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A Phenomenological Study of the Lived Experiences and Well-Being of Water, Sanitation and Hygiene Actors During the Ongoing COVID-19 Pandemic

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A Phenomenological Study of the Lived Experiences and Well-Being of Water, Sanitation and Hygiene Actors During the Ongoing COVID-19 Pandemic

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2019

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An abstract of
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Abstract

A Phenomenological Study of the Lived Experiences and Well-Being of Water, Sanitation and Hygiene Actors During the Ongoing COVID-19 Pandemic

By Colleen Anderson

COVID-19 is impacting the mental health of individuals. The mental health impacts and side effects of the ongoing pandemic are already apparent in the general population. Initiatives have already started to address the psychological impacts felt across society, and more specifically in frontline workers. There has been limited research to identify mental health impacts among other workers engaged in COVID-19 response, like those in development, to ensure their well-being. More specifically, individuals working in the water, sanitation, and hygiene (WASH) sector have been designing and implementing hygiene related interventions, which is a critical role in prevention and adherence to COVID-19 protocols and recommendations. Yet, the specific impact COVID-19 is having on WASH sector actors is unknown. The aim of this study was to explore the personal experiences and well-being of WASH actors around the globe as they have responded to the COVID-19 pandemic.

From October 2020 to August 2021, in depth interviews over Zoom were conducted with 26 WASH actors working in 13 different countries to better understand and explore their lived experiences and well-being during the ongoing pandemic.

Participants experienced both negative and positive impacts of the COVID-19 pandemic. For example, they perceived COVID-19 protocols, such as isolation and quarantine measures, as a source of anxiety, but also reported feeling increased connection and purpose as a positive side effect of the pandemic. Factors such as previous job roles, personality traits, family, staying active, and adopting new hobbies influenced the personal perception of how COVID-19 impacted their lives.

Findings of this study provide context surrounding the personal impacts experienced during the ongoing pandemic by WASH actors. Findings highlighted that both positive and negative impacts have occurred during the ongoing pandemic. Lessons learned can be used to support the well-being of actors in the WASH sector, and may also inform the development sector at large.

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Acronym List

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CDC	Center for Disease Control and Prevention
IDIs	In-Depth Interviews
LMICs	Low- and Middle-Income Countries
NGO	Non-Governmental Organization
UN	United Nations
WASH	Water, Sanitation & Hygiene
WHO	World Health Organization

Chapter 1: Literature Review

Abstract

The purpose of this literature review is to highlight the similarities between Water, Sanitation and Hygiene Actors (WASH) to frontline healthcare workers and to bring to attention the growing negative repercussions on the mental health and overall wellbeing of individuals in both groups. This review incorporates theoretical framework, historical lessons learned and current research to highlight the need for more nuanced research to better understand the personal impact of the ongoing pandemic.

Onset of COVID-19

COVID-19 catapulted the public health world into the hearts and minds of millions across the globe. In December of 2019, an outbreak of a novel virus compared to a pneumonia like disease, was reported in Wuhan, China (Ciotti et al., 2020). The onset of the disease rapidly progressed and globally as of 18 March 2022, there have been 464,809,377 confirmed cases of COVID-19 including 6,062,536 deaths reported by the World Health Organizations (WHO) (World Health Organization, 2022a). To slow the spread of the disease, prevention methods and recommendations have been made to communities, organizations, social networks, and individuals. Early in the COVID-19 pandemic, the initial prevention measures that were put into place were: social distancing, lockdown, isolation, and quarantine. These recommendations were being made to slow the spread of disease by infected individuals, as more information and understanding was gained about the virus, the prevention measures were altered to better reflect new information (Li et al., 2020).

Researchers have acknowledged the unique circumstances that frontline healthcare workers face due to their increased risk of COVID-19 exposure because of their occupational

duties. As a result, research has been done to better understand the consequences for frontline healthcare workers. Frontline healthcare workers are essential individuals providing direct patient care throughout the ongoing pandemic (Frontline Health Workers, 2014). These workers are an individual's first point of contact into the healthcare system. Nurses, doctors, and paramedics fall into this classification of frontline healthcare workers.

Water, Sanitation and Hygiene actors (WASH) may also be considered frontline healthcare workers, particularly those who work directly with communities to improve access to sanitation and handwashing facilities and establish protocols for controlling infections. In addition, a significant amount of WASH work occurs in fragile and emergency settings, meaning that that these WASH actors also have an increased exposure to COVID-19 due to their occupational duties and may serve as initial point of contact for communities when dealing with healthcare (UNICEF, 2021).

This literature review explores the prevention measures enacted to slow the spread of COVID-19 and the impact of the pandemic on mental and emotional health at the community level. The review draws upon historical lessons learned from previous health outbreaks and highlights the need for more wholistic infrastructure to better support WASH workers.

COVID-19 in Low- and Middle-Income Countries (LMICs)

COVID-19 continues to spread dramatically and to put strain on healthcare systems and healthcare professionals. Historically, comprehensive health systems in Low- and Middle-Income Countries (LMICs) have been inadequately resourced and understaffed (Atiyeh et al., 2010). LMICs currently account for 90% of the global burden of disease, but for only 12% of global spending on health (Peters et al., 2008). This results in a much lower work capacity in LMICs than in high income countries (Peters et al., 2008). In addition, people in poor countries

are double burdened as they have less access to the already limited health services (Peters et al., 2008). This then leads to the worsening of people's overall health, and then to lost income and higher health care costs, all of which negatively impact national economies (Peters et al., 2008). Overall, health is not only impacted by access to health resources, but also by access to food, water, sanitation, and other human assets (Peters et al., 2008).

Currently, healthcare systems of low-and middle-income countries (LMICs) are unable to cope with growing demands (Hamid et al., 2020). Individuals in LMICs are experiencing lower levels of adequate healthcare and cannot access medical facilities in a timely manner due to systemic barriers in place (Hamid et al., 2020). In addition, LMICs have a smaller healthcare workforce which further hampers accessibility (Hamid et al., 2020). The impact of COVID-19 on LMICs is expected to be significantly worse compared to most developed countries regarding both the short-term health impacts and long term social and economic impacts (Pasquale et al., 2021). High income countries are experiencing shortages of health personnel, ventilators, and personal protective equipment, whereas LMICs were already facing shortages and limited workforce capacity prior to COVID-19, thus it is therefore reasonable to expect worse outcomes due to the pandemic in LMICs (Pasquale et al., 2021).

