professionals, with the following objectives:

- identify sources of information Extension professionals use to inform their work related to COVID-19 and assess levels of trust they place in these sources;
- identify methods used to reach Extension audiences with COVID-19-related information and ways to build capacity for sharing information in a virtual environment; and
- assess Extension professionals' management of their health, time, and roles, especially regarding COVID-19-related stress and emotional impacts.

Methods

The evaluation team at the Southeastern Coastal Center for Agricultural Health and Safety (SCCAHS) organized a collaborative group of evaluators and outreach leaders from SCCAHS and the 10 other agricultural

safety and health centers funded by the Centers for Disease Control and Prevention (CDC) National Institute for Occupational Safety and Health (NIOSH). These centers conduct research on health and safety in agriculture, fishing, and forestry and provide outreach programs for clientele through partnerships with Extension and other organizations. The collaborative group, of which we were members, developed an online questionnaire for Extension professionals to address the aforementioned objectives. The survey's mix of open-ended and closed-ended questions included some questions drawn from existing sources, such as surveys about natural disasters (Telg et al., 2008) and COVID-19 (Center for Public Issues Education, 2020; see Hickey, 2020) and established specialized measures (e.g., the Generalized Anxiety Disorder-2 scale; Kroenke et al., 2007), and other questions crafted by the SCCAHS evaluation team, with input from the collaborative group. The SCCAHS evaluation team used a survey development matrix (Sampson et al., in press), which applies a measurement approach to survey development and facilitates selection of items that clearly align with a study's objectives.

The survey addressed several topics, including current concerns related to agricultural safety and health, awareness and perceptions of COVID-19, coronavirus outbreaks in the local county/state/region, and impact of the pandemic on respondents' daily lives. The survey was reviewed and deemed exempt research by the University of Florida Institutional Review Board and, subsequently, was administered by the Central States Center for Agricultural Safety and Health (CS-CASH), the Great Plains Center for Agricultural Health (GPCAH), the Southeast Center for Agricultural Health and Injury Prevention (SCAHIP), SCCAHS, and the Pacific Northwest Agricultural Safety and Health Center (PNASH) to Extension professionals in 18 states from mid May through late August 2020 (Table 1). Because of the collaborative nature of the project, the survey procedures varied across the centers, and, consequently, response rates did as well.

Table 1.
Survey Distribution, Usable Responses, and Response Rate by Center

Center	States and territories with respondents	List source and number of contacts	Email list	Usable responses	Response rate
Central States Center for Agricultural Safety and Health (CS-CASH)	KS, MO, NE	Extension (NE only), 2 contacts; CS-CASH, 3 contacts	597 ^a	76	12.7%
Great Plains Center for Agricultural Health	MN, OH, WI	Extension, 1 contact	1,678	122	7.3%
IL, KY, MT, WV	— ^b	—	13	—	
Southeast Center for Agricultural Health and Injury Prevention	KY	Extension, 5 contacts	871	212	24.3%
Southeastern Coastal Center for Agricultural Health and	FL, GA, SC, VI	Extension, 4 contacts	1,501	831	55.4%

Safety					
Pacific Northwest Agricultural Safety and Health Center	AK, ID, WA	Extension, 3 contacts	1,075	139	12.9%
Total			5,722 ^c	1,393	24.3% ^d

^a A link was also shared through a Facebook post. ^b Distribution methods varied among the states and included use of email lists, newsletters, and direct email; therefore, the number invited in some states is unknown. ^c Totals are based on known counts from the centers. ^d Response rates are the number of usable responses (which include partial and complete responses) divided by the number in the list used for each state's survey. Criteria for a partial response included answering at least one question on COVID-19 in addition to questions on respondent role and programmatic focus (see American Association for Public Opinion Research, 2016).

A total of 1,393 responses were obtained, with the bulk from the SCCAHS area and smaller numbers from areas served by the other centers. Several factors contributed to the variation in the numbers of responses across the centers, including whether an Extension administrator actively supported the survey, whether sports rivalries were invoked to encourage participation, and how many reminders were sent to potential participants. Finally, because auxiliary data were not available to conduct analysis of nonresponse bias, we examined key variables, including respondent role, programmatic focus, and location, for differences in response distributions, and we report these differences.

