Business Health Administration Association
Division of MBAA International
2021 Virtual Meeting
Chicago, Illinois

ABSTRACT AND PAPER PROCEEDINGS

PROCEEDINGS
of the
BUSINESS AND HEALTH ADMINISTRATION ASSOCIATION

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March 24th-March 26th, 2021

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Letter from the BHAA 2021 Co-Presidents

Kelly Friesner
North Dakota State University

Dan Friesner
North Dakota State University

Dear BHAA Colleagues,

Welcome and greetings to the 2021 BHAA Annual Conference! Due to the COVID-19 pandemic, the 2021 BHAA Conference is being held virtually. While it is impossible to fully replicate the experience of an in-person conference, the MBAA International and BHAA leadership have made every reasonable effort to ensure that the 2021 meeting closely resembles our traditional, in person meetings. We plan to return to our traditional in-person format in Chicago for the 2022 BHAA Conference.

The BHAA meetings are a truly unique experience. Few other health administration conferences in the United States offer an integral tie (through the MBAA International) to other business disciplines as well as a unique mix of business and health-related research. The BHAA meetings are large enough to offer research in all major areas of health administration, yet small enough so that it is possible to network with all of the conference's participants. Perhaps most importantly, the BHAA is a very welcoming environment! It is a conference where one can present research that is either fully complete or in its infancy, and in all cases, receive very encouraging and detailed feedback on your work. This is a major reason why we choose to return to present our work at the BHAA meetings each year.

We appreciate the opportunity to serve as Co-Presidents for this year's meeting. We are especially grateful to BHAA Executive Director Ashish Chandra, Past-President Hanadi Hamadi, Program Chair Joey Helton, Proceedings Editor Michael Molesky, and Assistant Proceeding Editor Aurora Tafili for their leadership.

Thank you again for participating in the 2021 BHAA meetings, and for being a part of these proceedings. We hope that it is an enriching experience!

Sincerely,
Kelly Friesner and Dan Friesner
Co-Presidents, BHAA 2021

Letter from the BHAA 2021 Conference Chairperson

Joey D. Helton
Clayton State University

Dear BHAA Colleagues,

I want to welcome you to the 2021 Business and Health Administration Association (BHAA) "virtual" Conference!

Whether this is your first time attending this Conference or you are a Conference alum; I hope you will enjoy this year's presentations. We have a fantastic array of papers and abstracts from various disciplines this year, so I hope that you will take the time to attend as many presentations as possible. I want to express my gratitude for all the efforts you have put into your submissions.

I have been attending this Conference since 2016, and this is one of my favorites. I have met many extraordinary individuals that I consider friends and colleagues. I look forward to meeting many of you for the first time, as well as reconnecting.

It has been my privilege to serve as your Conference Chairperson for this year's BHAA. I want to express my gratitude to Co-Presidents Dan Friesner & Kelly Friesner's for their leadership, the tireless work of our Proceedings Editor, Michael Molesky and Aurora Tafili, as well as many of the past presidents, for their support and guidance throughout this year. I especially want to thank Lisa Clayton, Clayton State MHA student, for all of her assistance with this year's schedule. Ashish Chandra, Hanadi Hamadi, and Marcy Butler are my mentors here, and I am eternally grateful.

Again, thank you for your participation in this year's BHAA conference. I hope that you will have a wonderful learning experience.

Sincerely,
Joey D. Helton
Chairperson, BHAA 2021

BUSINESS AND HEALTH ADMINISTRATION ASSOCIATION

MBAA INTERNATIONAL BEST PAPER AWARDS

BEST OVERALL PAPER

A Comparison of Country's Cultural Dimensions and Health Outcomes

Justin C. Matus

TRACK: ETHICAL/LEGAL ISSUES IN HEALTHCARE

Language Matters: A Critical Look from An Ethics and Healthcare Marketing Perspective of How COVID-19 Challenges Were Addressed in Different Countries

Michelle Smith
Ashish Chandra

TRACK: HEALTHCARE ECONOMICS AND FINANCE

Our Path to Transparency

William Willis

TRACK: INTERNATIONAL HEALTHCARE

Risk Factors for Hypertension in Kenya

Silvia Nanjala Walekhwa
Adnan Kisa

TRACK: HEALTHCARE EDUCATION

Maintaining Long-Term Care Administration Internship Placements and Partners in the Face of COVID-19

Lindsey J.G. Creapeau
Jennifer L. Johs-Artisensi

TRACK: HEALTH INFORMATICS AND TECHNOLOGY

Technology Strategies to Improve Student Learning of Health Care Reimbursement

Gitika S. Chalasani
Suresh Chalasani

TRACK: PUBLIC HEALTH

Students' Perceptions of Vaccines in 2020

Lexi Sollman
Hannah Patterson
Payal Patel-Dovlatabadi

TRACK: STUDENT SUBMISSIONS

Students' Perceptions of Vaccines in 2020

Lexi Sollman
Hannah Patterson
Payal Patel-Dovlatabadi

Language Matters: A Critical Look from An Ethics and Healthcare Marketing Perspective of How COVID-19 Challenges Were Addressed in Different Countries

Michelle Smith
Ashish Chandra

Note that student submissions were evaluated in the student section AND the relevant topic-based section. There were two best student paper co-awardees this year.

BUSINESS AND HEALTH ADMINISTRATION ASSOCIATION

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Manwa Hedge and Daniel West

How New Ways of Working Are Changing the Healthcare Sector

Alexander Redlein and Claudia Hohenberger

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The Impact of the US Method of Financing Employer Based Health Insurance on Employment Opportunities for Low Income Workers: An International Comparison

David Wyant

Policy and Performance: The Search for Improved Efficiencies for Chronic Disease Funding and Allocation

Cassandra R. Henson

A Model for Communication Skills Training in Graduate Health Management Education

Daniel J. West, Jr., Bernado Ramirez, and CherieLynn Ramirez

Implementation of a Cultural Immersion Program

Lisa Smiley, Crystal Marchant, Rebecca Morgan, Comfort Obi, Lisa Eichelberger, Victoria Foster, Elicia Collins, Angela Hollis, and Deborah Gritzmacher

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Crissy Flake and Robert Clegg

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Aurora Tafili, Hanadi Hamadi, Ashraf Affan, and Aaron Spaulding

Do Alternative Payment Models Matter?
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TRACK:

HEALTHCARE

PROFESSIONALS

(CLINICIANS)

INCORPORATING DESIGN THINKING PRINCIPLES IN NURSING EDUCATION: INCREASING EMPATHY AND FINDING LIFESTYLE SOLUTIONS FOR DIABETIC PATIENTS

Faith Bontrager

ABSTRACT

Diabetes is a substantial health concern, both in terms of prevalence and costs. Over 34 million Americans (10.5%) have diabetes with nearly 27% of those aged 65 or older having this condition. (National Diabetes Statistics Report, 2020). Diabetes accounts for 25% of all healthcare spending in the United States with an estimated annual cost of $327 billion in healthcare costs and an additional $90 billion in related costs due to lost productivity (American Diabetes Association, 2018). Additionally, diabetes and potential complications significantly impact the lives of patients and their families. Uncontrolled diabetes may lead to complications such as neuropathy, loss of vision, kidney disease, cardiovascular disease, and even death.

Effective diabetes management requires lifestyle changes, often including significant changes in eating, exercise and consistency with medication and monitoring. Some patients may need to stop smoking. Diabetic patients may be overwhelmed by the number and extent of lifestyle changes. In addition to receiving education, new diabetic patients need support to identify and overcome root barriers to needed changes. A lack of lifestyle change often results in inadequate glycemic control, increased complications for the patient, and increased healthcare costs. (Said, Verweij, and Van der Harst, 2018) (Lu, Wang, Shen, Chen, Zhang, Cai, Lu, Zhu, Hu, Xia, and Zhou, 2021). However, Chong et al. (2017) reported only minimal lifestyle change in patients with a new diagnosis of type 2 diabetes. Gabby et al. (2020) noted persons who achieve glycemic control early in the disease tend to have better glycemic control and fewer complications even many years later.

Design thinking is "people first" and its processes include the primary user and key people around them. It focuses on iterative development of solutions that they desire, emphasizing empathy. Brown, CEO of IDEO: a leader in the industry, defines design thinking as "a human-centered approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success." (Brown, n.d.)

Human-centered Design has been effectively incorporated in the development of some products for diabetic patients and by some diabetic patients themselves in their personal progress, (Henderson, Barr, An, Gjajardo, Newhouse, Mase, & Heisler, 2013) (Mostafa, 2019), (Martin, n.d.) However, little has been written on the concept of incorporating Human-centered Design to help clinicians develop empathy with newly diagnosed diabetic people, understand the magnitude of changes they need to make and barriers to change, and help them to manage their condition successfully.

This paper offers recommendations to train nurses in design thinking to support patients through effective lifestyle changes. Steps are modified from the Co-Designing Schools Toolkit (IDEO, n.d.) and include:
- Understanding the patient's experience and developing empathy
- Interpreting learning and framing opportunities
- Ideating – generating possible solutions
- Prototyping – developing possible strategies for lifestyle change with the patient, trying them to see what works
- Evolving– tracking what strategies worked, where they worked, what didn't work (framing these as learning), gathering learning, and moving forward

These recommendations could be used equally well in nursing schools or as part of continuing education for nurses or for certified diabetes care and education specialists (CDCES).

Training would include techniques and practice in connecting empathetically with a newly diagnosed diabetic patient. One technique would be training and practice in conducting empathy interviews, allowing the nurse to empathetically explore what the patient feels and what actions these feelings might motivate. This technique can help nurses understand how the patient may understand or interact with current education or support and barriers to effective lifestyle change. Nurses would also watch patients performing common tasks such as using a glucometer or counting carbohydrates in a restaurant meal. They could simulate following medication and monitoring regimens for several days to understand how these impact their patients' lives.

The education would also encourage ideation and quick prototyping of ideas motivated by connecting with the patient experience. Nurses would practice and encourage their patients to practice "fail fast" (framing early failures as steps in learning), trying new ideas quickly, monitoring to see if prototypes achieve the desired outcomes, abandoning ineffective practices, and allowing the patient to move to practices that are better adapted to their unique needs.

Design thinking will be used in the development of the nursing education process as well. Instructors will track which strategies best help nurses develop empathy for diabetic patients, which strategies work best with various patient groups, and where effective returns on investment can be realized in reduced healthcare expenses and improved productivity.

Chong et al (2017) found that despite national education initiatives to improve diabetic outcomes, lifestyle changes were small and difficult to sustain. Design thinking processes and techniques have been successful in other industries and offer promise when used by nurses to understand and support lifestyle changes for newly diabetic persons.

Keywords: Diabetes, User Design, Design thinking, Nursing education, lifestyle change, diabetes education

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THE IMPACT OF EDUCATIONAL INTERVENTIONS ON INCIVILITY AMONG NURSES: AN INTEGRATIVE LITERATURE REVIEW

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Isaac Paintsil, Indiana University of Pennsylvania
Dominique Dyer, Indiana University of Pennsylvania

ABSTRACT

The effects of incivility among nurses are multidimensional; it affects the nurses, patients, and the organization. This literature review sought to identify the impact of educational and training programs on incivility among nurses. Four databases (CINAHL, MEDLINE®, ERIC™, and PubMed) were searched for studies measuring the impact of various intervention programs on incivility among nurses. Sixteen studies were found; consisting of quantitative (n = 11), qualitative (n = 1), and mixed methods (n = 4) studies. Educational intervention was the most common intervention administered. Most interventions were administered face to face and incorporated a cognitive rehearsal training. Four intervention strategies themes were identified and analyzed for their effectiveness. Findings suggest that educational interventions that involve providing information and training on incivility, role-playing, reflective learning, and reference materials reduced perceived incivility cases and positively impacted nurses' ability to identify, respond, and resolve cases of incivility. It is recommended that institutions integrated incivilities educational program as part of new employees orientation process.

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TRACK:

ETHICAL/LEGAL

ISSUES IN

HEALTHCARE

LANGUAGE MATTERS: A CRITICAL LOOK FROM AN ETHICS AND HEALTHCARE MARKETING PERSPECTIVE OF HOW COVID-19 CHALLENGES WERE ADDRESSED IN DIFFERENT COUNTRIES

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LANGUAGE MATTERS: A CRITICAL LOOK FROM AN ETHICS AND HEALTHCARE MARKETING PERSPECTIVE OF HOW COVID-19 CHALLENGES WERE ADDRESSED IN DIFFERENT COUNTRIES

Michelle Smith, University of Houston-Clear Lake
Ashish Chandra, University of Houston-Clear Lake

ABSTRACT

The COVID-19 pandemic has been addressed by different nations using different strategies. But the most overlooked issue seems to be the ethical dimensions of healthcare for COVID patients. In this presentation, the authors will provide a quick overview of various principles of healthcare ethics that are often not covered in academics or even practice in most countries. Specific examples and case will be presented from different countries, in particular from the United States, New Zealand, and India, to elaborate the issues and concerns. The strategies used to address the pandemic by some world leaders, including the messages that they conveyed, will be discussed using the concepts of healthcare marketing. Latest global COVID-19 statistics will also be presented and the authors will provide what they perceive the next year may look like from the public health perspective.

INTRODUCTION

The COVID-19 pandemic is ongoing at the time of writing this paper. As of January 21, 2021, just over 97 million cases have been reported worldwide, with over 2 million deaths and 53 million recovered (Dong et al., 2021). The pandemic has put the institutions of government under scrutiny as public assistance in almost every sector has become necessary. Supplies have needed to be rationed, millions have required income assistance due to lost jobs, and businesses have requested loans as profits dropped sharply. All of these issues have their own specific ethical issues, but the government plays a role in each. Thus, the ethical stances the government takes has a ripple effect as those ethics are conveyed in different ways across the country. The messages the government makes are arguably just as important as the policy itself.

In this paper, we will examine healthcare ethics and their relevance to the pandemic. Though there are many different examples from all countries regarding how each tackled COVID-19 from a healthcare ethics perspective, the authors will look at only three countries: the U.S., New Zealand, and India. These three countries have experienced drastically different COVID outcomes thus far. We will examine how these countries have applied healthcare ethics and conveyed their ethical beliefs through the language they have used when talking about the pandemic.

VARIOUS PRINCIPLES IN ETHICS PERTAINING TO COVID

Healthcare ethics is gaining greater recognition globally. It is prevalent and established in the United States and is an integral part of the country's healthcare environment. An ethical framework containing four principles was first developed and published in 1979 by Tom Beauchamp and James Childress in their book *Principles of Biomedical Ethics.* These four principles (respect for persons, beneficence, non-maleficence, and justice) have become widely accepted and used throughout the medical field. The principles have become especially topical in the context of COVID-19 as the decisions of healthcare workers have been reported on extensively. We will use this ethical

framework to examine the language and actions of the U.S. and New Zealand in a uniformed manner. Thus, understanding the framework is vital. Following is a brief discussion of each principle.

SHIFT IN THE FOCUS OF HEALTHCARE ETHICS

The worldwide spread of SARS-CoV-2 saw the focus of ethics shift from person to society. The need to shift from patient-centric to public health ethics became apparent as supplies, staff, and bed capacity were in short supply (Franklin, 2020). The overall mindset has required healthcare providers to shift from focusing on the needs of one to the needs of many. Whereas focus was previously on providing the best care and the most resources to all patients, providers have had to take into account what providing care to one patient might do to another. For example, giving a hospital bed to one patient who is experiencing moderate COVID symptoms might prevent that bed from being used by a patient with severe COVID symptoms and whose condition might worsen suddenly. Additionally, health experts have been tasked with encouraging the public to take actions such as mask wearing and social distancing that may not necessarily benefit the individual but will benefit the overall health of the public.

LANGUAGE & APPROACH OF HEALTH COMMUNICATION MATTERS

Militaristic Versus Cooperative Language

In an article viewing the pandemic from a feminist perspective, Branicki (2020) notes that countries have thus far appeared to address the pandemic in one of two manners with their citizens: either with militaristic language or cooperative language. Militaristic language includes likening the pandemic to a war, calling the virus an enemy or an invisible killer, calling for the virus's defeat, describing government officials as wartime leaders and healthcare personnel as frontline workers, and calling prevention measures an attack or war. In discussing militaristic language in terms of crisis management, Branicki (2020) notes that, whether intended or unintended, typical militaristic crisis management silences criticism and challenges to institutions. Instead, the existing structure and processes of institutions are used as is to deal with the crisis, even if they are not the most effective or efficient. Typically, militaristic language focuses on enforcement of restrictions upon citizens rather than encouraging citizens to readily volunteer to do what is right without coercion.

In contrast, cooperative language focuses on working together, being kind, and caring for one's neighbors (Branicki, 2020). Although this language is not exclusive to female leaders, so far in the COVID-19 pandemic, this approach has mainly been used by female leaders. Cooperative language seeks to position the government as part of the people, and thus an entity working for and alongside the population rather than against it.

Nationalist Versus Globalist Approach

Countries who engaged in militaristic or cooperative language have appeared to engage in nationalist or globalist approaches, respectively. Nationalistic countries focused their efforts on their own countries, while globalist countries protected their citizens while also expressing concern about neighboring countries. An action many nationalistic countries took was preemptively buying out COVID vaccines from domestic and international suppliers. Along with this race to secure the largest amount of vaccine was a race to approve the different vaccines. The U.K. was the first of all countries, authorizing the Pfizer vaccine for use on December 2 (Mueller, 2020). This provoked questioning of and a call to speed up the vaccine approval process within other nationalistic countries, especially in the U.S.

However, these approaches have not necessarily reflected the level of preparedness within each country. For example, in the U.S., where patient-centered care and patient autonomy are widely discussed topics, news on ventilator bidding wars and PPE shortages came as a shock to many who expected the U.S. healthcare system to be prepared for a pandemic. While it may be argued that countries taking a nationalist approach and using militaristic language used these methods on purpose knowing the country was not prepared, the U.S., which spends the highest percentage of

GDP on healthcare in the world, does not fit this narrative. Whether the nationalist and globalist approaches are a result of logical decisions by government leaders or simply culturally rooted reactions to a critical situation is a crisis management concern those countries unsuccessful in slowing COVID-19 should address in the future.

A LOOK AT THE CASES OF SOME COUNTRIES

Case Study: United States

United States' leaders remain perhaps the most obvious and popular case of militaristic language. Focus has largely been placed on language used President Trump, who many have criticized for spreading misinformation, misconstruing facts, and not properly conveying the country's COVID-19 situation. As of January 21, 2021, the U.S. has reported a total of almost 24.5 million cases with over 406,000 deaths (Dong et al., 2021), amounting to around 0.07% of the population infected (the total number recovered in U.S. is no longer reported by Johns Hopkins University).

The Centers for Medicare and Medicaid Services (2020) reported that the U.S. spent 17.7 percent of GDP on healthcare in 2019. Also based on data collected from 2019, the American Hospital Association (2021) reported a total of 6,090 hospitals in the country and close to 920,000 staffed beds. The most recent data from the Centers for Disease Control and Prevention (CDC) (2021a) found around 364 COVID related hospitalizations per 100,000 people for the week ending January 9. The shortage of clinicians in the U.S. due to the pandemic has been seen in nearly all states. Agency nurses have been sent to the hardest-hit states, particularly California, New York, and Washington state (Hawryluk & Bichell, 2020). Overall, the healthcare system in the U.S. was overwhelmed, understaffed, understocked, and unprepared as community spread rapidly increased throughout the country in March and April of 2020.

Perhaps one of the biggest challenges to the U.S.'s counterattack on the COVID-19 crisis is that a new government has just taken charge. Whenever there is a transfer of power, there is bound to be a lack of a smooth transition despite everyone's best efforts. There is no doubt that it will be a few weeks before the new administration can get a better perspective of what they are inheriting from the previous administration regarding how the COVID-19 crisis was handled. In the best-case scenario, the new administration will come in with fresh ideas and innovative strategies to tackle the pandemic.

Infection Prevention Measures in the United States

The initiation of the pandemic in the months of March and April, when the country began to experience the full effects of the pandemic, was perhaps the most compliant the public was and will be. Most states enacted some form of shutdown in these two months. Shutdowns included closing nonessential businesses, mandating the wearing of face masks, requiring social distancing inside of businesses, restricting public transport and air travel, and restrictions on elective medical procedures.

Now, however, many Americans are facing what some have termed "COVID fatigue" in which many are not as careful in their prevention behaviors as they were at the beginning of the pandemic. Unfortunately, restrictions are difficult to reenact once lifted. Most states opened services and public spaces by quarters (25% occupancy, 50% occupancy, 75% occupancy, etc.). Many started this lifting of restrictions as early as just a month and a half after the first measures were put into place, as occurred in Texas when the governor lifted restrictions in the first week of May after initials lockdowns occurred in mid-March.

The politicization of prevention measures has unfortunately negatively affected the credibility of healthcare experts in the eyes of some of the public. As President Trump was not seen wearing a mask in public until July 11, nearly five months into the U.S.'s pandemic (Lemire, 2020), most allies of President Trump followed his lead in not wearing a mask in public. Through multiple tweets and interviews, the president suggested that some states' prevention measures were too tough. Supporters of President Trump held rallies in front of state legislatures to support reversal

of prevention measures. Overall, this politicization of science greatly hindered the U.S.'s ability to slow the spread of COVID-19.

Language Use and Ethical Focus in the United States

Much attention has been given to President Trump's rhetoric during the pandemic. The President has undoubtedly engaged in militaristic language, such as in his March 17th tweet, "The world is at war with a hidden enemy. WE WILL WIN!" (Trump, 2020). Further, in response to states like Michigan, Virginia, and Minnesota that were implementing shutdowns and mask mandates, President Trump declared that these states should be "liberated" as he deemed these states' prevention measures to be excessive. Whether intentional or not, President Trump has appeared to focus on the respect for person's ethical principle, with a particular concern for respecting autonomy in not coercing people to do anything they would not normally do. However, arguably, in attempting (purposely or not) to respect this ethical principle, President Trump has abandoned the other three principles. People are certainly not benefiting from neglecting to wear masks and engage in other preventative behaviors, and in many cases, others are being harmed by these inactions.

Case Study: India

While leaders in India have engaged in militaristic language use as the U.S. has, India in specific has seen a strong stigma directed at people with COVID-19 and even those with COVID-19 symptoms (Miglani, 2020). With a densely packed population of over 1.38 billion and limited COVID testing available, it is highly likely that the reported number of cases is much higher. As of January 21, 2021, India has reported a total of 10,610,883 cases, with 152,869 deaths and 10,265,706 recovered (Dong et al., 2021), amounting to around 0.01% of the population infected.

As of 2019, India spent 1.28% of its GDP on public health (Rakshit & Basistha, 2020). Further, in regard to healthcare access and quality, the World Health Organization ranked India 145 out of 195 countries. The limited healthcare access is demonstrated by the fact that there is an estimated one hospital per 47,000 people and one doctor per 10,700 people. Over 65% of the population lacks health insurance.

Across the country, posters declaring that a COVID positive person is inside of a building have been put up as both a deterrent for others to avoid the building and also as a way to keep the COVID positive person isolated (Miglani, 2020). Similar to the U.S., India has engaged in militaristic language to enforce prevention measures. Military personnel have been used to enforce restrictions (Noko, 2020). When Prime Minister Narendra Modi mandated a lockdown for everyone in India in late March 2020, it was reported that civilians could be shot for not abiding by the lockdown.

Humiliation and Lack of Patient Privacy – India

Perhaps one of the most disheartening information that the authors have learned anecdotally is what they are labeling as "*villainizing the patients and household.*" In India, one of the strategies that were adopted to reduce contact with potentially COVID infected patients, was to put a big red sticker in the front of the house or even their boundary-wall stating who was infected with COVID in that household or even apartment complex. This, instead of being a deterrent, became more of a spectacle whereby people went by just to see whose name was listed and even tried to see who that person was. So, this behavior instead started to become COVID spreader instead as the people congregating outside may not have even realized that they were in proximity of another individual who may have been COVID positive, except it was just not proved by testing yet. The authors believe that this control strategy may have caused greater mental health harm not only to the patient, but also to folks in the complex living there, who may have been assumed as being "infected by default".

Case Study: New Zealand

With a population of just about 5 million and a strong central leader, New Zealand has proved to be a model of success in the current pandemic. Prime Minister Jacinda Ardern's approach to COVID-19 has been lauded across the world. Most recently, Ardern won reelection in New Zealand, a win which was widely attributed to her success

regarding COVID-19 (North, 2020). As of January 21, 2021, New Zealand has reported a total of 2,267 cases, with 25 deaths and 2,166 recovered (Dong et al., 2021), amounting to about 0.0004% of the population infected.

As of 2017, New Zealand spent around 9.2% of GDP on healthcare (Jiang & Andrews, 2020). The New Zealand government website reports 40 public hospitals and over 3,500 registered general practice doctors across the country (New Zealand Now, 2020). Public hospital services are government funded and free for the patient. Residents have the option to purchase insurance to access private providers and other services, but additional insurance is not necessary for essential healthcare.

Infection Prevention Measures in New Zealand

Chief among New Zealand's ability to contain the virus so effectively was a strict nationwide lockdown and self-isolation order early on in the pandemic (Ardern, 2020). New Zealand, like most countries, has also instituted a multi-level Alert system for COVID-19 (New Zealand Government, 2020b). The focus for each level of the alert system, from level one to level four respectively, are to prepare, reduce, restrict, and lockdown. For all levels, widespread COVID testing, contact tracing, and quarantining when feeling sick are required. Alert Level 1 does not put any restrictions on personal movement but encourages caution in daily operations. Alert Level 2 requires social distancing, gatherings no larger than 100 people, and face coverings on public transport. Alert Level 3 allows only businesses providing essential goods or services to have in-person contact with customers. Public venues must close, learning from home is encouraged where possible, working from home is required unless not possible, gatherings cannot be larger than 10 people, and region-to-region travel is highly restricted. Alert Level 4 requires the entire country to self-isolate. Gatherings are not allowed, schools are closed, only essential businesses are allowed to stay open, and travel within and into the country is severely restricted except for essential purposes.

On March 25, 2020, New Zealand went into Alert Level 4 (New Zealand Government, 2020a). This closed all nonessential businesses, ordered nonessential business workers to work from home, banned all indoor and outdoor events, moved schooling online, and restricted public transport and air travel to only essential purposes. New Zealand remained in Alert Level 4 for about four weeks, moving to Alert Level 3 just before midnight on April 27. Since then, the country has not been moved back to Alert Level 4, and New Zealand has remained on Alert Level 1 since October 7.

Language Use and Ethical Focus

Prime Minister Jacinda Ardern has used language Branicki would consider more on the cooperative side of the militaristic to cooperative spectrum. For example, Ardern positioned the government as doing difficult roles, such as enforcing new rules, saying, "The government will do all it can to protect you," "I know people will want to act as enforcers. And I understand that people are afraid and anxious. We will play that role for you" (Ardern, 2020). Additionally, unlike the U.S., masks were required by the national government. Overall, it appears that the science behind COVID and certain protection measures such as mask wearing were not politicized in New Zealand as in the U.S.

WHERE DO WE GO FROM HERE?

The use of language in these two countries is unlikely to change for the remainder of the pandemic. However, as the situation of the pandemic evolves, the type of language used may become even more important. The arrival of an effective vaccine will present a whole new set of ethical issues, and in the U.S. specifically, which has ranked first in number of COVID-19 cases and deaths, a reevaluation of the healthcare system and adherence to healthcare ethics will be crucial to preparing the country for the next pandemic.

ETHICAL CONSIDERATIONS OF COVID VACCINE DISTRIBUTION

With the arrival of vaccines for COVID-19 come a plethora of new ethical issues for countries to consider. First among them is the issue of distribution, including internationally. Federal governments must make decisions about which areas receive shipments first and how big the shipments are. The government should be careful to determine the number of doses sent in an objective manner so as to not bias certain areas and creating ethical issues of forcing citizens to travel to certain areas to receive the vaccine. Whether the shipments go directly to providers or the state are also issues to consider. For example, in the U.S., the state receives shipments of the vaccine and then state officials are allowed to distribute it throughout the state as they see fit (Washington Post, 2020), and India has reported a similar process (Sud & Gan, 2020).

Availability is another issue which has been widely discussed as the vaccine has begun to be rolled out. Deciding which citizens are first in line and who will have to wait until a steady supply is available will need to happen in the most objective and scientifically backed way possible. For example, two different ideas have come to light as to who should receive the vaccine first: elderly people who are at higher risk of becoming infected, or younger people who are likely to be asymptomatic and are more likely to spread it. The focus of the availability plan should be on preventing harm (infection) and providing the most benefit (stopping the spread of infections). The distribution plan must also match the availability plan. The first shipments should be enough to vaccinate the chosen "first-in-line" population. Ethical issues such as allowing the rich to "jump the line" and receive the vaccine first even if they are not in a risky population should also be dealt with when making the availability plan.