Mental health care in LMICs is a growing concern. Approximately 85% of the world's population lives in the 153 LMICs (Rathod et al., 2017). Depressive disorders, schizophrenia, bipolar disorder, and substance use are in the top 10 of the disease burdens in LMICs (Rathod et al., 2017). In addition, LMICs have limited amounts of mental health care professionals. The global average is 3.96 psychiatrists per 100,000 people, whereas most LMICs of Asia and Africa have 0.301 to 0.04 psychiatrists per 100,000 people (Rathod et al., 2017), most of whom are in urban centers making them inaccessible to the rural population (Rathod et al., 2017).

LMICs are at a particularly high risk of becoming overburdened by COVID-19 because of the lack of public awareness around preventative measures coupled with the poor financial status of the country (Hamid et al., 2020). Many LMICs lack adequate hospital and emergency transportation infrastructure, however there is a large presence of strong community-based structures (Mor, 2020). LMICs benefit from the presence of these community-based organizations and nonprofit workers that in the past have filled in to address community need (Mor, 2020).

Water, Sanitation and Hygiene (WASH) and COVID Prevention

Water, sanitation, and hygiene (WASH) are key for human health and wellbeing (UNICEF, 2021). Access to safe and reliable WASH is critical to individual health, living environment, and community well-being (*UNICEF, 2021).* Some countries cannot fund WASH services and therefore must rely on coordination between governments and development partners for implementation of resources (*Strengthening Water, Sanitation and Hygiene (Wash) Systems,* n.d.), resulting in large disparities when it comes to access to WASH.

The novelty of COVID-19 paired with its rapid spread, has forced governments both local and international to enact prevention measures. As more information has been gained surrounding COVID-19 transmission, prevention measures have been adjusted to better mitigate the risk of spread. SARS-CoV-2 primarily spreads from infected person to infected person through respiratory droplets from coughing, sneezing, or talking (Gwenzi, 2021), leading the World Health Organization to recommend increased frequency of hand washing, as well as mask wearing (WHO, 2020). These prevention measures fail to acknowledge the unequal distribution of services and resources and can further disenfranchise already marginalized communities.

Water and Handwashing

Accessible and safe water is crucial for health, whether it be used for drinking, domestic use, food production, or recreational purposes (WHO & UNICEF, 2021). Currently, 785 million people lack basic drinking water, of those 144 million people are dependent on surface water (WHO & UNICEF, 2021). Contaminated drinking water has been known to cause an increase in water borne diseases as well as more bacterial, viral, and parasitic diseases (Pal et al., 2018). Globally, 2 million people use a drinking water source that is contaminated by feces. This contaminated water can transmit diseases and accounts for approximately 485,000 diarrheal deaths each year (WHO & UNICEF, 2021).

The inability to access safe water impacts how well individuals and communities can follow handwashing guidelines. According to WHO, regularly practiced hand hygiene is the most cost-effective method to protect oneself from COVID-19 infection (WHO, 2020). Handwashing is a common intervention used to prevent communicable diseases (Ray, 2020). Despite evidence showing how handwashing with soap is an effective method for reducing the spread of infectious diseases, poverty, limited access to soap and water, and overall lack of resources may limit one's ability to practice hand hygiene (West et al., 2020). Over 26% of the global population has no access to handwashing stations in their home, and for low-income countries this number rises to as high as 50% (WHO & UNICEF, 2021). In LMICs, 27% of the population had basic hand washing facilities with soap and water, while 26% had hand washing facilities lacking soap or water. The remaining 47% had no hand washing facility at all (WHO & UNICEF, 2021). Community-based organizations and nonprofit organizations, specifically those in WASH, working within these contexts during COVID-19 then must address not only existing

health impacts due to unsafe drinking water but also must manage the ongoing COVID-19 pandemic.

Mask Wearing

Face masks are being worn to reduce the risk of airborne transmission of COVID-19. Universal use of masks in health care facilities is needed to prevent transmission (Zar et al,, 2020). However, one key challenge at the start of the pandemic was to effectively scale up medical grade mask supplies in LMICs given the limited number of available masks in supply (Zar et al., 2020). Using mathematical modeling, Worby & Chang (2020) investigated the role of face make use and distribution among the public. It was found that prioritizing masks for the elderly population, identified infectious cases, and medical staff led to a larger reduction in total infections compared to random distribution of masks throughout the general population. Some countries have seen an enormous demand for face masks from the public, and with limited supplies, there was an inequitable distribution of masks amongst society (Worby & Chang, 2020). There is no existing research to understand if mask distribution has been equitable in the WASH sector.

Quarantine and Isolation

Quarantine and isolation both are protocols to help prevent exposure of people who have or may have a contagious disease to the public (Centers for Disease Control and Prevention, 2019). However, the steps taken to prevent exposure differ from each other. Quarantine is defined as the separation and restriction of movement of people who have potentially been exposed to a contagious disease, to reduce the risk of them infecting others. While isolation is defined as the separation of people who has been diagnosed with the contagious disease from people who are not sick. However, the terminology has been used

interchangeably throughout this pandemic and therefore will be combined in this section (Brooks et al., 2020).

Not everyone can quarantine or isolate due to their living situation. In African countries, 50% or more of the population live in household with more than 6 people and do not have access to water in their dwelling plot, thus making quarantining at home nearly impossible (Brewer et al., 2021). These individuals could then not adhere to lockdown protocols or hand washing/ cleaning protocols as they would have to leave their dwelling to access water in search of a more central source of water. The need to collect water daily from such sources outside their dwelling or plot may also put these individuals at higher risk of contracting COVID-19.

