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Prolegomenon of an (spatial) Epidemiology of Compassion

A first look at the potentiality of mapping compassion from a bioethical & epidemiological perspective

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An abstract of
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James T. Laney School of Graduate Studies of Emory University
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Abstract

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Compassion is essential for ethics. To evaluate the potential utility of an epidemiology of ethics, definitions and characteristics of compassion in philosophy, world religions, and psychology were reviewed to identify common elements within the fields. This thesis looked at compassion as a key element for mapping ethics. The element of appraisal of one's own resources and limitations was integral in Buddhism and with philosophers such as Aristotle. Generosity came primarily from the field of Christianity and Islam. The desire to act to alleviate, eliminate or prevent suffering was present in almost all the fields. Next, publicly available data sets matching the characteristics were selected for their use as proxy measurements for compassion. The identified data sets were well-being, volunteering and the Generosity Index for the US, and US hospitals. For the element of relieving suffering, counts of the keyword "compassion" on hospital websites were used as proxy. With the help of the tools of spatial epidemiology, the elements of compassion were mapped to identify spatial clustering of compassion. The resulting maps were examined for overlapping "hot spots" of compassion in the US.
For the element of relieving suffering, the "compassion" counts revealed spatial clustering in the northwestern and southwestern parts of the US, with Southern California and Washington as "hot spots". The element derived from the Christian and Islamic traditions of giving alms and volunteering depicted higher volunteering rates in the northwestern states of the country and a clear North-South division (lower in the south). For charitable giving, represented by the Generosity Index, over the past twenty years, Utah and Maryland were the top two highest scoring states for individuals giving money to charities. The proxy measure for being in a right state of mind to acknowledge another's suffering, the well-being score depicts a clear east-western trend, with people in the northwestern parts of the country, indicating a better general satisfaction with life. Through the identification and the use of proxy measurements, spatial epidemiology of compassion can help us understand and develop new questions and hypotheses, such as 'Utah is a center for compassion in the US', regarding the spatial clustering of ethics.

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Abstract

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epidemiology of compassion can help us understand and develop new questions and hypotheses, such as ‘Utah is a center for compassion in the US’, regarding the spatial clustering of ethics.

Background

Why map ethics?

The various theories of ethics have been an integral part of our daily lives. Ethical behavior, such as being respectful to your fellow humans and showing compassion for people and animals in need are keystones of functioning societies. Varying theoretical ethical concepts such as virtue ethics or utilitarianism have been discussed for centuries. However, little effort has been made to measure and depict the observable ethical behavior in populations. Thus, it is time to discuss why should we map ethics? It is time to evaluate the potential utility of a spatial epidemiology of ethics.

A spatial epidemiology of ethics allows us to depict visually a geographical distribution of ethical and unethical behavior. John Snow contributed to the origins of disease epidemiology when he mapped cholera cases during the 1854 cholera outbreak in Soho, London. It allowed him to geographically display cases, which aided to identify and locate the causal origin. Global incidence maps illustrate outbreaks of all varieties of diseases, such as the currently ongoing Coronavirus (COVID-19) pandemic; so why not evaluate the potentiality of mapping of ethical behavior such as compassionate actions. In order to inform the field of ethics of probable clustering of ethical behavior, which in turn aids the development of new questions and hypotheses to further study and evaluate the relevant facts related to the ethical behavior in question, this thesis uses compassion as a model for mapping ethics.

For centuries, considerate examination of the concept of compassion was constrained to the fields of philosophy, religion, and poetry. However, over the course of the 21st century, psychology, sociology, and neuroscience have started to produce new insights into the nature and mechanism of compassion. Despite expanding, multidisciplinary interests in the concepts of

compassion, the field of epidemiology, the scientific discipline which upholds public health, is largely absent from the discourse (Levin 2000). Thus, it is time to evaluate the potential utility of an epidemiology of compassion to explore the contribution of epidemiology to a current understanding of compassion and related concepts to develop tools and metrics, which have the potential to serve to foster compassion in our communities, organizations, and health systems of this world.

Compassion – Why use compassion as a model for mapping ethics

Hospitals and medical centers around the globe advertise compassionate care as a key component in their promotional materials. Emory Healthcare's vision statement, for example, states the following: "To be recognized as a leading academic and community health enterprise, differentiated by discovery, innovation, education, and quality, *compassionate*, and patient- and family-centered *care*" (Emory Healthcare 2019). In the United Kingdom, one of the six core values in the National Health Service (NHS) constitution is compassion (Department of Human Health & Social Care October 14, 2015). Yet, compassion as a measurable concept has been left out and ignored until recently. In 2017, the World Health Organization Health Service Delivery and Safety division added the role of compassion in quality of universal health care as one of its core values (World Health Organization 2018). Additionally, the book *Compassionomics* (2019), which combines the scientific methods of medicine and the art of medicine, portrays that compassion in healthcare settings has measurable effects for healthcare personnel and patients and therefore compassion "belongs into the domain of evidence-based medicine" (Trzeciak and Mazzarelli 2019, 34). This is setting the stage for the next chapter in compassion research to expand on metrics of compassion.

There are many different views in compassion, with a broad consensus that compassion refers to feeling for persons who suffer and being prompted to act (Lazarus 1991; Goetz, Keltner, and Simon-Thomas 2010; Strauss et al. 2016). However, it has been ignored as a measurable value. When Arthur Schopenhauer introduced his concept of "boundless compassion for all living beings" as "the surest and most certain guarantee of pure moral conduct" (Schopenhauer 1903, 213) in 1840, the concept was first referred to as *Mitleidsethik*. Yet today, the more fitting term is *Mitgefühl* in the German language. In philosophy it has been argued for centuries that compassion lies at the very foundation of ethics. Aristotle, Adam Smith, Jean-Jacques Rousseau, David Hume, Arthur Schopenhauer, and Albert Schweitzer, all concur that compassion is the foundation of all ethics (Frakes 2010; Addiss 2017).

The lack of compassion has been on display in the new millennia through outbreaks of multiple emerging infectious diseases (MERS, SARS, Ebola COVID-19) and a general moral shift towards an egocentric, populistic and hostile mindset against migration all over the planet have so far dominated the historical records of this young 21st century. Fear, terror, and anxiety are widespread in the global population and it seems that love and compassion for each other, for humankind, is on the decline. However, as the Dalai Lama states, "Love and compassion are necessities, not luxuries. Without them, humanity cannot survive" (Bstan 'dzin rgya 1998, NA).