Results

The 1,393 respondents included county agents (48.0%), multicounty agents and regional specialists (7.3%), state specialists (20.2%), administrators (5.8%), support staff (8.8%), and other professionals (9.8%). Respondents who indicated responsibility for working in multiple counties or having a multicounty agent or regional specialist job title were coded as "multicounty agent/regional specialist." The category "other professionals" included program assistants, Expanded Food and Nutrition Education Program and Supplemental Nutrition Assistance Program Education educators, and program coordinators. The distribution of roles varied across the participating centers; for example, about 30% of respondents in PNASH's region were county or multicounty agents as were nearly 60% of respondents in SCAHIP's and SCCAHS's regions. Agriculture was the largest programmatic focus (48.5%), followed by youth (35.8%), family and consumer sciences (25.8%), community development (14.4%), forestry (6.3%), energy and sustainability (5.1%), fisheries and marine (3.2%), and miscellaneous/other (19.2%). Using definitions from the U.S. Department of Agriculture Economic Research Service (2013), we found that respondents were also distributed across metropolitan counties (64.5%), nonmetro micropolitan counties (17.2%), and nonmetro "rural" counties (18.2%) within the areas of the participating centers.

It should be noted that program focus and respondent roles were somewhat interrelated, for example, with county agents and those in the "other professionals" category more likely to have a program focus in youth (39.2% and 44.5%, respectively) and family and consumer sciences (25.3% and 37.2%, respectively) than other categories of respondents. Similarly, state specialists were more likely to have a focus in agriculture (65.6%) than other categories of respondents (e.g., 40.9% of county agents had an agriculture focus). Finally, most state specialists (88.8%) lived in metropolitan counties because, in part, university campuses have populations that meet the threshold for this county category. County agents, multicounty agents and

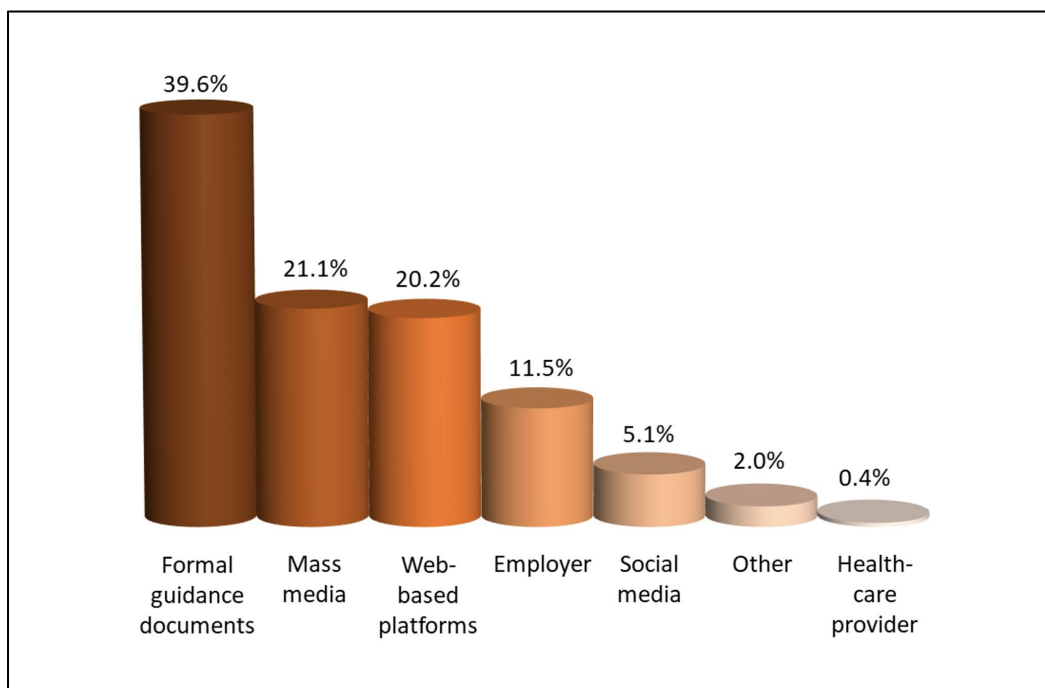
regional specialists, those in the "other professionals" category, and support staff were more likely than state specialists to live in nonmetro micropolitan and nonmetro rural counties.