Impact of the Pandemic

Mental and Emotional Health

Currently, interventions have been focused on the physical impacts and implications of COVID-19 but have rarely considered the psychological needs that may come up and the impacts on interpersonal relationships. With the change in lived experiences and social functioning, it is expected that there will be adverse mental health consequences. Inadequate and ever-changing information regarding COVID-19 transmission and treatment has shown an increase in fear and anxiety among the global population, lowered social interaction, and resulted in overall changes in behavioral patterns (Li et al., 2020; Ho et al., 2020).

Mental health outcomes during COVID-19 such as: increase in anxiety, insecurity and overall adverse psychological impacts seemed to be universal across demographics. Qualitative research examining online search terms and mental health surveys associated with COVID-19 lockdowns analyzed mental health outcomes of 1,563 individuals living in lockdown in Hubei province, China. The research reported that individuals who were placed into lockdown

by the government or state, had higher than previously self-reported levels of negative mental health outcomes like anxiety and insecurity due to their loss of bodily autonomy and abrupt lifestyle change (Liu et al., 2020). This research was retrospective in nature as individuals were comparing their current mental health outcomes with mental health outcomes prior to lockdown. Researchers believe that the utilization of web-based surveys and mental health services helps to better understand the psychological toll that prevention measures take on individuals during the ongoing pandemic (Liu et al., 2020).

In addition, Wang et al. (2020) aimed to research the immediate psychological responses of the general population living in China in the initial stage of the pandemic. 1210 respondents from 194 cities in China took a general online survey assessing the psychological impact of COVID-19 and found that 53.8% rated the psychological impact of the outbreak as moderate or severe. (Wang et al., 2020). Additionally, 84.7% of respondents spent approximately 20 hours a day at home even though 60.8% of respondents had no physical symptoms. (Wang et al., 2020). Researchers have speculated that mass quarantine and lockdowns will raise anxiety across the general public for a number of reasons: increases the general anxiety of individuals, increases in individuals' feelings of loss of control and sense of being trapped, and increased spread of misinformation surrounding the medical impacts of COVID-19 (Rubin and Wessely, 2020).

Research has also found that at risk and marginalized groups have a higher prevalence of experiencing adverse mental health outcomes during COVID-19 pandemic. A systematic literature review explored how current at risk and marginalized groups among society are currently being impacted by the ongoing pandemic and found that healthcare professionals, elderly, children, college students, LGBTQ+ individuals, foreigners, people experiencing

homelessness, prisoners, and hospitalized patients are all more vulnerable to greater emotional, behavioral, and psychological impact of the COVID-19 pandemic (Pedrosa et al., 2020).

Published research has not yet been done to understand impacts on mental health among WASH actors. Therefore, this literature review explores and highlights key findings from research focusing on healthcare professionals, elderly, and college students due to the similarities these groups may have with WASH, such as: the work in the healthcare field, quarantining/ isolating away from social support systems, and transition to work on Zoom or through other technology platforms.

Healthcare Workers

Healthcare workers were chosen as both healthcare workers and WASH actors played key roles in implementing prevention strategies to prevent and address COVID-19. Studies have acknowledged that specific populations such as health care workers and first responders may have more nuanced mental health responses to the ongoing pandemic due to their unique positionality based on their job. Current public health measures to address COVID-19 call for quarantine, social distancing, and adherence to PPE protocols for healthcare workers. Frontline healthcare workers are at an increased risk of contracting COVID-19 due to their heightened exposure. In addition, understaffed workforce and lack of medical infrastructure has forced many to work more shifts and longer hours, which have led to higher stress levels and sleep disturbances resulting in higher levels of depression and anxiety (Kar et al., 2020). A mixed methods study in Singapore conducted a public survey across with 1563 respondents. 50.7% of respondents reported an increase in depressive symptoms, and 44.7% reported an increase in anxiety symptoms (Ho et al., 2020). This study drew upon the public survey and called for more focused and intentional psychological support for healthcare workers as they will have more nuanced psychological distress symptoms as a result of their work (Ho et al., 2020).

Additionally, a quantitative study utilizing retrospective press media suicide reports analyzed 26 worldwide suicides amongst healthcare professionals (HCPs) during the ongoing pandemic and compared it to non-HCPs suicides (Jahan et al., 2021). Based on the findings, the most common reason for suicide in HCPs was fear of being infected by COVID-19. Other reasons for suicide were: fear of transmitting the virus to others, anxiety due to witnessing other's sufferings, and overall mental suffering. Comparing healthcare professionals' reasons for suicide to the general population, appears to be different; HCPs are more concerned with contracting COVID-19, followed by transmitting COVID-19 to others, while the general public suicide was related to economic distress (Jahan et al., 2021). HCPs who committed suicide in this study had a more nuanced interpretation of COVID-19 and researchers call for more direct support (Jahan et al., 2021).

Healthcare workers working directly with COVID-19 positive patients during the pandemic were found to have higher levels of perceived risk and fear. More specifically, a study examined the mediating roles of resilience and fear of COVID-19 among 204 healthcare professionals with a mean age of 32.92 years in Turkey (Yildirim et al., 2020). An online survey was utilized to collect measures related to mental health, resilience, risk and fear. Those with high levels of perceived risk were also more likely to experience fear and negative mental health symptoms (anxiety, depression, stress) (Yildirim et al., 2020). Individuals with higher levels of perceived risk and fear were more likely to opt into social distancing from their family which led to burnout consisting of both physical and mental symptoms. Resilience served as a mediator between coronavirus fear and mental health problems. These results are in line with earlier studies that had been done during other public health crises (Yildirim et al., 2020).

Elderly

Elderly in assisted care homes were chosen to be explored further due to similarity of living arrangements compared to WASH actors working away from home in communities. Both groups were living away from their family and had decreased social support due to COVID-19 quarantine and isolation protocols. Elderly individuals are considered a high-risk group for COVID-19 and therefore have been instructed to remain at home and self-isolate as much as possible. Whereas WASH actors living in community separate from their home may have chosen to self-isolate to not put their families at an increased risk of COVID-19.