Compassion is essential for the survival of humanity. Even Charles Darwin's work hints how compassion and the protection of species intertwined with each other. In his groundbreaking work "*The Descent of the Man and Selection in Relation to Sex*", Darwin reveals that "for those communities, which included the greatest number of the most sympathetic members, would flourish best, and rear the greatest number of offspring" (Darwin 1871/1901, 163). Thus, the construed concept of the survival of the fittest, basically most violent and aggressive member of

the tribe/ the community, is not what Darwin was portraying. His evolutionary scientific contribution to the survival of species is based on the 'most other oriented' and compassionate beings sharing their acquired goods with their close others. Compassion seems to protect the survival of humans and allowing the genes of the most compassionated members to survive (Trzeciak and Mazzarelli 2019). Therefore, compassion is necessary for human evolution.

Darwin introduced compassion into basic science and the field of research. However, the concept of compassion has had a long history in the field of philosophy. As with the field of science, there are two camps in the field of philosophy. The anti-compassion camp, which includes famous names such as Socrates, the Stoics, Emanuel Kant, and Friedrich Nietzsche, and the pro-compassion section with Aristotle, Adam Smith, Jean-Jacques Rousseau, David Hume, and Arthur Schopenhauer (Frakes 2010). The anti-compassionate section believes compassion to be a sentiment which misconstrues extraneous goods and limits the attention of a compassionate person pernicious to protecting the public's good (Frakes 2010). Compassion is not viewed as a valuable guide for bringing about a just society (Addiss 2017). The pro-compassionate section "recognizes that external forces and events may impact someone's life" (Frakes 2010, 82). Compassion is intrinsic in a person and deemed necessary to guarantee moral conduct. As Schopenhauer asserted in 'The Basis of Morality'

> "Boundless compassion for all living beings is the surest and most guarantee of pure moral conduct, and need no casuistry. Whoever is filled with it will assuredly injure no one, do harm to no one, encroach on no man's rights; he will rather have regard for every one, forgive every one, help every one as far as he can, and all his actions will bear the stamp of justice and loving-kindness" (Schopenhauer 1903, 213-214);

Thus, this thesis is aligned with the philosophical school of thoughts in the pro-compassion camp in order to establish compassion as a model for an epidemiology of ethics.

Besides the philosophical branches of the Western world, compassion also plays a crucial role in the major religions of our time. For Christians, the parable of the Good Samaritan emphasizes the selflessness and illustrates the moral conduct to serve those in greatest need (Luke 10: 25-37). For Buddhists, compassion is at the center of ethics. Compassion is central to the Buddhist 'Path of Purification' in alleviating suffering and to "see helplessness in those overwhelmed by suffering" (Buddhaghosa 1976, IX, 94). Together with equanimity, which advocates for promotion of neutrality towards beings, loving-kindness, gladness and compassion in balance, guide a Buddhist to a profound understanding of the doctrine of *kamma* (action) and sustains that *Brahmaviharas*, the Divine Abiding, are cultivated equally towards all beings (Buddhaghosa 1976; Frakes 2010).

Furthermore, neuroscientific researchers, with the help of functional magnetic resonate imaging (fMRI) researchers, have been able to map the neural networks associated with compassion (Singer and Klimecki 2014). From a neuroscience perspective, it is not only possible to distinguish compassion and empathy neural networks and related responses in human brains, but it also possible to influence these networks through compassion training (Singer and Klimecki 2014). These scientific findings underline the importance of compassion as a scientific instrument.

Epidemiology

The scientific field of epidemiology is the cornerstone of public health. Epidemiology is the study of how phenomena, for example, disease clusters are distributed in time and space. It enables a deeper understanding of the causes of such distributions (or "clustering of cases"), as well as insights into which causative factors can be modified to affect health outcomes (Gordis 2014). Initially applied to the study and prevention of infectious diseases, epidemiology is a

powerful tool that is used across public health and healthcare to improve health and well-being of individuals and populations. For example, it has been crucial in reducing the risk and severity of road traffic injuries and deaths (e.g. rollover crashes with ejections) (El-Hennawy et al. 2014), which until recently were viewed as "accidents" that were beyond human control. The establishment of electronic databases around the globe and the tool(s) of epidemiology allow for analyses of multifaceted factors, previously believed to be impossible.

What can spatial epidemiology contribute?

So, the question arises, what could spatial epidemiology contribute to ethics? A *descriptive epidemiology* of compassion sheds light on how compassion may be distributed by person, place, and time. It allows us to describe and analyze geographic variations in characteristics with respect to varying demographics, socioeconomic and behavioral risk factors (Elliott and Wartenberg 2004). This is helpful to generate new insights for a contemporary understanding of compassion. Descriptive epidemiology has the power to visualize representation of compassion via geospatial data. For example, it allows us to depict "hot spots" of compassion and track changes over time. In addition, descriptive epidemiology has the potential to explore "risk factors" such as previously noted e.g. traits, stages or elements of compassion or factors that may inhibit the expression or even development of compassion. Descriptive work allows also for the identification of potential proxies of compassion. Existing datasets may already contain elements of compassion. The tools of descriptive and spatial epidemiology allow for generating hypotheses and tracking progress through metrics. Understanding the spatial epidemiology of compassion can help us understand and develop hypotheses regarding the spatial clustering of ethics.

Why do we need a spatial epidemiology of compassion?

"Why do we need a spatial epidemiology of compassion?" First, given the alarming levels of polarization and hostility so prevalent in today's world, there is an urgent need to explore all potential avenues of compassion. Secondly, an epidemiology of compassion is no longer merely theoretical. Compassion has practical implications for programs and systems around the globe. For example, it may help to assist WHO and ministries of health, even cities, to become more eloquent in implementing compassionate health care systems on their needed scale. However, guidance on metrics and methods are needed. In general, an epidemiology of compassion has the potential to evaluate training methods and develop metric systems based on the best available scholarship, experience, theoretical and scientific evidence. If we can comprehend and, at the same time, measure compassion or the lack of compassion with our (current) spatial epidemiological tool kits, then we should be able to locate compassion hotspots and regional lack of compassion. This in turn provides communities with an opportunity to target locations with a lack of compassion and train people in 'how to be more compassionate' and/or 'how to engage and spark compassionate actions'.

Third, the field of public health understands systems. Public health academics and practitioners routinely rely on vast networks of systems to identify locations of disease outbreaks and scale up interventions to the global level. Bioethics provides guiding principles such as autonomy, beneficence, non-maleficence, and justice to inform research involving humans. Public Health and bioethics are committed to the health and wellbeing of all people. Both fields are committed to alleviate suffering through actions. Thus, through a robust first look at a spatial epidemiology of compassion the shared interests of these two fields will advance.