Sources of Information Used by Extension Professionals Related to COVID-19

As shown in Figure 1, the primary information source for learning about COVID-19 for 39.6% of respondents was formal guidance documents (from the CDC or state departments of health, labor, or agriculture). This source was used most by administrators (54.3%), county agents (42.7%), and other professionals (41.6%) and was used less frequently by state specialists (31.9%). Just over one fifth of respondents used mass media or a web-based platform as their primary information source, and about one tenth relied on their employer as their primary information source (Figure 1). A respondent's health care provider was rarely the primary source of information. In addition, most respondents (77.8%) had not visited a CDC-NIOSH-funded agricultural health and safety center website for information, 12.8% had, and 9.4% did not know whether they had.

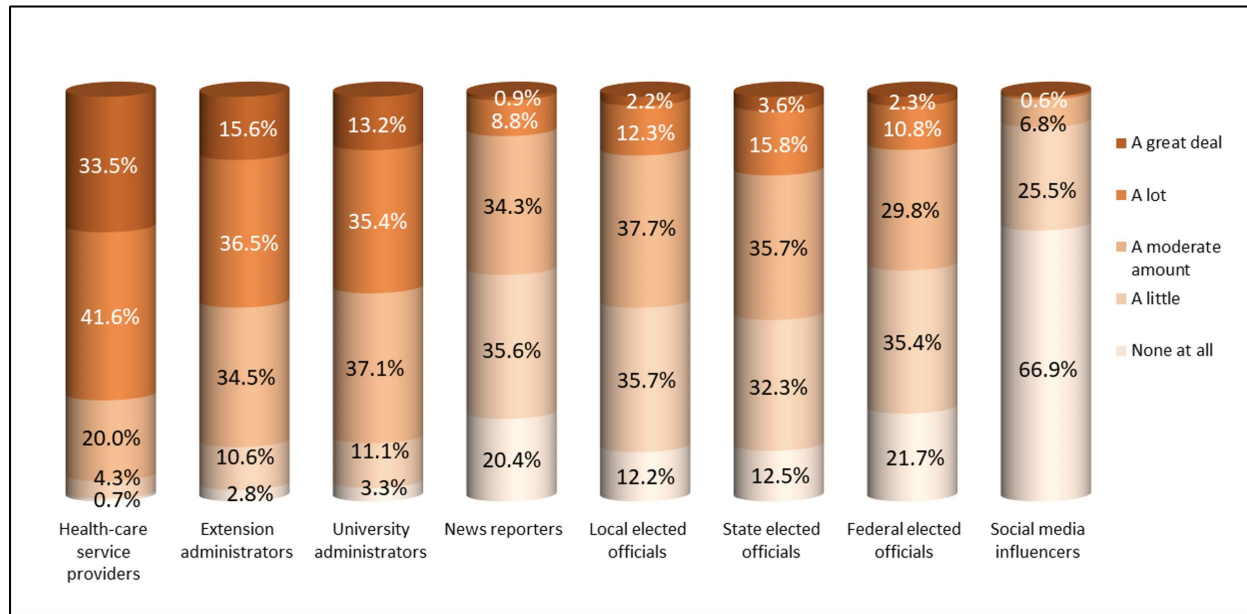
Figure 1.

Primary Means of Getting Information to Learn About COVID-19



Extension professionals reported high levels of trust in COVID-19 information obtained from health care service providers, Extension administrators, and university administrators (Figure 2). Figure 2 also shows that respondents reported low to moderate levels of trust in information from reporters, local elected officials, state elected officials, and federal elected officials and that social media influencers were considered the least trustworthy source of information. We note that governmental agency specialists were not included in the list of sources and that these may have elicited a different level of trust in government than elected officials. Within the general pattern described above, more state specialists indicated somewhat higher levels of trust in news reporters and lower levels of trust in local, state, and federal elected officials, and the reverse pattern was found for county agents.