Individuals who live alone or do not have family and friends nearby may be at risk for losing social contact. Santini et al., conducted a longitudinal mediation analysis including individuals born between 1920 and 1947 in the USA measuring social disconnectedness, perceived isolation, depression, and anxiety symptoms (2020). It was reported that social disconnectedness predicted higher perceived isolation. Higher perceived isolation in turn predicted higher depression and anxiety symptoms (Santini et al., 2020). Elderly individuals whose only social contact is out of the home: daycares, community centers, places of worship, may then be at an increased risk for negative mental health outcomes (Pedrosa et al., 2020; Armitage and Nellums, 2020). Armitage and Nellums (2020) commented on Santini et al., stating that tailored interventions need to be made to further support elderly individuals during the ongoing pandemic. The need for tailored interventions and mental health support was built on existing research that has been done analyzing social disconnectedness and perceptions of social isolations amongst community residing adults between the ages of 57-85 (Santini et al., 2020). No research has been done analyzing if WASH actors working in community away from

their families will experience similar feelings of social isolation and social disconnectedness during the ongoing pandemic.

College Students

College students have been chosen to be explored as their learning experience shifted to online learning during the pandemic which was similar to WASH actors shifting their work from on the ground to Zoom. This transition to utilizing Zoom and other technology puts an increased reliance on other social support networks as in person social interaction decreased for both groups. Due to the increased closure of schools, students who are studying far from family or traveled for college reported to be at an increased risk of developing negative mental health outcomes due to a decrease in social interaction and support (Pedrosa et al., 2020; Khan et al., 2020). In addition, a longitudinal study done looking at the impacts COVID-19 had on 1,179 young adults in college in the US before and during the COVID-19 pandemic reported that the pandemic tightened the link between lifestyle behaviors and depression (Giuntella et al., 2021). Lifestyle behaviors examined were average steps per day, hours of sleep per night, peer socialization per day, and screen time per day. Most notably reported regarding changes in lifestyle behaviors was that steps per day decreased by 50%, time spent socializing decreased by 50% and screen time increased by 200% (Guintella et al., 2021). Analyses then reported that as these lifestyle behaviors changed, the risk for clinical depression went up to a 90% increase in depression rates compared to the same population prior to the pandemic (Guintella et al., 2021). Additionally, the switch from in-person lectures to online learning may be an obstacle for students with inconsistent access to Wi-Fi and technology and may severely impact relationship building and overall behaviors of the individual (Pedrosa et al., 2020; Khan et al., 2020). No

research has been on the impacts of WASH actors who made the transition from in person work to Zoom work

WASH Actors

There is an overall lack of research being done on the mental health implications for WASH actors. However, drawing upon existing research allows us to hypothesize that WASH actors may experience adverse psychological impacts due to their change in workload, work environment, and decrease in social ties. In addition, research has failed to acknowledge how the continuous change in COVID-19 prevention recommendations impacts the mental health care of individuals responsible for the implementation of these prevention recommendations.

Impacts of Prior Emergencies, Disasters, Pandemics on Mental Health

Impacts on mental health from prior experiences, disasters and pandemics can help to better understand current implications for mental health as well as how to potentially mitigate the negative mental health impacts from the COVID-19 pandemic. Specific lessons learned related to the mental health implications from SARS, Ebola, Swine Flu and natural disasters will be further discussed in this section.

SARS

Studies done on the SARS outbreak, November 16, 2002 to January 13, 2004 (CDC, 2019) found that experiences of quarantine were associated with higher reports of pessimism, isolation, and depression. A mixed method study utilized an anonymous SARS stress related questionnaires to better gage the emotional and behavioral change of staff members in an East Taiwan hospital during the SARS outbreak (Bai et al., 2004). The 129 quarantined persons who responded to a Web-based survey exhibited a high prevalence of psychological distress. 28.9% of respondents had ymptoms of posttraumatic stress disorder (PTSD) and 31.2% had

symptoms of depression (Bai et al., 2004). Longer durations of quarantine were associated with an increased prevalence of PTSD symptoms. Acquaintance with or direct exposure to someone with a diagnosis of SARS was also associated with PTSD and depressive symptoms. Staff members reported higher levels of stress, feeling stigmatization and rejection in their neighborhood due to their work, and reluctance to go home due to fear of placing their family at risk (Bai et al., 2004). In addition, a qualitative study using randomized telephone interview systems aimed to explore the post crisis psychological state of residents in Taiwan following the SARS epidemic. Participants self-reported having higher feelings of overall pessimism following the SARS epidemic. Higher feelings of pessimism were then also positively correlated to mood or other psychiatric morbidities (Peng et al., 2010).

Healthcare workers who responded to the SARS outbreak had higher levels of burnout, substance use and overall negative psychological impacts. A quantitative study took place two years after the SARS outbreak in two hospitals in Ontario Canada looking at long term personal impact of health care workers (HCWs) responding to probable SARS cases (Maunder et al., 2006). The two hospitals chosen were Toronto and Hamilton; Toronto had the highest prevalence of SARS cases in Canada and Hamilton was used as a comparison hospital as they did not have any identified SARS cases. All participants completed an anonymous survey which aimed to measure traumatic stress response, psychological distress, and professional burnout (Maunder et al., 2006). A higher proportion of Toronto participants reported significantly higher levels of burnout than the Hamilton comparison group. Additionally, these participants had higher scores of substance use, more days off work and overall higher levels of psychological stress (Maunder et al., 2006). These findings of higher burnout rate, higher substance use, and overall adverse psychological impacts then highlight the likelihood that HCWs and other

frontline responders will experience long-term adverse psychological complication due to the ongoing COVID-19 pandemic.

Ebola

A scoping literature review was done to better understand the psychological impacts of Ebola at an individual, community, and international level (Van Bortel et al., 2016). Survivors of Ebola were more likely to experience feelings of shame, guilt, and blame. At the community level, a cyclical pattern of fear, loss of trust in health care, and decrease of community interactions occurred. Additionally, a communal sense of grief was experienced due to the high numbers of community members that passed away due to Ebola in such a short time frame. Health systems within communities were also impacted as health workers were overstretched due to limited health capacities. On an international level, there was an increase in blame and discrimination targeted towards countries highly populated by individuals perceived to be of African descent (Van Bortel et al., 2016).