So far, the field of ethics is (mainly) theoretical and does not provide any measurable outcomes of morality. So, how do ethicists know that they are effective with their teaching about ethics, e.g., on an organizational or societal level? How are ethicists measuring their desired outcomes? In this manner, proxies for ethical communities and societies are needed to accomplish scalable outcome measurements. Compassion can function as one of these measures. Therefore, this thesis seeks to understand and investigate first, the descriptive role of an epidemiology of compassion through the review of definition and elements of compassion in the fields of philosophy, spiritual and religious studies, psychology and neuroscience. Secondly, the thesis explores examples of proxy measure candidates such as the use of the term compassion on healthcare and hospital websites in the USA and demonstrates how these proxy measurements can depict a spatial distribution of compassion, thus spatial clustering of ethical behavior.

Bioethics thesis and why is the spatial distribution of compassion a valuable exercise for bioethics?

Why is the spatial distribution of compassion a valuable exercise for bioethics? First, compassion plays a major role in each of the principles in bioethics. Beauchamp and Childress included compassion into their core virtues when they developed and published their framework in the 1970s. For them, compassion is one of the focal virtues, which are critically important when healthcare professionals work out complicated dilemmas and make ethical decisions and judgements for and with their patients. The others are discernment, trustworthiness, integrity, and conscientiousness. Beauchamp and Childress state that compassion "combines an attitude of active regard for another's welfare with an imaginative awareness and emotional response of sympathy, tenderness, and discomfort at another's misfortune or suffering" and it "is expressed in acts of beneficence that attempt to alleviate this misfortunate or suffering of another person"

(Beauchamp 2013, 37). However, bioethics and the foundational values derived from ethical theories can be difficult to comprehend and incorporate in day-to-day operations. Visualization of a value, which has been deemed as unmeasurable behavior for centuries, provides bioethics with an opportunity to lift bioethical debates out of the theoretical framework and place them, for example, into the policy and law maker toolbox to aid informed decision making regarding compassionate healthcare decisions. It is always easier to understand and follow an abstract topic with visual aids. A map of the distribution of a key behavior for bioethics, such as with compassion, speaks louder than just a dry academic monologue of why compassionate behavior in healthcare and public health programs need to be fostered.

Secondly, with the aid of spatial distribution tools, bioethics can explore compassion from a different angle. Spatial analysis "allows one to investigate geographic patterns in spatial data and the relationships between features" (Nelson and Gregg Greenough 2016, 312). Additionally, if essential, spatial analysis allows the researcher to utilize "inferential statistics to determine the relevance of spatial relationships, trends, and patterns" (Nelson and Gregg Greenough 2016, 312). These relationships, trends, and patterns inform and depict visually the questions of " 'what is next to what' and 'what is connected to what' " and if these relationships are significant (Nelson and Gregg Greenough 2016, 312). Thus, utilizing practical analytical tools from a different discipline to generate a novel and multidisciplinary approach to measure a key value, such as compassion, for bioethics is a valuable exercise and deemed necessary.

Thirdly, the field of bioethics is missing direct and comprehensive measures to assess compassionate behaviors. Other disciplines, such as economics, have utilized proxy/ indirect measures in the absence of direct measures. For example, the gross domestic product (GDP) is utilized as a proxy measure for quality of life and standard of living and has been calculated by

Departments of Commerce around the globe. However, in bioethics, besides anecdotal evidence, there is little to no data available about bioethical key values, such as compassion. Nonetheless, governmental entities, research institutions, and foundations have been collecting data on outcomes related to compassionate behavior on societal levels over place and time. Depicting the spatial pattern of these outcomes (e.g. charitable giving) has the potential to inform bioethics on where to locate decline and growth of compassionate actions, explore the reasons behind the trends and inform bioethics on how to improve on fostering a more compassionate behavior. Therefore, this bioethics thesis showcases a step by step approach ranging from 1) literature review to identify common key characteristic among varying opinions, 2) identification of proxy measure candidates in the absence of direct measures, 3) identification and location of appropriate data, 4) maps of the proxy measures, and 5) proposed plausible explanations of why this is a useful and valuable exercise for bioethics. This practical example allows bioethicists to expand the theoretical framework of compassion, utilize big picture indicators and apply spatial analytical tools to depict compassionate behavior on a societal level.

Question(s) and Objectives

Preliminary efforts have been made by epidemiologists to grapple with increasingly complex realities. Several years ago, Jeff Levin published a provocative, if whimsical, paper on the epidemiology of love (Levin 2000). However, no further attempt has been made to conceptualize and characterize what an epidemiology of compassion could look like. This thesis uses insights from philosophy, spirituality and world religions (e.g., Buddhism), psychology, and neuroscience regarding compassion as starting points for deliberation.

A central problem for developing an epidemiology of compassion is that of adequate "case definitions". Epidemiology proceeds by defining "cases" (i.e., what will be counted) and then counting them. For investigating an outbreak of gastrointestinal illness at a church picnic caused by contaminated potato salad, this is fairly simple. The Centers for Disease Control and Prevention (CDC) uses a standard definition of diarrhea (three or more loose or watery stools in 24 hours) (King et al. 2003), recognizing that some infected people may not have symptoms that reach this intensity, while some uninfected people may have symptoms that meet the case definition due to other causes. Even though the case definition may not be ideal, it has to be uniformly applied. We can disagree about whether the case definition is the "right one" for illness caused by particular bacteria that might have been lurking in the potato salad, but we must all agree that only picnic attendees who report symptoms that meet the case definition will be counted as cases. However, defining one case or one act of compassion is difficult given the varying and contrasting views of what constitutes compassion. As of now, the phenomenon of compassion is too abstract to define what "one case of compassion" is. However, the tools of descriptive epidemiology have the potential to shed light on to how we should be able to track compassion or, in the case of this thesis, proxies of compassion. Thus, the central question is: What data can be used to track or monitor compassion or describe its distribution?

Questions

In general, the questions of 'What are the elements of compassion?' and 'What are proxy measures for compassion?' will be addressed.

Question 1: Is there a common understanding and are there overlapping elements of compassion in various fields such as philosophy, spiritual and religious traditions, psychology, and neuroscience?

Question 2: Are there good proxies for compassion which can be explored?

The main purpose of this thesis is to explore the feasibility of using existing datasets to generate spatial representations of compassion.