Lastly, once the vaccine is available to most, countries must decide how they will approach getting a majority of the population vaccinated. Broadly put, countries can decide between enforcement or encouragement. Enforcement might rely on punishments such as fines and restrictions from government programs or public spaces, whereas encouragement would require undertaking widespread education efforts to assure the population that the vaccine is safe and effective. While countries should of course go about the chosen method in the most ethical way possible, the chosen method will depend on the makeup of the population, such as cultural beliefs about medicine and vaccines, communication styles, rural and urban population densities, beliefs about the government, etc. A country might also engage in a mix of these two, offering ample education while also blocking citizens from government benefits.

Distribution Challenges in the United States

At the time of writing this paper, the U.S. is about two months into the distribution of two COVID-19 vaccines (Pfizer-BioNTech and Moderna). There are a couple more vaccines that are expected to be approved by the FDA in the upcoming weeks, such as the Johnson and Johnson vaccine, which will significantly improve the quantity of vaccines available to the United States population. Although vaccine supply will likely still remain an issue in the coming months as more Americans become eligible to be vaccinated as more vaccines are approved and thus become available, the most pressing matter currently is not having enough staff to administer the vaccine to people (Robbins et al., 2021). Though each state must implement their own distribution plan as mentioned above, nearly all states are facing similar issues of not having enough staff to put the vaccine into arms. Hospitals have received most of the vaccine supply and have been tasked with vaccinating the majority of the most vulnerable populations. However, given that many hospitals are already having issues with staffing to keep up with COVID hospitalizations, there are not many staff to spare to administer the vaccine. Large retail pharmacy chains, like CVS, report that they will likely not be able to vaccinate populations other than healthcare workers and long-term care facility residents (phase 1A) until March or April (CVS, n.d.), leaving other currently eligible populations to get the vaccine through already busy and understaffed hospitals.

As of January 21, 2021, the CDC COVID-19 vaccination tracker reports that over 16.5 million doses have been administered to people, although only just over 2 million people have been fully vaccinated with the two required doses (Centers for Disease Control and Prevention, 2021b). Should the U.S. face a widespread issue of not being able to get those who have received a first dose to come back for a second, it will likely be difficult to slow the spread of the virus effectively. Providers administering the vaccine should ideally schedule second appointments at the time of the first vaccination and work to dispel misinformation about the vaccine, such as the idea that one shot provides enough protection and therefore the second shot is just optional.

GLOBAL AND U.S. HEALTHCARE ETHICAL CONSIDERATIONS

Healthcare ethics did not seem to be as critical an integral and critical part of the healthcare system in most countries as it is in the United States. However, there is no doubt that this pandemic has shed greater light and greater emphasis on healthcare ethics at a global level on issues such as disparities in health services and even product (such as vaccine) delivery. If media coverage is any indication, it seems as if the pandemic has already spurred an evaluation of the ethics of healthcare and government systems, especially in the U.S. We will discuss three issues that have brought up ethical concerns in the United States only.

Firstly, the practice of tying health insurance to employment has been called into question. One of the main effects of the pandemic seen from the very beginning has been the tremendous economic strain on companies, resulting in the loss of jobs. With many citizens receiving health insurance through their employer, the loss of employment comes with a loss of health insurance for many. In a pandemic situation in which one may not know when they might come down with an illness, health insurance via employment is not conducive. Even if the recently unemployed purchase health insurance through the public market (Obamacare), the person may not be eligible for subsidies and discounts. The U.S. must consider whether this health insurance through employment system is a system that should be upheld.

Secondly, the high cost of healthcare in the U.S. has again come into question with the COVID pandemic. Racial disparities seen in SARS-CoV-2 infections have exemplified the fact that Black and Hispanic populations are more likely to test positive for COVID-19 but are less likely to be insured. The resulting large medical bills for the patient and reduced chance of the patient being able to pay the provider back have strained the already pressured hospitals across the country. At the current rate of the U.S. healthcare system, costs are expected to keep rising with no end in sight. Government intervention to control prices is greatly needed to help both providers and patients.

Lastly, critics have called for stricter regulation of pharmaceutical and medical device companies as false remedies for COVID-19 have been allowed to proliferate. For example, well before any randomized trials had begun, President Trump touted the use of hydroxychloroquine for the prevention and treatment of COVID-19 (Bond, 2020). Other unproven and potentially harmful remedies that have circulated include bathing in or consuming surface disinfectants; consuming antibiotics or excessive amounts of vitamin C, vitamin D, alcohol, or garlic; and purposely exposing oneself to ultraviolet light (Esposito, 2020). Given that the Food and Drug Administration (FDA) does not have the ability to regulate supplements, companies that produce items like vitamins and other over-the-counter medications are allowed to make unproven claims about what the supplements can do. As this misinformation could lead people to accidentally harm themselves by consuming or overconsuming such supplements, the U.S. should consider giving the FDA the ability to regulate these products.

CONCLUSION

The COVID-19 pandemic serves as a reminder that even in times of crisis, healthcare ethical principles should not be abandoned. It would be easy to work in survival mode and simply aim to keep patients alive, but healthcare providers must not forget the caring and empathetic foundations of their field. If anything, ethical principles should be more strongly adhered to during a pandemic as to ensure the most compassionate, equal, non-discriminatory care possible.

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ETHICAL ISSUES IN THE DISTRIBUTION OF HEALTH CARE

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ABSTRACT

All health care systems face limited resources. Individuals and societies develop systems to address this issue. The allocation of resources is affected by the goals of health care and what is perceived as a health care need. In the United States health care professionals routinely allocate healthcare at the individual level using systems such as emergency room triage.

During pandemics healthcare systems are forced to examine the distribution of healthcare resources at a macro level. For example, societies must address the issue of allocating resources between public health and the care of individuals. This paper will examine some of the current health care distribution issues the United States, including access to technology and financial resources by diverse populations.

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TWO SIDES OF AN EMERGENCY: THE PLAN & THE RESPONSE

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ABSTRACT

There is a myriad of challenges and complexities related to every emergency. Although similar, no two emergencies are really the same. Emergency plans are in place to prepare individuals to navigate issues with no to minimal adverse events. When the multiple systems designed to address the emergency either fail or are not set-up appropriately, the response changes the plan. Situations such as a pandemic could influence every part of every organization and people from all walks of life. What happens when your handbook does not have a plan or staff are not prepared? Using the COVID-19 pandemic as the framework, this research explores the challenges healthcare organizations, providers, and patients encounter during an emergency. Legal ramifications and quality outcomes are examined.

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INFORMED CONSENT: LEGAL & ETHICAL ISSUES PRE AND POST COVID-19

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ABSTRACT

Informed consent is the legal and ethical foundation of all medical examination, diagnosis and treatment. Consent sometimes becomes difficult in cases of aging, poor health and/or cognitive disability. These issues also intersect with end-of-life and financial management issues.

There can be confusion about who is in charge and who is the decision maker is when dealing with patients or residents of medical care and living facilities. Many of these situations involve patients with cognitive failure or those individuals who may be incapacitated and problems can arise for patient decision making and medical regiments. The situation may involve the participation of family members, guardians, patient advocates, and medical personnel.

This paper surveys issues and discusses cases involving difficult informed consent situations, including consent for care, palliative care, inability to give informed consent, surrogate consents, Covid-19 and end-of-life issues.

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THE LEGAL AND ETHICAL IMPLICATIONS OF BLANKET "DO NOT RESUSCITATE" ORDERS FOR HOSPITALS AND MEDICAL PRACTITIONERS

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ABSTRACT

The COVID-19 pandemic has created challenges all across the healthcare infrastructure and pushed the capabilities of healthcare professionals. Many medical facilities throughout the pandemic have experienced shortages of PPE, full capacity in ICUs, and the continuing increase in infections. These challenges resulted in many states and healthcare facilities across the world to ration care and create administrative polices to deal with this influx. One such policy was the issue of statewide and local blanket "Do Not Resuscitate" (DNR) orders. These orders indiscriminately prohibit emergency medical providers from admitting several trauma patients, deprioritized ventilator access for patients with mental and physical disabilities, and put hospital in the position to make end-of-life decisions. Blanket DNR orders in New York, Tennessee, Washington, Pennsylvania, Kansas, California, and in the National Health Service of the United Kingdom, put providers in both legally and ethically challenging situations. Providers were frequently confused on the implementation, scope, and necessity of these blanket orders. Blanket DNR orders conflict with the duty-of-care laws in many states and create situations in which healthcare facilities and providers could be held criminally liable. Furthermore, blanket DNR orders violate the ethics codes that healthcare professionals are held to in the practice of "first, do no harm." This paper addresses the panicked actions of healthcare institutions in enacting blanket DNR orders that will have significant long-term legal and ethical implications.

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TRACK:

HEALTHCARE

ECONOMICS AND

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OUR PATH TO TRANSPARENCY

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OUR PATH TO TRANSPARENCY

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ABSTRACT

On January 1, 2021 hospitals and payer-specific entities were mandated to comply with new pricing transparency rules. These rules applied to all standard charges a hospital applied to services provided to a consumer. The issue of price transparency in health care has for several decades surfaced as a legitimate concern of consumers and health care providers. The aim of this paper is to historically examine where and how pricing in health care began and to illustrate some of the current issues it has created for health care payer and providers.

INTRODUCTION TO HEALTH CARE PLAN ESTABLISHMENT

In 1929 Baylor University Hospital contracted with local teachers in the Dallas, Texas area to provide health care insurance for hospital services for up to three weeks per year, this venture marked the beginning of Blue Cross insurance. In response to such hospital-dominated health plans such as Blue Cross, physicians in 1937 formed Blue Shield to allay fears that hospital-dominated insurance plans for medical services could potentially affect physician compensation.

With Blue Cross and Blue Shield's continuing success, commercial insurers began to offer medical health service plans to individuals and especially employers. When WWII created a shortage of able/skilled workers, employers began offering health benefit plans as a means of attracting new talent for their workforce. Subsequent tax law changes (1940) further added to the benefit for employers offering a health plan as a means of attracting workers.

Additionally, during the early 1940's Henry Kaiser and Sydney Garfield provided a health insurance plan for workers in the Kaiser shipyards where Kaiser Permanente Hospital was later established. After WWII ended Kaiser and Garfield opened their Permanente Health Plan to the public. The plan became the forerunner of the Health Maintenance Organizations (HMOs) where health care delivery and financing functions combined and resulted in a decrease in costs and utilization of acute health care by focusing on preventative care. Resulting from the success of the health plan model of Kaiser and Garfield the federal government in 1973 created the Health Maintenance Organization Act in the hopes of increasing the number of HMOs.

THE 1960S AND MEDICARE/MEDICAID

With the coming of the 1960s the number of individuals within the U.S. that were covered by some form of private insurance had greatly increased, with most coverage existing in the form of employer provided insurance. As most health plans came in the form of employer-provided coverage, the elderly, unemployed, and the economically challenged were left without health insurance coverage. This gap in coverage became the beginning of President Lyndon Johnson's Great Society programs. Out of these efforts, Medicare and Medicaid became government-funded health insurance programs for the elderly and poor. The development of these two programs allowed the U.S. government to become the largest purchaser of health services.

Citing the loss of autonomy and income under government-controlled Medicare and Medicaid, physicians opposed the two programs. However, both programs helped alleviate physicians concerns when a "fee-for-service" model of billing allowed for a "usual and customary" rate to be charged by the physician. This "fee-for-service"

government funded model opened the door for hospitals and physicians to decide on what they would charge, thus allowing both to increase their fees to increase their revenue. This "fee-for-service" method was the exact pricing system adopted by earlier health insurance plans where hospital and physician led health care plans utilized a cost-plus system where payments were based on "customary and reasonable" charges set by the physician. Hospitals received payment as a percentage of their costs and working capital. Both physician and hospital payment systems created the opportunity to increase cost to increase income. With the earlier beginnings of commercial insurance and the addition of government funded Medicare and Medicaid, both of these payers for health services simply adopted the same defective system as that of private health insurance which accelerated the rate of price inflation.

THE 1980'S AND 90'S

Price inflation practices continued for several years until 1983 when Medicare adopted a prospective payment system (PPS) directed towards hospital reimbursement through utilization of diagnosis-related groups of illnesses. This adoption allowed for hospitals to shift the patient costs to other activities not covered by the controls of the PPS. During the 1980s there existed two payment systems for a hospital, the government-funded system, and the private negotiated rates from health plan systems. This two-payer system created two pricing systems depending on which one paid the hospital. The two-payer system marked the beginning of different hospital prices depending upon the payer. As commercial insurers began to consolidate during the 1980s their bargaining power increased, and payment methodologies became based on contractual schedules or negotiated rates. Resulting from these changes in payment methodologies, the "master price list" held by hospitals became less indicative of the actual costs of services rendered, except for the individual without insurance, who paid nothing.

As the 1980s progressed, payments for hospital inpatient stays were considered a reasonable estimate for actual payment. However, during this time period of the 1980s hospitals began to believe the payments received from third-party and/or government-funded payers was inadequate for the services the hospital rendered. The result was hospitals raised their billed charges which included the amounts paid by patients and third-party payers who were unbale to access the low rates being paid by large insurers and Medicare. These actions over time widened the gap between charges accessed for a service and the actual payment received for reimbursement. Effectually the result of these actions by both payers and hospitals forced many hospitals to accept the prices paid (price taker) for many of the services provided, which in turn allows the hospital to pass along costs (price setter) to other patients to help increase revenue. This price setting by hospitals passes much of the cost of care to individuals that are the least likely to afford the cost of care, such as self-pay patients, persons with high deductibles and high-cost sharing health insurance. These groups of patients are serving as the underwriters of the cost of the low rates paid by large insurers and Medicare.

Throughout the 1980's and 90's the cost of health care continued to rise and became a social and political issue. The lack of transparency in health care pricing began to be examined as a means of assisting in controlling costs. Questions were asked by policymakers and politicians about how much information was needed by an individual to make good cost-effective medical choices. Policymakers at the state and federal level began to take notice of the pricing transparency issue and lack of regulatory control measures in a failing health care market. In 2001 in the Institute of Medicines (IOM) publication, *Crossing the Quality Chasm: A New Health System for the 21st Century,* a new call for price transparency was made by those favoring consumer-driven health care (CDHC). Federal policy changes were made through tax incentives for high deductible plans as the federal government began to join others in the call to support price transparency in health care. These changes toward transparency in pricing and quality information were directed toward such federal programs as Medicare and Veterans Affairs hospitals (Reed 2019).

THE 2000'S AND BEYOND

States also faced the health care cost burden as they followed the lead of the federal government by examining the increase in price transparency and health care costs. Beginning in the 2000's many states began enacting legislation

calling for increased disclosure of health care pricing and cost containment. Several states established All Payer Claims Databases (APCD) which served as a repository for public and private payers to provide information in terms of their capacity to produce price, resource use, and quality information for consumers (Agency for Healthcare Research and Quality 2018; National Conference of State Legislatures 2018).

The goal of an APCD is to assist in improving health care affordability, efficiency, and cost transparency. The implementation of state mandated APCDS was opposed by insurers and in 2016 the Supreme Court ruled in favor of insurers stating that states may not require data collection from non-governmental self-insured group health plans. These plans represented about one-third of all covered people thus making it difficult for states to seek insurer participation in an APCD (Young and Fielder 2020). The ruling limited states from legislating pricing transparency participation by insurers, especially self-funded providers, and their third-party administrators. (Reed 2019) As of May 2020 only six states required health care transparency from providers, making robust price transparency laws not very widespread in the U.S. (LaPointe [1] 2020; DiBase, C., Corvese, L., Haller, S., Anthony, B., Archambault, J., and Chowdhury, S. 2020)

In August 2018, the Centers for Medicare and Medicaid Services (CMS) released a final rule for the Inpatient and Long-Term Care Hospital Prospective Payment System (IPPS/LTCH PPS). The final rule added new requirements for hospitals that participate in the Medicare program. Beginning January 1, 2019, all hospitals must make public a price list of their standard charges for items and services provided by the hospital. The rule stipulated the standard charges must be made available on the internet in a machine-readable format and the information updated at least once annually (Reed 2019; Hoffman and Kerr 2018; Bresnick 2018).

The new CMS 2019 rule provided implementation of Section 2718(e) of the Public Health Service Act (PHSA). The new 2019 rule built upon Section 2718(e) which in 2015 made it a requirement for hospitals to make public upon request a list of standard charges. Under Section 2718(e) of the PHSA, hospitals within the U.S. were yearly, required to establish, update, and make public a list of the hospitals standard changes of items and services provided by the hospital. The requirement included diagnostic related groups established under Section 1886(d) of the Social Security Act. (CMS Fact Sheet [1] 2019; Hoffman and Kerr 2018; Yood 2014).

As the new rule (January 1, 2019) took affect further measurers towards ensuring cost transparency were being considered by the Department of Health and Human Services (HHS). To assist in providing better cost transparency the HHS proposed a second rule in March of 2019. The proposed second rule focused on the 21st Century Cures Act of 2016 by addressing the act's provisions against "information blocking" and broadening the definition of "electronic health information. Additionally, within a small, short section of the rules draft under the heading of "Price Information" the way for price transparency began to take shape. Information blocking took its roots with the passage of the Health Information Technology for Economic and Clinical Health (HITECH) of 2009. This act provided for the HHS Office of the National Coordinator for Health Information Technology (ONC) to oversee policies and investments in support of a nationwide health Information Technology (IT) infrastructure that enabled and supported the development of a robust health information exchange. Additionally, the passage (2010) of the ACA provided support for health information exchanges (Reed 2019; 21st Century Cures Act 2016).

A 2015 ONC report to Congress on information blocking informed of varying methods of information blocking; yet none of those methods related to health care prices for consumers. Further the definition of information blocking within the 21st Century Cures Act made no mention of costs or prices (Reed 2019). Instead, the report defined information blocking in terms of "a practice that is likely to interfere with, prevent, or materially discourage access, exchange, or use of electronic health information." The Act further includes a practice "if conducted by a health provider, such provider knows that such practice is unreasonable and is likely to interfere with, prevent, or materially discourage access, exchange or use of electronic information." (Federal Reserve 2019)

Based on the March 2019 proposed rule by the ONC, the definition of information blocking, along with the broadened definition of electronic health information within the 21st Century Cures Act provided the opportunity to advance the cause of price transparency. By redefining electronic health information, the rule reads as such: "To be clear, this definition (of EHI) provides for an expansive set of EHI, which could include information on an individual's health insurance eligibility and benefits, billing for health care services, and payment information for services to be provided or already provided, which may include price information." The proposed rule reads further on the issue of price transparency:

> "*The fragmented and complex nature of pricing within the health care system has decreased the efficiency of the health care system and has had negative impacts on patients, health care providers, health systems, plans, plan sponsors and other key health care stakeholders. Patients and plan sponsors have trouble anticipating or planning for costs, are not sure how they can lower their costs, are not able to compare costs, and have no practical way to measure the quality of the care or coverage they receive relative to the price they pay. Pricing information continues to grow in importance with the increase of high deductible health plans and surprise billing, which have resulted in an increase in out-of-pocket health care spending. Transparency in the price and cost of health care would help address the concerns outlined (within the proposed rule) above by empowering patients to make informed health care decisions. Further, the availability of price information could help increase competition that is based on the quality and value of the services patients receive. Consistent with its statutory authority, the Department is considering subsequent rulemaking to expand access to price information for the public, prospective patients, plan sponsors, and health care providers.*" (Federal Reserve 2019).*

The proposed rule cited facts illustrating that "the price insurers paid for procedures varied materially, even within the same locality." The ONC concluded from studies of price variation: "illustrated the secretive nature of pricing in the health care market, as well as the extreme variations in price that can exist for the same procedure within the same locality." The proposed rule further concluded that "making such price information available to insurers through Application Programming Interface (APIs) would drive health care prices down, which could lead to significant benefits across the health care continuum (Federal Reserve 2019). An API is a set of routine, protocols, and tools for building software applications. It can specify how two or more applications interact with one another (Norton n.d.) The proposed rule as stated above was "considering subsequent rulemaking to expand access to price information for the public, prospective patients, plan sponsors, and health care providers." This consideration was aimed towards health care providers providing information on negotiated rates paid by insurance companies and Medicare/Medicaid, and rates that are charged to uninsured patients (Reed 2019). The overall intent is to make any disclosure of price more meaningful to consumers and insurers other than what is found in the charge master list of a hospital.

Related to the transparency in pricing issues the concept of "surprise billing" has received much attention. As previously mentioned, pricing information continues to grow in importance for the consumer and surprise billing is one of the major contributors towards out-of-pocket spending. In February 2019, the American Hospital Association (AHA) outlined several principles to assist in addressing the surprise billing issues. The principles outlined point out many states have undertaken efforts to protect patients from surprise billing, but federal action was needed to protect patients, especially with self-insured employer-sponsored plans which are regulated under the Employee Retirement Income Security Act (ERISA), which provides coverage for the majority of privately insured individuals. Federal guidelines would allow states to meet the federal minimum for consumer protection (American Hospital Association [1] 2019).

In May 2019, President Trump's administration released guiding principles to lift the burden of surprise billing and protect patients. The principles supported the need for patients to have adequate price information to make informed decisions. By having price information patients are thought to be more in control and lower the costs they may face from a medical situation (Whitehouse Fact Sheet 2019)

In June 2019, President Trump issued an Executive Order on *Improving Price and Quality Transparency in American Healthcare to Put Patients First.* The order reiterated the issue of surprise billing practices (Section 7) and called for "making meaningful price and quality information more broadly available to more Americans." Further the order called for disclosure of actual prices by providers and insurers. Actual price means charges based on negotiated rates between insurers and providers. (Whitehouse Executive Order 2019; Keith 2019; LaPointe [2] 2019) In July 2019 HHS in response to President Trump's executive order proposed rules that followed directives within the executive order. The proposed rules would advance the agency's commitment to increasing price transparency (CMS Fact Sheet [2] 2019). In September 2019, the July 2019 proposed rules received opposition from the AHA (O'Brien 2019) As anticipated the AHA along with other health care associations and hospitals would file a lawsuit questioning the rules as they applied to hospitals disclosure of price information, especially that of payer-specific negotiated rates.

In November 2019, the HHS released the final rule *Hospital Outpatient Prospective Payment System (0PPS) Policy Changes: Hospital Price Transparency Requirements* (CMS-1717-F2). The final rule followed the directives of President Trump's Executive Order of June 2019. The final rule is intended to advance the HSS commitment to increasing price transparency. The rule called for disclosure of prices by hospitals which includes all standard charges including discounted cash prices, payer-specific negotiated charges and de-identified minimum and maximum negotiated charges for all hospital items and services. Further the rule called for public disclosure of price information of at least 300 "shoppable" services, 70 of which are CMS specified and 230 hospital selected. By providing the price of shoppable services it was thought this would incentivize consumers to seek out health care costs and allow for price comparison of those shoppable services. Additionally, the rule for hospital price disclosure gave CMS the ability to impose civil monetary penalties of $300 per day (CMS Fact Sheet 2019; Morse 2019; Keith 2019).

In December 2019, shortly after the release of the final rule, four health care associations and three hospitals filed a lawsuit against the HSS challenging the mandate of hospitals have to disclose their payer-specific negotiated rates. The lawsuit alleged the HHS did not have the statutory authority to force hospitals to publish anything other than standard charges (LaPointe [3] 2019; AHA Letter 2019). In June 2020, a D.C District court judge ruled in favor of the government thereby paving the way for implementation of the rule on January 1, 2021 (White 2020, Reuter 2020, Sullivan 2020). The AHA immediately filed for an appeal and would seek expedited review (Reuter 2020, American Hospital Association [2] 2020; United States Court of Appeals 2020). On December 29, 2020, a federal appeals court ruled the price transparency rule could be placed into effect on January 1, 2021 as had been planned from its inception by HHS (Minemeyer 2020; Caffrey 2020)

Currently this is where the issue of price transparency stands as of January 1, 2021 with the new rule having been implemented, this has left hospitals and insurers in a quandary as to how best to approach compliance with the new rules of transparency. Questions arose as to how some smaller, rural hospitals will manage to survive. Will cost shifting become more of a practice for hospitals trying to maintain their revenue streams? Will health care entities begin to consider new consolidation approaches with the changing methods of negotiation between payer-specific entities and health care facilities. The new rulings for transparency in pricing have created a new scenario for the health care consumer. The consumer can receive pricing information that provides little information on the actual costs for an episode of care and within the pricing transparency ruling the issue of quality of the care for the consumer was little discussed? Many consumers equate higher price to mean higher quality, and that is not the case in health care. Consumers can shop for health care, but do they really know what they are shopping for and how will they know if the price quotes are really what they can base their out-of-pocket costs? Health care will always be a dynamic factor in our lives, however when change(s) occur communicating those change(s) and how to interpret the change(s) becomes important for the consumer and the health care provider. In this case price transparency has failed to provide the consumer with little direction, but for hospitals and insurers it has created an opportunity to examine their pricing methodologies and prepare to learn new ways of creating revenue.

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THE SIGNIFICANCE AND INFLUENCE OF E-MARKETING ON HEALTHCARE TO ADDRESS THE COVID-19 PANDEMIC

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ABSTRACT

Marketing in the digital space has become a must for companies to keep up with their competitors. Utilizing online tools to market and advertise products and services has become essential as the use of social media and other online communication sites has increased dramatically. This paper provides details the about the history of e-Marketing, its strengths, weaknesses, opportunities, and threats, and the methods of e-Marketing. E-Marketing in the global marketplace is also discussed, with select examples from Iran, Jordan, and Ethiopia. A brief discussion on the use of e-marketing during the current COVID-19 pandemic is also provided.

INTRODUCTION

The invention of the internet changed the world forever, and it has had an impact on every aspect of life, including business. When the internet became publicly available in 1991 (Bryant, 2011), companies would eventually have the opportunity to expand their customer base, increase sales, connect with their customers efficiently, and gauge public opinion about the company and its products and services. Besides simply giving customers the ability to purchase products from an online store, online business can extend into e-Marketing (eM) by using online features to interact with customers. Coviello and colleagues (2002) define eM as utilizing the internet and other interactive technological tools to generate and mediate dialogue between the company or organization and the identified customer base. eM is distinguished from other forms of marketing by its use of technology and electronic dialogue (Brodie et al., 2007). eM has not only had a big impact on typical retail stores but also in the healthcare industry where online technologies have become integral to patient care. Online tools have become both a healthcare product and a delivery service. Especially in the COVID-19 pandemic, online marketing has become a necessity for healthcare providers to survive in a time where many are forgoing in-person services. This paper will review the basics of electronic marketing with a focus on e-marketing in the healthcare industry.

THE BASICS OF E-MARKETING

Before we discuss the role that e-marketing plays in the healthcare marketplace, it is imperative that we get some insights about e-marketing itself. First, we will review the who, what, when, why, and how of e-marketing. Secondly, we will perform a SWOT analysis of e-Marketing, which will also provide a look into the future of this important side of business.

What is e-Marketing?

Further expanding on the definition given by Coviello et al., eM involves "develop[ing] an internet-based system to actively communicate and interact with customers, clients, or patients" (Brodie et al., 2007, p. 4). The main focus of e-Marketing, as demonstrated by the literature and different definitions provided, is the ability to electronically interact with customers. The dialogue created by eM is of the utmost importance, given that, as will be discussed later in this paper, customers have greater power in online interactions.

Who is Involved in e-Marketing?

While the marketing department of a firm clearly has a hand in the eM strategy, the information technology department also plays a vital role. The IT department produces online content and fields issues and complaints from employees and customers. If the firm has paid for or provided product to an influencer to advertise to their followers, this influencer is also an important part of the eM strategy. Influencers are most often thought of as popular people, usually on social media, who others follow and who create content to satisfy their followers. Social media will be discussed later in this paper. Influencers include people like Kylie Jenner on Instagram, Charli D'Amelio from TikTok, and PewDiePie from YouTube.

The firms' customers are involved in the eM strategy, not just by clicking on advertisements or purchasing products through websites, but also by communicating their thoughts and experiences on websites, especially social media sites. Unlike traditional advertising via broadcast media such as television, e-Marketing provides an opportunity for customers to voice their opinions not just through purchasing power, but also by publicly reviewing and posting about the product. Companies have realized that customers now have more power than ever to communicate their wants and needs to firms, and customer reviews can significantly impact future customers' decisions about product purchase.

Why is e-Marketing Important?

Brodie and colleagues (2007) note that information technology "plays an important role in supporting and enhancing business and marketing practices" (p. 3). Li and colleagues (2020) point out that social media, which is part of eM that will be discussed in detail later in this paper, has empowered customers and allowed them to "[take] control of the marketing communication process" (p. 1). Abdallah and Jaleel (2015) comment on the fact that because there is so much information available online, effective eM strategies are "critical to the success of e-tailers" to stand out from the competition and grab the attention of the online user (p. 46).

It is no doubt that the internet changed the way the businesses operate. Given the wide variety of uses for the internet, and the time most individuals spend on it per day, it is reasonable to assume that more and more customers will be using online services, including purchasing products online. Brick-and-mortar stores are expected to decrease in quantity, and the COVID-19 pandemic only sped up this transition to online-only shopping. If firms are to stay afloat, they must invest time and money into eM.