In addition, research shows that health workers utilized peer support as their prime coping mechanism during Ebola. A qualitative study in Sierra Leone using 25 key informant interviews aimed to explore the challenges faced by health workers and their coping strategies during the 2014 Ebola outbreak (Raven et al., 2018). The study was conducted in four districts in Sierra Leone from March to May 2015. Participants discussed how there was a lack of preparedness in the health system to adequately manage the Ebola outbreak. Specifically, participants discussed how a lack of adequate instruments and supplies put both patients and staff at a higher risk of contracting Ebola during care. Psychological outcomes discussed were a breakdown of trust between healthcare workers and the community due to lack of information around Ebola transmission which led to feelings of isolation (Raven et al., 2018). The most

common reported coping strategy was increased utilization of peer support during the workday. Participants discussed how they didn't feel comfortable or safe to treat difficult and complex cases alone and therefore relied on a more group treatment approach (Raven et al., 2018). This study then highlights how a collaborative work dynamic plays a role in the coping strategies of participants during a highly stressful time frame.

Swine Flu

Misconceptions and rumors surrounding swine flu (H1N1) crisis led to public anxiety which impacted vaccine uptake rates. A case study of mental and behavioral interventions following the H1N1 crisis reported overall misconceptions that the public held during the crisis and how this impacted vaccine hesitancy. Reports showed that 20% more adults reported receiving the flu vaccine than the H1N1 vaccine, which may have been a result of miscommunication amongst the health sector to the larger society (Pfefferbaum et al., 2012). In addition, the limited quantity of antiviral medicine and vaccines, led to an increase in reported levels of anxiety, drug misuse, recklessness, and unsafe work practices amongst community members. Major lessons were that unchecked public anxiety can result in social consequences of noncompliance with public health directives, a surge in demand for care and complication in triage across health services and systems (Pfefferbaum et al., 2012).

Natural Disasters

Natural disasters can lead to universal adverse psychological impacts across society. A systematic literature review explored how common occurrences during a natural disaster impacted mental health across society and reported that common responses include distress reactions and health risk behaviors (Morganstein and Ursano, 2020). For example, following the Wenchuan earthquake in 2008, 38.3% of adolescents reported sleep disturbances

12 months after the event with no significant reduction at 24 months post-event; sleep disturbance was associated with increased rates of depression and PTSD (Fan et al., 2017). This study then highlighted how a tragic experience may have general psychological implications across society.

Conclusion

This literature review summarized the negative repercussions on mental health and overall wellbeing due to the COVID-19 pandemic. Overall, there is an increased risk of having negative psychological outcomes as a result of changes during the pandemic. However, current gaps in research are present when it comes to specifically analyzing the mental health of WASH actors and how their personal mental health has been impacted by COVID-19.

Chapter 2: Introduction

COVID-19 is impacting the mental health of individuals. In March 2022, WHO stated there was a 25% increase in anxiety and depression globally due to the COVID-19 pandemic (World Health Organization, 2022b). According to the current analysis, the prevalence of stress is 29.6%, anxiety is 31.9%, and depression is 33.7% in the general population due to the ongoing pandemic (Salari et al., 2020). Those with existing mental health issues may have experienced worsening symptoms, while others might develop new mental health problems (Gunnell et al., 2020).

Current studies have found that health care workers and first responders may be at an increased risk for adverse mental health responses to the ongoing pandemic due to their job. In many countries, the existing medical infrastructure has not been able to meet increased demands, which has exacerbated existing work responsibilities and stressors (Kar et al., 2020) Lack of medical infrastructure and limited resources has meant that healthcare workers have not received adequate personal protective equipment (PPE) when working with COVID-positive patients. Healthcare workers have reported that they have an increased perceived risk of developing coronavirus due to inadequate PPE and personnel, which led to emotional and physical burnout (Goyal, K. et al.). Lack of PPE and unsafe work environments made it so healthcare workers feared to go home and many then chose to live away from family during the peak moments of COVID. Frontline healthcare workers have self-reported higher levels of depressive symptoms, anxiety, and sleep disturbances (Goyal, K. et al.)

While research has been done to identify the mental health impacts among frontline healthcare workers, there has been limited research to identify mental health impacts among others working to ensure population well-being, including those responding in the development

sector, particularly in low- and middle-income setting. WASH actors have been involved in designing, delivering coordinating or funding water, sanitation and hygiene-related interventions during the COVID-19 response. Hygiene practices such as handwashing with soap is one of the most important preventative strategies for COVID-19 (WHO 2020). For this reason, WASH actors play a critical role in hygiene promotion in relation to preventing COVID-19. WASH actors are also often the front-line workers in low- and middle-income communities and therefore play a key role in risk communication and community engagement. However, there has been no assessments of how the COVID-19 pandemic has impacted the personal lives, including the mental health, of WASH actors.

This study aimed to explore the well-being of individuals working within the WASH sector and their personal experiences during the ongoing pandemic.

Chapter 3: Materials and Methods

Study Design:

This is a secondary analysis of data collected as part of a larger parent qualitative study that aimed to understand how implementors across the WASH sector designed, funded, delivered, coordinated, and monitored programs and activities in low- and middle-income countries during the COVID-19 pandemic. In-depth, semi-structured, key informant interviews (KIIs) were conducted from October 2020 to August 2021. The semi-structured format allowed for the objective comparison of participant data, while also providing an opportunity to spontaneously explore topics relevant to that participant (Hennink, 2011). Key informants were individuals from international organizations that work in the WASH sector and implemented interventions to change hygiene behaviors related to the prevention of COVID-19. KIIs were suitable as the research sought the emic perspective of participants (Hennink, 2011).

The data for this secondary analysis focuses specifically on data generated from responses to KII questions that asked participants how responding to COVID-19 as part of their job impacted their personal lives and well-being. Specifically, participants were asked how their approach to management and work relationships changed because of the pandemic, what challenges they faced during the pandemic, and their overall work-life balance.