Objectives

In order to explore the main purpose, my thesis addresses the following objectives:

Objective 1: Explore compassion from different perspectives, angles and disciplines, including philosophy, the spirituality/ religious traditions, psychology, and neuroscience. Examine the operational definition and elements of compassion in each of the disciplines to identify potential proxies that can be mapped.

In order to achieve the first objective, the activities to identify one or more definitions of compassion include reviewing the literature and current definition of compassion in

- Philosophy
- Spirituality/ religion (Christianity, Buddhism, Hinduism, Islam, Judaism)
- Psychology and Neuroscience

The following questions are explored to satisfy the first objective: Does a common understanding of compassion exist? What are the most prominent elements of compassion?

Objective 2: Identify candidate proxy measures of compassion from datasets.

In the absence of a case definition and a direct measure of compassion, the next best measurements are proxy candidates. Thus, it is of utmost importance to tackle the spatial analysis before we have a solid agreement on a case definition. Why? Because the opinions are divided on what one case or one unit of compassion is. For example, is one case of compassion giving a

meal to a person in need or a physician treating a patient a with a compassionate approach (e.g. truly listening to the patient and not belittling the patient)? There is a varying degree of examples of compassionate acts on different levels (individual, organizational, and societal). This has made it extremely difficult to agree on a definition and description. However, a spatial approach allows for additional investigative efforts in order to not limit the scope and approach this research from a different angle. Exploring the spatial distribution of compassion provides insight into compassionate practices across geographical areas (in this bioethics thesis, in mainland USA), and lets us highlight the most common understandings and behaviors on compassionate behavior. This, in turn, can inform and narrow down the list to a few potential case definitions of compassion and highlight areas, which otherwise would have not been considered previously and eliminate others.

It has to be noted that there are risks of utilizing the spatial distribution of compassion before a solid case definition is established. The risks of utilizing the spatial distribution of compassion without a case definition involve a) including data which do not represent truly compassion; b) leaving out data (proxy measures) which depict actually compassion or compassionate acts in societies; c) applying the scope of the spatial analysis, but being too broad and not specific enough to arrive at a meaningful conclusion or take away point. Thus, it is essential to explore how compassion might be viewed from an epidemiologic perspective by utilizing large existing and easily accessible datasets. These datasets may use measures similar to compassion or are indicative of compassion both at individual level and/or community level (e.g., the use of the term compassion on hospital websites), and see if there might be proxies (indirect measures) that we could use or learn from and inform.

Objective 3: Explain the assumptions in response to why proxy measures are expected to be valid.

Objective 4: Map the proxy measurements.

Objective 5: Propose a plausible interpretation of mapping/ spatial analysis

There is a common consensus on compassion involving suffering and the action to alleviate or remove suffering from sentient beings. Compassion has been treated as an emotion and a virtue, more as an abstract concept, which cannot be tracked in space and time; however, the tools of epidemiology through the identification of proxy measurements from the elements of compassion in the disciplines can aid in depicting spatial epidemiology of compassion for bioethics. In order to fill the gap between compassion as a value and virtue and compassion as a traceable marker to inform the field of bioethics of its applicability, the tools of spatial epidemiology are applied to identify examples for proxies of compassion by focusing on the role of descriptive epidemiology for generating hypotheses and tracking progress through metrics. This bioethics thesis proposes the use of existing data to generate spatial depictions of compassion for understanding and developing hypotheses regarding the spatial clustering of bioethics.

Theoretical Perspective

For the first objective, a literature review was conducted in order to extract and compile a list of the most common definitions and elements / characteristics for compassion in the fields of philosophy, religious and spiritual traditions, and psychology. The major contributors in each field were consulted in order to extract their definitions or descriptions and elements of compassion in order to filter out potential proxy variables for compassion for the subsequent objective. For each section, an overview table was drawn in order to allow for an easy comparison between the disciplines. From this information, the overlapping elements were identified. Based on the description for the most common and overlapping elements within the definitions or descriptions of the fields, data sets with information related to the central elements (see Figure 1) were identified, researched if the data was accessible publicly and located. For information on the utilized proxy measurements refer to section *Proxy measurements for compassion.*

Overview of current theoretical perspectives in traditional philosophical writings on compassion

In contrast to Socrates, the Stoics, Immanuel Kant and Friedrich Nietzsche, who believed compassion to be a sentiment that misconstrues extrinsic goods and confines a person's mind, the pro-compassion camp realizes that external causes may affect someone's life (Frakes 2010). One of these pro-compassion philosophers was Aristotle, and his ethics of virtue. Instead of focusing on the question "What should one do in this situation" and its related rules for conduct, virtue ethics asks, "What kind of person should I be?" (Hinman 2008). In general, virtue ethics is concerned with equipping a person with the essential wisdom for administering judgments in a specific case. For Aristotle, virtue is (1) the strength or habit of character, (2) "involving both

feeling and action", (3) seeking the mean between too excessive and too little/ inadequate character traits, and (4) concerned with advocating for the flourishment of the self and others (Hinman 2008, 268). However, virtue just does not happen on its own. Even though every person has been endowed with specific characteristics of strengths and weaknesses, a mentally sound human has the ability to cultivate virtue. Virtue is a habit, which needs to be exercised and strengthened overtime through moral education in order to form appropriate desires. "[V]irtue is the disposition of the soul through reasoning to find the mean in all things relative to us" (Hinman 2008, 270). It was of most importance for Aristotle to find middle ground between the extremes of excess and deficiency to reach balance and harmony.

One of the essential moral virtues Aristotle refers to is well-wishing or goodwill in Book IX, section 5, of "*Nicomachean Ethics*". Even though Aristotle never adopts the term compassion in "*Nicomachean Ethics*", it, without doubt, addresses aspects of compassion as a moral virtue.

> "Goodwill is a friendly sort of relation, but is not identical with friendship; for one may have goodwill both towards people whom one does not know, and without their knowing it, but not friendship. […] But goodwill is not even friendly feeling. For it does not involve intensity or desire, whereas these accompany friendly feeling; and friendly feeling implies intimacy while goodwill may arise of a sudden, as it does towards competitors in a contest; we come to feel goodwill for them and to share in their wishes, but we would not do anything with them; for, as we said, we feel goodwill suddenly and love them only superficially" (Aristotle 1991, Boox IX, section 5, paragraph 1).