When did e-Marketing Become Important?

The digitization of information began the unprecedented growth of business and opened up a whole new world of marketing practices. Abdallah and Jaleel (2015) comment that e-commerce began in the 1970s (p. 46). As mentioned previously, the internet was made available for public use in 1991 (Bryant, 2011), making e-commerce available to anyone with internet and computer access. Li and colleagues (2020) note the use of social media, a vital part of eM, has grown immensely in the last decade. LinkedIn, a professional social media site, launched in 2003; YouTube launched in 2005; Facebook, currently the most used social media site, and Twitter began in 2006; Instagram launched in 2010; WeChat, a popular social media site used mostly in China, started in 2011; and TikTok was launched in 2016 (McFadden, 2020). The birth and immense growth of these social media sites have encouraged firms to focus on eM as more business activities have moved online.

How is e-Marketing Done?

For most firms, the eM strategy will begin with the firm's own website. This website can give customers the ability to purchase products and/or services, contact the firm, learn about the products and/or services (such as product specifications, service provider qualifications and credentials, and what to expect when receiving a service), and, if available, read customer reviews or testimonials. Links to the firm's social media pages and an area for customers to enter their email address so that they may receive information from the firm in the future are ideal ways to encourage continuation of the relationship with the brand even after the customer has left the website. The website can also include information about the company/brand, such as what the brand stands for (its values, mission, goals), what

charitable organizations, if any, the firm is involved with, job opportunities, and frequently asked questions. A firm may also wish to include links to other firms that provide complementary services.

One common eM strategy is to pay for advertisements on websites. Advertisements can be bought through sites like Facebook and Google, and the activity on these ads can then be tracked through programs like Google Analytics (Moon, n.d.). Social media campaigns are just one part of eM. Advertisements on social media often look like typical personal posts, which can help keep customers' attention and reduce the chance of them skipping over it as soon as they realize it is an advertisement. Besides advertisements, social media engagement is imperative in the current economy. Firms can post on their social media pages about products, sales, exceptional employees, charitable efforts, and more. Pictures and videos capture customer attention more effectively than text-only posts, so posts should ideally include a photo of the product or a video of the product being used.

SWOT Analysis of e-Marketing

Combining the information from the who/what/when/where/why/how breakdown, as well as additional information about the future of eM, a SWOT analysis provides firms with important guidance as to what their eM strategy should include. The SWOT analysis below can apply to all industries, but firms should analyze eM in the context of their own industry as well, as online abilities vary depending upon the sector. Firms should perform a SWOT analysis frequently so as to prepare for upcoming threats, compensate for weaknesses, catch new opportunities, and capitalize on strengths.

Strengths

The most obvious strength of eM is its ability to reach large audiences. A firm's website is accessible from any device with internet connection from anywhere in the world. Websites can be used to not just for advertising purposes, but to generate revenue and serve as the main point of contact between customers and the firm (Abdallah & Jaleel, 2014). For healthcare specifically, websites can serve as a one-stop shop by allowing patients to communicate with the provider, view their own healthcare information (through electronic health records), pay bills, schedule appointments, become educated on their illnesses, and transfer records to other providers. The COVID-19 pandemic has emphasized the ability of healthcare providers to provide care to patients online via the use of telehealth services.

Weaknesses

The biggest weakness of eM is the lack of face-to-face connection that is inherent in its nature. Customers who prefer traditional communication in personal contacts and face-to-face interactions may find online interactions impersonal and unsatisfying (Alnsour, 2018). Another important weakness that firms should watch out for is the fact that customers have more control of the marketing communication process than the firms do (Li et al., 2020). People can post or comment on anything related to the firm, and these posts and comments are available for anyone to see. On many websites, a person can submit a review of a service or product without proving that he/she actually purchased the product. Especially for negative reviews, this can be detrimental, as other customers are likely to believe the review is truthful. Even if a negative review is written by someone who has not actually purchased the product or service, this can still deter potential customers who read it.

Opportunities

As online capabilities continue to grow, so do the opportunities for eM. The COVID-19 pandemic has helped encourage the use or creation of many online services that were traditionally or preferably received in-person. For example, telehealth and online schooling (for both primary school and college) have seen immense growth since the pandemic spread to the U.S in March of 2020. Many other services have moved online, such as church, yoga classes, academic conferences, and grocery shopping (Roose, 2020). Some of these services that have moved online are likely to stay online in some capacity. Firms should use the COVID-19 pandemic as an opportunity to experiment with new online services, advertisement methods, and social media engagement. As more of the population moves online, firms should be matching their movements and tailoring their eM to meet these emerging needs.

Threats

A major threat to eM that firms should watch closely are laws and regulations passed by governments. For example, currently in Iran, most social media sites are banned (Nasihatkon et al., 2016). The future of TikTok, a social media site popular with younger demographics, is tenuous due to the fact that it is banned by Pakistan, and India and the U.S. are concerned with its users' privacy given that TikTok is owned by a China-based company (Wang, 2020). Given that social media is a large part of many firms' eM strategies, it is important to be prepared for loss of access to some sites or for the need to change content to abide by internet related laws.

Another threat to e-Marketing is the risk of data breaches and other online security issues. An increasingly common attack involves infecting computers with ransomware through phishing emails which encrypts the victim's data, followed by the attacker demanding money to give the data back (Fruhlinger, 2020). Fruhlinger notes that many attackers have used ransomware against hospitals and healthcare organizations, making this internet security issue of particular concern for the healthcare industry. Firms need to make sure their own websites have the most up-to-date security features, including requiring customers to create secure passwords by enforcing length and content criteria.

SOCIAL MEDIA AND E-MARKETING

Social media includes websites such as Facebook, YouTube, Twitter, Instagram, and Snapchat. It is estimated that 3.5 billion people, amounting to 45 percent of the population, are daily active users of social media (Mohsin, 2020). Additionally, about 91 percent of these social media users access these sites on mobile devices (Mohsin, 2020). Some scholars even believe that social media is its own marketing practice rather than simply a tool of e-Marketing (Li et al, 2020). No matter how a firm classifies it, social media is a vital part of any organization's marketing plan in the current economy. As social media use increases and evolves, so should firms' use of it in their marketing strategies. This section will examine how social media fits into different marketing practices as well as its role in e-Marketing.

Social Media and the Marketing Framework

The nature and features of social media make it a uniquely all-encompassing technology, so much so that social media fits into Coviello and colleagues' (2002) five marketing practices framework. As Coviello and colleagues' definition of eM has already been provided, the other four parts of their marketing framework will be discussed, followed by how social media incorporates all five of these parts of the framework.

Coviello and Colleagues' CMP Framework

In addition to eM, the fifth marketing practice of the framework, Coviello and colleagues (2002) split up their marketing framework into four other practices: transaction, database, interaction, and network marketing. This framework was developed through several empirically validated studies and is known as the Classification of Marketing Practices (CMP) framework. Marketing in this framework is described many complex processes working in tandem (Brodie et al., 2007).

Transaction marketing involves the traditional 4P approach. The 4P's are product, price, place, and promotion (Berkowitz, 2017). Product involves the actual goods and/or services that the company is offering. Price is how much customers are willing to pay for the good or service. Place involves where the product or service is sold and how the customer receives the good or service. Promotion involves making information about the firm and its products or services available to the market. Transaction marketing focuses on the external activities (Coviello et al., 2002).

Database marketing uses database tools for targeting and segmentation (Coviello et al., 2002). Segmentation involves dividing customers into groups with similar characteristics. These characteristics could be based on a number of customer aspects, such as demographics or how the customers use the product (Berkowitz, 2017). Targeting involves selecting a segment and developing a marketing strategy to attract that specific segment. Firms can create databases filled with customer information and use information within the databases to tailor marketing efforts

(Coviello et al., 2002). For example, a hospital could create a database for inpatient demographic information, then use database tools to sort by location and discover that most of their inpatients live in a certain area of the state. A marketing strategy could then be developed to capture areas outside of this main area to gain more customers.

Interaction marketing uses personal interactions between employees of the company and the company's customers. Coviello and colleagues (2002) specify that this marketing practice is focused mostly around face-to-face interactions, especially in professional services like healthcare. This is related to the concept of the five I's of services, which state that services are intangible (cannot be touched before being received), inconsistent (service is delivered differently every time), inseparable from the person providing the service, inventoried by the employees and the employees' time, and interactive between the customer and the person providing the service (Berkowitz, 2017). It could be said that interaction marketing is related to firms that provide services, as well as every firm's customer service or customer relations departments.

Lastly, network marketing involves developing relationships with other customers and firms that are related to the firm's product or service (Coviello et al., 2002). Brodie and colleagues (2007) give the example that a hospital would want to build a relationship with a clinic nearby. Thus, network marketing can help provide a more complete or wider range of services for customers.

Social Media in the CMP Framework
Social media arguably fits into each of the five marketing practices identified by Coviello and colleagues. While social media's connection to eM is obvious, social media also fits into the other four marketing strategies. Some of these connections are indirect, but nevertheless emphasize the importance and plethora of opportunities of using social media in any firm's marketing strategy.

Transaction Marketing and Social Media
Social media can certainly have a part in the 4P's of the marketing mix. For Product, services can be offered through social media. A firm that creates advertisements for other companies could offer social media management services and create advertisements tailored to social media sites. For Price, social media can be used indirectly to gauge how much customers are willing to pay for products and services. Customer reviews and testimonials, and other posts about the firm or the product or service they bought can indicate to the company whether customers thought the price was fair. For Place, some social media sites offer marketplaces where products can be sold, such as Facebook Marketplace, and Instagram Shopping. For Promotion, social media is an obvious choice to advertise products and services as social media can reach a large, heterogeneous audience.

Database Marketing and Social Media
Analytics that firms can collect from their social media accounts provide valuable information for the company. Information about who clicks the firm's advertisements and posts or purchases directly from the social media site can indicate to firms what audience they are capturing through the use of social media. This information can easily be inputted into a database for further analysis. Marketing strategies can be further broken down by the information collected from social media sites, including customer demographics and customer use of products and services. Even if customers do not interact directly with firms' social media accounts, customers can still talk about products, services, and firms in posts and reviews. Most social media sites offer the ability to search for keywords in others posts. Thus, companies can gauge customers' perceptions of price and quality of products or services by reviewing posts to customers' personal accounts.

Interaction Marketing and Social Media
The main purpose of social media is to create connections. This purpose aligns perfectly with interaction marketing. Employees of firms can develop relationships with customers through social media sites in ways that are impossible or difficult on traditional online business sites. Employees can reach out to customers through personal messages on social media sites, or can comment on customers' posts, allowing other present or future customers to

view employee comments. These comments offer a public performance of customer service and can attract other customers who view the interaction and are pleased with the response of the employee. Social media sites allow users to post images and videos, thus allowing the company to put a face to the name or brand and thus making the personal connection to customers more likely.

Network Marketing and Social Media

Similar to how social media furthers interaction marketing, social media sites can help firms make connections with other firms. Posting on or commenting on other firms' pages or posts can not only express to the other company a desire to work together but can also indirectly advertise firms to customers of the initial company. Professional social media sites like LinkedIn are perhaps better suited to the goals of network marketing, but this can be achieved through traditional social media sites like Facebook and Twitter as well.

The Curious Case of Snapchat

Snapchat is another social media site that was launched in 2011, around the same time as WeChat and Instagram. Snapchat reported 186 million active daily users as well as a $824 million in advertising revenue (Tropp & Baetzgen, 2019). However, this ad revenue is less than one percent of the digital ad market (Tropp & Baetzgen, 2019, p. 131). There are several key differences between Snapchat and other social media sites that have likely made it a less-than-ideal site for firms to advertise on. For one thing, content expires after a set timeframe and is not searchable by users. Ads that play during Snapchat stories are easily skippable. The site does not offer firms as much information on their users as other social media sites, making it difficult determine what audience is being reached through advertising on the site. Nevertheless, Snapchat does offer unique advertising opportunities. Users can apply filters to photos and videos which can include brand ads (Tropp & Baetzgen, 2019, p. 131). The typical sponsored posts which appear as articles are a popular ad type on the site. A firm can also sponsor influencers to advertise the firm's products or services on their own personal Snapchat accounts.

Tropp and Baetzgen (2019) conducted a study and determined that the main issue with the less-than-successful advertising on Snapchat has to do with user behavior. Most users go on Snapchat to have fun and be entertained, unlike Facebook where personal connections and news articles are the focus of most users. Additionally, since most Snapchat users only spend about 30 minutes on the site per day, ads need to catch users' attention while also being short in length. They found that ads would likely be more successful if the ad offered an experience rather than simply a link to a website or a photo of a product. This study on Snapchat emphasizes the importance of tailoring ads not just to social media in general, but to the site in specific. Firms need to pay attention to and match users' behavior on each site to implement the most effective strategies and advertisements.

Snapchat can also have an interesting role in healthcare marketing, which will be the topic of the next section. Whereas patients posting reviews to sites like Vitals.com or Healthgrades.com cannot limit who sees the review, Snapchat allows users to choose who sees certain posts. Users can send limited information to certain people for a chosen limited amount of time. For example, hospitalized patients can take a picture to show their day-by-day progress and send it only to family members and close friends. Other users cannot see the post. Also, once sent, the users allowed to see it can only view it once for a limited period of time set by the patient, minimizing the risk that the information will be spread to others. While other popular social media sites like Facebook, Instagram, and YouTube have settings that allow posts to be viewed only by users who meet certain criteria, Snapchat is unique in its ability to allow users to select individuals. This makes Snapchat a more personal and intimate option for engaging with others on social media without having their information out there for all to see.

E-MARKETING IN HEALTHCARE

It is undeniable that e-Marketing plays as much of an important role in U.S. healthcare as it does in any other industry. Healthcare organizations and providers face the same opportunities and threats from social media as a typical business. Users can comment on, post about, and review a hospital, office, clinic, ER, or doctor in a public forum with

all of these comments available to be seen by anyone. As has already been mentioned, eM has evolved in a short amount of time with the start of the COVID-19 pandemic. Telehealth, electronic health records, bill payment, patient education, and more are all available online to patients.

Online Interactions in Healthcare

Though Alnsour's (2018) study focused on online customer-seller relationships in banking in Jordan, some of the findings are surprisingly applicable to eM in healthcare in the U.S. Alnsour examined customer-seller relationship factors such as loyalty, trust, satisfaction, and cooperation, in the banking industry, which in Jordan has traditionally been dominated by in-person interactions. It can be reasonably argued that many healthcare services have traditionally been completed in person, mostly services related to direct treatment of the patient. Given this similarity in culture, it can be interpolated that transitioning to online interactions in healthcare should not jeopardize the customer-seller relationship, or in this case, the patient-provider relationship, if done right. Given that online healthcare interactions are often cheaper, more efficient, and, in the current COVID-19 pandemic, safer, healthcare providers and organizations that are still wary of providing telehealth services should consider purchasing a telehealth program and offering telehealth services to their patients.

Telemedicine

With the continual growth of online healthcare services, it is important to look at the effectiveness of these services in keeping patients healthy. If patients are not satisfied with the technology, healthcare firms will not be able to successfully market telehealth. If this is the case, marketers should consider obtaining patient opinions so that the telehealth service can be tailored to the wants and needs of the patients. Literature on the effectiveness of telehealth is mixed.

Jalil and colleagues (2015) noted that at-home technology-based healthcare depends upon the patient to use it themselves. Results show that patients who refuse to use the technology themselves and instead have someone else assist or use it for them do not get the full benefit of telehealth services (p. 14). Healthcare firms should be surveying their patients to get an idea of their technology skills and whether purchasing these technologies would be cost-effective and useful for patients. A firm that serves mostly older patients, who are generally more resistant to using technology and prefer traditional methods of healthcare (Wellable, 2018) would be unlikely to satisfy their patients by purchasing expensive, complicated technological devices and services. A firm should evolve their use of technology as their patient base evolves.

Jalil and colleagues (2015) as well as Lindberg and colleagues (2017) focus on the use of telehealth in the treatment of type 2 diabetes, as both note that the only true treatment for this disease is behavioral management. One key piece of utilizing telehealth to its greatest potential is proper communication between staff and patients, and mediating expectations for the technology on both the staff and patient sides. Lindberg and colleagues (2017) noted that patients expected staff support and frequent feedback, while staff hoped that the use of telehealth technology would mean that the patients could manage their healthcare at home without their help. Staff might see at-home healthcare technologies as a way to help patients manage their care without them and leave them more time to attend to other patients. Overall, however, Lindberg and colleagues (2017) found that most staff believe telemedicine was something that would be useful in the future. It appears that some healthcare providers are not yet convinced of its effectiveness and place in healthcare as of yet. Lindberg and colleagues note that a smooth implementation process is key to keeping staff's faith in the technology.

Email Marketing in Healthcare

MailerLite (n.d.) provides a comprehensive guide for healthcare email marketing. They make the case that email marketing is cost-effective compared to other marketing practices, and they report about a 23 percent open rate and a 3 percent click-through rate. They suggest three strategies to build email marketing lists: Obtaining the patient's email at the first appointment; including a place for patients to sign up for email updates on the healthcare provider's website; and including the chance to sign up for emails through the provider's social media pages. Emails are a unique eM tool in that they can be personalized by including the patient's information and sending out emails based only on

the patient's needs (for example, a primary care physician can send pediatric-related emails to parents and not adult patients or send women's health emails to women of a certain age range and not male patients). Sending out personalized birthday emails and annual check-up reminders can keep healthy patients coming back. Many providers send post-appointment emails asking the patient to review the provider on social media sites, which can improve public opinion and attract new patients.

Elrod and Fortenberry (2020) examined the marketing efforts of one health system and found that personalized marketing tools were more well-received, including items as simple as addressing email to the person's name instead of "Recipient" or "Resident." Emails and other direct marketing addressed in this impersonal way were more likely to be disregarded. Elrod and Fortenberry also noted a particular benefit of using email marketing in that its effectiveness is highly measurable. For instance, a specific phone number that can only be called by those who receive the email can be included. Then, any calls to that phone number signal that the email worked in getting the attention of potential patients. As previously mentioned, analytics are available for eM that are not possible for traditional marketing tools like billboards and TV commercials. For instance, firm can view how many times their marketing emails have been opened and how many people clicked on a link within the email.

However, Elrod and Fortenberry (2020) point out a major drawback of email marketing, which is that most people's inboxes are inundated with emails from a range of companies looking to gain their business. Even the best and most helpful marketing emails for an individual may get overlooked. Another reason marketing emails may get overlooked is if they end up in junk folders. This can happen if the email does not come from a trusted address, or if the email is not carefully named and formatted.

NEW AND EMERGING OPPORTUNITIES FOR eM IN HEALTHCARE

As mentioned above, telehealth has seen incredible growth since the pandemic began to spread across the U.S in March of 2020. Given that many providers are seeing sharp decreases in revenue due to bans on elective surgeries, healthcare marketers should use the COVID-19 pandemic to their advantage in the meantime. Opportunities for growth include new online services (many providers recently adopted telehealth for the first time), advertisement methods (Zoom webinars related to health topics, mailed postcards and/or emails about what services are up and running again), and social media engagement. Chief among these is social media engagement, which healthcare marketers should concentrate on as more and more COVID-19-related restrictions are lifted as governments perceive the pandemic to be slowing down. Healthcare marketers should use social media to spread the word about the safety precautions implemented at their facilities, healthcare services that were banned or limited but are now available to patients again, information about how to obtain health insurance if a patient has lost their insurance due to losing their job, and more topics that would bring more patients back into healthcare. Healthcare marketers may even consider using social media to combat misinformation about the coronavirus and COVID-19.

Healthcare organizations should implement new online services carefully, however, particularly in regard to minding the threats discussed earlier in this paper. Services should be internet secure; patients should be required to use passwords that are not easily guessable and hackable; employees should be trained to secure information and spot phishing emails so as to not open the organization up to ransomware attacks, which are used alarmingly often on healthcare organizations.

THE FUTURE OF E-MARKETING

As social media site usage and overall internet activity continue to grow, so will the need to develop one's e-Marketing strategy. Though developing countries are still largely behind as far as e-Marketing usage, it is likely that countries will begin to use internet marketing more and more as it becomes more vital to the life of the business in this current global economy. The COVID-19 pandemic has moved many services online that would not have otherwise

been moved. The pandemic has made many firms acutely aware of the importance of e-commerce and e-Marketing as many firms suffer extreme revenue losses as physical locations are shut down. Internet activity will only continue to grow, and firms looking to keep up with the economy and stay competitive in their industries will require a comprehensive e-Marketing strategy.

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ASSESSING FINANCIAL STATEMENT COMPARABILITY IN CRITICAL ACCESS HOSPITALS

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ABSTRACT

A major assumption underlying all financial analyses across firms is that the accounting statements being assessed exhibit a high degree of comparability. In its appendix to Amended Concepts Statements Number 8 (https://www.fasb.org/jsp/FASB/Document_C/DocumentPage?cid=1176171111398&acceptedDisclaimer=true), the Financial Accounting Standards Board (FASB) notes that comparability is an enhancing qualitative characteristic of all financial statements. More specifically, all financial information must, first and foremost, be "relevant and faithfully represented", as inaccurate or unreliable financial information is not useful in guiding decision-making relevant to that particular firm. For decisions that must be made across firms, decision making is improved if the accurate and reliable information incorporated in each firm's financial statements express a high "degree of similarity in accounting choices" (Do, 2020). Thus, accountants characterize comparability is a secondary criterion in the generation of accounting statements, because their primary focus is on the creation or accurate and reliable financial information for a single firm. But for most other business professionals (investors, analysts, regulatory agencies, etc.) who use financial information to make choices that cross firm boundaries, comparability becomes an equally important characteristic. Without comparability, it is difficult to attribute differences in the productive activity of different firms to actual differences in productive activities, or whether those differences are simply an artifact of how those activities are recorded.

Despite the importance of comparability in financial statements, there is very little literature that attempts to assess the comparability of financial statements across firms. De Franco, Kothari, and Verdi (2011) provides the first systematic attempt to quantify the degree of comparability of financial statements. The authors posit that financial statements are a function of economic events. If very similar very firms experience very similar economic events, they should provide similar financial statements. Further, they posit that economic events are proxied by the return on the firm's stock, while financial statement information is proxied by earnings. This allows for the creation of an econometric model predicting firm earnings. Such models are estimated across firms, and differences in firms' predicted earnings are used to create a composite measure of accounting comparability. Variations of this model have been used by Do (2020), Devos, Islam, and Rahman (2018), and Chen, Collins, Kravet, and Mergenthaler (2018), Imhod, Seavey, and Smith (2017), and Kim, Li, Lu, and Yu (2013, 2016) to assess the empirical relationship between financial statement comparability and various corporate financial decisions.

More recently, several studies have critically re-examined De Franco, Kothari, and Verdi's (2011) assumptions. Barth, Landsman, Lang, and Williams (2012) characterize comparability using both stock return information and cash flow. These metrics are often defined as "output based measures" of financial statement comparability because they focus on the results of productive activities. Hoitash, Hoitash, Kurt, and Verdi (2018) define financial statement comparability using input-based measures, such as aggregate measures of how analysts and corporate boards define a particular company's peers. Both the output-based and input-based approaches to assessing financial statement comparability have significant drawbacks. First, all measures of financial statement comparability used in the literature are based on very complex econometric methodologies that would preclude their use by many financial analysis and corporate decision makers. A simpler, and potentially equally powerful, mechanism for characterizing comparability would facilitate broader and deeper analyses investigating the causes and consequences of financial statement comparability. It would also allow such measures to be better integrated into financial decisions. Second, financial statement comparability is most effectively characterized using all relevant aspects – rather than simply inputs or simply outputs – of the financial statements. Otherwise, the results are subject to aggregation and/or misspecification biases. Third, current approaches to characterizing financial statement comparability assume that the firm is publicly traded, and has a strictly profit-maximization and/or shareholder wealth maximization objective. Many firms are not publicly traded, which precludes the use of stock returns. Moreover, many firms have objectives that are not strictly shareholder wealth or profit-maximizing. Neither earnings nor stock returns are viable proxies for financial

information and economic events, respectively. Such firms may also lack expert designations of one's peers. Cumulatively, these measures focus on a narrowly defined type of firm, and not the entirety of firms currently operating in most economies.

The purpose of this paper is to posit a new methodological approach to characterizing financial statement comparability. The methodology utilizes information theory, and more specifically concepts of maximum entropy and minimum cross-entropy, to develop estimates of financial statement comparability. The entropy-based model is implemented as a simple spreadsheet model (using Excel's Solver routine), and is thus accessible to researchers who are not well-versed in financial econometric methods. Perhaps most importantly, the model creates its financial comparability estimates using all entries in a single financial statement, and thus incorporates all available information in the statement, rather than inputs or outputs arising from that statement. In doing so, it avoids measures that may be specific to publicly traded firms or strictly shareholder wealth and/or profit-maximizing firms. While not addressed in this manuscript, it is straightforward to extend the methodology to incorporate information from multiple accounting statements into a single measure of comparability. As an illustrative example, we implement the methodology using balance sheets drawn from critical access hospitals in Washington State in the year 2017. The sample is interesting because these hospitals explicitly do not have profit or wealth as a motive. They operate in a very regulated industry, in rural environments, with very thin input markets, and on thin operating margins. While they share similar general objectives (to provide health care to rural, economically disadvantaged populations) they all differ dramatically in their mission, vision, and productive activities. Thus, comparability of financial statements is not assured. They are, in fact, the antithesis of the firm commonly analyzed in the financial accounting literature, and methods used in that literature cannot be applied to these firms. We find that approximately two thirds of these firms produce highly comparable balance sheet information. Moreover, for firms that are not highly comparable, the model provides intuitive information identifying which balance sheet elements lead the firm to be less comparable to its peers than other firms.

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INTERNATIONAL

HEALTHCARE

HEALTH OUTCOMES AND HEALTH SPENDING IN THE UNITED STATES AND THE NORDIC COUNTRIES

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HEALTH OUTCOMES AND HEALTH SPENDING IN THE UNITED STATES AND THE NORDIC COUNTRIES

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ABSTRACT

There is a broad consensus that the Nordic Countries spend less on health care but get better health outcomes than the U.S. The study aims to compare health outcomes and health spending and compare the top ten causes and risk factors for disability-adjusted life-years (DALYs) in U.S. and Nordic countries. Besides, this study discusses how the Nordic countries have better healthcare than the U.S. for less money.

INTRODUCTION

Nordic Health System

Nordic countries consist of Denmark, Norway, Sweden, Finland, and Iceland. All individuals living in the Nordic countries are covered by a compulsory social security system and health insurance. According to the principle of free, equally accessible health services, everyone residing in the Nordic countries can access the health system and services regardless of their social and economic situation (Knudsen et al., 2019). Financing of the system is usually provided through taxes. In many areas of the health system in these countries, the public health system is dominant, and health services are mostly publicly funded. In these countries, the state is responsible for the quality of health services, the determination of its capacity in all areas, and health policies. Central governments have assumed responsibility for determining countries' health policies, and municipalities and regional authorities offer many health services, including primary care. The common characteristics of the health systems of these countries are as follows (Magnussen et al., 2009):

- Predominantly tax-funded health systems with only minor supplementary premium-based or out-of-pocket financing,
- Decentralized public governance structure,
- Central taxes finance specialist care,
- Primary care and care for the elderly and disabled are financed by both central (through the grant system) and local taxes,
- Local taxes are fixed,
- Elected local governments that can tax,
- Public ownership (or control) of delivery structure,
- Equity driven, with a focus on geographical and social equity,
- Public participation,
- Strong primary care workforce.

The U.S. Health System

The U.S. health care system is defined as a hybrid health system, a combination of public health insurance and private insurance systems. The U.S. does not have universal health insurance coverage, and only recently has Obama Care enacted mandating health insurance for nearly everyone. The country had about 9.2% uninsured people in 2019. In 2019, the federal government accounted for 29%, and households accounted for 28% shares of health spending, followed by 19% private businesses, 16 % state and local governments, and 7% other private revenues (CMS, 2021).

Characteristics of the U.S. Health System:
- Funding & Types of Health Insurance,

- Veterans Administrations (V.A.): Similar to the U.K. National Health Services (NHS), only for U.S. veterans (1.4 % in 2019) (CMS, 2021; (Shi and Singh, 2015),
  - Medicare: a health insurance program for People age 65 or older, people under age 65 with certain disabilities, and people of all ages with End-Stage Renal Disease (14.2% of the U.S. population in 2019) (CMS, 2021; Rowland and Garfield, 2000)
  - Medicaid: health coverage for low-income adults, children, pregnant women, elderly adults, and people with disabilities (19.8% of the U.S. population in 2019) (Rowland and Garfield, 2000).
  - Private insurance (49.6% provided by employers, 5.9% non-group) (CMS, 2021)
  - Out of Pocket payments
- Advanced diagnostic and therapeutic technology,
- Timely availability of subspecialists and procedures,
- Limited access to multiple underserved populations,
- High cost with marginal population outcomes,
- Insufficient primary care workforce,
- Highly bureaucratic/administrative costs.