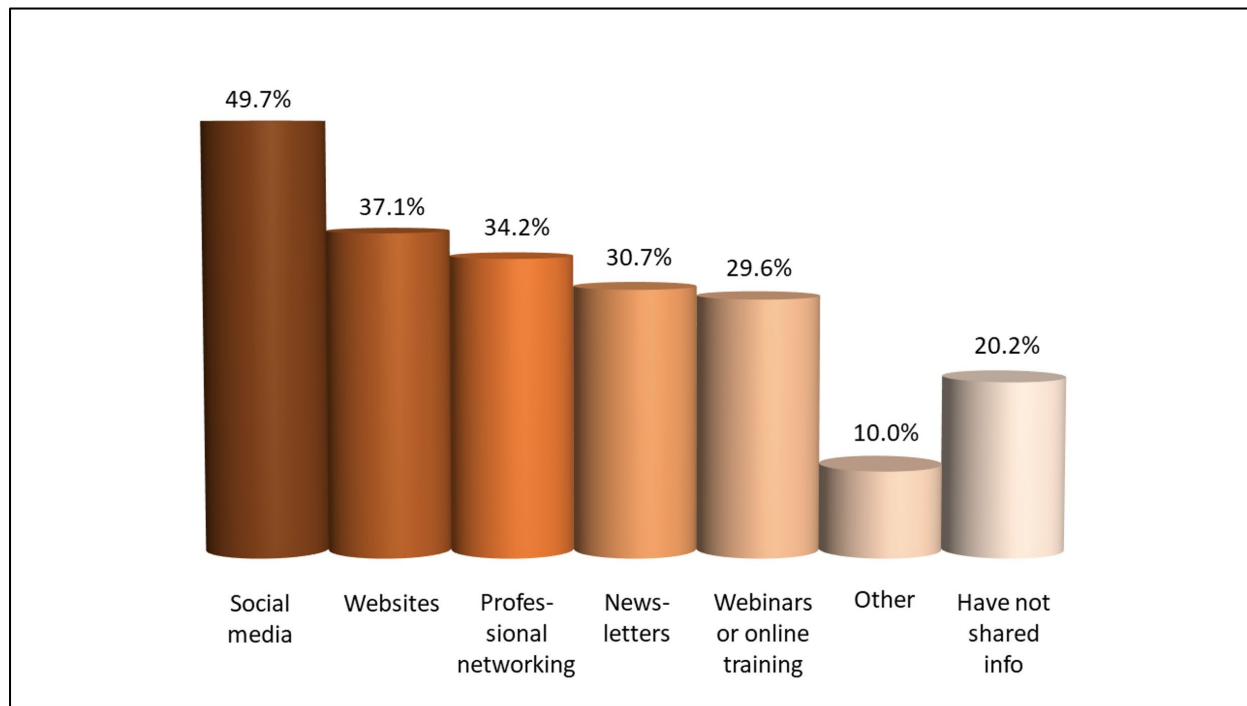
Figure 2.
Ratings of Trust Levels by Information Source



Methods Used to Reach Clientele With COVID-19-Related Information and Ways Extension Can Expand This Capacity

The large majority of respondents (79.8%) who delivered information about COVID-19 to clientele used an average of 2.39 methods to distribute that information. The proportion of county agents delivering information was higher (88.0%) than proportions for all other categories of respondents. County agents also used more methods (an average of 2.42) than other respondents. State specialists were least likely to share COVID-19 information (65.7%) and used the fewest methods for doing so (an average of 2.00). When presented with a list of methods for sharing information about COVID-19, nearly half of respondents reported having used social media (49.7%), followed by websites (37.1%), professional networks and working groups (34.2%), newsletters (30.7%), webinars and online trainings (29.6%), and miscellaneous other methods (10.0%; see Figure 3). About one fifth had not shared any COVID-19 information (Figure 3).