Aristotle examines goodwill in contrast with friendship and acknowledges that goodwill has the potential to emanate suddenly towards a stranger. He describes the feeling of help and admiration that arises abruptly. However, in "*Nicomachean Ethics*", he is not necessarily concerned with responding to the suffering of the person. At least not in the example of the competitor; however, throughout his writings, Aristotle touches on helping others out of the

virtue of compassion on multiple accounts throughout "*Nicomachean Ethics*". When he illustrates what one ought to do, out of the nature of the action in question, he specifies "we must give what help we can" (Aristotle 1991, Book II, section 2, paragraph 2). Even when Aristotle details the relationship of superior versus inferior people, he indirectly incorporates part of compassion as a virtue. "It is a mark of the proud man also to ask for nothing or scarcely anything, but to give help readily […]" (Aristotle 1991, Book IV, section 3, paragprah 5), with dignity and without ill-wishing. Thus, distinguishing a compassionate response from pity in that pity has the tendency to look down on other people.

Nonetheless, Aristotle clarifies plainly how a response out of compassion is to be distinguished from a response out of pity:

> "no one would reproach a man blind from birth or by disease or from a blow, but rather pity him, while every one would blame a man who was blind from drunkenness or some other form of self-indulgence. Of vices of the body, then, those in our own power are blamed, those not in our power are not. And if this be so, in the other cases also the vices that are blamed must be in our own power" (Aristotle 1991, Book III, section 5, paragraph 5).

Even though W.D. Ross translated *eleos* as pity, it still conveys the point of a compassionate response towards a person suffering from, in this case, a birth defect or diseases. He recognizes pointedly what the field of public health and bioethics is about: responding to the suffering of others (strangers) and providing an (action-oriented) response, aka help to alleviate the suffering guided by bioethical rules and regulates.

If you consult Aristotle's work on "*The Art of Rhetoric*", one will find, what in today's understanding, Aristotle argues (more clearly) to be compassion: "a painful emotion directed at another person's misfortune or suffering" (Nussbaum 2001, 306). It has to be noted, Aristotle never refers explicitly to the painful emotion as compassion, even though it resembles a 21st

century idea of compassion and its related actions. He mostly applies the terms sympathetic feelings, painful emotions and pitying a person in need. Martha Nussbaum reiterates Aristotle's notion of painful emotion under the term compassion. The following section utilize and builds on her explanation of compassionate elements in Aristotle's "*Art of Rhetoric*".

In the "*Art of Rhetoric*", Aristotle identifies three cognitive elements of compassion. First, compassion requires the "belief or appraisal that the suffering is serious rather than trivial" (Nussbaum 2001, 306); "the judgment of size" in seriousness (Nussbaum 2001, 321); the second requirement, "the judgment of nondesert", is that the person has to believe that "the person does not deserve the suffering (Nussbaum 2001, 321, 306). And thirdly, the eudaimonistic judgment is needed that emotions felt by the person experiencing the emotion of compassion is "similar to those of the sufferer" (Nussbaum 2001, 306). For Aristotle, all of the three cognitive components are necessary to evoke a compassionate response.

Seriousness, as Martha Nussbaum titles Aristotle's first cognitive element of compassion, requires the realization that the condition the suffering person is in, matters for the prosperity of the individual in question. Thus, the size of the issue at hand is subjective to the emotional response. We, for example, do not pity someone who has lost a pencil, but we relate and suffer with the person who has lost their house or loved ones due to a natural disaster. Such central disasters of "various kinds of death, personal ill-treatment and injuries, old age, disease, and lack of food" have been unusually constant in human life (Aristotle and Freese 1921, 1386a 9). So constant that human beings view these disasters "to be central" (Nussbaum 2001, 308). These misfortunes, as Aristotle indicates, are noteworthy unanimity in regard to core situations across time and space. What distresses, worries, and agonizes use are what societies and individuals take to be severe plights (Nussbaum 2001). However, the size of the dilemma, how serious the

situation is, undergoes an independent judgment by the onlooker (Nussbaum 2001). The response of the person may be different depending on the view fault, which leads to second component, the question of fault.

Aristotle's second element requires the person to recognize that the suffering is not the entity's fault. He or she is undeserving (*anaxios*) of the suffering (Aristotle and Freese 1921, 1385b 14). He or she is not at fault and thus, nonblameworthy for the situation. It so "increase[s] the feeling of pity, both because the sufferer does not seem to deserve his fate, and because the suffering is before our eyes" (Aristotle and Freese 1921, 1386b 16). In addition to feeling compassionate for the person in question, Aristotle also appeals to the reader's sense of injustice by contrasting the emotions and pain arose by "undeserved bad fortune" versus "undeserved good fortune" (Aristotle and Freese 1921, 1386b 9, 1-2).

> "Now what is called indignation is the antithesis to pity; for the being pained at undeserved good fortune is in a manner contrary to being pained at undeserved bad fortune and arises from the same character. And both emotions show good character, [2] for if we sympathize with and pity those who suffer undeservedly, we ought to be indignant with those who prosper undeservedly; for that which happens beyond a man's deserts is unjust, wherefore we attribute this feeling even to gods." (Aristotle and Freese 1921, 1386b 9, 1-2).

Thus, for Aristotle there is a difference in experiencing compassion towards the person's undeserving dilemma, compared to being angered due to a person's undeserved fortune. Both demonstrate good character, but only one reaction displays compassion: recognizing that what happened to the person is "no fault of their own" (Nussbaum 2001, 314).

Aristotle's third element requires that the emotions (the pain) for the person suffering and the person experiencing an emotional response are similar (or even the same). For him, compassion also involves any misfortunes the person might himself/ herself expect to suffer, either himself or anyone he or he loves.

> "Let pity then be a kind of pain excited by the sight of evil, deadly or painful, which befalls one who does not deserve it; an evil which one might expect to come upon himself or one of his friends, and when it seems near." (Aristotle and Freese 1921, 1385b 2).

Aristotle recognizes that a compassionate response can only be experienced by people who have some form of experience with suffering. However, if a person believes to be above everything and also has all necessities (and more), one will not have compassion. Thus, compassion requires the acceptance of a) vulnerability and b) possibility of suffering happening to oneself. Aristotle highlights suffering in the light of recognizing that maybe one day, I will find myself in the position of the sufferer (Nussbaum 2001). The sense of commonness lets us relate to the pain the person is in. The pain of the other person so becomes "an object of my concern", and therefore a "sense of my own well-being" (Nussbaum 2001, 317). For Aristotle all three elements need to be present in order to have a compassionate response to a person's misfortune.

Another philosopher, Jean Jacques Rousseau, an 18th century political philosopher, elevates compassion or pity to the primary concern in his 1754 "*Discourse on Inequality*". His question, "what is the origin of inequality among men, and is it authorized by natural law", revolves around the evaluation of natural man and his account of man's natural morality of compassion.