HEALTH OUTCOMES AND HEALTH SPENDING

Table 1 provides general demographic, mortality, life expectancy, and health spending information for both the U.S. and the Nordic countries. The U.S. population was about 328 million, and the Nordic countries' population was about 27 million. Iceland had the lowest number of people, and Sweden had the highest number of people among the Nordic countries in 2019. The GDP per capita was $ 53 535 for the U.S. and was between $ 40,215- 63 501 (Finland and Norway, respectively) in the Nordic countries in 2019. The U.S. had the lowest educational attainment compared to Finland, Iceland, Norway, and Sweden.

Although the life expectancies at birth were close to each other in the Nordic countries, the U.S. had a lower life expectancy than the Nordic countries in 2019. The economic, social, and cultural developments and improvements in the Nordic countries have had significantly contributed to the increased life expectancy from birth. Income inequality is not a significant problem in the Nordic countries, but there are some differences among life expectancies at birth according to their socioeconomic status. The U.S. had higher infant mortality and deaths of children under five compared to the Nordic countries.

Table 1. Socioeconomic and health characteristics of the countries, 2019

	USA	Denmark	Finland	Iceland	Norway	Sweden
Population (2019)	328M	5.8M	5.5M	337.5k	5.3M	10.2M
2019 per capita GDP $	53,535	45,244	40,215	47,062	63,501	46,388
2019 fertility rate	1.7	1.8	1.5	1.8	1.7	1.8
2019 educational attainment (years)	12.9	12.7	14.5	15.1	13.8	13.0
Life expectancy (observed)						
Females (2017)	81.1	82.7	84.3	85.9	84.2	84.2
Males (2017)	76.1	78.8	78.5	79.8	80.5	80.8
Child mortality (observed) (2019)						
Under 1	5.5	3.5	1.8	1.5	2.0	2.1
Under 5	6.5	3.0	2.2	2.2	2.5	2.6
Health Expenditure USD per person $						
2018	10 271	6 195	4 656	6 307	8 269	6 095
2050	15 825	8 846	7 410	10 390	10 668	8 909

Source: www.healthdata.org

Table 2. Health inputs (2019 or closest available year)

Health Inputs	Country Name	Year 2011	Year 2019
Physicians (per 1,000 people)	USA	2.46	2.61
	Canada	2.10	2.61
	Denmark	3.78	4.01
	Iceland	3.46	4.08
	Finland	3.12	3.81
	Norway	2.54	2.92
	Sweden	3.96	3.98
Nurses and midwives (per 1,000 people)	USA	9.47	14.55
	Canada	9.24	9.94
	Denmark	10.14	10.32
	Iceland	15.47	16.21
	Finland	14.49	14.74
	Norway	16.95	18.22
	Sweden	11.76	11.82
Hospital beds (per 1,000 people)	USA	2.97	2.87
	Canada	2.80	2.52
	Denmark	3.13	2.60
	Iceland	3.29	2.83
	Finland	5.52	3.61
	Norway	4.19	3.53
	Sweden	2.70	2.14

Source: World Development Indicators, https://databank.worldbank.org/

Table 2 shows the health inputs of the U.S. and the Nordic countries in terms of physicians (per 1,000 people), nurses and midwives (per 1,000 people), and hospital beds (per 1,000 people). The availability of healthcare inputs can affect a health system's functioning in various ways, including access to health services, cost of care, and disaster preparedness. The U.S. has more acute care hospital beds per capita than Denmark, Finland, and Norway. Although the U.S. had fewer doctors per capita than the Nordic countries, it had more nurses per capita than Denmark and Sweden in 2019 (World Development Indicators, 2021).

Differences between the U.S. and Nordic countries' burden of diseases were observed when compared the burden of disease in these countries, a measurement method that considers both longevity and quality of life. Table 3 shows that the burden of disease and health-threatening risk factors of Nordic countries are similar. When we compare the U.S. and the Nordic countries, ischemic heart disease is observed as the number one cause for the most deaths in both health systems. Alzheimer's disease, stroke, lung cancer, and COPD are among the top five conditions that cause the most deaths in both the U.S. and Nordic countries. Nordic countries and the U.S.'s economic development levels and the longer life expectancies contribute to the similarity. The fact that the U.S. had more deaths and cases from coronavirus in 2020, and it is expected that both the burden of disease and health spending in the coming years will increase due to pandemic. Because of Canada, Finland, and Norway's geographical location and weather conditions, falls were among the top ten causes of death in these countries

Table 4 shows the top 10 risks contributing to death and disability explained as disability-adjusted life years (DALYs), which is the sum of years of potential life lost due to premature mortality and the years of productive life lost due to disability. Cardiovascular diseases and cancers are at the forefront of the disease burden rankings in both the U.S. and Nordic countries. For this reason, it is essential to continually focus on the prevention and risk factors that cause these diseases. Attempts to reduce tobacco and alcohol use will significantly reduce these diseases' incidence (see Table 4). Table 4 shows that the U.S. and Nordic countries face the problem of significant dietary risks. Both legal arrangements and industry cooperations should focus on the healthy eating of

people living in both health systems (Knudsen et al., 2019). Besides, the U.S. and the Nordic countries' administrations should prepare and implement action plans for healthy eating and diet. These action plans should include access to nutritious foods, labeling of food products, and taxation, etc.

In both health systems, high body-mass index, high fasting plasma glucose, high blood pressure, and high LDL were also leading risk factors contributing to death and disability combined (Murray et al., 2020). These risk factors were related to the people's dietary habits and physical activity in both health systems. In both the U.S. and the Nordic countries, tobacco and alcohol use are among the top five risk factors. The health statistics show that some diseases caused by smoking and alcohol use cause significant chronic diseases and deaths in both health systems (Knudsen et al., 2019). These risk factors affect the life of people and contribute to deaths and disabilities. The non-optimal temperature, an aggregate of the burden attributable to low and high temperatures, was reported as a risk among Denmark and Sweden's top 10 risk factors. Occupational risks had been reported as the top risk factors by all countries. These risk factors include occupational injuries, ergonomic factors, and occupational exposure to particulate matter, fumes and gases, carcinogens, noise, and asthmagens (Murray et al., 2020).

Table 3. Top 10 causes of death in the U.S. and the Nordic countries in 2019, all ages

USA	Canada	Denmark	Finland	Iceland	Norway	Sweden
Ischemic heart disease	Ischemic heart disease	Ischemic heart disease	Ischemic heart disease	Ischemic heart disease	Ischemic heart disease	Ischemic heart disease
Lung cancer	Lung cancer	Alzheimer's disease	Stroke	Lung cancer	Stroke	Alzheimer's disease
COPD	Stroke	Lung cancer	Alzheimer's disease	Alzheimer's disease	Alzheimer's disease	Stroke
Stroke	Alzheimer's disease	Stroke	Lung cancer	Stroke	COPD	Lung cancer
Alzheimer's disease	COPD	COPD	Colorectal cancer	Self-harm	Lung cancer	COPD
Chronic kidney disease	Colorectal cancer	Lower respiratory infections	COPD	COPD	Lower respiratory infections	Colorectal cancer
Colorectal cancer	Lower respiratory infect	Colorectal cancer	Hypertensive heart disease	Colorectal cancer	Colorectal cancer	Lower respiratory infections
Lower respiratory infections	Chronic kidney disease	Prostate cancer	Falls	Lower respiratory infections	Prostate cancer	Atrial fibrillation
Diabetes	Diabetes	Breast cancer	Pancreatic cancer	Pancreatic cancer	Falls	Prostate cancer
Cirrhosis	Falls	Diabetes	Prostate cancer	Prostate cancer	Pancreatic cancer	Breast cancer

Sources: 1- Murray, C.J.L., Aravkin, A.Y., Zheng, P., Abbafati, C., Abbas, K.M., Abbasi-Kangevari, M., ... & Lim, S.S. (2020). Global burden of 87 risk factors in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019. Lancet (London, England), 396(10258), 1223-49.
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Table 5 shows the health expenditures in 2020, 2030, and 2050 in both the U.S. and the Nordic countries. The U.S. and the Nordic countries spend a considerable amount on health care than many developing countries. The U.S. spends more money per capita on healthcare compared to Nordic countries. In the U.S., per capita health spending was $ 11267 in 2020, while per capita health spending is expected to rise to $ 12734 in 2030 and $ 17233 in 2050. Norway had the highest per capita health spending among the Nordic countries, estimated to be $ 8 306 in 2020; this expenditure will be $ 9 148 in 2030 and $ 10 624 in 2050. Other Nordic countries ' per capita health spending appears to be close to each other (Micah et al., 2020).

Table 4. Top 10 risks contributing to death and disability combined (Disability Adjusted Life Years (DALYs)) in the U.S. and the Nordic countries in 2019, all ages

USA	Canada	Denmark	Finland	Iceland	Norway	Sweden
Tobacco	Tobacco	Tobacco	High blood pressure	Tobacco	Tobacco	Tobacco
High body-mass index	High body-mass index	High blood pressure	Tobacco	High body-mass index	High blood pressure	High blood pressure
High fasting plasma glucose	High blood pressure	Alcohol use	High fasting plasma glucose	High blood pressure	High fasting plasma glucose	Dietary risks
High blood pressure	High fasting plasma glucose	Dietary risks	Dietary risks	Dietary risk	Dietary risks	High fasting plasma glucose
Dietary risks	Dietary risks	High fasting plasma glucose	High body-mass index	High fasting plasma glucose	High body-mass index	High body-mass index
Drug use	Alcohol use	High body-mass index	Alcohol use	High LDL	High LDL	Alcohol use
Alcohol use	Occupational risks	Occupational risks	High LDL	Alcohol use	Alcohol use	High LDL
High LDL	High LDL	High LDL	Occupational risks	Occupational risks	Occupational risks	Occupational risks
Kidney dysfunction	Drug use	Kidney dysfunction	Kidney dysfunction	Drug use	Drug use	Kidney dysfunction
Occupational risks	Kidney dysfunction	Non-optimal temperature	Drug use	Kidney dysfunction	Kidney dysfunction	Non-optimal temperature

Sources: 1- Murray, C.J.L., Aravkin, A.Y., Zheng, P., Abbafati, C., Abbas, K.M., Abbasi-Kangevari, M., ... & Lim, S.S. (2020). Global burden of 87 risk factors in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019. Lancet (London, England), 396(10258), 1223-49.
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DISCUSSION

Health statistics show that the Nordic countries have better healthcare than the U.S. for less money. There are many reasons for these differences. First, Nordic countries have a unique set of policies and procedures for arranging doctors and specialists, distribution of hospitals and clinics. Second, the economic case for a single-payer health insurer is strong; private insurance, however, is an expensive way to fund health care in the Nordic countries. Third, Nordic countries have strong primary care and referral system where people can easily access essential health services without any barrier. In the U.S., the primary care delivery system is extremely pluralistic, and service provision is expensive compared to Nordic countries. Fourth, the financing and control of the health system are decentralized to the county or community level. Fifth, physicians and other health professionals are not highly paid in the Nordic countries. Sixth, the Nordic people's health literacy levels are high, and their physical activity culture is better than the U.S. Seventh. The governments have strong health promotion and education policies and higher taxes on tobacco, sugar, etc. Finally, the U.S. political system has a two-party system, and it is believed that it creates one winner and one loser. The Nordic multiparty system creates coalitions and consensus.

CONCLUSION

As in all developed countries, the U.S. and Nordic countries' health systems face similar disease burden and health outcomes, but their solutions to their issues differ due to the difference in health financing systems and the different geography in where they are located. This research shows the difficulty of not reaching Nordic countries' level in terms of health outcomes, despite the high per capita health spending of the U.S. The Nordic

system has lower health costs, more health services, universal access to health care without any financial barriers, and superior health status. Besides, the Nordic countries have longer life expectancies and lower child mortality rates than do the US people. There are many lessons that the U.S. and Nordic countries can learn from each other mutually.

Table 5. Health Expenditures (2019 U.S. purchasing-power parity-adjusted dollars per capita)

	Year	Total health spending	Government health spending	Out-of-pocket health spending	Prepaid private health spending
USA	2020	11 267	5 968	1 246	4 053
	2030	12 734	7 095	1 235	4 405
	2050	17 233	9 688	1 455	6 091
Canada	2020	5 683	4 212	788	683
	2030	6 159	4 642	784	72
	2050	7 301	5 534	878	89
Denmark	2020	5 656	4 770	761	126
	2030	5 911	5 018	760	133
	2050	6 815	5 837	820	158
Finland	2020	4 450	3 410	906	134
	2030	4 796	3 722	929	146
	2050	6 192	4 952	1 048	192
Iceland	2020	4 638	3 780	778	79
	2030	4 780	3 908	790	82
	2050	5 653	4 666	888	100
Norway	2020	8 306	7 107	1 170	30
	2030	9 148	7 960	1 156	32
	2050	10 624	9 459	1 127	38
Sweden	2020	6 268	5 283	906	80
	2030	7 455	6 412	950	94
	2050	9 633	8 422	1 088	123

Source: Micah, A.E., Su, Y., Bachmeier, S.D., Chapin, A., Cogswell, I.E., Crosby, S.W., ... & Dieleman, J.L. (2020). Health sector spending and spending on HIV/AIDS, tuberculosis, and malaria, and development assistance for health: progress towards Sustainable Development Goal 3. Lancet (London, England), 396(10252), 693-724.

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A Comparison of Country's Cultural Dimensions and Health Outcomes

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A Comparison of Country's Cultural Dimensions and Health Outcomes

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INTRODUCTION

The purpose of this study is to determine if culture predicts health; specifically does a country's culture predict the health of that country's population. In the United States, at least, the national conversation about the cost and availability of health care is now decades old, dating back at least to President Truman in the 1950's who first proposed some type of national health insurance. (Harry S. Truman Library). Specifically, much of the lament of the U.S. health care system is about the relatively high cost with a questionable return on the investment – especially as it relates to outcomes as well as the breadth or lack thereof, of health care insurance coverage. Politicians and policy makers alike often times look with envy at other countries such as Sweden or Denmark as models for delivering high quality and highly cost effective health care – a duality that seems to be beyond the reach of the U.S. Put more directly, the problem appears to be that the U.S. has incredibly inefficient health care system. Perhaps the most damning statement was in the Commonwealth Fund's 2017 report which read, in part, "Based on a broad range of indicators, the U.S. health system is an outlier, spending far more but falling short of the performance achieved by other high-income countries" (Commonwealth Fund, Mirror, Mirror 2017, p. ii).

As an example, the U.S. in 2018 spent 17.1 percent of Gross Domestic Product (GDP) on health care while achieving an average life expectancy of 71 while countries like Sweden and Denmark spent 9.1 and 9.2 percent of GDP on health care respectively, while achieving life expectancies of 74 and 75. Life expectancy is, of course, but one measure of health. Likewise, health spending is but one input in a health model. Further discussion of appropriate definitions and measures of health and culture will be discussed below.

So why examine culture? A simple answer might be why not? Especially against the backdrop of countless studies which have offered countless other explanations as to why the U.S. simply does not get the same bang for the buck as so many other wealthy countries. Yet, many of these studies may only be suggestive of the symptoms of perceived inefficiencies – for example, high administrative costs or lack of universal health care insurance. Yet these explanations may in fact fail to reveal the underlying root cause or causes. In fact, as will be discussed below, often times the unexplained variance in many an analysis is broadly suspected to be the ephemeral concept of culture, yet without any substantive evidence to support such claims (Hruschka 2009). In the 2017 Commonwealth Fund report which ranked the U.S. health care system lowest of the eleven high-income countries studied, the authors of the study admit in the discussion of limitations of the study that patient expectations and physician's assessments might be influenced by culture, without ever defining culture (P.14).

Although the answer may lie in our culture, we are appropriately cautioned as the researchers state in their paper, *Culture: The missing link in health research*, "Culture is often proposed as an explanatory variable for these differences yet, paradoxically, little work explicates the precise cultural processes involved that are valid, relevant to the communities of focus, and sustainable" (Singer, Dressler, George, et.al. p. 237, 2016). Hruschka (2009) goes further, "…in most cases presented above, culture was proposed to 'do something' that could account for observed disparities in health … In many cases, culture was simply invoked as something that mattered for a health outcome, with no specification of particular pathway beyond broad claims about measurement issues, behaviors or cultural sensitivity" (p. 240). Hruschka continues, "In a few cases, generic cultural factors were proposed as a cause of observed population differences that could not be accounted for by other means" (p. 241).

Perhaps the temptation to reach for culture as a plausible explanation is nothing more than an attempt at inductive reasoning. If it is not all of these other things, it must be culture. This study will attempt to advance the discussion.

Review of the literature

In order to answer the question of culture and health we must first examine the two core concepts: culture and health. What is culture and what is health? Hofstede's (1980) seminal work in cross-cultural studies posits that a country's culture can be best understood by examining four distinct dimensions of culture; they are (cited in Minkov, Hofstede 2011):

Power distance. Social inequality, including the relationship with authority. *Individualism-collectivism*. The relationship between the individual and the group. *Masculinity-femininity*. The social implications of having been born as a boy or a girl. (Later editions of the book replaced the word "social" by "emotional"). *Uncertainty avoidance*. Ways of dealing with uncertainty, relating to the control of aggression and the expression of emotions. (Later editions of the book refer to "the extent to which the members of a culture feel threatened by ambiguous or unknown situations").

In 1991 Hofstede added a fifth dimension: "*long-term versus short-term orientation* (cited in Minkov, Hofstede 2011). A sixth dimension was added in 2010 "*indulgence- restraint*" (Hofstede, Hofstede &Minkov 2010)

Hofstede's development of a numeric score for each of his six dimensions (initially four dimensions) began in the early 1970's when, in his own words, "by accident" he was given access to a survey data base of a very large international corporation, International Business Machines (IBM). The survey data contained individual responses from approximately 100,000 employees from more than 50 countries. This was the genesis for the further data collection and refinement of his dimensions of culture model. Based on the individual survey responses, mean scores were developed for the various dimensions for each country. Scores were standardized to a 100 point scale. These scores became the foundation for on-going research for the subsequent forty plus years. (Hofstede 2011).

Hofstede's model has been used in numerous studies and settings for a variety of purposes. There are also more than a few cautionary tales of Hofstede's model being misused (Brewer, P. and Venaik, S. 2012; Mooij, M. 2013; McSweeney, B. 2013). Nevertheless, Hofstede's model, when used appropriately has been in the literature for well over 40 years and cited numerous times. The single greatest concern over the model is when researchers attempt to ascribe country level characteristics to individuals, making the so-called ecological fallacy error. Hofstede discusses this problem at length (Hofstede, 2011) as have many others (Mooij, 2013; Brewer and Venaik, 2012). The simple point of the ecological fallacy error is that in a sense the Hofstede model can be a blunt instrument if not deployed properly and one should proceed with caution. Hofstede warns, "One of the weaknesses of much cross-cultural research is not recognizing the difference between analysis at the societal level and the individual level amounts to confusing anthropology and psychology. From 180 studies using my work reviewed by Kirkman, Lowe and Gibson (2006), more than half failed to distinguish between societal culture level and individual level differences, which led to numerous errors of interpretation and application" (Hofstede, 2011, p. 6). Logically culture is never about a single person, but rather a collection of individuals – as Hofstede's states, "Culture is the collective programming of the mind that distinguishes the members of one group or category of people from others" (Hofstede, 2011, p. 3). Even more precisely, Hofstede writes, "…culture and personality are linked but the link is statistical; there is a wide variety of individual personalities within each national culture and national culture scores should not be used for stereotyping individuals" (p. 8).

Singer, Dressler, George and et.al. (2016) addressed culture in a health care context, describing culture, at least in part, as follows:

Culture is an internalized and shared schema or framework that is used by group (or subgroup) members as a refracted lens to "see" reality, and in which both the individual and the collective experience the world. This framework is created by, exists in, and adapts to the cognitive, emotional and material resources and constraints of the group's ecologic system to ensure the survival and wellbeing of its members, and to provide individual and communal meaning for and in life (Hartigan, 2010; Kagawa-Singer, 1993 cited in Singer, et al. 2016, p.242).

In their discussion of the current state of culture and health research, they further posit that "Culture is often operationalized with superficial, simplistic and crude measures, such as dichotomous nominal variables based ostensibly on race or singular, stereotypical beliefs….When such variables are entered into statistical analyses as proxies for culture, the findings are inconclusive or, at best, contribute negligible explanatory weight to the variance of health outcomes" (p. 238). They conclude that to operationalize culture in a health research setting that the "approach could either be more of a discovery or formative research mode, or from a well-defined theoretical orientation identifying specific cultural constructs of interest" (p. 244). The Hofstede model offers such a theoretical framework.

The second key concept of this study is health, specifically the health of a country. Just as the concept of a country's culture might at first seem intuitive yet ultimately prove elusive so too is the concept of a country's health. While The World Health Organization (WHO) definition "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO 1946) has not changed and may work well if thinking about an individual's health status, it may not apply so easily when thinking about the health of a nation. In fact, the WHO 2018 report lists thirty five different health indicators in their worldwide health assessment (WHO Report 2018). Accordingly, this study will look at several characteristics that speak to the health of a community, the communities in this case being the countries in question.

There have been countless studies which have sought to compare various country's models of health care systems, their financing mechanisms and most importantly their health outcomes. Stated simply, for many policy makers a nation's health is a simple function of the net gain achieved from inputs versus outputs. The more you put into a system, the more you get out. Unfortunately, this logic does not hold up very well, and is most acutely observed when one looks at the percent of Gross Domestic Product (GDP), spent on healthcare in the United States, in 2018 a world's highest of 17.1 percent 1, while its average life expectancy of 78.5, a common measure of population health ranks only 53rd highest in the world in the world (WHO 2018), well behind other countries with much lower rates of spending and much longer life expectancies.

McDowell, Spasoff and Kristjansson in 2004 examined the challenge of defining and measuring population health. They suggest there are two models, the first labeled as the *descriptive model*, wherein population health is measured and defined by measures such as life expectancy, which may then be stratified by other markers such as race or socio-economic status. They state that, "this approach to defining population health is limited and does not adequately capture its scope as an academic field of study" (p. 388). To ameliorate this shortcoming, they proffer a second model, *the analytic model.* The analytic model, "refers to a conceptual and analytic approach to explaining why some people are healthy and others are not, at its broadest, it seeks to analyze not only how this occurs, but why. This conception demands a much broader measurement protocol that includes not only outcome variables in terms of morbidity and mortality indexes, but also direct measures of health processes within our population" (p. 388).

Anderson and Frogner (2008) evaluated health spending in the countries of the Organization for Economic Cooperation and Development (OECD). The OECD gathers self-report data from its member countries affording researchers a rich source of data, although the quality and/or reliability of the data has been sometimes questioned (Reinhardt, Hussey and Anderson 2002, p. 177). In Anderson and Frogner's study, they were particularly interested in "value per dollar". Their methodology defined health care quality as life expectancy and value was calculated via a "bivariate regression of life expectancy and GDP per capita (measured in PPP) sic (p. 1722). The OECD explains, "PPPs are the rates of currency conversion that eliminate the differences in price levels between countries. Per capita volume indices based on PPP converted data reflect only differences in the volume of goods and services produced.

Comparative price levels are defined as the ratios of PPPs to exchange rates. They provide measures of the differences in price levels between countries. The PPPs are given in national currency units per US dollar" (OECD, 2020).

Anderson and Frogner while admitting that, "The relationship between life expectancy and health spending is a crude analysis of value per health care dollar" (p. 1723) they readily recognize that "many other factors influence life expectancy and life expectancy is only one measure of health status (p. 1723). They wrote, "… we have returned to the conclusion that much of the spending differences are attributable to the higher per capita income of the United States and the fact that Americans pay much higher process for medical care services…" (p. 1719). Nevertheless, the researchers also examined sixteen health care quality indicators across the 29 OECD countries in their study at that time and concluded, "… the results suggest the United States is not receiving good value for a country that spends more than any other OECD country. Overall, the United States is about as likely to be in the top half as in the bottom half of the countries submitting data" (p. 1724). For example, for cervical cancer screening, the U.S. had the highest rank at number 1, for the indicator asthma mortality rate, the U.S. ranked number 23 out 25 countries reporting.

A more recent study by Bradley, Sipsma and Taylor (2017) used a mixed methods approach using "a 10-year analysis of national-level health and social service spending and health outcome data from the OECD" (p. 61). The title of their paper is in itself revealing – *American Paradox –high spending on health care and poor health*. In this study the researchers examined not only spending on medical services but also the ratio spent on social services. They write, "The academic literature is unequivocal about the importance of what is referred to as the 'social determinants of health' such as housing, education, income, occupation, environmental contacts, lifestyle and other similar exposures" (p. 62). Their findings indicated that U.S. ratio of spending on social service to health care was the lowest amongst all the OECD countries. Conversely, when health and social service spending are totaled, the U.S. ranks in the middle (p.62). They found that, "using health and social expenditure data from2009 and mixed effects regression models, we find countries with higher ratios of social-to-health spending have significantly higher life expectancy and lower infant mortality after adjusting for health expenditures and GDP" (p. 62). Bradley, Sipsma and Taylor conclude that, "…the social determinants of health are essential to the lives of Americans from a range of backgrounds and income levels" (p. 65). One possible conclusion from this study is that while the total spending of the U.S. is not abnormal, the proportion of spending on health vis a vis social services is. Heuvel and Olariou (2017) in a study of European countries examining GDP health spending and life expectancy, found that spending was not a main determinant of life expectancy, however spending a higher proportion of GDP on social protections contributed to longer life expectancy (p. 276.e9).

In 2019, Anderson and Poullier examined in health spending and health outcomes across OECD countries. In spite of the long running dialogue of what to measure and how, progress is seemingly slow. Their study, like many before, including some mentioned above, used PPP measures (as inputs), rates of health insurance coverage, hospital admission rates and physician visits, to name a few, as process measures and of course, life expectancy as health outcomes. They continue to recognize the many problems in such studies. "Comparisons of outcomes using international data are fraught with problems. It is widely recognized that most standard outcome measures such as longevity or infant mortality are only crude proxies for health status…" (p. 188). The WHO in their 2018 report, *Monitoring Health for SDG's (Sustainable Development Goals)* likewise cautioned:

> Health data derived from health information systems, including health facility records, surveys, or vital statistics, may not be representative of the entire population of a country and in some cases may not even be accurate. Comparisons between populations or over time can also be complicated by different data definitions and/or measurements. (WHO, p. 1)

METHODS AND DATA

This study will utilize country level data from the Hofstede center's web site on 112 countries including measures for the six dimensions of culture described earlier (Hofstede 2020). This data set will be matched with the same countries from the World Bank to include GDP health care spending, per capita health care spending and life expectancy. World Bank health care spending is reported in adjusted dollars allowing for country to country comparisons. A final data set will be collated by matching cases with complete data for all variables of interest.

Statistical analysis and modeling will be done using SPSS software. The following research questions will be investigated:

Q1. Do the dimensions of culture predict life expectancy?

Q2. Do the dimensions of culture predict health care spending?

Data was collected on the 112 countries from the Hofstede web site in an Xcel file (Hofstede 2020). Data sets for percent of GDP health care spending, per capita health care spending and life expectancy were downloaded from the OECD web site (OECD 2020). The most recent OECD data available was for the year 2016.