Figure 3.
Methods Used to Share Information About COVID-19 With Clientele

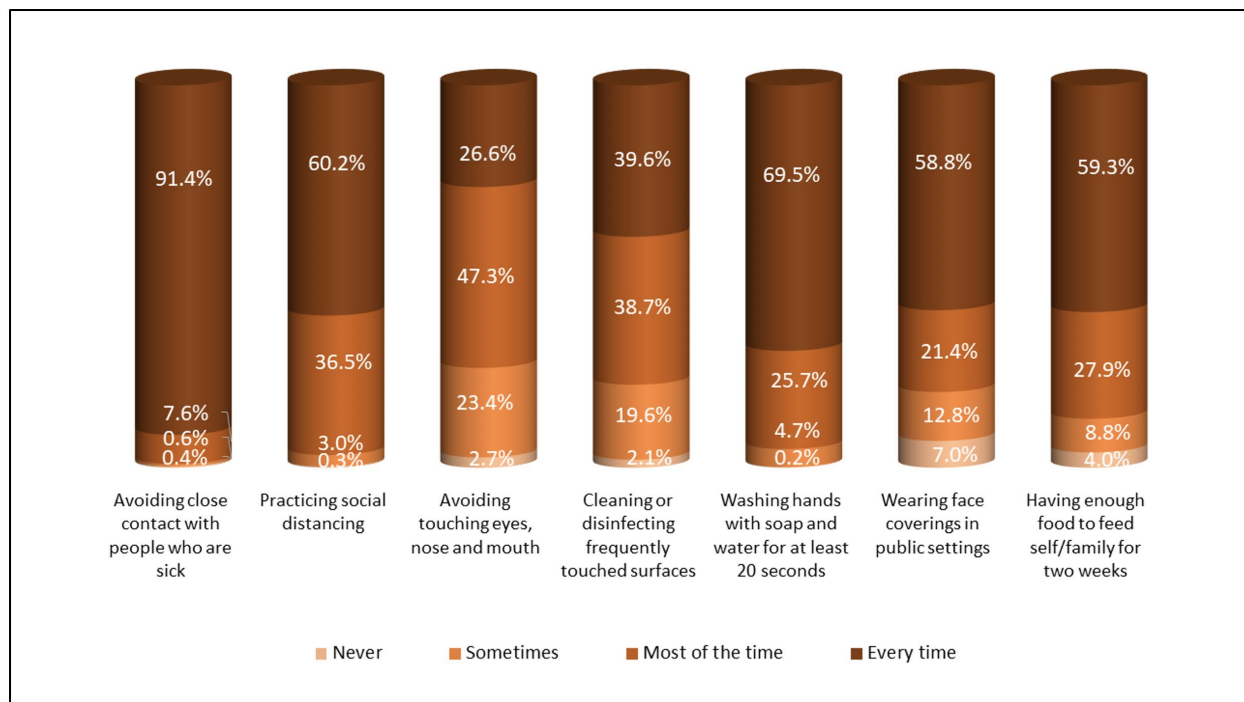


Regarding the need to shift from in-person programming to online and distance-delivered approaches, 80.0% of respondents said they were getting needed support to a moderate or great extent. Similarly, nearly two thirds (65.3%) reported being prepared to a "moderate" or "great" extent to address the professional challenges they faced.

Extension Professionals' Management of Their Health, Time, and Roles, Especially Regarding Pandemic-Related Emotional and Stress Impacts

The COVID-19 pandemic has raised new challenges for Extension professionals in maintaining their job performance, including the critical factor of staying healthy so that they can continue to work with clients. Overall, study respondents had engaged in activities to maintain their health, with 90.3% reporting "probably" or "definitely" knowing how to protect themselves and large majorities following recommended practices for preventing infection from COVID-19. Recommended practices used "most of the time" or "every time [one] should" included social distancing (96.7%), proper hand washing (95.2%), and wearing of face coverings in public settings (80.2%; Figure 4). The highest rates for washing hands were among support staff and other professionals (80.7% and 80.3%, respectively, reported washing "every time [one] should"), whereas the rate for state specialists was lowest at 61.9%. By contrast, with regard to wearing a face covering "every time [one] should," state specialists were more likely than county agents to do so (72.9% and 51.7%, respectively). Also, county agents and multicounty agents/regional specialists were more likely than other groups to report that they never wear a face covering (9.0% and 10.5%, respectively).