Participants Eligibility and Recruitment:

Participants were eligible for the parent study if they were over 18 years of age, had worked in the WASH sector prior to the World Health Organization (WHO) characterization of COVID-19 as a Pandemic (March 11, 2020), and were involved in COVID-19 response efforts. Interviews that did not collect data about personal impacts—whether due to time

constraints, not utilizing the tool with specific personal impact questions, or participant preference to not to provide answers—were excluded from the analysis.

Participants were recruited for the parent study using convenience sampling and were secondarily recruited through response-driven snowball sampling. Initially, the COVID-19 Hygiene Hub steering community and members of the research team developed an initial sampling frame of contacts (Hygiene Hub, 2021). Additional participants were added to the sampling frame based on the input or recommendation from already recruited participants. Three rounds of recruitment took place, with each round contacting a limited number of participants to not overwhelm scheduling. Before each round of recruitment, the research team looked at known background information of already engaged and potential participants, including the geographic area of residence, organization type, and type of hygiene programming, to identify potential participants who could contribute diversity to the sample. Researchers contacted potential participants via email, and if after three emails the participant did not respond, they were considered a refusal.

The parent study identified and contacted 178 potential participants. Among these, 79 people completed KII, with 26 (33%) providing responses to the questions about personal impacts of COVID-19. All 26 interviews are included in this analysis.

Data Collection and Management:

Two researcher team members conducted KIIs remotely using Zoom, WhatsApp, Skype, or Microsoft Teams from October 2020 to August 2021 in three languages: English, French or Swahili. All recordings and interview transcripts were digitally recorded by Zoom. Recordings were first transcribed by OTTER.AI, an automatic transcription online service (Otter.ai, 2021). Then CA and MPS read and compared transcripts to original recordings to edit for accuracy. CA

and MPS also de-identified transcripts. All recordings and transcripts were stored electronically on a password-protected and encrypted cloud-based system hosted by Emory University.

Data Analysis:

After each parent study interview was conducted, memos and post-interview debriefs were completed by the research team. The research team periodically debriefed on the overall progress of the study and developing themes. Changes to the interview guide occurred as needed. During the transcription process of the parent study interviews, additional memos on key topics, emerging themes, and contrasting themes were made.

Data analysis started as soon as the initial data were collected. The analysis started with developing thematic memos and thick descriptions of the core themes. These thematic memos and thick descriptions were created to describe the phenomenon in each segment of data. Themes were then grouped into broader categories, including pandemic phases, successes and challenges, safety precautions and work environment, recommendations and lessons learned, as well as adaptation and coping. Using these broader categories, descriptions were written for each theme and subcategory. Themes with different meanings were left unchanged to increase the variety in the interpretation of data. Themes were then examined to understand the personal impact of the COVID-19 pandemic on WASH actors, as well as by subgroup based on work environment and family unit.

A codebook for this analysis was adapted from the one used for the parent study. Additional codes were developed through an iterative inductive strategy after reviewing the first five transcripts and realizing more clarifying codes were needed to fully analyze the data. Twelve additional codes were added to the overall codebook. MAXQDA was utilized to apply codes and analyze transcripts.

Analysis then gradually moved on to focus coding, in which the initial codes were concentrated on or collapsed into categories. The interpersonal interaction between participants and their colleagues, family and other social networks during COVID-19 was treated as the central phenomenon of interest. To explore comprehensively personal impact of participants, we decided to treat any personal challenge or success mentioned as a personal impact. Data was constantly compared on similarities and differences within a participant as well as across participants to develop links among the categorized themes. At the end of analysis, developed categories and links were reviewed to determine if they were grounded from data and sufficiently explained the phenomenon.

Ethics:

Study protocols were approved by both the Emory University Internal Review Board (IRB ID 00001144) and the London School of Hygiene and Tropical Medicine Research Ethics Committee (London, England). Each participant was given an information sheet prior to the interview that explained the purpose of the study, potential risks, discomforts, and benefits resulting from participation, as well as how researchers would de-identify information to protect the anonymity of participants. All participants were over 18 years of age and voluntarily provided verbal consent at the beginning of each interview section. Verbal consent was recorded prior to all interviews.

Chapter 4: Results

Participants varied in gender, years in WASH response and location. Out of the twenty-six participants included in this study, eighteen identified as male and eight identified as female. The minimum number of years working in the field was three years and the maximum was twenty years. Participants work varied from on the ground in country WASH response to international WASH lead working in headquarters. Participants country or region of work represented thirteen different countries: Iraq, Afghanistan, Canada, Indonesia, South Sudan, Nepal, Democratic Republic of the Congo, Nigeria, Syria, Kenya, Tanzania, Philippines, Rwanda. In addition, some participants qualified as global work, meaning they were working in more than one country.

Participants experienced both negative and positive personal impacts during the COVID-19 pandemic. Personal impacts experienced were interrelated with changes in work dynamics, familial support, or lack thereof, and personal characteristics. Coping mechanisms, or lack thereof, were also mentioned in context to how they impacted the overall personal experiences of the participants. Described below are reported negative health impacts positive impacts, and a description of factors influencing how people were impacted. Following all quotes are IDs utilizing gender and job role, for example (F, WASH community response) means the participant was female and position within the organization is WASH community response.

Negative Mental Health impacts

Isolation/ Loneliness

Many participants discussed how social distancing and quarantining protocols led to feelings of isolation and loneliness. These participants expressed how they felt distant from their social networks because they were quarantined in a city away from their family, unable to

go to work, and/or were not allowed to leave their apartments. Many said they spent a lot of time alone with their thoughts. Additionally, these participants were receiving an overwhelming amount of information every day about COVID and COVID protocols, but their immediate support systems (spouses, significant others, other family members) did not truly understand the impacts and severity of COVID, leading participants not only feeling physically isolated from support systems but also emotionally alone while navigating COVID-19 uncertainties.

Some participants discussed loneliness, working to overcome loneliness, and wanting to reconnect with community and family, but not knowing how to reconnect. A common sentiment expressed by participants was being "cut off with other social relations (F, WASH community response)" and an overall decrease in community with friends and social acquaintances due to COVID-19 safety protocols. They expressed how COVID had changed them as a person, and therefore even if they were to reconnect or reach out to friends, things would feel different because they had changed so much.