An example of the six dimensions of culture data is shown in Table 1.
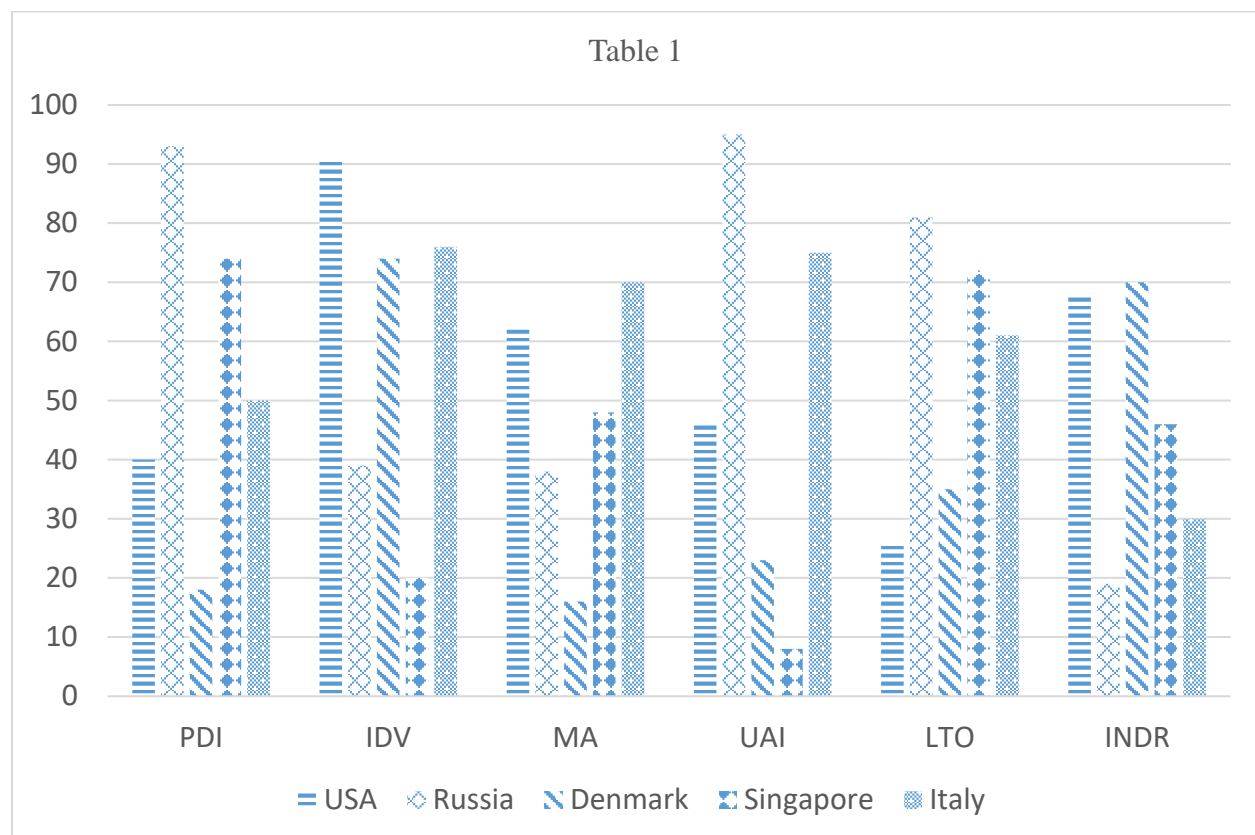
Table 1

Selected countries in Table 1 were chosen to simply highlight some of the more distinctive contrasts for illustrative purpose only and no particular interpretation is implied. The first item, PDI, is the Power-Distance scale. Hofstede defines this as, "the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally. The second item. IDV, is the Individualism scale, defined as, "the degree of interdependence a society maintains among its members". The third item, MA, Masculinity, is defined as "the fundamental issue here is what motivates people, wanting to be the best (Masculine) or liking what you do (Feminine)". The fourth item, UAI, Uncertainty Avoidance, is defined as, "the way that a society deals with the fact that the future can never be known". The fifth item, LTO, Long-term Orientation, is defined as, "how every society has to maintain some links with its own past while dealing with the challenges of the present and future". The

sixth item, INDR, Indulgence-Restraint, is defined as "the extent to which people try to control their desires and impulses" *(Hofstede 2020).*

The U.S. scores are relatively higher on Individualism and Indulgence and relatively lower on Power Distance and Long Term Orientation. U.S. scores for Masculinity and Un-certainty Avoidance are somewhat moderate. Hofstede interprets these U. S. scores, in part, by stating, "…The society is loosely-knit in which the expectation is that people look after themselves and their immediate families only and should not rely (too much) on authorities for support" (Hofstede 2020).

Tables 2 provides per capita health spending by select OECD country. Table 3 provides health spending as a percent of GDP by select OECD country. (OECD, 2020). Selected countries in Tables 2 and 3 were chosen to simply highlight some of the more distinctive contrasts for illustrative purpose only and no particular interpretation is implied
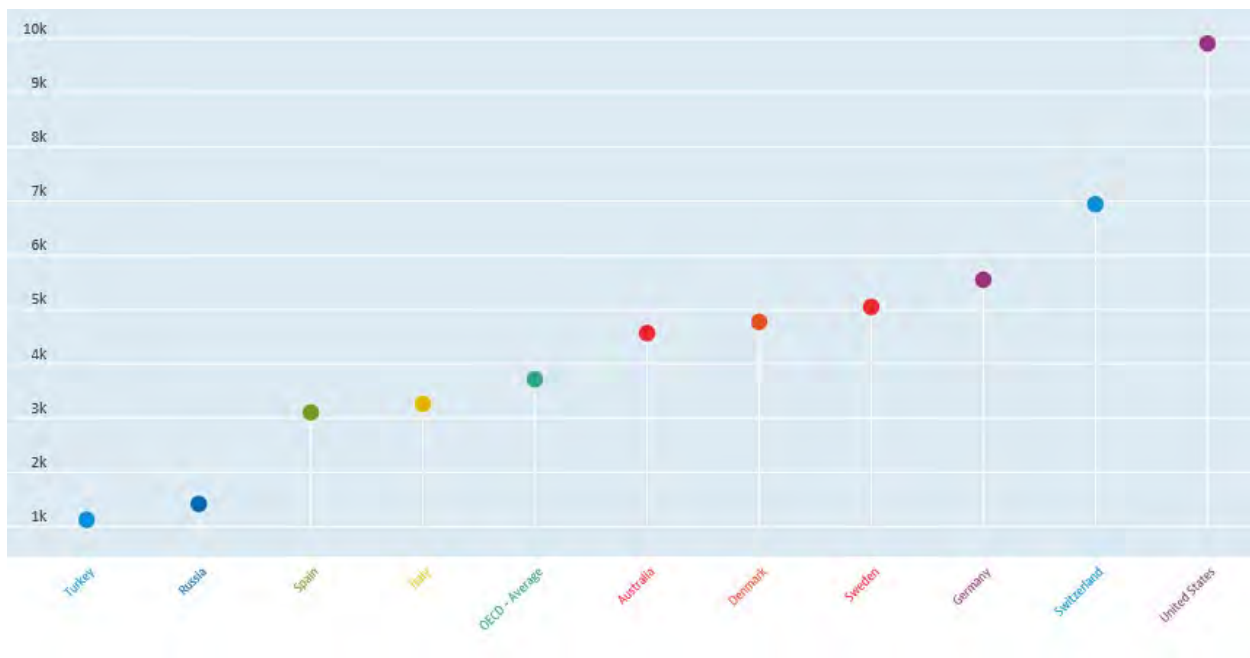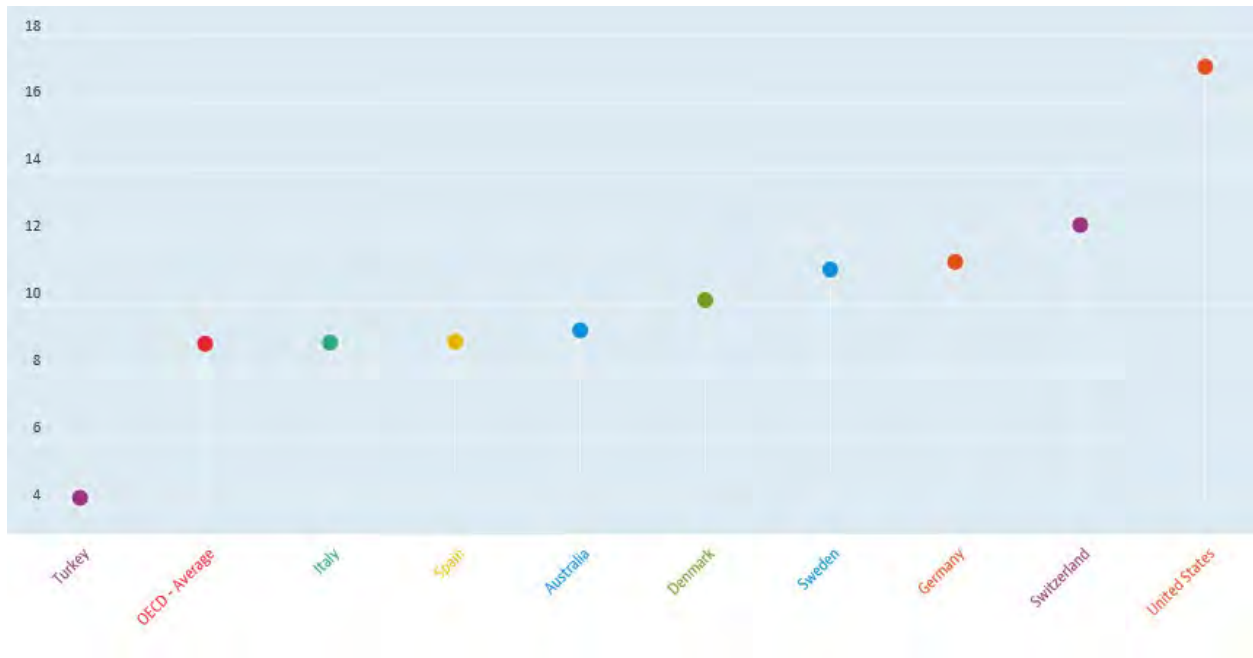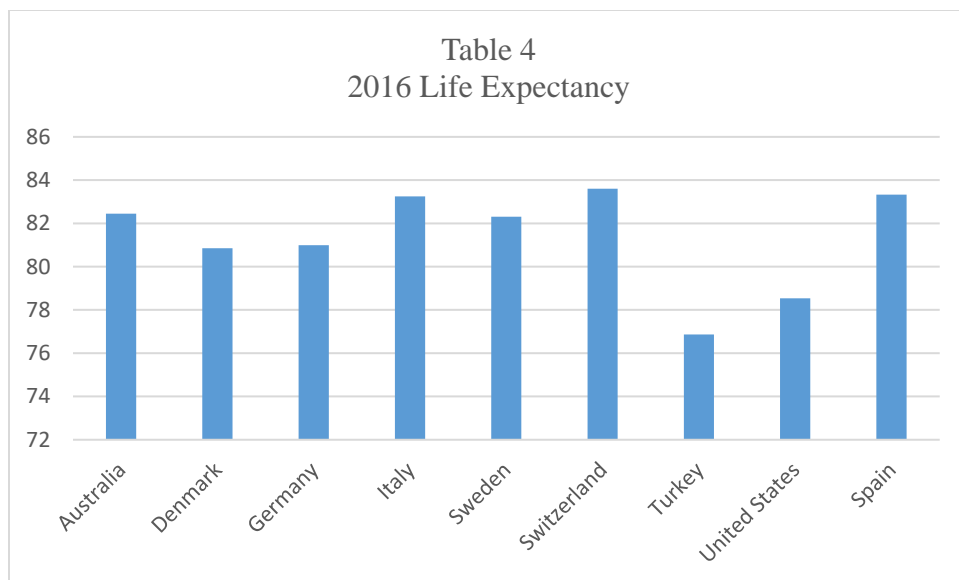
Table 2

Table 3

Table 4 presents 2016 average life expectancy by selected countries. Selected countries in Table 4 were chosen to simply highlight some of the more distinctive contrasts for illustrative purpose only and no particular interpretation is implied.

Table 4
2016 Life Expectancy

A final data set was developed after by merging the Hofstede data and the World Bank data. A total of sixty countries comprised the final data set. Several countries were dropped from the analysis because of incomplete data for several of the cultural dimensions. Two regression models were developed, one each for the two dependent variables, *life expectancy* and *per capita health care spending*. GDP health care spending was not used in the analysis since it is a relative measure whereas per capita health care spending is an absolute measure.

The six dimensions of culture were entered as independent variables. The six dimensions of culture are: *Power distance(PD); Individualism-collectivism (IDV); Masculinity-femininity(MF)*; *Uncertainty avoidance(UA)*; *Long-term versus short-term orientation(LTO)*; *Indulgence- restraint(IND)*. The six dimensions are measured on scale from zero to one hundred, the higher the score the greater the dimension's influence.

There are several concerns in this study with such a particularly small sample size for a regression model. Field (2005) suggests that uncovering a larger effect may not suffer as greatly as when the expected effect is relatively smaller. The problem is further compounded by the number of predictor variables, in our case there are six (dimensions of culture). Nevertheless, a sample size of sixty while at the very edge of a lower limit with a model having 6 predictor variables, there is modest support for proceeding (Miles & Shevlin cited in Fields, 2005). Indeed, an N as low as > 25 has recently been suggested by Jenkins and Quintana-Ascencio (2020) as sufficient for regression. This issue will be discussed further in the limitations section below.

RESULTS

The first regression model examined life expectancy. Descriptive statistics are presented in Table 5 below.

Table 5 Descriptive Statistics

	Mean	St. Deviation	N
Life Expectancy	77.73	4.44	60
pdi	58.4833	20.94	60
idv	46.0167	23.91	60
ma	49.1000	20.57	60
uai	67.2667	22.86	60
lto	49.5928	23.21	60
ind	48.1013	22.37	60

Tables 6 and 7 present the regression results. The model's adjusted R square equaled .45, with three of the six independent variables entering the equation at a significance level $p < .01$. The variables and their respective Betas were: IDV = .37; LTO = .41; IND = .32. These results indicate the impact of culture on life expectancy, specifically the influence of individualism, long term orientation and indulgence.

Table 6

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant) Life Exp.	69.440	3.585		19.367	.000
	pdi	-.045	.029	-.213	-1.542	.129
	idv	.070	.024	.374	2.845	.006
	ma	-.016	.022	-.076	-.745	.459
	uai	.023	.020	.119	1.189	.240
	lto	.079	.022	.413	3.567	.001
	ind	.064	.024	.320	2.627	.011

Table 7

Adj R square	Std Error of Est.	R square change	F change	Df1	Df2	Sig F change	Durbin-Watson
.45	3.31	.50	8.87	6	53	.000	1.84

The second regression model examined per capita health care spending. Descriptive statistics are presented in Table 8 below.

Table 8

	Mean	St. Deviation	N
Per Cap Health Care Spend	2606.48	2185.00	60
pdi	58.4833	20.94	60
idv	46.0167	23.91	60
ma	49.1000	20.57	60
uai	67.2667	22.86	60
lto	49.5928	23.21	60
ind	48.1013	22.37	60

Tables 9 and 10 present the regression results. The adjusted R square equaled .63, with four of the six independent variables entering the equation at a significance $p < .01$. The variables and their respective Betas were: PDI = -.31; IDV = .39; LTO = .32; IND = .34. These results indicate the strong impact culture has on health spending. In particular, the degree of individualism, long term orientation and indulgence suggest an increase in health spending, whereas a higher measure of power distance suggests lower spending.

Table 9

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	37.217	1446.308		.026	.980
	pdi	-32.794	11.812	-.314	-2.776	.008
	idv	36.027	9.863	.394	3.653	.001
	ma	1.590	8.898	.015	.179	.859
	uai	-5.063	7.872	-.053	-.643	.523
	lto	30.443	8.941	.323	3.405	.001
	ind	32.889	9.762	.337	3.369	.001

Table 10

Adj R square	Std Error of Est.	R square change	F change	Df1	Df2	Sig F change	Durbin-Watson
.63	1336.09	..664	17.47	6	53	.000	1.84

VIF values and tolerance statistics for both regression models were also calculated. There were no VIF values greater than 10. Likewise tolerance statistics were all above .2, indicative of no multicollinearity. Further tests for assumptions were performed by plotting standardized residuals against standardized predicted values. Visual inspection of the plots suggested that assumptions of linearity and homoscedasticity have been met. Partial regression plots of the six independent variables were also performed for both models. Once again, visual inspection of the plots suggested that assumptions of linearity and homoscedasticity have been met (Field, 2005).

DISCUSSION

The first research question, Do the dimensions of culture predict life expectancy, was addressed in the first regression model described above. There is moderate evidence that 3 of the 6 dimensions of culture influence life expectancy, specifically individualism, long term orientation and indulgence. At this juncture, it is important to remember that we do not make the ecological fallacy error of ascribing the country level characteristics to any one individual's behavior McSweeney, B. (2013).. Put simply, we should not conclude that if a person were to be more indulgent they might live longer – although that would be a comforting rationalization to buy a new car or take a vacation. On the other hand the relative influence of individualism on life expectancy in this model may give rise to assumptions about models of socialized medicine. One may be tempted to argue from this particular result that an "every person for themselves" outlook is a rational one and leads to a longer life. Conversely, an argument may be made that collectivism leads to a shorter life span, neither of which we are suggesting. What we do suggest is that culture, as defined and measured by Hofstede, does have an influence on a country's health status as measured here in terms of life expectancy.

The second research question, do the dimensions of culture predict per capita health care spending, was addressed in the second regression model above. There is moderate evidence that 4 of the 6 dimensions influence per capita health care spending. Specifically individualism, long term orientation and indulgence suggest an increase in health spending, whereas a higher measure of power distance suggests lower spending. Similar to the first regression model, individualism, long term orientation and indulgence contribute significantly to the overall model in predicting per capita health care spending. Additionally, the fourth dimension, power distance, also enters the model and has a negative relationship to health care spending. In a culture where people are more accepting of power being unevenly distributed, there is a concomitant likelihood of lower per capita health care spending. This particular finding is interesting in that we wonder if in cultures which expect less of the holders of power, do they in fact receive less. It begs the question as to whether it is a self-fulfilling prophecy. An argument might be made that in a country like the

United States, more money is spent on health care per capita because leaders are held more accountable to spend more, but not necessarily spend wisely.

LIMITATIONS

The sample size of sixty countries is very small, given the number of independent variables (six). Whether it is appropriate to consider only Hofstede's model in its totality versus breaking it into its component parts is a matter for discussion. This research did not take directly into account nor control for a country's wealth, population size, climate or form of government; all of which could be important contributors to understanding both culture and health.

CONCLUSION

This study demonstrates that Hofstede's model of a country's culture predicts the level of per capita health care spending and life expectancy. More specifically, the particular dimensions of culture such as individualism, indulgence and long term orientation all contribute significantly and might give rise to a deeper understanding of a country's health status and health care spending. The implications for policy makers in the United States in particular, may be to make an appeal based on the economic benefits of a collective model of health care rather than making an argument based one's social responsibility.

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RISK FACTORS FOR HYPERTENSION IN KENYA

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ABSTRACT

This study aimed to examine the association between hypertension and tobacco use as well as other risk factors in Kenya. The study results indicate a high prevalence of hypertension in association with certain risk factors—body mass index (BMI), alcohol, waist-hip ratio (WHR), and tobacco use—that were higher in males than females among the hypertensive group. Moreover, the findings noted an exceptionally low awareness level of hypertension in the general population. BMI, age, WHR, and alcohol use were prevalent risks of all three outcomes: hypertension, systolic blood pressure, and diastolic blood pressure. Healthcare authorities and policymakers can employ these findings to lower the burden of hypertension through the development of health promotion and intervention policies.

INTRODUCTION

Cardiovascular disease (CVD) is a major contributor to the growing public health epidemic in non-communicable diseases (NCDs). CVDs account for most NCD deaths (41 million), equating to 17.9 million people annually, followed by cancers (9.0 million), respiratory diseases (3.9 million), and diabetes (1.6 million) (1). The majority of deaths occur prematurely at an age below 70 years. Alarmingly, most of these deaths are in low-and middle-income countries (LMIC). CVDs could be referred to as unique conditions of the heart and blood vessels that are essentially and generally caused by common exposure to a trait of a person's character, defined as a risk factor (2). Among these sets of risk factors are those attributed to habitual behaviors, such as smoking, and metabolic factors, such as hypertension. Furthermore, these risk factors can also be linked to each other, particularly smoking as a risk factor for hypertension (3).

Hypertension is considered one of the dominant risk factors of CVDs, with approximately 1.13 billion individuals exposed to this disease globally. Studies show that hypertension remains undiagnosed in many individuals, especially in sub-Saharan Africa, due to the disease's hidden symptoms (4-6). In later life, this condition can directly or indirectly lead to premature deaths owing to the complexities that develop in untreated patients or as a result of late diagnosis (4,7, 8). The most common health impacts resulting from high blood pressure include acute myocardial infarction, strokes, cardiac failures, and renal failure, among others (9-13).

Research findings indicate an escalating rate of high blood pressure mortalities in LMICs, a rate that is equivalent to approximately twice that of high-income countries. For instance, 7% and 25% of individuals in high-income countries and Africa, respectively, are likely to die before their 60th birthday due to high blood pressure (8, 14-16). A systematic review on sub-Saharan Africa also indicated similar findings with varying levels of evidence on the prevalence of high blood pressure in the region, generating a median of 29% (17). Nevertheless, continuous evidence obtained from various regions indicates a high prevalence of hypertension (between 9% and 50%) among urban settlers and in association with rural-urban migration. Moreover, these findings have been reflected in certain Kenyan studies (18-20).

Smoking has been described as a major global risk factor for various CVD conditions, including stroke, peripheral vascular disease, coronary heart disease, hypertension, and cancers, among others (21,22). On a global scale, studies have reported that 63% to 68% of NCDs attributed to death are highly associated with tobacco (23,24). Yet a number of the deaths occur below the age of 60 years, with a higher percentage in developing countries compared

to the percentage of deaths in higher income countries of approximately 29% and 13%, respectively. Furthermore, an estimated 12.7% of the 7 million tobacco deaths are due to secondary smoke exposure (25).

Smoking and hypertension individually pose alarming consequences, and this concern is heightened when they are both associated with the same individual (26,27). This particular modifiable risk needs to be better understood, allowing the development of suitable control measures, which may result in improved health and reduced mortality and morbidity due to the elimination of the double shared risk it poses. Information on ill health within sub-Saharan Africa is scarce but is not different from the situation found in Kenya (28). To our knowledge, no study has examined the relationship between smoking and hypertension indices in Kenya using a large, nationally representative, and population-based data set. Accordingly, this study examines the association between smoking and hypertension in the Kenyan population. The research questions posed are: How is tobacco use associated with hypertension, and what are the risk factors in hypertensive individuals in Kenya?

METHODOLOGY

Study Population
To understand the association between tobacco use and hypertension, the study utilized the 2015 Kenya STEPs survey provided by the Kenya National Bureau of Statistics (KNBS) and Kenya's Ministry of Health (KMOH) in conjunction with the World Health Organization's (WHO's) global approach, which is a STEPwise surveillance strategy of NCD risk factors (29,30). The data set represents the details of an all-inclusive national survey, which is the first one to ever be done on NCD risk factors and injuries (31, 32).

Study measures

Dependent variables
Three outcome variables were used in this study: hypertension, systolic blood pressure (SBP), and diastolic blood pressure (DBP). However, the core dependent variable in this study was hypertension. Any participants were considered hypertensive if they were found to have an SBP higher than or equal to 140 mmHg and/or a DBP higher than or equal to 90 mmHg, or if they reported current antihypertensive therapy use (33, 34). The hypertension variable is classified in this study as a binary outcome on the averages of the three readings of blood pressure.

Independent variables
The independent variables included demographics (age, sex, marital status, place of residence, occupation, education level, wealth), personal and family history of hypertension, behavioral measures (current consumption of smoked and non-smoked tobacco products, intensity of physical activity), and physical measures (weight, height).

Statistical analyses
Descriptive statistics, correlation, frequencies, and regression analyses were used to execute the statistical analysis in IBM SPSS 25 and Stata 15. The variables' significance was evaluated by using chi-square for the categorical variables and the t-test for the continuous variables. All p values of less than 0.05 were considered to be statistically significant.

Using a backward stepwise regression, variables for inclusion in the final model were identified through the significance and rating of Akaike's information criterion and the Bayesian information criterion (AIC&BIC) by selecting the model that had the lowest AIC&BIC. Nonetheless, more weight was attributed to the rating from the BIC for selection. BIC was afforded a higher weighting because its rating methodology is based on the awarding and/or penalizing for variable contribution to the model, while the AIC only penalizes (35).

The developed model was considered to be the one that provided the best fit with a high R^2 that represented an explanatory power of the independent and the control variables. The model was then tested on the three outcomes using weighted data. Even though the study sample size was quite large to average in normality, the assumptions for the models were also tested by applying the Kruskal–Wallis tests (36).

The models are elaborated below:

$$Y_{systolic} = \beta 0 + \beta_{1tobaccouse} + \beta_{2age} + \beta_{3gender} + \beta_{4alc} + \beta_{5BMI} + \beta_{6marital\text{-}st} + \beta_{7waist\text{-}hipratio} + \beta_{8P\text{-}A} + \beta_{9Edu} + \beta_{10wealth} + \beta_{11region} + \beta_{12work}$$

$$Y_{diastolic} = \beta 0 + \beta_{1tobaccouse} + \beta_{2age} + \beta_{3gender} + \beta_{4alc} + \beta_{5BMI} + \beta_{6marital\text{-}st} + \beta_{7waist\text{-}hipratio} \beta_{8P\text{-}A} + \beta_{9Edu} + \beta_{10wealth} + \beta_{11region} + \beta_{12work}$$

$$Y_{hypertension} = ln\ (\pi/1-\pi) = \beta 0 + \beta_{1tobaccouse} + \beta_{2age} + \beta_{3gender} + \beta_{4alc} + \beta_{5BMI} + \beta_{6marital\text{-}st} + \beta_{7waist\text{-}hipratio} + \beta_{8P\text{-}A} + \beta_{9Edu} + \beta_{10wealth} + \beta_{11region} + \beta_{12work}$$

Limitations

The study used a cross-sectional survey method that might be affected by non-response biasness in the sense that those at risk could have refused to consent to participating in the survey. The exclusion of these individuals may have led to the sample being non-representative of the population. Another major limitation linked to the survey data could be the result of the collation of the self-reported behavior on only one occasion. There is a risk of miscomprehension of the required information, such as the time linked to physical exercise for individuals which may have been exaggerated (37).

RESULTS

Characteristics of the study population

The study participants included in this study ranged between 18 and 69 years old, with 58.8% of all participants identified as females (2,559) after excluding all pregnant women. Moreover, the number of women in all the rural-urban settings was high within each of the wealth quantiles, as shown in Table 1. Moreover, each quantile represented approximately 20% of the participants. The participants' mean age was 37.82 ±13.46 with almost 70% below the age of 44 years, and approximately 67% were married, and 40% and 9.9% were self-employed or unemployed, respectively. Homemakers made up 24.5% of participants, and at least 47% had completed their primary education or 7.7 ±5 years of school. In general, 51% of all participants lived in a rural setting across the country. Among the hypertensives, 36.6% were males and 51.9% were urban dwellers. The difference within the groups was not significant at the 0.05 level. Within the marital status and age groups, approximately two-thirds of the hypertensives were married and between 30 and 59 years of age, while the self-employed and homemakers were also more hypertensive within the occupation status at 40% and 24%, respectively. In the wealth quantile groups, the poorest had the lower percentage (13.5%) among those who were hypertensive, while the middle, fourth, and fifth (richest) quantiles were higher at approximately 22% each.

Higher proportions of the demographic categories among current tobacco users were identified in males (79%), in the age groups between 30 to 44 (41%) and 45 to 59 (27%), the married (64%), the self-employed (43%) and employed (21%), and the rural dwellers (56%). In the wealth quantile category, an estimated one fifth were associated with the second and middle quantiles, whereas most of the current tobacco users were the poorest (30.6%). Among the former tobacco users, similar groups as those in the current tobacco users had higher numbers presented as quitters except the wealth quantile groups where the poorest were indicated as having the lowest percentage of quitters at 12.8%.

Table 2 lists the descriptive statistics of physical measures and continuous variables. The results indicate that the two parameters, systolic and diastolic blood pressure, had exceptionally low and extremely high markers (diastolic 48-152 mm Hg and systolic 71-264 mm Hg) with a mean of 83±12 and 127±20 mm Hg for the diastolic and systolic

blood pressures, respectively. These two parameters also varied among males and females and were found to have a greater degree of skewing to the right among two age groups of 30 to 59, as illustrated in Figure 1. The mean of the waist-hip ratio (WHR) of participants is above the recommended normal ratio for women at 0.8±0.08 while the BMI mean is just below the overweight threshold at 23.5±5.08kg/m^2. The fasting blood glucose mean was reported at 4.7±1.4 and the mean of physical activity was noted to be 6±4.2 hours per day with at least no hours of physical exercise for others.