> "I am speaking of compassion, which is a disposition suitable to creatures so weak and subject to so many evils as we certainly are: by so much the more universal and useful to mankind, as it comes before any kind of reflection; and at the same time so natural, that the very brutes themselves sometimes give evident proofs of it" (Rousseau 1754, 19).

According to Rousseau, compassion is a disposition, which arises instinctively in man, without prior cognition or consideration. It is universal and proceeds as a reaction to another's suffering among sentient beings. This "pure emotion of nature", is the "force of natural compassion", which immortality has not been able to destroy (Rousseau 1754, 19). For him, "pity is no more

than a feeling", which the sentient being relates to the sufferer and compassion is the stronger "kind of distress", which even recognizes the suffering of animals (Rousseau 1754, 20).

So, for Rousseau, the compassion question centers on how a person is concerned with the welfare of other beings. For him, the basis of compassion starts once a person identifies with the suffering creature on the premise of natural sentience (Nussbaum 2001). Once a person notices the suffering, the person acknowledges that life is morally pertinent. The person realizes her own antipathy to suffering and identifies her aversion to suffering/agony for other creatures. Hence, the recognition between oneself and the object of reflection is the basis for compassion in sentient beings. It stimulates instinctively humankind to be solicitous in the wellbeing and welfare of other creatures.

Rousseau's moral law basically addresses an ethics of global responsibility, exactly what we are concerned with in public health and bioethics. He identifies the sense of community and explains the roles sentient beings have been assigned to in the hierarchy of morality. He expands on his understanding of the position of man and the position of animals in natural law.

> "and, so long as he does not resist the internal impulse of compassion, he will never hurt any other man, nor even any sentient being, except on those lawful occasions on which his own preservation is concerned and he is obliged to give himself the preference. […] [regarding] animals in natural law: for it is clear that, being destitute of intelligence and liberty, they cannot recognise that law; as they partake, however, in some measure of our nature, in consequence of the sensibility with which they are endowed, they ought to partake of natural right;" (Rousseau 1754, 8).

He basically foreshadows a more modern view, such as Tom Reagan holds in "*The Case for Animal Rights*" with the distinction between moral agents and moral patients (Regan 1983/ 2017). Albeit Rousseau never applies any of those two terms, he certainly distinguishes humans

as moral agents and animals as moral patients, sentient beings to whom we have to show sensibility. So, for Rousseau, life is the basis for a natural right to compassion. And this right extends to men and animals alike. Both are moral patients, but animals are not moral agents because they "lack the prerequisites that would enable them to control their own behavior" (Regan 1983/ 2017, 393). Animals cannot be held morally accountable for their doing. However, humankind is bestowed with sophisticated abilities such as acumen and self-determination, accordingly, carrying the extra responsibility as a moral agent. This holds even true for a "savage man" because Rousseau's moral law is not intelligently arduous / difficult. And since "compassion is a natural feeling, which, by moderating the violence of love of self in each individual, contributes to the preservation of the whole species" it is also "compassion that hurries us without reflection to the relief of those who are in distress" (Rousseau 1754, 20).

However, Aristotle and Rousseau are not the only philosophers acknowledging compassion. Adam Smith, an 18th century moral philosopher incorporates a concept of mutual sympathy attributable to compassion in his liberalism and market capitalistic view. For Smith, sympathy was a matter of moral development. Sympathy, for him, is the essential ingredient between an individual and society in order for "justice and virtue" to prevail (Wispé 1991, 1). In his essay on "*The Theory of Moral Sentiments*" (1759) Smith conveys two key messages regarding what he refers to as mutual "sympathy".

> "No matter how selfish you think man is, it's obvious that there are some principles in his nature that give him an interest in the welfare of others, and make their happiness necessary to him, even if he gets nothing from it but the pleasure of seeing it. That's what is involved in pity or compassion, the emotion we feel for the misery of others, when we see it or are made to think about it in a vivid way. The sorrow of others often makes us sad—that's an obvious matter of fact that doesn't need to be argued for by giving examples" (Smith 1759, 2017, 1).

First, Smith considers sympathy as the key in regulating the emotional intensity in a person. The "infectious agent" (as described above) is compassion (or pity). In order to reciprocate the feeling of sympathy, the purpose of its origin has to be clear and the feeling has to be experienced by another person. Without pity or compassion, without being able to relate to what the other person might feel in this particular situation, we would not be able to put ourselves into someone else's shoes (position) imaginatively.

> "The spectator's compassion must arise purely from the thought of what he himself would feel if he were reduced to that same unhappy condition while also (this may well be impossible) regarding it with his present reason and judgment" (Smith 1759, 2017, 3).

By "conceiving or imagining being in pain or distress arouses some degree of the same emotion", a compassionate response is possible (Smith 1759, 2017, 1).

However, in Smith's theory of morality, a moral agent requires a second "ingredient". His second key element for a moral agent is the "impartial spectator".

> "But we admire the noble and generous resentment that governs its pursuit of ·the author of· great injuries not by the rage that such injuries are apt to arouse in the breast of the sufferer, but by the indignation that they naturally call forth in the breast of an impartial spectator;" (Smith 1759, 2017, 11-12).

In order for a person to be an "impartial spectator", one needs to be neutral and altruistic. A moral agent needs to have the ability to objectify the situation in a rational manner and perceive whether a "sympathetic" response is justified or not. So, both, sympathy and being an "impartial spectator" are essential to Smith's moral agent. His utilitarian perspective and understanding of justice takes the feeling part of compassion into account. Smith emphasis that the feeling of sentiment "isn't confined to men of extraordinary magnanimity and virtue" (Smith 1759, 2017, 73). It is rooted in everybody. However, in order to become a true "impartial spectator", Smith's agents need to engender the feeling of spontaneous sympathy. He even provides an example,

suitable for the endeavors in public health and ethics: “a man shuts out compassion and refuses to relieve the misery of his fellow-creatures though he could easily do so” may not necessarily be a moral agent (Smith 1759, 2017, 44). Thus, the key to Smith’s idea of an honest man builds on the impromptu feeling of compassion in balance with an altruistic motivation, while at the same time being impartial to one’s passions and providing a fair trial/ judgment.