Anger/ Frustration

Some participants expressed feelings of anger and frustration related to the COVID-19 protocols and guidelines. Participants felt angry and frustrated because they had, 'lost a sense of agency and control around their day-to-day schedule' (M, WASH technical advisor). These individuals were used to having some flexibility and freedom regarding traveling for work. Often, they had sole autonomy in creating their travel schedule and work hours. However, with COVID, they were now being instructed what to do and what to follow by HQ and outside agencies. Majority of the participants working in country directly with communities were angered that HQ and outside agencies were regulating their work as they felt that they were the

experts and therefore their opinions should be taken into consideration when implementing organizational protocols.

Few participants also expressed anger and frustration when discussing their new job roles. Before COVID, these individuals spent a lot of time in the community working directly with community members. However, COVID protocols made it so that some organizations could no longer afford to have staff go to communities due to limited resources. Participants were now spending more of their time working from home or on Zoom meetings and expressed frustration at this change because they felt as though they needed to be in the communities now more than ever to truly support existing programs and implement new programs.

Fear

Few participants expressed feelings of fear about COVID-19 and rates of person-to-person transmission. They discussed how there was a lot of unknown factors surrounding COVID-19, which led them to feelings of uncertainty about contagiousness. Some participants disclosed how they were reading social media stories and headlines surrounding COVID-19 and how these stories often contradicted the information they were receiving from work. Participants were waking up and checking emails related to COVID-19 and they were falling asleep to news reports on the virus. Throughout the day participants were then consuming constant information regarding COVID-19 and the differences between news reports and work reports of the information around COVID-19 symptoms led to feelings of worry. Some participants reported that they even began to fear that the social media and news reports may have been more accurate since the information seemed to be more up to date than the internal work messaging they were receiving.

Some participants working directly with communities feared their job put them at a high risk of exposure to COVID-19. Participants discussed how they weren't afraid of getting sick themselves, but rather were afraid of increasing their family's risk of getting sick with COVID-19. To combat this fear, the few participants who did continue to work directly in communities chose to isolate themselves in their home from their families. The one participant who was not able to isolate in their home from their family due to limited space, discussed how the fear of contracting COVID-19 and exposing their family impacted their ability to do their job. The minority of participants who did get COVID-19 or whose close family members contracted COVID-19 discussed how they feared being the reason for their family members getting sick.

Burnout

The majority of participants expressed feeling burnt out and exhausted from their increase in workload and decrease in social interaction. These participants stated how they were used to face-to-face interaction with others- either with coworkers, local stakeholders, beneficiaries, or other community partners. This lack of social connection and increase in workload had many feeling exhausted by the end of the day. In addition, since participants were spending so much time at home and didn't have much else to do, they were working longer hours and never truly 'disconnecting from work (F, regional manager). Participants reported that there was constantly a Zoom meeting they had to join, new information they needed to write up, or new programs that needed to be implemented. This constant amount of work with ever changing work demands left many feeling as though they were never truly accomplishing anything. Some participants also discussed burnout in relation to feeling less satisfied with the work they were doing. Participants acknowledged that they felt as though they were not doing their best work

during the pandemic because they lacked sufficient time and resources to truly address the needs of the community they served.

Positive Mental Health Impacts

The majority of participants also reflected on the positive impacts experienced during the ongoing pandemic. Participants attributed these positive mental health impacts to feelings connectedness and purpose.

Connectedness

A few participants expressed how Zoom positively impacted work dynamics and fostered a more collaborative environment. These participants felt that information was now more steadily shared and readily available across departments due to the increased collaboration that Zoom allowed. Additionally, the few participants who expressed that Zoom fostered connectedness in the workplace also acknowledged that Zoom meetings were not only being held to discuss work functions but that weekly Zoom meetings were being held specifically to foster and check in with colleagues. These meetings varied from virtual morning coffee check-in hours and lunch dates to dedicated team building events.

Purpose

A limited number of participants expressed how the expansion of job roles and responsibilities allowed them to find new purpose and meaning within their roles. Due to COVID-19, participants' schedules greatly shifted. Participants spent less time in the field implementing programs and spent more time in brainstorming meetings. They expressed how being in these meetings allowed them to see a different side of program implementation and noted how during meetings they felt this was their opportunity to share their lived experiences

and better advocate on behalf of the communities they worked with. Those who expressed that this change led to greater purpose had only been in their role between 3-5 years.

Being in these meetings inspired some participants to go back to school or start their own organization. These limited number of participants shared how they wanted a more active role in the decision-making process and acknowledged that they wanted to pursue job growth. These participants were then inspired and wanted to have a more active role in implementing programs that could address gaps and equities present.

Factors influencing COVID-19 Personal Impacts

Participants spoke about different factors that influenced their personal experiences during the ongoing pandemic, including previous job roles, personality traits, relationship with family, ability to stay physically active, and adoption of new hobbies. The majority of participants mentioned how the influence of these factors changed throughout the pandemic.

Previous Job Roles

The few participants who had ongoing experience with crises or humanitarian responses did not discuss negative impacts of COVID-19 on their personal life, but rather spoke about how COVID-19 response was solely apart of their job. These individuals reported how when they heard the news of COVID-19 they knew they would have to respond and therefore saw this as part of their duty as public health practitioners to prepare themselves so that they would be able to better meet their job's demands. They spoke about how the expansion in their job role was just par for the course when addressing humanitarian crisis.

Personality

Some participants spoke about how their natural personality or temperament positively impacted how they coped with COVID-19. These individuals specifically reflected on

how their natural optimistic attitude and spirit made it so that COVID-19 did not negatively impact them as much as it did for their colleagues and family. Rather than view COVID-19 as a negative thing, these participants spoke about how their personality helped them to realize how COVID-19 provided them with new opportunities, including new job roles and experiences and more intentional time with family. This small group of participants reflected on how their consistent optimistic personality and ability to see the good in things allowed them to better cope with the ongoing changes of the pandemic since their internal state of mind remained consistent.