Table 1. Demographics characteristics of participants' hypertension status and tobacco use status

|			Hypertension			Tobacco Use		
			No	Yes		Never	Current	Former
		Overall n (%)	n (%)	n (%)	Prevalence	n (%)	n (%)	n (%)
Gender	Females	2559 (58.8)	1959 (57.5)	600 (63.4)	23.4	2379 (68.6)	115 (21.0)	65 (19.0)
	Males	1793 (41.2)	1447 (42.5)	346 (36.6)	19.3	1090 (31.4)	433 (79.0)	270 (81.0)
Age groups	18-29	1406 (32.3)	1245 (36.6)	162 (17.1)	11.5	1259 (36.3)	93 (17.0)	54 (16.1)
	30-44	1660 (38.1)	1359 (39.9)	301 (31.8)	18.1	1313 (37.8)	226 (41.2)	121 (36.1)
	45-59	873 (20.1)	565 (16.6)	308 (32.6)	35.3	627 (18.1)	153 (27.9)	93 (27.8)
	60-69	413 (9.5)	237 (7.0)	175 (18.5)	42.4	270 (7.8)	76 (13.9)	67 (20.0)
Marital status	Single	774 (17.8)	668 (19.6)	106 (11.2)	13.7	648 (18.7)	78 (14.2)	48 (14.3)
	Married	2926 (67.2)	2289 (67.2)	637 (67.0)	21.8	2347 (67.7)	352 (64.2)	227 (67.8)
	Divorced /separated	306 (7.0)	223 (6.6)	83 (8.7)	27.1	474 (13.7)	118 (21.5)	60 (17.9)
	Widower	346 (8.0)	226 (6.6)	120 (12.7)	34.7	265 (7.6)	52 (9.4)	30 (9.0)
Main work	Employed	822 (18.9)	631 (18.5)	191 (20.2)	23.2	618 (17.8)	117 (21.4)	87 (26.0)
	Self-employed	1744 (40.1)	1364 (40.0)	380 (40.2)	21.8	1342 (38.7)	236 (43.1)	166 (49.6)
	Unemployed	433 (9.9)	345 (10.1)	88 (9.3)	20.3	307 (8.8)	85 (15.4)	41 (12.2)
	Homemaker	1066 (24.5)	838 (24.6)	228 (24.1)	21.4	955 (27.5)	86 (15.5)	25 (7.5)
	Student	184 (4.2)	164 (4.8)	20 (2.1)	10.9	174 (5.0)	4 (0.7)	6 (1.8)
	Others (retired or unable to work)	103 (2.4)	64 (1.9)	39 (4.1)	37.9	73 (2.1)	20 (3.6)	10 (3.0)
Residence	Rural	2233 (51.3)	1778 (52.2)	455 (48.1)	20.4	1759 (50.7)	309 (56.4)	165 (49.3)
	Urban	2119 (48.7)	1628 (47.8)	491 (51.9)	23.2	1710 (49.3)	239 (43.6)	170 (50.7)
Wealth quantile	1 Poorest	867 (19.9)	738 (21.7)	129 (13.6)	14.9	659 (19.0)	165 (30.1)	43 (12.8)
	2 Second	871 (20.0)	687 (20.2)	183 (19.3)	21	675 (19.5)	120 (21.9)	76 (22.7)
	3 Middle	870 (20.0)	657 (19.3)	213 (22.5)	24.5	683 (19.7)	110 (20.0)	77 (23.0)
	4 Fourth	875 (20.1)	662 (19.4)	213 (22.5)	24.3	710 (20.5)	80 (14.6)	85 (25.4)
	5 Richest	869 (20.0)	662 (19.4)	208 (22.0)	23.9	742 (21.4)	73 (13.3)	54 (16.0)

Prevalence of risk factors among participants

The prevalence of hypertensive participants was reported as 22%, as noted in Table 3. Moreover, the findings indicated that the prevalence of tobacco consumption and of former tobacco users among the participants was 12.6% and 8%, respectively. A greater number of people were found to be exposed to alcohol drinking compared to tobacco, with a prevalence of 21%. Furthermore, obesity levels were reported as high based on BMI (obese 10% overweight 21%) and WHR (obese 25% overweight 26%). However, the raised blood glucose levels and levels of physical activity of less than 30 minutes were both found to be relatively low when compared to all other risk factors, and both were reported as 6%. The highest prevalence was found in fruit and vegetable consumption of less than five servings, which was reported as 95% and 96%, respectively (see Table 3).

Table 2. Descriptive statistics of physical measures and continuous variables

	Mean	Standard Deviation	Minimum	Maximum
Systolicmn	127.44	19.91	70.67	263.67
Diastolicmn	82.61	12.1	48.33	151.67
Fasting blood glucose	4.68	1.36	1.1	24.3
Waist-hip ratio	0.85	0.08	0.36	1.49
Body Mass Index (BMI)	23.48	5.09	11.4	75.16
Hip circumference	94.06	13.1	45	165
Waist circumference	79.6	13.73	30	155
Weight	62.77	13.36	30	171.3
Height	163.76	9.36	101	194.5
HDL cholesterol	3.69	1.01	2.5	10.3
Age in single years	37.82	13.46	18	69
Years spent in School	7.71	4.98	0	30
Physical Activity (min)	370.34	253.05	0	1830

Figure 1. Systolic and Diastolic distribution in both and by genders Box plot
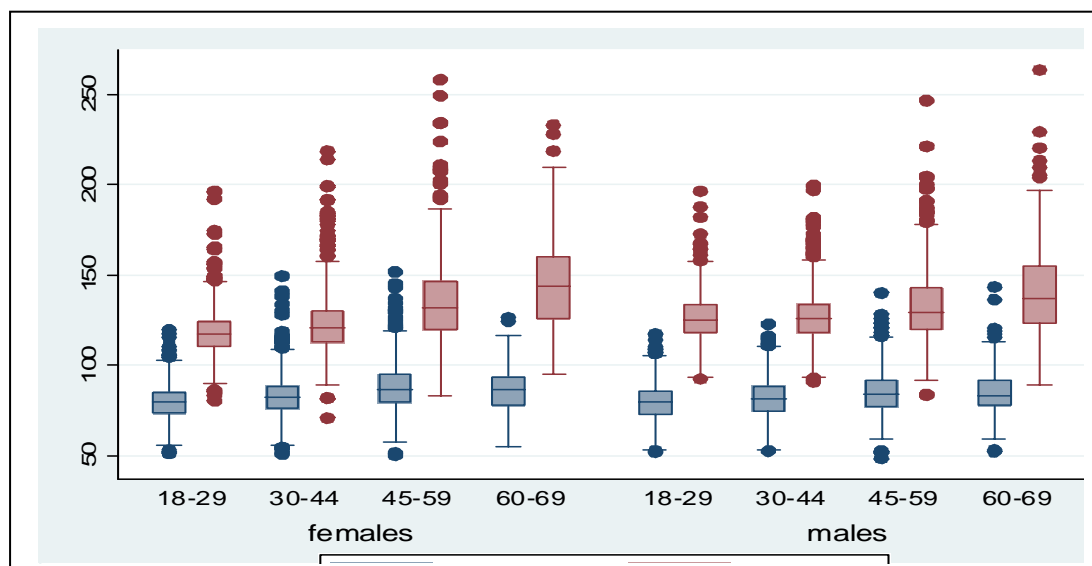
		Females (n = 600)		Males (n = 346)			Overall (n = 4352)
		%	Confidence level 95%	%	Confidence level 95%	χ2 (df)	%
Tobacco usage	Never	91.2	88.7 93.2	57.5	52.3 62.6	149.2* (2)	79.7
	Current user	4.3	2.9 6.2	23.4	19.2 28.1		12.6
	Former	4.5	3.1 6.4	19.1	15.2 23.5		7.7
Waist-Hip ratio	Underweight/ Normal	20.3	17.1 23.7	59.4	54.0 64.7	219.5* (2)	48.5
	Overweight	26.3	22.8 30.0	34.3	29.2 39.6		26.2
	Obese	53.4	49.3 57.5	6.3	4.0 9.4		25.3
Body Mass Index (BMI)	Underweight	4.1	2.7 5.9	10.1	7.1 13.7	52.1* (3)	12.0
	Normal	36.9	33.0 41.0	53.1	47.7 58.6		56.8
	Overweight	33.2	29.4 37.2	26.7	22.1 31.8		20.7
	Obese	25.8	22.3 29.5	10.1	7.1 13.7		10.4
Alcohol consumption	Never	77.0	73.5 80.2	37.0	32.0 42.2	209* (2)	66.5
	Past	14.4	11.7 17.3	13.9	10.5 17.8		12.4
	Current	8.7	6.6 11.1	49.1	43.9 54.4		21.2
Second hand smoke	No	74.8	71.2 78.1	58.7	53.4 63.8	26.59* (1)	68.5
	Yes	25.2	21.9 28.8	41.3	36.2 46.6		31.5
Vegetables consumed per day	Low (<5 servings/ day)	96.7	95.0 97.9	98.5	96.6 99.4	2.49 (1)	96.3
	Adequate (>5 servings/ day)	3.3	2.1 5.0	1.5	0.6 3.4		3.7
Fruit consumed	Low (<5 servings/day)	94.4	92.1 96.2	94.4	91.3 96.6	0.000 (1)	94.5
	Adequate (>5 servings/day)	5.6	3.8 7.9	5.6	3.4 8.7		5.5
Minutes of physical activity	Low (<30)	7.7	5.7 10.0	7.5	5.1 10.6	1.18 (2)	6.1
	Adequate (30-60)	7.0	5.2 9.3	9.0	6.3 12.3		7.0
	High (>60)	85.3	82.3 88.0	83.5	79.3 87.1		86.9
Fasting Blood glucose	Normal	79.8	76.3 83.0	83.6	79.2 87.4	1.89 (2)	88.3
	Impaired fasting glycaemia	7.2	5.2 9.6	5.8	3.6 8.8		5.4
	Raised blood glucose	13.1	10.4 16.1	10.6	7.6 14.4		6.2

Table 3. Risk factors in the full sample and in people with hypertension by gender
*. The Chi-square statistic is significant at the .05 level.

Prevalence of risk factors among hypertensive participants

Among the hypertensive females, 4.3% were current tobacco users, compared to 23.4% of males. Approximately 50% of men were found to consume alcohol compared to only 8.7% of females. Additionally, 41.3% of males and 25.2% of females were exposed to second-hand smoke. Most males had a WHR of < 0.9 (59.4%) or they were overweight (34.3%) while most females were obese (53.4%) and overweight (26.3%) when classified according to their WHR. However, when the BMI classification was used, only 25.8% of females were obese and 33.2% were considered overweight, while 22% and 7% of males were classed as overweight and obese, respectively. Most of the males were found to have a normal BMI (48%). All the differences were found to be statistically significant in all the categories mentioned above except for a few factors. First, the raised blood glucose was found to be high (13.1%)

among females compared to males (10.6%). Both females and males were reported to have low vegetable consumption, low fruit consumption, and less than 30 minutes of physical activity per day.

Table 4 lists the health practices noted in individuals that are also indicated as hypertension risks. These health practices could lead to self-awareness and an understanding of the distribution in health care facility utilization. The data indicate that the major primary source of healthcare for most Kenyans is a dispensary or community health worker (34%), followed by referrals to public hospitals (28%), which were previously referred to as district and provincial hospitals. This seems to be the preferred source in almost all categories of the explored risk factors. Specifically, the data show that just over one third utilize dispensaries in each group, while more than a quarter utilize referrals to public hospitals. There is also a high rate of self-medication or use of alternative therapy (9%), which is also highly preferred among former tobacco users (17.4%), current tobacco users (14.2%), current alcohol users (13.8%), obese individuals (12.2%), and those considered WHR overweight (11%).

Of the participants, almost 51% had never been checked for blood pressure, and within this group, the majority of current tobacco and alcohol users had never been checked (71% and 62%), respectively. In contrast, over two-thirds of those classed as obese, overweight and those with raised blood glucose were more likely to have been checked for hypertension. Among those checked for hypertension, 50% of individuals with raised blood glucose were diagnosed to be hypertensive, while almost 25% consisted of individuals from the other risk factors (BMI, WHR, alcohol consumption, and tobacco use). Over 50% of the diagnoses had occurred during the 12-month period prior to the survey. Nevertheless, adherence to medication seems to be low, with approximately 60% to 80.8% not taking the prescribed medication within all the groups, and the highest non-conforming group being the past alcohol users.

Linear regression of systolic blood pressure and diastolic blood pressure on tobacco use
The backward stepwise regression was used to establish a fitting model, and the one presented here was found to have a higher explanatory power (R2) and a low BIC score (36). Consequently, a comparative model was run with all the variables to determine the difference from the main model. The models were run on an unweighted scale first, followed by a weighted model. The unweighted bivariate model indicated non-significant results on current tobacco users and estimated 6.9 mmHg higher systolic blood pressure in former tobacco users. These measures and statistical significances were altered after controlling for other predictors and are now presented in weighted models below.

Using the weighted model and after controlling for other predictors, the association with the development of systolic pressure for current tobacco users was found to be 3.14 mmHg lower than the systolic pressure of never tobacco users. In the bivariate model, a 1.5 mmHg higher systolic mean had been predicted, although it was deemed non-significant. On the other hand, former tobacco users' low mmHg systolic pressure (0.76) means compared to never-tobacco users could not be justified statistically. This was despite the level in the bivariate model being observed to be 7.4 mmHg higher than that of never tobacco users. In addition to current tobacco users, several other factors were associated with a higher systolic blood pressure. These included age 60–59 (22), 45–59 (11.6), 30–44 (1.9), males (5.9), never married (1.7) students (3.0), current alcohol users (4.1), BMI (overweight 5.0 obese 8.8) WHR (overweight and obese approximately 2.4), former alcohol users (3.3) or reduction of systolic blood pressure: underweight (6.4).

A weighted bivariate and multiple linear regression model was then used to define the association between diastolic blood pressure and tobacco use. However, this model could not statistically confirm the low mmHg measure of diastolic pressure in current users (0.76) and former users (1.15). Nevertheless, an association was identified between higher mmHg measures and diastolic blood pressure in the categories of age range 60-59 (6.2), 45-59 (6.4), 30-44(2), current alcohol use (2.7), BMI (overweight 3.2 obese 6.3), and WHR (overweight 1.7 obese 1.3).

Table 4. Awareness and health utilization among people in the selected hypertension risk factors

Variables		Tobacco use			Alcohol consumption			B MI		Waist-hip ratio		Fasting blood glucose		
		Never %	Current %	Former %	Never %	Past %	Current %	Overweight %	Obese %	Overweight %	Obese %	Impaired Fasting Glycaemia %	Raised Blood Glucose %	(N 4352) Overall %
Health worker checked blood	No	47.1	71	57.8	47.5	50.7	61.7	36.8	24.8	48	34.6	46.1	38.1	50.9
	Yes	52.9	29	42.2	52.5	49.3	38.3	63.2	75.2	52	65.4	53.9	61.9	49.1
Health worker diagnosed hypertension	No	78	79.9	71.6	78.8	72.5	77.3	72.7	63.2	76	71.6	72	55.1	77.7
	Yes	22	20.1	28.4	21.2	27.5	22.7	27.3	36.8	24	28.4	28	44.9	22.3
Diagnosed with Hypertension in the past year	No	43.4	40.6	52.5	41.9	50.7	46.3	37.3	36.6	40.7	40.3	36.4	34.3	44
	Yes	56.6	59.4	47.5	58.1	49.3	53.8	62.7	63.4	59.3	59.7	63.6	65.7	56
Taken prescribed Hypertension medication	No	75.7	68.8	77.5	73.6	80.8	77.5	74.5	69.1	79.3	70.6	78.8	60	75.4
	Yes	24.3	31.3	22.5	26.4	19.2	22.5	25.5	30.9	20.7	29.4	21.2	40	24.6
Primary source of health care	Self medicate/ alternative therapy	7.6	14.2	17.4	7.6	9.7	13.8	8.6	12.2	11	6.7	9.6	7.5	9.2
	Dispensary/ Community Health Worker	34.4	34.7	31.2	35.2	36.3	29.8	30.2	23.3	32.1	34.5	37.4	29	34.2
	Health Center	15.7	16.7	9.6	16.7	10.6	13.9	12.2	11.7	15.1	15.6	14.6	14.3	15.4
	Referral public hospital (Former district/ provincial)	28.5	25	25.5	27.9	30	26.4	31.8	30.7	27.8	30.2	28.3	33.3	27.9
	Private Health Care	13.7	9.4	16.2	12.5	13.4	16	17.3	22.1	13.9	13	10	15.9	13.4

Multiple logistic regression model

The association between tobacco use and the development of hypertension, as previously mentioned, was determined by logistic regression at a 95% confidence interval (CI). Moreover, a weighted bivariate logistic regression model indicated 1.48 (CI: 1.16-2.3) higher odds of hypertension in former tobacco users, while current tobacco users, even though non-significant, had 0.94 (CI: 0.77-1,44) odds. However, in a multivariate model, tobacco use remained non-significant with yet lower incidences of 0.88 (CI: 0.61-1.28) and 0.99 (0.64-1.53) for current and former users, respectively, as observed in the bivariate model (see Table 1).

Therefore, significant predictors of the risk of developing hypertension were found and included age with those who were older found to have a higher risk. Specifically, the highest risk was reported in those aged 60-69 with odds of 5.3 (CI: 3.70-7.46), followed by the 45-59 age group with odds of 3.53 (CI: 2.6-4.80), and the 30-44 age group was found to have odds of 1.33 (CI: 1.00-1.76). Other identified risks included BMI >25kg/m2 with odds of 2.6 (CI: 1.9-3.6), WHR overweight with odds of 1.4 (CI: 1.07-1.7), obese with odds of 1.6 (1.25-2.09), current alcohol users with odds of 1.68 (CI: 1.24-2.3), and underweight BMI, which was associated with lower odds of developing hypertension (0.55) (see Table 5).

Table 5. Multiple linear and logistic regressions results

Variable		SYSTOLIC Coefficients (Standard error)		DIASTOLIC Coefficients (Standard error)		HYPERTENSION Odds Ratio (95% Confidence interval)	
Tobacco use	Current users	1.46 (1.17)	-3.14* (1.31)	-0.23 (0.76)	-0.76 (0.78)	0.94 (0.72-1.27)	0.88 (0.61-1.28)
	Former users	7.43*** (1.52)	-0.79 (1.62)	0.76 (0.90)	-1.15 (0.89)	1.48** (1.05-2.10)	0.99 (0.64-1.53)
Age range	30-44		1.93** (0.71)		2.04*** (0.51)		1.33*(1.00-1.76)
	45-59		11.60*** (1.23)		6.40*** (0.68)		3.53*** (2.6-4.80)
	60-69		22.05***(1.85)		6.16***(0.98)		5.3*** (3.70-7.46)
Gender	Males/(females)		5.93*** (0.88)		0.08 (0.56)		1.02 (0.77-1.35)
Marital Status	Single		1.66* (0.83)		0.44 (0.58)		0.83 (0.60-1.15)
	Divorced/separated		0.61 (1.16)		0.42 (0.89)		1.07 (0.74-1.55)
	Widowed		0.85 (1.59)		0.17 (0.80)		1.23 (0.87-1.74)
Education Level	Uneducated		0.22 (1.55)		-0.95 (1.05)		0.74 (0.47-1.45)
	Primary		-0.03 (-1.12)		-1.01 (0.81)		0.75 (0.52-1.09)
	Secondary		0.30 (1.06)		0.28 (0.87)		1.0 (0.70-1.43)
Wealth quantile	Second		1.75 (1.06)		-0.07 (0.71)		1.09 (0.80-1.51)
	Middle		1.35 (1.04)		0.30 (0.72)		1.12 (0.80-1.56)
	Fourth		1.06 (1.13)		0.18 80.77)		1.23 (0.87-1.73)
	Fifth (richest)		1.40 (1.34)		0.08 (0.85)		1.0 (0.67-1.50)
Residence	Urban		0.36 (0.91)		0.9 (0.65)		1.11 (0.88-1.39)
Occupational status	Self-employed		1.1 (1.06)		-0.99 (0.82)		0.96 (0.67-1.37)
	Unemployed		0.35 (1.32)		-0.83 (0.98)		0.84 (0.54-1.29)
	Homemaker		1.29 (1.21)		-1.07 (0.89)		0.96 (0.63-1.46)
	Student		3.00* (1.31)		-0.21 (1.03)		1.5 (0.84-2.76)
	Others (retired, unable to work)		-2.2 (2.89)		-3.41 (1.97)		0.92 (0.50-1.70)
Physical Activity	< 30 minutes		-2.41 (1.53)		-1.17 (1.04)		0.97 (0.68-1.40)
	30-60 minutes		1.04 (1.31)		1.34 (0.80)		1.17 (0.86-1.60)
Alcohol consumption	Past		3.29** (1.14)		0.36 (0.69)		1.18 (0.89-1.57)
	Current		4.08*** (0.94)		2.73*** (0.57)		1.68*** (1.24-2.26)
B M I	Underweight		-6.44*** (1.14)		-4.04*** (0.64)		0.55*** (0.38-0.78)
	Overweight		4.99*** (0.87)		3.25*** 80.57)		2.22*** (1.71-3.56)
	Obese		8.79*** (1.38)		6.28*** (0.88)		2.58*** (1.86-3.56)
Waist-hip ratio	Overweight		2.42** (0.76)		1.71** (0.51)		1.37* (1.07-1.74)
	Obese		2.46** (0.90)		1.00 (0.62)		1.61* (1.25-2.09)
	Cons	126.21 (0.52)	113.62*** (1.57)	82.16 (0.33)	78.29*** (1.00)	0.23 (0.20-0.26)	0.072*** (0.04-0.12)
	R^2		0.2009		0.1294		

legend: * p<.05; ** p<.01; *** p<.001

Thus, in this model, the constant of 0.072 odds (0.04-0.12) was linked to the base factors that included females of 18-29 years of age of normal BMI who never used tobacco or alcohol and were married. Moreover, it was also linked to the base factors that despite being poor, they had finished secondary school, were also employed, and had lived in a rural area with high levels of physical activity.

Sensitivity analysis

The comparison models on the effects of the predictors had minor differences from the main models. These were noted in the finding of associations between systolic blood pressure and physical exercise that was less than 30 minutes a day of 3.8 mmHg lower than the systolic means of those who would undertake a physical activity for more than 60 minutes per day. Moreover, it was also identified in individuals who ate the recommended quantity of vegetables and who had a lower (4.5 mmHg) systolic blood pressure means than those who did not consume five servings of vegetables a day. Furthermore, a unit increase of cholesterol resulted in a 1.2 mmHg increase of systolic pressure, and for tobacco use this resulted in a 3.7 mmHg lower level in current users, while the student effect was no longer significant as the net of all other variables (see Table 6).

Conversely, diastolic pressure was associated with a 4.6mmHg lower diastolic means in those who were unable to work or had retired. Moreover, a unit increase of cholesterol was linked to a 0.9 mmHg increase in diastolic blood pressure, and a raised blood glucose level increased the diastolic means by 2.52 mmHg. Additionally, the indication of current tobacco users changed to signify a higher diastolic mean of 0.25 mmHg which was considered not significant, while the WHR obese effect of 1.3 mmHg was reduced to non-significant.

In the logistic model, a raised blood glucose was linked to higher risks of hypertension with 1.6 odds, while the effect of the 1.3 odds on 30-44 years old was not significant. The coefficient and odds ratio changes ranged between ±0.02 to ±1.5 in all variables. Nevertheless, the comparison models analyzed the effects using a smaller sample (n = 3057) than that employed in the main model sample (n = 4272). This was due to the exclusion of participants with missing data for some variables, as the analysis used complete case analysis.

DISCUSSION

The study found that the overall prevalence of hypertension in men and non-expectant women within the age range of 18–69 was 21.7%, which was below the global level and that of LMIC (31.1%) in accordance with the 2010 estimated prevalence (8). The prevalence was also well within the range of the various studies conducted in different settings in Kenya (6.7%–50%) and sub-Saharan Africa (6%–48%) (4, 38-42). The differences in the prevalence in the various studies could be attributed to the population's heterogeneity and the variance in behavioral risks within these groups. For instance, a study in Kenya that reported a prevalence of 6.7% was conducted in an urban setting among males over 15 years who were returning from a mosque. Moreover, in addition to their cut-off point (> 140 / >9 0mmHg), this study undertook a subjective decision in classifying individuals as either hypertensive or not, and this subjectivity could have affected the results (42). On the other hand, the highest prevalence was attained in a cross-sectional study that was conducted on individuals who were 50 years or older and in an urban setting. Accordingly, such a setting would potentially result in a higher prevalence (2).

Contrary to several studies that show higher prevalence of hypertension in men (37, 43-45), this study found higher hypertension prevalence in women (23.4%) than men (19.3%), which were similar to South African and Tanzanian studies that found females to have higher prevalence (46). In addition, as in many other sub-Saharan countries, higher prevalence was among 60-69 years old 42%, the retired or those unable to work 38%, 45-59 year old 35%, the widowed 34% and divorced or separated 27% (17).

Hypertensive awareness

Generally hypertensive awareness in most of the African regions has been low and, as indicated in the survey used in this study, more than 50% had never been tested for their blood pressure. Such a lack of testing makes it even more difficult to control the epidemic if such practices are not reversed. These findings were in contrast to studies conducted in regions of the Americas or Europe. For instance, one study in Brazil had indicated full awareness in the entire adult population, with at least one-fifth of participants who did not adhere to medication (47). However, in this study, the participants in the different risk factor groups were reported to have a lower knowledge trend of their hypertensive status. Among current tobacco users and alcohol users, there were an estimated two-thirds who were not

aware of their status or had never been tested for hypertension. In addition, those diagnosed within this group were less likely to follow the prescribed treatment, with approximately seven in every ten failing to meet treatment requirements.

Table 6. Multiple Linear and logit regressions with comparison to all explanatory variables summary statistics

Variable		SYSTOLIC Coefficients		DIASTOLIC Coefficients		HYPERTENSION Odds Ratio	
Tobacco use	Current user	-3.14*	-3.66*	-.756	.249	.882	.873
	Former	-.79	-.718	-1.15	-.849	.991	.875
Age range	30-44	1.93**	1.61*	2.04***	1.64**	1.33*	1.32
	45-59	11.6***	12.9***	6.42***	6.3***	3.53***	3.69***
	60-69	22***	19.7***	6.16***	4.29***	5.26***	4.71***
Gender	Males	5.93***	5.18***	.0837	.423	1.02	1.15
Marital status	single	1.66*	2.07*	.438	.801	.829	.967
	div/sep	.606	.251	.422	.105	1.07	1.08
	widowed	.854	1.57	.166	.551	1.23	1.2
Education level	No formal ed.	.218	.925	-.95	.0787	.74	.909
	Primary	-.0255	1	-1.01	-.282	.75	.937
	Secondary	.3	.251	.278	.444	1	1.04
Wealth	2 Second	1.75	-.00978	-.0652	-.865	1.1	1.03
	3 Middle	1.35	.91	.296	.476	1.12	1.2
	4 Fourth	1.06	.492	.177	.0618	1.23	1.28
	5 Richest	1.4	.664	.0797	-.09	1	.979
Residence	Urban	.364	-.239	.902	.29	1.11	1.04
Occupation	Self-empld	1.07	1.36	-.986	-.849	.962	.896
	Unemployed	.353	.361	-.834	-.795	.836	.841
	Homemaker	1.29	2.02	-1.07	-.537	.956	1.04
	Student	3*	2.58	-.212	-.487	1.52	1.39
	Others	-2.2	-2.12	-3.41	-4.58*	.923	.937
Physical activity	Low	-2.41	-3.76*	-1.16	-1.2	.971	.964
	Recommended	1.04	.208	1.34	.601	1.17	1.29
Alcohol	Past	3.29**	3.38*	.36	.516	1.18	1.22
	Current	4.08***	5.08***	2.73***	2.8***	1.68***	1.74**
BMI	Underweight	-6.44***	-6.59***	-4.04***	-3.77***	.546***	.493**
	Overweight	4.99***	4.3***	3.25***	2.88***	2.21***	2.02***
	Obese	8.79***	7.68***	6.28***	5.82***	2.57***	2.54***
Waist hip ratio	Overweight	2.42**		1.71**	1.54*	1.37*	1.41*
	Obese	2.46**		1.33*	1.36	1.61***	1.63**
CVD	yes		-.0108		-.0427		1.33
Fruit	Adequate		-1.39		-2.01		1.1
Vegetables	Adequate		-4.53*		.405		.707
Second hand smoking			-1.67		-1.03		
Cholesterol			1.19**		.946***		1.2***
Waist hip ratio			12.4**				
Blood_glucose			.471				
Fasting blood glucose	Impaired Glycamie				.801		1.19
	Raised blood sugar				2.52*		2.29***
Cons		114***	100***	78.3***	75.5***	0.0721***	0.0298***

Legend: * p<.05; ** p<.01; *** p<.001

Furthermore, the findings indicated that most health workers were more likely to check hypertension in individuals who were either overweight or obese or who were tested for impaired glucose or had a raised blood glucose level when compared to other risk factors. This could be due to the apparent knowledge of the blood pressure risk among these groups, even though the participant's adherence to treatment remains below one-third except the raised blood glucose group.

Hypertension risk factors

The prevalence of tobacco use was reported as 12.6% and does not differ greatly from the national survey findings (29). However, the data indicated that among the hypertensive, there was a higher prevalence of tobacco use in males (23%) compared to females (4%). Nevertheless, hypertensive females were also characterized as obese or overweight or with a BMI greater than 25kg/m2 and were more likely to be exposed to second-hand smoke. Moreover, tobacco use was low in this group, but alcohol use was substantially higher (9%). Conversely, 50% of hypertensive males consumed alcohol while 40% were exposed to secondhand smoke. These findings could potentially be explained by the reasoning that those who drink also smoke. Accordingly, those non-smokers who drink are more likely to be exposed to such second-hand smoke (48). In addition, they were also characterized as overweight, while a few were obese compared to women.

When applying a multiple linear regression model, current tobacco use failed to meet researchers' expectations of increasing systolic blood pressure. Instead, current tobacco use was linked to 3.14 mmHg lower systolic means compared to never tobacco users. Furthermore, its effect on diastolic blood pressure could not be confirmed using the study data, and this was similar to the logistic regression results, as lower odds were observed in current tobacco users. The odds of current tobacco users did not differ when analyzed differently as smokers or smokeless users even after controlling for all other variables. Thus, as in previous studies that failed to establish a link of either smoking or smokeless tobacco with hypertension, this study also reported findings that were contrary to the findings in a study performed in Yala Kenya with odds of at least 2 among current smokers and former smokers. The Yala study was supported by other studies, such as a Rwandan study that found almost 1.5 odds in current smokers as well as former smokers, a 2.3 odds in smokeless tobacco use of diastolic pressure among rural Indians and Bangladeshis, and a 3.5 odds for smokers, while tobacco use were only found to be significant in bivariate analysis (37, 40, 45, 48-52). Nevertheless, Green, Jucha, and Luz (1986) indicated that blood pressure may acutely be escalated due to smoking but affirmed a lower blood pressure among smokers than never smokers or former smokers (53).