The next philosopher who elaborates on compassion as a moral value is David Hume. In Hume’s epistemology, the notion of sympathy is rooted in the psychological system (Wispé 1991). Hume, along with Schopenhauer (discussed next), is one of the first philosophers to accentuate compassion as the basis of morality. In his “*A Treatise of Human Nature*” (1739-40/ 1815), Hume relates the notion of compassion to the “desire of the happiness” and an “aversion to misery” for the other person (Hume 1896, 367). Thus, a mixture of benevolence and anger (van der Cingel 2015). As Hume points out, people are more likely to feel compassion for people who resemble themselves (van der Cingel 2015). “All human creatures are related to us by resemblance” (Hume 1896, 369). And precisely the resemblance arises emotional responses. Additionally, in order to evoke a compassionate response, we also need to be able to put ourselves into the other’s position. This happens through imagination (van der Cingel 2015). Hume argues that human beings are emotional (passionate) beings and our morality is derived from sentiment by the cultivation of emotions and not by reason (Hume 1751).

For Hume, sympathy has the potential to be cultivated to reach the end goal of morality. By communicating the “passion of sympathy”, the most important emotion is benevolence or (engrained) sympathy (Hume 1896, 370). So how can this be accomplished according to Hume? Sympathy has the capacity to move a person emotionally by what happens to anyone we have affection for or a connection with. This feeling can be either good or bad, such as the opposites

of love and hatred (van der Cingel 2015). Humans have the ability to catch onto what a person is feeling. And if we are already connected with the person through, for example, being related to the person or friendship, we are able to feel more sympathetic for the person. If a person appeals to us either through their appearance or through a character trait, we form a connection. However, Hume does not stop there. For him, natural sympathy is not only a feeling. If the person suffers, we are also inclined to act, even if we pity the person (Hume 1896).

Using the language of sympathy, Hume refers to the action part as pity, which, with today's understanding (my understanding) is compassion. So, according to Hume, if we develop the feeling of pity, we act according to benevolence, and if we have a malicious feeling, we act according to anger. And since benevolence produces love, and anger generates hatred, "by this chain the passions of pity and malice are connected with love and hatred" (Hume 1896, 382). Compassion for Hume involves both antagonists: love and hatred, thus, what Hume calls a "pity mixture of sympathy".

> "For this reason, pity ***mixture** of* or a sympathy with pain produces love, and that because it interests us in the fortunes of others, good or bad, and gives us a secondary sensation correspondent to the primary; in which it has the same influence with love and benevolence." (Hume 1896, 385)

So, the natural feeling of sympathy does not only move a person emotionally, but literally. The feeling engages the person to care genuinely and to do something, to act accordingly. Ultimately, for society, "the natural sentiment of benevolence engages us to pay to the interests of mankind and society" (Hume 1751, 100). It has to be noted, Hume never refers explicitly to his pity mixture as compassion, even though it resembles a 21st century idea of compassion.

Besides Hume, the philosopher Arthur Schopenhauer claims compassion to be the basis of ethics. For Schopenhauer, "Compassion is the one and only fount of true morality, because it is

the sole non-egoistic source of action" (Schopenhauer 1903, xvii). He calls it the "the great mystery of Ethics" (Schopenhauer 1903, 170). For him, moral behavior is rooted in the instinctive realization on the "basis of the [w]ill to live" (Schopenhauer 1903, 153). The religious denominations are the "metaphysics of people" and attempted to guide people not necessarily out of kindness, but by the "command of their God" (Schopenhauer 1903, 160). However, it is the job of philosophy to discover and disclose the root of the phenomena. People should be free of any mythical influences to realize their metaphysical reality. Thus, Schopenhauer disregards the doctrines of any religion when delineating compassion as basis of morality.

Schopenhauer defends his thesis that compassion is the basis of morality in *"The Basis of Morality"*. It provides an individual with the ability to defeat their egoistic tendencies, and rather than religious doctrines or, as Kant proposes, the categorical imperative. For him, morality does not emanate in a person's rationality, which is solely directed towards a mean with some end in mind. For Schopenhauer, human moral actions are conveyed through the Latin phrase "Neminemlaede; immoomnes, quantum potes, juva", which translates as "Do harm to no one; but rather help all people, as far as lies in your power" (Schopenhauer 1903, 175). Thus, for Schopenhauer, compassion is rooted in the foundation of morality and the question of human motivation (Wispé 1991).

Schopenhauer's *"The Basis of Morality"* is in response to the question for the 1837 Danish Royal Society of Sciences essay competition on the questions

> "Is the fountain and basis of Morals to be sought for in an idea of morality which lies directly in the consciousness (or conscience), and in the analysis of the other leading ethical conceptions which arise from it? Or is it to be found in some other source of knowledge?" (Schopenhauer 1903, 284).

For him, the source and foundation for a person's morality cannot be found in knowledge, but in compassion. Schopenhauer identifies three moral actions which guide and motivate a person's action. The three springs, as he refers to them, are (1) egoism, (2) malice, and (3) compassion (Mannion 2002, 91). All of the three "fundamental springs of human action" can be found in each and every one of us, they are inherent, but to differing proportions (Schopenhauer 1903, 243). Egoism deals with the desire for a person's own well-being and can be limitless. It is the behavior in the person's own interest and welfare (Wispé 1991). Egoism is directed towards one's self. It is boundless, insatiable, constantly striving, and if no other moral strength is constraining it, egoisms will find its way (Wispé 1991). Egoism gets held in place "by the conventions of everyday 'politeness'" (Mannion 2002, 91). Malice, on the other hand, is directed towards another being. It represents our desires for another's being's misery (woe) and may advance to extreme cruelty. This behavior is directed against another person and we do not gain anything for ourselves (Wispé 1991). The German word *Schadenfreude,* which best describes malice, means "to take pleasure in the suffering of others" (Wispé 1991, 19). Thus, egoism and malice are antagonistic forces to compassion.

Compassion, in contrast, produces the desire for another's person well-being and it has the potential to "rise to nobleness and magnanimity" (Schopenhauer 1903, 172). It contemplates the well-being of another person without any concern for the self (Wispé 1991). Compassion, which is made up of the two cardinal virtues of justice and loving-kindness (sympathy), is deemed to be the only "effective spring of moral conduct" and counteracts the motives of egoism and malice. It is the guidance to preferred moralistic behavior (Schopenhauer 1903, xviii). Thus, compassion is not dependent on an individual's choice, but hails from the depths of the person's character (Lewis 2012). All three motives function on a hierarchical order, with egoism being the strongest

and compassion being the weakest motive (Wispé 1991). It depends on the motives of the person to figure out which action will follow.