Family

Some participants expressed the increase in family time as a positive impact experienced during the pandemic. Prior to the pandemic, participants utilized peers and colleagues for support during a difficult workday. However, some participants now acknowledged that their primary support switched from peers and colleagues to family members due to working from home. After long or difficult workdays, these participants would then unwind by playing with their children or having meaningful conversations with their significant others. A few participants reported how they would now spend their lunch hour playing with their kids or eating with their significant other, as a way to decompress after a long or stressful workday.

A few participants saw the increase in family time as an emotional strain during COVID-19. Participants with small children who were doing Zoom school acknowledged that the increase in time being home also meant an increase in roles and responsibilities within the family unit. These individuals then felt further stress because their workday was no longer solely focused on work but rather was now split between 'being a teacher and working on projects' (F, WASH technical advisor).

Staying Active

Staying active contributed to stress relief during the pandemic, and the inability to be active led to increased feelings of anxiety. The majority of participants discussed how going outside for walks to disconnect from work and reconnect with the outside world was a positive influence on their stress levels. Participants felt that they spent their entire day on the computer and in Zoom meetings and therefore thought it was important to get a break from technology when possible. In addition, some participants discussed how prior to the pandemic, working out had been a major source of stress relief. These participants expressed how they could no longer work out how they normally would, and therefore took short walks around the block after Zoom meetings and during lunch breaks. Some participants who were not able to go on long runs or bike rides due to COVID-19 protocols, shifted their exercise and instead did at home workouts. Some participants discussed how when they were unable to work out, they experienced higher levels of anxiety. They explained these feelings were a result of no longer being able to leave their apartment due to COVID-19 protocols, preventing them from truly unwinding or resting after a workday.

New Hobbies

Participants discussed how they picked up new hobbies because coping mechanisms utilized prior to COVID-19 no longer worked and could no longer be utilized due to time restraints and quarantine procedures. One hobby discussed was music. One participant started to play the guitar after long work hours as a way to refocus and cope with the increased workload. A few participants discussed beginning gardening and home improvement projects during the ongoing pandemic. These hobbies were solely utilized on the weekend.

Chapter 5: Discussion

The aim of this study was to understand how WASH actors were personally impacted during the ongoing COVID-19 pandemic. When participants reflected on the personal impact of COVID-19, they did so by discussing both the positive and negative results experienced during the ongoing pandemic. In addition, majority of participants reflected on how the pandemic led to both positive and negative experiences. Through an analysis of the IDIs, the participants had highly varied experiences throughout the ongoing pandemic. The circumstances surrounding their living environment, current marital status, and support from social networks, such as peers, colleagues, and family members, were important factors that shaped the participant's lived experiences.

Some participants experienced higher levels of connectedness when utilizing Zoom in the workplace, a finding that contrasts with prior qualitative research done analyzing the experiences of people practicing physical distancing during the COVID-19 pandemic in the UK (McKenna-Plumley et al., 2021) McKenna-Plumley et al., research found that participants felt digital social interaction was inferior to in person social interactions (McKenna-Plumley et al., 2021). Increased digital access and intentional online contact may then be one way to limit feelings of perceived loneliness. Further research should then be done to better understanding both the negative and positives perceived of online contact so that benefits can be leveraged, and negatives can be reduced.

The majority of participants experienced burnout in relation to their job at one point or another during the ongoing pandemic, an experience that seems to be universal during COVID-19. Teachers in Canada were surveyed at the beginning of the COVID-19 and results showed that participants were functioning at a level of exhaustion that could be interpreted as the early

stages of burnout (Sokal et al., 2020). In addition, it was found that as job demands increased, the self-reported survey scores for burnout and exhaustion also increased (Sokal et al., 2020). Frontline nurses during the COVID-19 pandemic in Istanbul reported high levels of stress and burnout (Murat et al., 2021). Interventions and support mechanisms need to be implemented in the work environment to lower job related burnout, especially during unprecedented times of high stress and high work demand.

Governmental restrictions and quarantine protocols led to participants feeling a loss of agency and autonomy over decision making; prior research shows these feelings may negatively impact an individual's adherence to COVID-19 safety protocols. Brailovskaia and Margaf conducted online surveys in Germany and found that adherence to COVID-19 safety protocols was impacted by sense of control (2022). Individuals with low sense of control were at a higher risk of interpreting COVID-19 rules as a negative, making them less likely to adapt (Brailovskaia & Margraf, 2022). This corresponds to earlier research that found that people with high sense of control have low level of anxiety, which led them to interpret stressful situations as something they can manage rather than something they should fear (Southwick et al., 2014). Thus, it can be considered that participants who expressed a lack of control around decision making may be less likely to follow COVID-19 protocols because they are also experiencing increased fear of the unknown. Further research should then be done to better understand the role of perceived agency and autonomy in adhering to governmental protocols, and information should be leveraged to increase individual's adherence to safety protocols.

The following limitations of the study should be considered. This study took place during a narrow time frame during the pandemic, and therefore the full array of personal and mental health impacts from COVID-19 may not have been adequately captured. These findings could,

however, reflect the sentiments of development actors working in similar conditions as the WASH actors. The study did not have an entire in-depth interview focused on mental health and therefore some findings may be lacking. It is then possible that our study did not fully reach saturation. However, by utilizing Zoom, this study allowed participants to share their personal experiences, who otherwise would not have been able to not only due to COVID-19 but also given the multiple locations of those being interviewed.

Positive and negative experiences such as connectedness and burnout, respectively, coping mechanisms, quarantine protocols and safety procedures are just some of the examples of the personal impacts WASH actors face during the ongoing pandemic.

Chapter 6: Public Health Implications

Further research should also continue to examine the evolution of coping mechanisms utilized during highly stressful events with an aim towards reducing negative mental health impacts and improving overall mental health status of society. Finally, further research should continue to explore the experiences and perceptions of WASH actors, as well as developmental actors in general, including how they desire to receive information and services, and what matters most to them in the context of support. For example, this project identified that intentional and tailored team building over Zoom increased participants feelings of connectedness and decreased levels of stress and anxiety. Further research can consider what role technology plays in community building and compare across platforms the effectiveness of strategies.

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