This study affirmed the magnitude of the age effect on hypertension and diastolic or systolic blood pressure. Hypertension was found to be even higher in the older population with odds of 5.3,a 6. 2mmHg higher diastolic means, and 22 mmHg higher systolic pressure in 60-69 year-old. In contrast, among the 45–59 age group, the magnitude was a 6.4 mmHg higher diastolic mean, an 11.6 mmHg systolic means, and hypertension odds of approximately 3.7 (4, 43). Additional risk factors that were associated with all the outcome parameters accessed included BMI, alcohol consumption, and WHR with at least 1.04-2.6 odds of hypertension, a 1.3-6.3 mmHg higher diastolic pressure means, and a 2.5-8 mmHg higher means of systolic pressure.

However, participants who were male, past alcohol users, single, and a student were also associated with a systolic blood pressure with a 1.6–5.9 mmHg higher means while current tobacco use and an underweight BMI were identified as protective factors of systolic blood pressure. On the other hand, contrary to several studies, living in urban or rural settings was not significantly associated with developing hypertension (systolic or diastolic) blood pressure, nor was the level of wealth, education or the level of physical activity, and the marital status (divorced, separated or widowed) (20, 38, 54-57).Similar results were also found in Uganda with the exception of alcohol use (58). It is also worth mentioning that even though the results were not significant, they were consistent with the findings in the contradictory studies above. Hence, the outcomes in this study could have been affected by the size within some groups, which might have affected their statistical power to influence the results. For instance, within marital status, the married (analysis base) sample proportion was 67.2%, while the widowed (1.2 odds) or divorced/separated (1.1 odds) had a proportion of an estimated 7% each.

Strengths and limitations

The data used in this study is the most recent and provides relevant information on demographics as well as behavioral characteristics of the sample participants from the national population. Furthermore, the sample in the study was proportionally balanced, especially with regard to gender, region, and wealth quantiles. Hence, the results of these variables had enough statistical power to affirm their specific relationship to the study outcomes. Thus, it is probable that the results that were achieved here are the true effect of the outcomes. Some limitations include the limited data on various dietary risk factors, such as salt, which is known to have a detrimental association with hypertension. Moreover, there was a larger proportion of missing data on cholesterol, fasting blood glucose, fruit, and vegetable intake, which led to the exclusion of results used in the main models of analysis.

Further research

The findings in this study will enrich the body of research into this area and can act as a cornerstone for further research that should consist of standard measures, especially regarding assessing the dietary salt aspect that was not analyzed in this study. Tests on interactions, though beyond the scope of this study, were not able to be predicated. However, the effect of tobacco use, alcohol and physical exercise interactions could be studied to establish if either of them had an influence on pre-eminent the risk of the other.

CONCLUSION

This study reports the association between smoking and the burden of hypertension. The findings also confirm an important burden of hypertension in the Kenyan population. Kenya is in line to combat NCDs and has developed various policies that endeavor to integrate existing national and global initiatives with the ultimate aim of reversing NCDs by 2020. Therefore, the findings of this study and those found in regional or specific settings in Kenya could be used as evidence in the prevention of hypertension and to support the equipping of healthcare facilities for screening those at risk. There is a need for greater awareness of hypertension in the general population and among healthcare givers. In addition, within the health system, greater emphasis needs to be placed on the detection, treatment, and control of high blood pressure. In conclusion, health policies in Kenya must henceforth account for the control of hypertension.

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HEALTH SYSTEM PROFILE: EXAMINING BULGARIA VS. SURROUNDING EUROPEAN COUNTRIES

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ABSTRACT

This comparative paper addresses three European Union countries and their respective social and economic health statuses. Bulgaria will be compared to Greece and Romania. Greece and Romania were chosen because of their geographical similarities. Furthermore, the countries demographics, geography, health status, government, employment rates, and health outcomes will be analyzed. Results include key comparisons and potential solutions to health challenges in each country. Primary care and an aging population are two prominent issues throughout the European Union and are observed in Bulgaria, Greece, and Romania as well. All three countries need help with their health status and access to care problems and the government should be the spearhead in these changes.

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TRACK:

HEALTH AND

WELLNESS

MENTAL HEALTH ISSUES: IMPACT OF COVID-19 AND PAYMENT FOR SERVICES

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ABSTRACT

Mental health issues are a serious concern now more than ever. With the isolation and stress accompanying COVID-19, more individuals are suffering from a variety of mental health issues. Many of these individuals do not have insurance that covers hospitalization due to mental health problems. The minorities in this country are more severely impacted by this factor. This paper explores the impact that COVID-19 is having on individuals. Then, the lack of insurance coverage is explored. Finally, mental hospitals are examined to determine whether they provide a sliding fee scale or free care. This is done by the type of hospital.

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THE MENTAL IMPACT OF COVID-19 ON COLLEGE STUDENTS

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ABSTRACT

The Coronavirus Pandemic of 2020 has exacted a major toll on the health and well-being of millions of people worldwide. Most research thus far has focused on the physical and biological impacts of the virus on the body. The aim of this study was to examine any correlations for increased mental illness symptoms of students at a small, private liberal arts university located in the Midwest United States during the time of this pandemic.

A survey was sent to 2,338 students via email in June of 2020. The survey contained a variety of questions related to the COVID-19 pandemic and student lives during that time. Five hundred sixteen students of this target population participated in the study. Results were coded and analyzed using the chi-square test of association.

Data revealed that more than 75% of the students were mentally or emotionally impacted by the pandemic. These impacts appear to be exacerbated not only by worries of contracting COVID-19, but also from the orders induced by the pandemic, actions such as evacuating campus, quarantining alone at home, and parental job layoffs. Seventy-six percent of students reported feeling heightened levels of anxiety due to having to move off campus at the start of the pandemic. In addition, a strong association existed for increased levels of anxiety for students who did not pack up all their belongings before moving off campus (p=.000). Those who have been previously diagnosed with depression were also more likely to experience heightened levels of anxiety (p=.003). Identifying as female or nonbinary was also significantly associated with higher levels of anxiety (p=.002). Regarding financial wellness, students with at least one parent who had been laid off were more likely to be worried about affording essential items for living from week to week (p=.000). The future outlooks of the participants also reported that 50% were less confident in having career success in the future. Finally, a closer examination of previous clinical diagnoses of mental illnesses were considered. While 39% of students said they had been diagnosed with depression at some point in their life, 57% of total participants said isolating at home triggered or exacerbated depressive symptoms. While those with previous depression diagnoses were more likely to be triggered, participants without previous mental health diagnoses were impacted as well.

Research regarding how the coronavirus pandemic has affected college students' mental health is relatively new and understudied. However, with the significance of the impacts experienced by the college students that participated in this study, our data demonstrates a need for further research on the subject, with additional research needed to determine if other U.S. college students are experiencing similar mental and emotional impacts.

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MAINTAINING LONG-TERM CARE ADMINISTRATION INTERNSHIP PLACEMENTS AND PARTNERS IN THE FACE OF COVID-19

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ABSTRACT

Most long-term care administration programs require an internship as a graduation requirement. The University of Wisconsin – Eau Claire Health Care Administration (UW – Eau Claire HCAD) program's interns are highly valued by partner sites, hosting students annually. Administrators, serving as preceptors, recognize students have a solid foundational education and receive continual support from the program throughout their year-long internship. They appreciate the contributions interns make (to organizations and residents) and the opportunity to help develop future long-term care leaders.

In the 2019-2020 academic year, 59 students were nine months into their internship experience when COVID-19 disruptions became widespread. The UW – Eau Claire HCAD program response was immediate and multifaceted, comprising 1) mitigation of fears, concerns, and challenges of students, preceptors, and host sites, 2) substantial communication with university leadership on liability and appropriate course of action, and 3) development of COVID-19 policies for the program. Results of this approach led to exceptional success as 100% of students remained on-site, completing 2000 required internship hours within 50 weeks. Upon graduation, students were extremely marketable and prepared to lead their future employers' organizations. Despite the unknown future of COVID-19, partner sites continued to accept interns in future cohorts.

Lessons learned include the importance of front-end preparation in academic program structure, strong partnerships, and a rapid response to all involved stakeholders in the face of a crisis. Through effective planning and exceptional reaction in the face of extreme adversity, strong academic programs play a key role in alleviating long-term care workforce challenges by producing extraordinarily prepared future leaders.

INTRODUCTION

The number of seniors in the United States of America is rapidly increasing. Each day, approximately 10,000 people turn age 65 (United States Census Bureau, 2019). While the majority of the U.S. population lives in a home or community-based setting, the chance that a person will reside in group living quarters (e.g., skilled nursing or assisted living) rises with age (United States Census Bureau, 2018). As such, well-trained administrators are needed to provide leadership for health care settings.

The field of long-term care administration is seeking emerging leaders (Olson, 2018) as administrators age (Castle, 2001) and more leave the field than enter (Tellis-Nayak, 2007). With the long-term care administration career generally requiring a bachelor's degree in addition to administrator-in-training experience (Center for Health Work Force Studies, 2004), the profession needs four-year universities to provide foundational knowledge to students and foster partnerships with external entities. These preparatory practices set the stage for quality experiences for students and assist in the goal of bolstering the number of well-qualified leaders entering long-term care administration.

The University of Wisconsin – Eau Claire Health Care Administration (UW – Eau Claire HCAD) program provides strong groundwork for those training to be administrators in a variety of health care service organizations (University of Wisconsin – Eau Claire, n.d.). After completing on-campus courses, students spend 50 weeks

completing an offsite, structured internship (also referred to as a practicum) at a skilled nursing facility. In a typical academic year, the university places between 50-65 students at internship sites primarily located in the Midwest region of the country.

This internship experience is designed to be mutually beneficial to both students and partnering sites. Students obtain knowledge and skills needed to become an administrator upon graduation, and as such are well-prepared to enter a leadership position, even at a young age. Additionally, hosting a student is advantageous to the site. Partnering sites understand students are arriving with a solid educational foundation and can provide fresh perspective to the organization. With students present for 50 weeks, interns are able to provide significant contributions to the organization throughout their time on site. Partnering organizations pay students a stipend for the duration of their internship, benefitting both parties: students get assistance with living expenses and sites can maintain reasonably high expectations for their students. Last, internship sites and their management teams are reassured that the HCAD program is available for support during the year-long experience.

PURPOSE

The UW – Eau Claire HCAD program has been a leader in the field for many years. However, the inception of the COVID-19 pandemic caused disruption in all facets of operations. The pandemic required immediate modification of normal practice and illustrated the essential nature of future preparedness, in line with the greater health care community's experience (Adalja et al., 2020). Despite upheaval, the program had a successful outcome.

In the 2019-2020 academic year, 59 students were nine months into their year-long internship when COVID-19 interferences became widespread. The UW – Eau Claire HCAD program response was immediate and multifaceted, comprising 1) mitigation of fears, concerns, and challenges of students, preceptors, and host sites, 2) substantial communication with university leadership on liability and appropriate course of action, and 3) development of COVID-19 policies for the program. The following case study will reveal the methodology of each response and provide a model of practice that can be replicated by other programs.

METHODS

The UW – Eau Claire HCAD program response consisted of multiple interrelated processes, including program/position responsibilities, communication, and policy development.

Program Structure and Position Responsibilities

The HCAD program includes four full-time faculty members. Three positions are tenure-track professorial positions (one of which also holds a Program Director role). The fourth is a dedicated Practicum Coordinator/instructor position. The Practicum Coordinator role is an academic interface between students, host sites, and the university; the individual in this position is primarily responsible for coordination and communication with students during their internship year. The Practicum Coordinator and Program Director frequently collaborate to develop, maintain, and/or modify student/program responsibilities. As such, the individuals in these two positions were primarily responsible for the program's COVID-19 pandemic response.

Mitigation of Fears, Concerns, and Challenges

The COVID-19 pandemic led to unprecedented fears, concerns, and challenges for both practicum students and long-term care sites. Many students feared a COVID-19 infection themselves as much was unknown about the illness. Several expressed to the Practicum Coordinator that they were considering leaving their internship for safety reasons. The Practicum Coordinator spent significant amounts of time conversing with students individually (via email, phone, and videoconferencing), reassuring them that infection control policies followed by their sites (e.g.

temperature/symptom screening, prohibiting nonessential personnel, disinfecting, personal protective equipment, etc.) were implemented to keep employees as safe as possible, and due to all these policies and precautions, the health care environment may be safer than non-health care workplaces. At the time, primary concerns for adverse virus outcomes focused primarily on the elderly population that students were caring for, rather than the general public, so this message was reiterated.

During the onset of the pandemic, some students expressed concern over being overworked in their roles. As they were near completion of the practicum year, sites were utilizing students in leadership roles and, therefore, requesting significant amounts of overtime work, causing feelings of burnout. During their internships, students typically average 40-45 hours/week on site, while also completing faculty-led online courses as full-time students (Johs-Artisensi et al., 2017). In the early days of the pandemic, students were often working near 60 hours/week. The Practicum Coordinator spoke with students and preceptors frequently, reminding them that while they were learning incredible leadership lessons, the students also needed to protect their well-being and time so as to remain eligible for graduation through satisfactory academic performance. Balancing workplace demands and well-being is an important and sometimes difficult skill for new administrators to develop. So, not only did this offer another important learning experience, but also students and preceptors were ultimately able to return to standard work schedules with this support.

An additional challenge developed related to internship hour requirements. As one of 14 schools accredited by the National Association of Long Term Administrator Boards (NAB) (National Association of Long Term Care Administrator Boards, n.d.), UW – Eau Claire's HCAD program is required to include 1000 hours of on-site practicum experience; at outset of the pandemic, students had already met that requirement. However, as a program approved by the Wisconsin Department of Safety and Professional Services, UW – Eau Claire requires a 2000-hour internship to meet state nursing home administrator licensing requirements. With many uncertainties of whether students would be able to continue their internships, both students' graduation and licensure abilities could be jeopardized. The Practicum Coordinator quickly disseminated information to students and preceptors about these requirements in hopes that students would be allowed to remain on site until the end of the practicum year. This was especially important as some sites were debating whether students were considered "essential" at their sites.

With so many unknowns at the outset of the pandemic, facilities serving as practicum sites had to quickly determine whether students could be considered essential workers. The term *essential workers*, referring to those required to continue critical infrastructure operations, rapidly and continually shifted in the first months of the pandemic (Cybersecurity and Infrastructure Security Agency, 2020). As students had been on site for nine months, they were already acting in leadership roles and able to provide support to their team in a multitude of ways. The Practicum Coordinator had many conversations with both students and preceptors to provide rationale for how and why students could remain on site. Most sites were able to immediately justify their support of the position and continue the internship, but two preceptors initially indicated they would dismiss their student. The first preceptor believed the student role fell under a volunteer role, but discussions with the Practicum Coordinator aided in reclassification. The second preceptor wanted to remove the student more out of a motherly concern about the student's safety. After conversations with the Practicum Coordinator, she acquiesced, realizing the student was adamantly choosing this career and needed to continue in order to remain eligible for licensure.

Overall, substantial communication with students and preceptors, led by the Practicum Coordinator and supported by the Program Director, offered significant support to all parties through an extraordinary and ambiguous circumstance.

Communication with University Leadership
At the outset of the pandemic, the Practicum Coordinator and Program Director acted autonomously to make rapid decisions for the students and program. However, as COVID-19 quickly spread throughout the country, UW – Eau Claire leadership needed updates on how the situation was unfolding. Multiple phone conversations and videoconferences with the Department Chair and Dean and the Office of Risk Management and Safety helped to

determine how other programs in similar situations (e.g., nursing, teacher education, professional program internships) were adjusting to programmatic and licensure requirements. It seemed that some students were able to stay on site (e.g., business operations in critical supply sectors), some were continuing internships remotely (e.g., accounting, teacher education), and some were being dismissed from internships (e.g., nursing students in lower-level courses who were doing more "observing" than assisting, and using valuable personal protective equipment).

Initial concerns were related to HCAD students' abilities to remain on site relative to licensure requirements, but also expanded to include exploration of any potential university liability. Ultimately, the HCAD program, Department Chair, and Dean were informed that the university's policy (per the Risk Management department) would be to defer to the host site's directives on keeping students. If the host site was willing to continue hosting students (all sites were), HCAD students could determine whether they wanted to remain on site. As these students wanted to become health care leaders, as evidenced by their choice of major, and it was ultimately their decision to continue forward in the internship.

Development of COVID-19 Policy for Program
After university leadership directives to defer to the host site were final, and practicum sites indicated their desire to continue hosting students for the remainder of the year, the Practicum Coordinator and Program Director developed a policy related to COVID-19 impacts. It was anticipated that issues might continue to arise (e.g., student concerns/fears, site fears as COVID-19 cases increased, etc.), and as such it was imperative to have a unified message from the program and to all students. The policy was a set of standards that the HCAD team could refer to rather than a standardized message, so that it could be adapted and tailored as necessary (and dependent on specific situations). The Coordinator and Director determined that if students wanted to leave their internship for any reason (e.g., felt uncomfortable, felt unsafe, realized that this career choice was not what they expected), they would not be compelled to stay, and alternatives could be offered. First, the student could pause their internship and would be assisted in finding a new site later, after the pandemic ended, to complete their hours at a later date (delaying graduation). Second, students could change their major to a general business administration major with a gerontology or public health minor, with assistance from the Department Chair; this option would have allowed students a path to graduate as planned at the end of the semester. Some students briefly entertained these possibilities, but ultimately all opted to remain on site, complete their internship hours, and graduate with the [program] major.

OUTCOMES

Results of this approach led to exceptional success as 100% of practicum students remained on-site for the final three months of their internship year. All 59 students completed their required 2000 hours of internship experience within the typical 50-week senior year. Students received incredible leadership lessons in regulation, crisis management, infection control, resident-staff and resident-peer relationships, the value/impact of communal activities/dining on resident well-being, communication, etc. At the close of their practicum experience, students completed a practice NAB licensure exam (as part of the HCAD program's curriculum) and earned higher scores than any prior cohort. Upon graduation, students were extraordinarily marketable and prepared to lead their new employers' organizations.

Despite the unknown future of COVID-19 (longevity of virus in long-term care, financial prospects of partner organizations, etc.), practicum host sites continued to accept students in the future practicum student cohort, ready to begin their internships three months after COVID-19 disruption began. All 54 students in the 2020-2021 cohort began their internships as scheduled and plans for placing the 2021-2022 cohort continued throughout the summer of 2020 without interference. Internship sites continue to partner with the program as their organizations recognize the value of hosting students.

DISCUSSION

The UW – Eau Claire HCAD program had several lessons learned and reinforced during the COVID-19 pandemic and associated response. The pandemic had significant impact on the educational institution and on health care facilities (and therefore those training to lead the health care workforce). Yet, the front-end preparation of the academic program allowed it to withstand unforeseen and cataclysmic effects of the pandemic with optimism toward continued and future practices. As such, two recommendations to other programs include a clear delineation of responsibility in each role and the establishment (or continued support) of a Practicum Coordinator-type role. This role allows for a single point of contact for students completing internships and for internal/external partners. When a crisis arose, having someone in this position assisted in eliminating confusion and allowed for consistent response to all stakeholders. There was one point-person, a known contact for all parties; the program had a clear lead identified in the area of responsibility.

A second lesson that was reinforced was the critical importance of strong partnerships in a health care program. Longstanding relationships with practicum sites and preceptors established prior to the pandemic allowed organizations to feel confident in the support and guidance they would receive throughout a time of incredible uncertainly. Preceptors felt comfortable asking the Practicum Coordinator difficult questions and talking through various scenarios. Relationships with university administration prior to the pandemic allowed leadership to feel confident that the Practicum Coordinator and Program Director were knowledgeable on licensure, industry, and graduation requirements and were acting in the best interest of student success and overall well-being. One recommendation to other programs is to build and maintain solid relationships with all partners (internal and external) to gain trust and ensure confidence in each party through times of uncertainty. A second recommendation is to consider all stakeholders' needs in decision-making, as it will maintain, strengthen, and enhance the partnerships. Overall, these strong partnerships collaborated to achieve a mutually valuable experience for all involved parties (students, preceptors, organizations, and the university).

A third and final takeaway from the experience is the importance of a swift and nimble response to all involved stakeholders in the face of a crisis. With so many uncertainties, the speed with which the university provided guidance to students, preceptors, and host sites was critical. The Practicum Coordinator and Program Director spent significant amounts of time outside of their typical responsibilities, focused on communication and planning, in order to respond and provide timely guidance to all stakeholders. As crisis situations can increase the need for leadership and guidance in emergent situations (Weick, 1995), this rapid response allowed stakeholders to feel supported from the outset of the pandemic.

Through effective planning and exceptional reaction in the face of extreme adversity, strong academic programs play a key role in alleviating long-term care workforce challenges by producing extraordinarily prepared future leaders.

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DEVELOPING AND IMPLEMENTING A BACHELOR OF SCIENCE IN HEALTH SERVICES PROGRAM: SUCCESSES, FAILURES, AND LESSONS LEARNED

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ABSTRACT

Designing and implementing academic programs at state-supported institutions of higher education, can be a cumbersome and political process. This is especially true for programs that are interdisciplinary in nature, for institutions that face significant financial challenges, or both of the aforementioned issues. Interdisciplinary programs often face resistance from other units or programs on campus that have partial curriculum overlap. In the absence of entrepreneurial leadership, declining resource base disincentives collaborative efforts across academic programs and units. Concerns may also be raised by academic programs and units that provide foundational and/or service courses to the greater institution, on the grounds that new programs increase their faculty and staff's workload without providing an explicit return for that increased workload.

Despite these challenges, new program development and implementation is possible. This abstract presents a case study describing the development of a new Bachelor of Science in Health Services program at a state-supported institution of higher education. During the timeframe of implementation, the institution experienced substantial enrollment challenges, leadership changes, and reduced state funding. The case study will describe the historical development of the degree program, inclusive of its purpose and target audience, its curricular requirements, and its approval process up to the state-level. It will also describe some of the successes, failures, and lessons learned – curricular, co-curricular, political, marketing, and financial - as the program negotiated the approval process and was subsequently implemented. Lastly, recommendations will be made to other faculty, staff and administrators planning to develop comparable programs at other state-supported institutions.

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IMPACT OF COVID-19 PANDEMIC ON PHARMACY TEACHING AT A MIDWESTERN UNIVERSITY

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ABSTRACT

Instructional continuity planning is a challenge all universities and higher education programs. Most of these plans attempt to develop contingent distance learning formats for their students, which enables a relatively comparable learning experience in situations that prevent the student and instructor from being at the institution in person. However, none of these plans were able to account for SARS-CoV-2 (COVID-19). The COVID-19 pandemic has had a calamitous impact on our society, healthcare system, and overall way of life. It resulted in higher education being flipped on its head and remote learning becoming the "new normal" for the time being. North Dakota State University (NDSU) School of Pharmacy informed faculty of the transition to full remote learning on March 10, 2020.

Faculty were asked to flip their classroom structures and transition to an online format on the fly. This all around took an extraordinary amount of time and effort on their part. To adapt to an online teaching environment, adjust class schedules, provide timely feedback, etc. was not something they were ready for by any means. In retrospect, it is important to gather stakeholder (in this study, faculty) thoughts and opinions on what aspects of the continuity plan worked, and which aspects did not, in order to be better prepared for future situations that require both planning and (if the event cannot fully be planned for) adaptation to best serve the needs of students.

A survey was created utilizing Qualtrics invitations to participate were disseminated via email to pharmacy school faculty at NDSU. The survey was a semi-structured interview format in which faculty were asked about barriers they faced, online teaching, and major changes they made to their courses/teaching style. The hope is to use the information gathered to continuously build heading into the future, find solutions to issues faced earlier, and to help the university better identify ways to support its faculty. The importance of group collaboration during this predicament cannot be understated and we hope to continue to take steps forward as a university with the information gathered here.

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TRACK:

HEALTH INFORMATICS AND TECHNOLOGY

TECHNOLOGY STRATEGIES TO IMPROVE STUDENT LEARNING OF HEALTHCARE REIMBURSEMENT

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TECHNOLOGY STRATEGIES TO IMPROVE STUDENT LEARNING OF HEALTHCARE REIMBURSEMENT

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ABSTRACT

Healthcare reimbursement is a significant component of the healthcare revenue cycle management and related processes. Many healthcare management programs both at the undergraduate and graduate levels include competencies and outcomes related to healthcare reimbursement. An example healthcare-reimbursement competency is "Manage the use of clinical data required by various payment and reimbursement systems." To effectively teach this competency, educators need to emphasize both the detailed processes and the computational methods for reimbursement. Teaching these concepts is also complex because of the number of different processes used by the Center for Medicare and Medicaid Services (CMS) for reimbursement. For example, the reimbursement processes for Inpatient Prospective Payment System (IPPS) are different from those of Inpatient Psychiatric Facility Prospective Payment System (IPFPPS) and End-Stage Renal Disease Prospective Payment System (ESRDPPS). We gathered assessment results since 2015 and evaluated how well students progressed in satisfactorily mastering the healthcare reimbursement competency as we introduced more and more technological tools in teaching methods. In this paper, we present results from both graduate and undergraduate programs on effective the technologies are in teaching healthcare reimbursement. We will share assessment results in leaning outcomes related to healthcare reimbursement processes such as Inpatient Prospective Payment System (IPPS), Inpatient Psychiatric Facility Prospective Payment System (IPFPPS), and End-Stage Renal Disease Prospective Payment System (ESRDPPS). We will first present assessment results from student work when technological tools were not used extensively to teach healthcare reimbursement and compare them to the assessment results after we introduced technological tools. These technological tools range from spreadsheet techniques (formulae, pivot tables) to databases (queries, reports), instructional videos specifically tailored for reimbursement, practice assessments, and video feedback. We classify our technological intervention on a scale of 1 to 3 (1=low technological use; 2=medium; 3=high technological use) and provide a statistical analysis of student learning of healthcare reimbursement with respect to technological intervention. Our analysis shows that technological tools for reimbursement processes and computations help students gain a better perspective and understanding of these concepts.

Keywords: *Healthcare management, healthcare reimbursement, revenue cycle management, prospective payment systems, integrated cases*

INTRODUCTION

Since healthcare is nearly 18% of the Gross Domestic Product in the United States, there is a significant need for employees trained in healthcare management. In the past five years, many educational programs in healthcare management and/or healthcare administration have been implemented at both the undergraduate and graduate levels in the United States. Healthcare management programs need to teach revenue cycle management and healthcare reimbursement.

One of the key competencies for the bachelor's level programs suggested by American Health Information Management Association (AHIMA) are the following (CAHIIM 2018):

➢ "IV.A.1: Manage the use of clinical data required by various payment and reimbursement systems." (2014 Version of Competencies)

> ➢ "IV.3. Evaluate compliance with regulatory requirements and reimbursement methodologies." (2018 Version of Competencies)

Programs need to demonstrate that students are learning the above competency at the appropriate Bloom's taxonomy level to successfully obtain accreditation from the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM).

Teaching concepts related to healthcare reimbursement is complex because of the number of different processes used by the Center for Medicare and Medicaid Services (CMS) for reimbursement. CMS typically uses prospective payment systems (PPS) for reimbursing hospitals and other healthcare facilities such as clinics, outpatient surgery units, and skilled nursing facilities. Students need to understand the nuances of different prospective payment systems. For example, the reimbursement processes for Inpatient Prospective Payment System (IPPS) are different from those of Inpatient Psychiatric Facility Prospective Payment System (IPFPPS) and End-Stage Renal Disease Prospective Payment System (ESRDPPS).

An additional complexity in teaching healthcare reimbursement is the need to utilize technology. Many healthcare processes including reimbursement have been significantly transformed by technology in recent years. Typically, spreadsheets (e.g. Microsoft Excel and Google Sheets) have been used to teach reimbursement methods. However, each different technique requires a different spreadsheet technique and a different problem scenario. Textbooks often include different problems to teach each reimbursement technique (Casto and Forrestal, 2015).

Typically, healthcare reimbursement is taught using practical cases that are either integrated or individual cases and have the following characteristics:

> ➢ One overall case scenario related to an organization and protagonist(s) that presents an authentic, real-world example; further, the same case scenario is used in majority of the course lessons/modules.

> ➢ Connections among modules/lessons as the case progresses by emphasizing the learning goals and the work completed in the previous lessons for the case.

> ➢ Ability for students to compile a portfolio of their work on the case and present it as an exemplar to key stakeholders (e.g. evaluators in a job interview; transfer credit evaluators while seeking other educational opportunities, etc.)