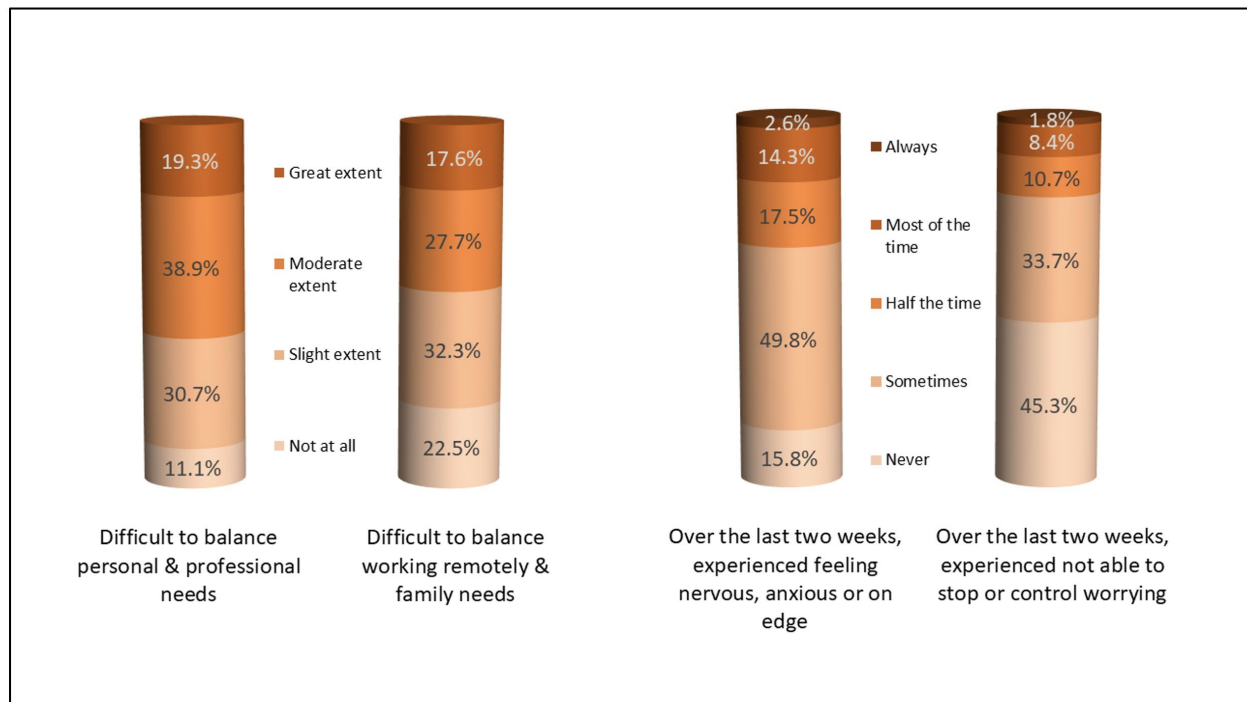
Figure 4.
Frequency of Protective Behaviors



The data also suggest that Extension professionals' time management and role management have been affected by several factors, including disruptions to normal working practices, changing foci of programming, and impacts on home life. As shown in Figure 5, substantial percentages of respondents reported experiencing a "moderate" or "great" extent of difficulty in balancing professional and personal needs (58.2%) and in balancing remote work with family needs (45.3%). The former was true for all roles except support staff, with 38.6% of that group having a "moderate" or "great" extent of difficulty in balancing professional and personal needs. For the 68.3% who reported that they were working remotely from home, the percentage having difficulty balancing work and family needs was slightly higher (46.2%). Likewise, 69.0% of respondents with children under age 5 and 61.2% of those with children of any age reported a "moderate" or "great" extent of difficulty in balancing remote work and family needs, compared to only 33.8% of those without children in the household. Similarly, the proportion of respondents in administrative roles reporting a "moderate" or "great" extent of difficulty in balancing work and family needs (33.8%) was lower than that of county agents (45.6%) or state specialists (51.5%).

A number of respondents also reported feeling nervous, anxious, or on edge (34.4% said "half the time" or more often) and being unable to stop or control worrying (20.9% said "half the time" or more often) (Figure 5). One important source of stress for respondents who had children in their households involved arranging childcare while schools were closed. Over half of this group (54.3%) characterized daily life as being "moderately," "very," or "extremely" stressful because of the need to arrange childcare. Across all respondents, 34.0% reported "moderate" or higher levels of stress related to receiving medical care. Finally, 56.3% of respondents reported observing stress or emotional symptoms in the clientele they assist to a "moderate" or "great" extent, a factor that could add to the stress levels of these Extension professionals.

Figure 5.
Indicators of Stress Among Extension Professionals



Discussion

It is clear from the survey results that the COVID-19 pandemic has many similarities with other kinds of disasters to which Extension must respond. Many Extension professionals have pivoted to provide important information for their clients, using online communication methods to a greater degree than before. Unlike other disasters that last for a few days or weeks, followed by a recovery period, the COVID-19 pandemic involves a much longer timeline and the impacts on Extension professionals and their clientele are likely to continue emerging in the months and years to come.