In this paper, we present results from both graduate and undergraduate programs on effective the technologies are in teaching healthcare reimbursement. We first present details of reimbursement processes for a few systems. We then present assessment results from student work when technological tools were not used extensively to teach healthcare reimbursement and compare them to the assessment results after we introduced technological tools. These technological tools range from spreadsheet techniques (formulae, pivot tables) to databases (queries, reports), instructional videos specifically tailored for reimbursement, practice assessments, and video feedback. We classify our technological intervention on a scale of 1 to 3 (1=low technological use; 2=medium; 3=high technological use) and provide a statistical analysis of student learning of healthcare reimbursement with respect to technological intervention.

The rest of this case is organized as follows. Section 2 presents the high-level process steps of computing reimbursements for IPPS and presents some example questions that students are expected to complete. Section 3 presents some of the technological interventions used to teach reimbursement processes and discusses statistical analysis of results with and without technological interventions. Section 4 concludes this paper with observations and directions for future work.

PROCESS STEPS FOR COMPUTING HEALTHCARE REIMBURSEMENT

One can find a very good overview of how to compute payment under IPPS in the MedPac payment basics document (IPPS 2016). The steps at a basic level are described in Figure 1. Excellent books such as those by Casto and Forrestal (Casto 2018; Casto and Forrestal 2015) present cases to teach healthcare reimbursement. Many of the cases are also published in sources such as the Federal Register when the Centers for Medicare and Medicaid presents details of the reimbursement methods.
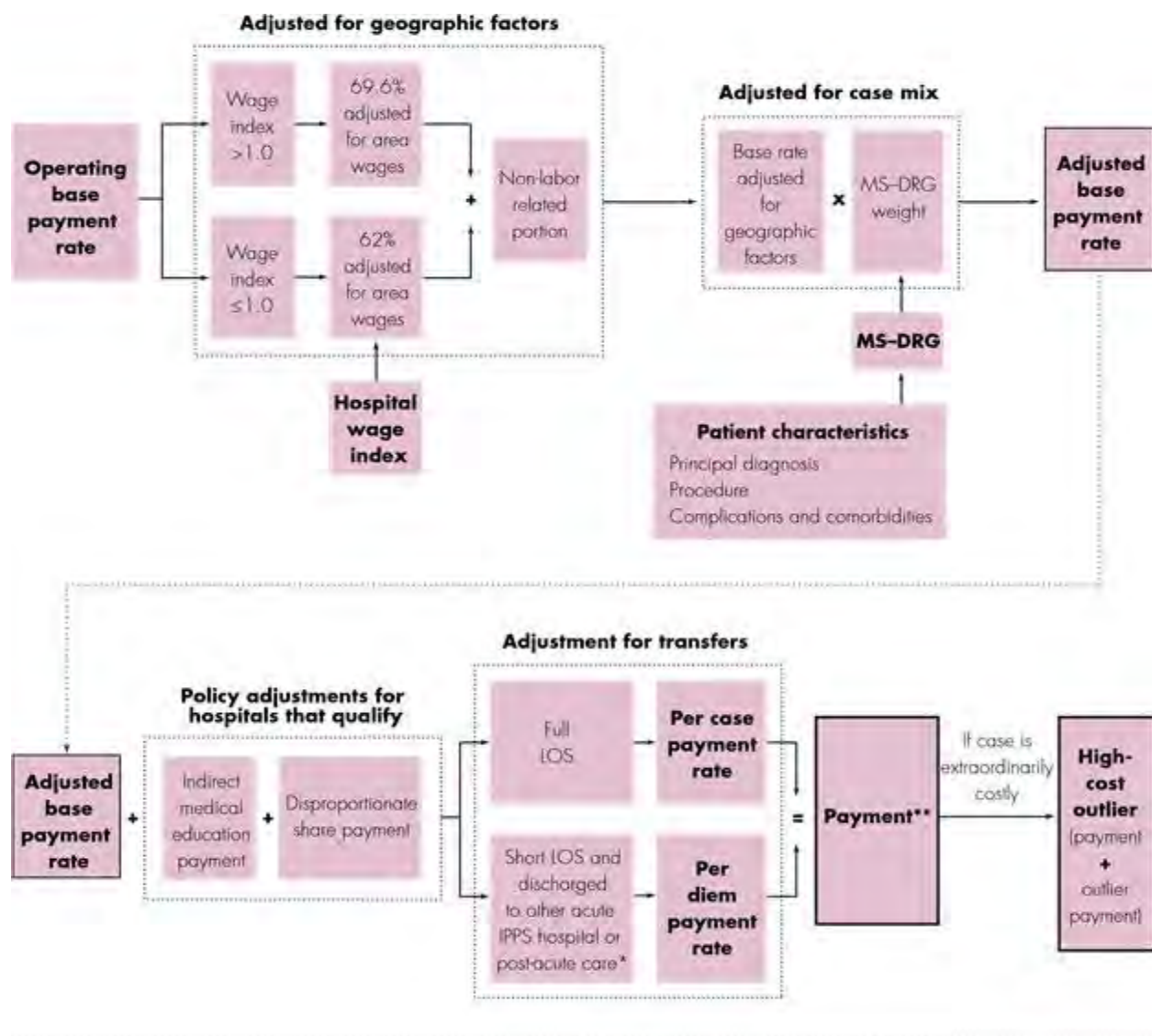
Figure 1. A process Diagram for Reimbursement under the Inpatient Prospective PaymentSystem (IPPS)
(Source: IPPS 2016 from MedPac).

In the following paragraphs, we describe a few example scenarios for IPPS, IPFPPS, and ESRDPPS reimbursement. Similar example scenarios are used to assess the proficiency of students in healthcare reimbursement in our online undergraduate and graduate programs.

IPPS Scenario: Patient Archibald Cox was treated for heart failure and shock with major complexities/comorbid conditions. MS-DRG code is not yet assigned for the encounter. Table 1 provides the details of the encounter for the IPPS scenario.

Table 1: IPPS Patient Scenario.

Facility Information		
Bed size: 400 beds	Location: Some City, WI	
Classification: Urban	Wage Index: 0.9741	
Full Service Emergency Department?: Yes		
Patient Claim Information		
Admit Date: Sep. 1, 2018	Discharge Date: Sep. 5, 2018	Patient Length of Stay: 4 days
Patient Age: 68		
MS-DRG Code:	Documentation indicated heart failure and shock with major complexities/comorbid conditions.	

Similar scenarios are used for IPFPPS and ESRDPPS.

Question 1: For the IPPS scenario, assume Operating Base Payment Rate of $7230. Documentation indicated heart failure and shock with major complexities/comorbid conditions. What is the MS-DRG code will you assign based on the documentation? Using the MS-DRG code that you selected, compute the IPPS reimbursement amount.

Question 2: Based on the provided case documentation, what MS-DRG code will you assign to the IPFPPS case? Compute the IPFPPS reimbursement amount for the above scenario.

Question 3: For ESRDPPS, the patient received dialysis for a total of 20 days in Sep. 2019. Compute the ESRDPPS payment. What comorbid condition(s) will you use in arriving at the payment? If the patient's weight increases to 72.19 kg, how will the payment change? The next section presents results from assessment of student learning of healthcare reimbursement competencies.

ANALYSIS OF STUDENT PERFORMANCE WITH AND WITHOUT TECHNOLOGIES

We collected results on student performance with and without technological interventions to teach healthcare reimbursement. These technological tools range from spreadsheet techniques (formulae, pivot tables) to databases (queries, reports), instructional videos specifically tailored for reimbursement, practice assessments, and video feedback. We classify our technological intervention on a scale of 1 to 3 (1=low technological use; 2=medium; 3=high technological use) and provide a statistical analysis of student learning of healthcare reimbursement with respect to technological intervention. Technological interventions are classified as low when students were given spreadsheets with formula to compute reimbursements. When students were given spreadsheets and video tutorials with step-by-step examples by the instructor to compute healthcare reimbursements, they were

classified medium. Technological interventions were termed high when the instructor conducted video office hours in addition to giving spreadsheets and step-by-step video tutorials. Student performance in both graduate and undergraduate courses using these three methods were compiled. The following tables describe the results of our statistical analysis using ANOVA.

Table 2: ANOVA Statistical Analysis for Graduate Student Performance using Low, Medium and High Technological Interventions .

Anova: Single Factor – Graduate Student Performance

SUMMARY

Groups	Count	Sum	Average	Variance		
LOW TECH	29	17.08235294	0.589047	0.063002		
MEDIUM TECH	37	35.88571429	0.969884	0.002095		
HIGH TECH	42	38.5	0.916667	0.004855		

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	2.69222124	2	1.346111	69.3349	6.38763E-20	3.0828520
Within Groups	2.03853352	105	0.019415			
	4.73075476	107				
Total						

Table 3: ANOVA Statistical Analysis for Undergraduate Student Performance using Low, Medium and High Technological Interventions .

Anova: Single Factor – Undergraduate Student Performance

SUMMARY

Groups	Count	Sum	Average	Variance		
LOW TECH	42	20.475	0.4875	0.044863		
MEDIUM TECH	74	56.53333333	0.76396	0.013792		
HIGH TECH	84	71.29333333	0.84873	0.006732		

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	3.71287	2	1.85643	107.407	2.86243E-32	3.04175303
Within Groups	3.40495	197	0.01728			
Total	7.11782	199				

RESULTS DISCUSSION & CONCLUDING REMARKS

As is evident from Table 2, overall there are statistically significant differences between student performance for graduate students with low, medium and high technology interventions. We further conducted t-Tests for each pair of groups to determine which categories have statistically significant differences. For graduate students, there are statistically significant differences among all pairs including medium technology and high technology intervention groups. One interesting observation is that student performance improved from low to medium student engagement

for graduate students. However, student performance was better in terms of average student score for medium intervention rather than high technology intervention. This can perhaps be due to the fact that graduate students are highly motivated and only those students who are struggling with the concepts attend office hours; note that video/virtual office hours are the main distinguishing factor between medium and high technology intervention groups.

From Table 3, there are statistically significant differences between student performance for undergraduate students with low, medium and high technology interventions. We further conducted pairwise t-Tests to determine which categories have statistically significant differences. For undergraduate students, there are statistically significant differences among all pairs including medium technology and high technology intervention groups. Unlike graduate students, student performance improved from low to medium to high technology intervention groups. In addition, for each technology intervention, we conducted t-Tests to compare undergraduate and graduate student performance. There are statistically significant differences between undergraduate and graduate students. This is to be expected because graduate students in general are better prepared through their prior education and current work experience and other intangible factors.

In conclusion, we compared the performance of undergraduate online students with low, medium and high technology interventions to teach healthcare reimbursement competencies. We also compared the performance of graduate students with the same interventions. Our data was collected from the courses that the second author taught from 2015 to 2020 =. Our statistical analysis revealed that medium and high technology interventions are very helpful in improving student performance for both groups. In future, this study can be combined with the community of inquiry (CoI) model (Garrison et al. 2000; Garrison & Arbaugh 2007). The technology interventions discussed in this paper are aimed at promoting the social, cognitive and teaching presence discussed by the CoI model. A more formal connection of such results to how they promote each dimension of the CoI model is a topic for further study. Another direction can be to expand the study other competencies in healthcare management and administration programs, especially the competencies that CAHIIM accreditation requires students to demonstrate.

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THE INFLUENCE OF TELEMEDICINE ON PHYSICIAN PRACTICES

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ABSTRACT

Telemedicine has changed the delivery of health related services. This two-way audio-video communication had only recently begun to be reimbursed by Medicare, and private insurances had been slow to cover these services. Once COVID-19 invaded our world, everything changed. Caregivers or family members are not permitted to accompany a patient into the physician's office or testing center; this includes spouses. Utilizing telemedicine may reduce some of the anxiety experienced by this group of people since they can now be part of the conversation when invited to the appointment. While technology and software are key to a successful meeting with the patient, providers do not need to be in the same location as the patient or their staff. It is imperative that staffing changes, patient scheduling and documentation, remote monitoring, and IT technology all work seamlessly to ensure quality of care. This research explores the impact telemedicine has on physician practice, its drawbacks, and the future landscape in delivering care.

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TRACK:

HEALTHCARE

MANAGEMENT

EMPLOYEE ENGAGEMENT IN LONG TERM CARE

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ABSTRACT

Employee engagement is a universal challenge. As per Gallup Management Journal's Semiannual Employee Engagement Index, only 29% of employees are engaged in their work, 54% are not engaged, and 17% are actively disengaged. According to the Right Management, only 34% employees are engaged, and 50% are actively disengaged. This pandemic has further highlighted the long-standing challenges of employee engagement are in Long Term Care (LTC) due to limitation of resources and special needs of service population. Braedley et al. (2018) conducted a pilot study for assessing association amongst residential LTC nursing employees' mental wellness and working environment; especially overwork, little control of employees, contempt, and inequity in Canada's four regions. Braedley et al. concluded that employers' and government's role in managing employees' mental well-being and safety risks in residential LTC settings has been disregarded and undermined. Sarti (2014) researched the contribution of job resources to employee engagement of 167 care providers in nine LTC facilities in Italy. Based on this study, Sarti concluded that job resources, chances for better education, and support from colleagues have a positive impact on work engagement of caregivers. Toyama & Mauno (2017) explored the association of Emotional Intelligence (EI) and social support with staff's Work Engagement (WE) and creativity amongst 489 elder care nurses in Japan. The study findings revealed positive associations amongst EI, social support, creativity, and WE; greater EI positively reinforces the inter-relations between the triad of social support, WE, and creativity; and EI can be an important personal resource for innovation in the associations amongst social support and WE. This presentation will include a discussion of factors affecting employee engagement in LTC and recommendations for improving the same.

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INFORMING RECRUITMENT AND PEDAGOGY OF LONG-TERM CARE ADMINISTRATION STUDENTS

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ABSTRACT

Given the shortage of long-term care administrators and the aging population of our country, efforts to enhance the pool of appropriate and well-prepared candidates in long-term care professions are now more critical than ever. Efforts are currently underway to develop more preparatory programs and streamline the licensure process. However, with these endeavors comes a need for more individuals to pursue a leadership role in the field. Recruitment efforts for future administrators are essential and need to be explored.

In their freshman year of college, 50 collegiate students at [institution] completed a Long Term Care Administration (LTCA) assessment to assess their experiences, interests, and abilities in ten characteristic areas (e.g. organization, critical thinking, sense of caring, etc.) determined as important for future long-term care administrators. Results of the LTCA will be correlated with (1) the same students' practice federal licensure exam scores completed immediately prior to graduation and (2) the students' graduating GPA to determine whether there is a relationship between certain characteristics/abilities and professional preparedness. Additionally, the same pool of participants (now working in the field for one to two years) will be surveyed to explore their career entry path and experiences that they deemed as vital to their career preparation.

Ultimately, the intention of the project is to inform pre-collegiate students and counselors about students who might be a good fit for the field of long-term care. Second, the research seeks to provide the same information to long-term care administration programs at the University level to enhance their own recruitment efforts. Information found through this study could also assist programs in developing and/or refining curriculum outside of requirements that are already established for programs accredited by the National Association of Long Term Care Administrator Boards (NAB).

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UTILIZING QUALITY THEORY TO INCREASE INCLUSIVENESS OF HEALTH CARE DECISIONS

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ABSTRACT

Paul Batalden, the Founding Chair of the Institute for Healthcare Improvement (IHI) Board of Directors, often states, "Every system is perfectly designed to get the results it gets." A more complete statement is to say that the results are also dependent on the system's operating environment. If the system's operating environment is different in a significant manner, the same operating system will produce different results. In other words, a system, working in different environments, will produce different outcomes.

In healthcare, when deciding to implement a new system/policy, the use of an average system outcome, or the ignoring of negative outcomes found when a particular system/policy is used in different environments, often leads to what are referred to as "outliers," "special circumstances," or "unfortunate unexpected outcomes." The justification given to use the single system/policy is that the "favorable" cost/benefit of the limited special negative outcomes are outweighed by the common positive outcomes the new single system provides to a majority. A historical example is the implementation of prospective payment for Medicare, based upon urban hospital data to create diagnosis-related groups (DRGs), in the 1980s. The new system resulted in the closure of rural hospitals across the country and the later response of the development of critical access hospitals to fill the system-created gaps in care.

Quality theory brings awareness to this issue of exclusion from positive benefits in system change through the concept of common and special variation. Meaningful system change is expected to create both winners and losers. Why? Because the environments typically differ for those involved. The productivity of a physician that does not know how to type should be expected to go down if the clinic or hospital moves from a traditional handwritten medical record to an electronic medical record. With quality theory, we are trained to look for both common and special variation. Unfortunately, the general public thrives on making special cases the basis for the need to change the overall system (rather than creating a secondary response system) and treating extreme outcomes as special and responding to those values by changing the system in a manner that then misaligns the general system even further and becomes tampering.

System change, either planned or unplanned (imposed by the environment), should deliberately consider two situations. The first is to determine the overall system change that best aligns one's system to produce value in the overall environment. The second is to determine the critical subsystems that should be created to reduce harm and/or create value in the specific environments where the primary solution does not work. When the primary system is changed, other systems are also implemented to provide for inclusiveness of positive benefits to those operating in those different environments.

This presentation gathers key concepts from quality theory and the philosophy of science concerning thought processes that increase the awareness and capability of initial inclusiveness of positive outcomes when major system changes are considered. In particular, W. Edwards Deming's discussions on interdependent systems and special and common variation, Peter Senge on mental models and system archetypes, Eliyahu M. Goldratt on negative branches, and Robert Dubin on system states are referenced. The bottom line is that quality theory is a mechanism for caring in that it makes one aware that a single system in multiple environments creates different results. If a single system is proposed, expect there will be those that rightfully resist the change because they see how the new system causes harm to your fellow citizens, to your fellow employees, or to your fellow family members. Quality theory provides a proven mechanism to act in a meaningful and caring manner in the creation of a multi-system response before harm occurs.

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TRACK:

PUBLIC HEALTH

COLLEGE STUDENTS PERCEPTIONS OF VACCINES IN 2020

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COLLEGE STUDENTS PERCEPTIONS OF VACCINES IN 2020

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ABSTRACT

This study examines the perceptions of vaccinations from students at a small, private liberal arts school located in the United States Midwestern state of Indiana. A survey consisting of twenty-four questions that collected demographics and data on various views on vaccinations in general. This survey included questions regarding the impending COVID-19 vaccine. From the survey, 70% of students are "extremely likely" or "likely" to receive the COVID-19 vaccine once it becomes available; while, 13% of students said they were "not likely at all" to get this vaccine. Overall, the majority of students were pro-vaccinations that have been scientifically studied and proven effective.

INTRODUCTION

The Center for Disease Control and Prevention defines the term "vaccine" as "a product that stimulates a person's immune system to produce immunity to a specific disease, protecting the person from that disease."[1] Vaccines were first discovered by Edward Jenner in 1796 when he discovered that those who had gotten cowpox were asymptomatic when inoculated with smallpox virus.[2] For over two hundred years, vaccines have been developed to prevent and stop the spread of disease. The World Health Organization states that vaccinations prevent two to three million death worldwide every year.[3]

As of January 1, 2021, the COVID-19 pandemic has killed over 1.88 million people worldwide.[4] The detrimental effects of the COVID-19 pandemic has led to the worldwide race to develop a vaccine to prevent the spread of this disease. As this vaccine is in development and just being released for emergency use, perceptions of vaccines, especially the COVID-19 vaccine are in need of evaluation, as the safety and efficacy of vaccines is in question by many individuals.

Aim of the Study
The aim of this study is to determine college students' perceptions of vaccinations, with emphasis on the COVID-19 vaccine.

Literature Review
According to the National Survey on College Students and Flu, approximately 70% of students believe receiving the flu vaccine annually is important.[5] Vaccination perceptions vary greatly amongst college students. Existing literature supports that certain characteristics are correlated with college students who are more likely receive vaccinations and hold positive perceptions of vaccination. These characteristics include: be female, be a freshman, attend a private college, have at least one parent with a college degree, and remain active in clubs and organizations on a college campus. Further, cost and convenience remained the two leading reasons college students were not vaccinated.[6] Parental opinions and perception of disease risk were other large factors found by a 2019 study by Sandler et al.[7]

Sample

The target population for this survey included 2,338 students at the University of Evansville, a small, private liberal arts university located in the Midwest United States. This includes all the majors for undergraduates plus the graduate programs at the university such as; Physical Therapy, Physician Assistant, Masters of Health Service Administration etc. The majority of the target population was aged 18-25 years old, however, a minimal amount were older than this range. There were a total of 564 participants in the study.

METHODS

A survey containing twenty-four questions was conducted and sent out to the Students at the University of Evansville via email. The online survey platform was sent by the Office of Technology Services provided at the University of Evansville and included a link to students in the announcements email for three weeks. This was a cross-sectional study in which the data was collected and analysed during the Fall 2020 college semester. The survey was first sent on October 26, 2020. In order to maximize participation, the survey was sent out via the Office of Technology Services two additional times the consecutive two weeks, for a total of three emails to the target population. The survey was sent out on the following two Wednesdays after the original email. The participants had until November 11, 2020 to complete the survey.

All participation was voluntary and followed Institutional Review Board Criteria. The data was gathered and analyzed from the survey platform. Questions on the survey included demographics, opinions of vaccines, and likelihood of receiving various vaccines, including the expected COVID-19 vaccine. The two main topics in focus were the last two in which students were asked to provide short answer responses in regards to their opinions on vaccines and their views on the COVID-19 vaccine.

FINDINGS

After gathering the data, it was found that the majority of students agreed that vaccines are beneficial and hold a positive attitude towards the use of vaccines. Ninety-seven percent of the participants were raised to believe that vaccines prevent disease. Almost 90% believe that it is important to receive and stay up-to-date on their vaccinations. Additionally, 68% of students polled received the flu vaccine in 2019.

Regarding the COVID-19 vaccine, specifically, many participants of the study are planning to get the COVID-19 vaccine once more data is collected. The authors note that this survey was sent out before the FDA had approved the vaccines for emergency usage. Seventy-nine percent of students said that the Coronavirus vaccine was "urgent" or "very urgent." When asked whether students would receive the vaccine once it is created, 70% said they were "extremely likely" or "likely." 10% were "neutral," 7% said they were "not likely," and 13% replied with "not likely at all."

The top reason that students were not going to receive the vaccine was due to lack of long-term studies providing extensive safety on the COVID-19 vaccine. The chart below shows a comparison of study participant's perceptions on the urgency of the COVID-19 vaccine to be available to the likeliness of students actually receiving the vaccine. While the majority of students are likely or extremely likely to receive the vaccine, it appears that the participants' sense of urgency is somewhat greater than the likelihood of them receiving the vaccine themselves.
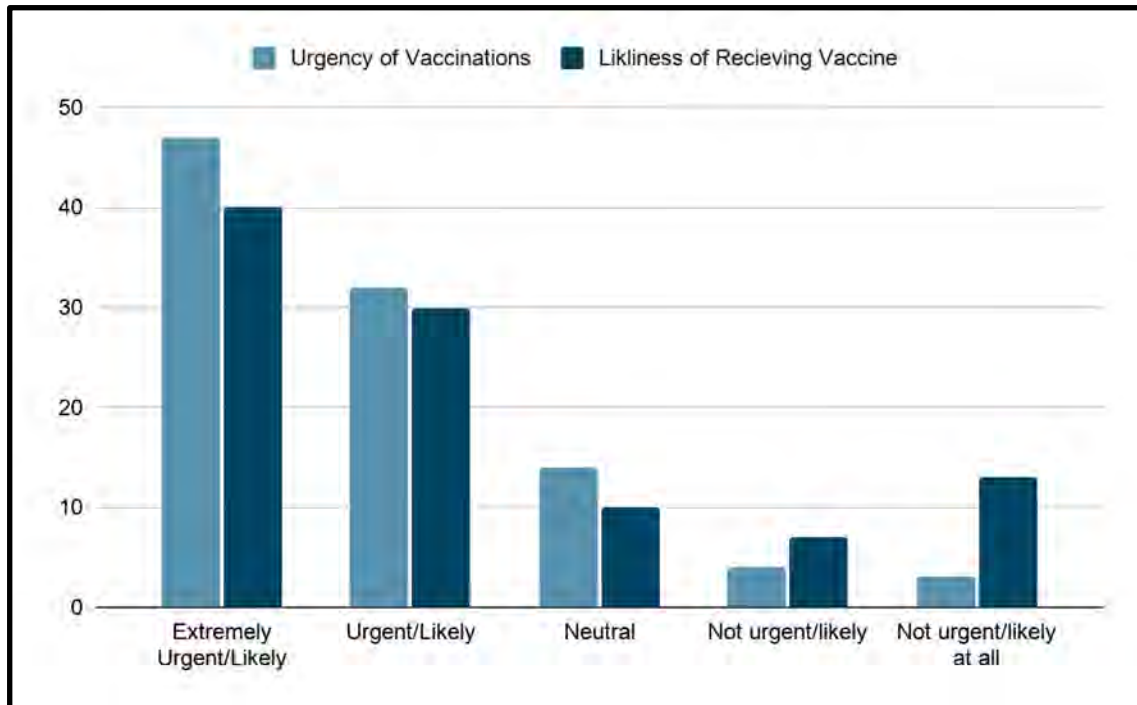
Finally, demographic data from the survey reveal that 69% of responders were female and 91% identified as being white. Eighty-four percent were in the standard student ages between 18 and 22 years old. Additionally, 41% of responders were in a healthcare-related field of study, followed by 22% in science, technology, or engineering-related fields of study.

DISCUSSION

This survey provided eye-opening data due to the relevancy of the topic. Mixed opinions have been expressed by individuals everywhere regarding the general vaccines, as well as an emphasis on the COVID-19 vaccine. Specifically, this research highlights the opinions of students at a private, liberal arts college in the Midwest.

Many students are concerned about the COVID-19 vaccine and this survey provides evidence that the majority of students are willing to get the vaccine. The students that were surveyed desperately wanted to return back to life as normal and this vaccine could be the "light at the end of a tunnel" for these students during a worldwide pandemic.

A key consideration to the research remains that the study was conducted prior to FDA emergency usage approval of the vaccine. At the time, the majority of the U.S. was under lockdown, only essential workers were proceeding with normal work duties, and many workers were either laid off or switched to working remotely. The authors believe conducting research on this population, now that there is FDA approval, may challenge existing results. Many people that took this survey are also going into or currently work in the healthcare field and could potentially be vaccinated due to their field. It would be interesting to see just how many students are currently vaccinated.

When comparing results to previous literature, the data appears consistent with many characteristics. For example, all of the participants in this study attended a private college and the majority of respondents identified their race as white. Existing literature supports that these demographics are most likely to receive vaccinations and hold positive perceptions of vaccination. This aligns with the data found from this study.

Further studies are needed to investigate how non-educated college-aged people view vaccines, and how students at public universities and community colleges view vaccinations, in order to better understand this age group.

CONCLUSION

In conclusion, the majority of the students believe that vaccines are crucial in keeping the population healthy. The current pandemic has changed how many people view "regular life" and how desperate they are to return to life as normal. It is possible that the COVID-19 vaccine will help with this process; which could be why many people are answering in favor of receiving vaccines.
There are some correlations between positive opinions on vaccinations right now versus opinions on vaccinations before the pandemic occurred. Many people are still worried about the safety of the vaccination but as long as people are leaning towards getting vaccinated, then herd immunity could possibly be reached. Herd immunity is the ultimate goal for a population in order for it to remain healthy.

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PUBLIC POLICY IMPLICATIONS OF COVID-19 VACCINATION

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ABSTRACT

Shortly before his January 2021 inauguration, President Joe Biden promised to "manage the hell" out of the COVTD - 19 distribution and vaccination process. The initial obstacles presented by the federal effort raised questions about vaccine distribution and administration in the US with surveys showing that approximately 40% of the population is reluctant to get the vaccine and public health experts opining that 75-80% of the population must be vaccinated or develop antibodies in order to bring about herd immunity to COVID-19, significant public policy considerations remain to be addressed Existing public health law would appear to allow private employers to mandate employee vaccination so as to best protect the employer's work force. However, depending on the industries involved and the size and skill level of this available pool of employees, employers may determine that mandates are counter-productive because employees resign and leave for other opportunities rather than getting vaccinated. Extensive public education would seem to be required to address COVID-19 vaccination acceptance.

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HOW LEADERSHIP ADDRESSES HEALTH DISPARITIES WITHIN RURAL COMMUNITIES

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ABSTRACT

This research focuses on the disparities of health that exist within rural communities and the public health outreach leadership can provide to help decrease these disparities. Health disparities are both unnecessary and avoidable, and there is a critical need to address these disparities that exist for vulnerable populations in rural areas. If healthcare leaders understand the root of the issue, they can implement proper policies and procedures to serve their communities and promote health equity. Based on an organization's Community Health Needs Assessment (CHNA), this data should be utilized to properly allocate resources to enhance the health outcomes of rural communities. Each community is different, and leaders need to strategize a focused approach to combat the most prevalent chronic that plague their rural communities. By doing this, health equity and equality may be achieved.

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