Our study revealed that Extension professionals have used a variety of sources to obtain information about COVID-19 and, in turn, that large majorities have been involved in disseminating such information to the clientele they serve. Given the widespread use of social media and websites for sharing information, the results suggest that Extension professionals have a substantial capacity to work online. However, many Extension educators might benefit from having specialized training on how to deliver programming via an online platform using sound educational practices.

Extension professionals generally feel well supported, and most reported being prepared to address the challenges of the COVID-19 pandemic. In addition, large majorities of respondents were practicing recommended infection prevention and control behaviors to protect themselves from the disease (though there was room for improvement among some groups). One reason for the higher level of wearing face coverings among state specialists relative to county agents and multicounty agents/regional specialists, however, is that state specialists were more likely to live in metropolitan locations, which might have had mask mandates, whereas county agents were proportionately more likely to live in more rural, nonmetro areas (see Haischer et al., 2020).

The proportions of professionals having difficulty balancing professional and personal needs, balancing remote work and family life, and suffering from stress and worry raise concern about sustained productivity among the workforce. In addition, the widespread stress respondents observed among their clients is likely

contributing to stress and worry among Extension professionals because of the close relationships they may have with their clients (Sampson et al., 2020). Some may be coping by working more hours, but others are having to shift working hours to balance work and family needs or are feeling added anxiety over how to maintain involvement in community activities such as county fairs and other educational events. This situation suggests a need for Extension administrators, as well as the CDC-NIOSH-funded agricultural health and safety centers, to expand efforts to mitigate COVID-19 impacts for Extension personnel.

Recommendations for Practice

Based on the findings from our survey of Extension professionals, we make recommendations for several audiences. These include specialists who can provide professional development in instructional methods, Extension administrators and other leaders with an interest in expanding collaborations, leaders of professional organizations and administrators with human resources responsibilities, and, lastly, evaluation specialists involved in tracking Extension's performance. Our recommendations are as follows:

- Enhance professional capacity for using online education tools and instructional methods. Given that less than one third of respondents in our study reported using webinars and online trainings, more targeted training likely is needed to build competency in more complex information communication technologies to ensure that high-quality instruction is provided (Narine & Meier, 2020). In addition, a concerted effort to formatively evaluate the quality of online instruction is needed to support targeted professional development.
- Expand collaborations between CDC-NIOSH-funded agricultural health and safety centers and state Extension systems related to the use of these centers' information resources and programming for internal and external audiences. Although some of the centers are housed at land-grant universities, others are not, and there is an opportunity to expand collaborations among researchers, public health practitioners, and Extension professionals. Extension administrators also can help by supporting efforts to increase awareness of centers' resources and providing access to state Extension email systems for distributing information. Buys and Rennekamp (2020) provided a strong rationale supporting the need for an enhanced collaboration of Extension with public health partners and identified its potential positive impacts, particularly for rural communities. The CDC-NIOSH-funded centers have assembled a large pool of COVID-19 resources in English and Spanish that can be used "as is" with many clientele groups. Likewise, resources and training programs through the centers and partners, such as AgriSafe (<https://learning.agrisafe.org/covid19-response>), are available to provide help on topics such as mental health and stress management for Extension professionals and their clientele.
- Provide expanded support for Extension professionals who are struggling with balancing working remotely and meeting family needs, especially those with young children. Strategies to provide support at our institutions include offering employer-granted paid time off (University of Nebraska) and creating a pool of vacation, sick, or personal time off to share with those needing more time (University of Florida) to meet family needs without incurring financial hardship and added stress. Also, Extension leaders can support establishing norms for self-care and provide access to stress management programs. For Extension professionals who must transit tenure and promotion systems, allowances for disrupted programs and/or meeting family needs by granting additional years can reduce stress and enhance morale.

- Conduct periodic surveys to monitor impacts on Extension professionals over time. Given the impacts observed from the initial study reported here, as well as the long-term nature of the pandemic, continued monitoring of Extension personnel is needed to identify and address emerging issues in order to maintain organizational capacity and continue to meet clients' needs.

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