So, how does Schopenhauer 'define' compassion? For Schopenhauer, compassion is primarily an ethical phenomenon. It counteracts egoistic and malicious motives by keeping a person from contributing (or inflicting) pain to fellow beings and from constraining a person from becoming the cause of 'harm' (trouble) himself. Compassion manifests in a positive way and incites a person to active help. In other words, compassion is the "one and sole cause" whereby a person locates the suffering in another fellow being and is directly motivated to help (Schopenhauer 1903, 200). For Schopenhauer, compassion is a negative process. The direct participation of the person in the suffering of another being is independent of any other considerations, and it sole goal is to provide "sympathetic assistance in the effort to prevent or remove" suffering (Schopenhauer 1903, 170). And only the action, which stems from compassion, has moral value and anything that advances from any other motives has none. The person has been incited and emotionally touched by the other's person pain, and the difference between the two people "is no longer an absolute one" (Schopenhauer 1903, 170). In the end, compassion does not only hold a person back from harming another person, but it impels the person to help the other one (Schopenhauer 1903, 200).

Where does Schopenhauer 'locate' compassion in a human being? For Schopenhauer, compassion is comprised of justice and loving-kindness (sympathy or *Mitleid*). He traces both of their roots in natural compassion. Suffering is a part of compassion, because "unselfish justice and pure loving-kindness" both contribute to the sense of "suffering with [one] another" (Schopenhauer 1903, xx). Justice, as fundamental moral virtue, operates on the principle of "injure no one". Thus, it disheartens inflicting active harm to another being. Loving-kindness

(sympathy), on the other hand, invigorates to actively help another being. Both, the virtue of voluntary justice and the virtue of loving-kindness stem from the motive of compassion (Wispé 1991). In this manner, Schopenhauer credits compassion with being the "antidote for Egoism" and malice (Schopenhauer 1903, xviii) and as being "innate and indestructible" in every man (Schopenhauer 1903, 264).

Schopenhauer also provides an insight into the psychological relationship of suffering (Wispé 1991). He clearly distinguishes the person, who is suffering, who is in pain, from the sympathizer.

> "The conviction never leaves us for a moment that he is the sufferer, not we; and it is precisely in his person, not in ours, that we feel the distress which afflicts us. We suffer with him, and therefore in him; we feel his trouble as his, and are not under the delusion that it is ours; indeed, the happier we are, the greater the contrast between our own state and his, the more we are open to the promptings of Compassion" (Schopenhauer 1903, 174).

Thus, the loving-kindness (sympathy), we have for another person is directly related to the person who sympathizes with the person who is in pain. The person is fully aware that it is not his pain, but the pain of the sufferer. The removal of the pain is essential to satisfy the nature of the compassioned mind. For Schopenhauer, compassion is always linked to the element of suffering. However, it is essential to have knowledge of the pain and suffering in order to be able to relate to it. There is no distinction between seeing or feeling the suffering of the other entity. It all comes down to the identification "with the other ego" and being one with the person who suffers (Wispé 1991, 25). And we are in need of justice in order to enable the person to alleviate the suffering and harm in the other person.

Therefore, Schopenhauer locates compassion in human consciousness, and not in knowledge. It exists in human nature, "at all times, among all peoples, in all circumstances of life"

(Schopenhauer 1903, 213). In Schopenhauer's philosophical acumen, combined with psychological insights, compassion bridges separateness between people (Lewis 2012). For him, a person without compassion is an inhuman person. For Schopenhauer, the expression of compassion is the evidence for goodness of mankind (Mannion 2002). In the end, Schopenhauer imputes that "[b]oundless compassion for all living beings is the surest and most certain guarantee of pure moral conduct, and needs no casuistry. Whoever is filled with it will assuredly injure no one, do harm to no one, encroach on no man's rights" (Schopenhauer 1903, 213).

Overview of current theoretical perspectives in contemporary philosophical writings on compassion

One of the 20th century philosophers, Emmanuel Levinas, discusses compassion in relation to the other's suffering in his essay "Useless Suffering" (1982). Levinas argues that compassion "can be affirmed as the very nexus of human subjectivity, to the point of being raised to the level of supreme ethical principle" (Levinas 1998b, 94). Even though Levinas is not directly concerned with the concept of compassion, his notion on suffering needs to be integrated into the discussion of the contemporary philosophical writings on compassion.

In contrast to the psychological writings on compassion, which follow in a later section, Levinas does not concern himself with epistemological questions regarding how a person reached the conclusion that another is in pain (Edelglass 2006). Levinas addresses how the subject becomes incapacitated as "limit states of consciousness". In his early writings, he lists various reasons such as restlessness, ennui, despair, fatigue, or effort as reasons for being incapacitated (Edelglass 2006). In this context, suffering encumbers the being and limits the person's self, and thus defines the alterity (otherness) for Levinas. Descriptions of physical pains, such as being homeless or hungry, having an illness or diseases, old age or aging are described as leaving an individual without the necessary resources (Edelglass 2006).

Later on, Levinas refutes that there is a rational explanation for the suffering of beings. For him, no meaningful or rational justification can be located to justify suffering. In this context, suffering emanates from the burden of being and he locates the passive and meaningless suffering in his ethics (Edelglass 2006). "Suffering is a pure undergoing" (Levinas 1998b, 92). If a person experiences a mild discomfort, the individual should be able to master it through his consciousness. However, once the suffering is too overwhelming for the subject, "it becomes a

pure passivity, meaningless and evil" (Edelglass 2006, 46). Levinas describes "being with" or "being of the human being" as follows:

> "But the concern-for-being of the human being-there also bears the concern for the other man, the care of one for the other. It is not added onto being-there, but is a constitutive articulation of that *Dasein*. A concern for the other man, a care for his food, drink, clothing, health, and shelter. A care which is not belied by the actual solitude of the solitary or the indifference one may feel for one's fellowman, a solitude and indifference that, being deficient modes of the for-the-other, confirm it;" (Levinas 1998a, 212)

Being concerned with the other's suffering is itself a form of vulnerability for Levinas. Thus, he locates the significance of the suffering in the meaning for ethics and deems our painful experiences to the suffering of others as a call to act by providing compassionate care. Thus, as Edelglass (2006) argues, "[f]or Levinas, ethics is the compassionate response to the vulnerable, suffering Other" (Edelglass 2006, 43).

In contrast, Martha Nussbaum's definition of compassion stems from Aristotle's notion of goodwill. She defines compassion as "a painful emotion occasioned by the awareness of another person's undeserved misfortune" (Nussbaum 2001, 301). In general, Nussbaum emphasized the cognitive dimensions of a person's life in relation to compassion. We are prone to act on behalf of a suffering person, who is "part of my circle of concern", and is not to blame for the predicament he or she is in (Nussbaum 2001, 342). The person's suffering elicits an emotional and empathetic response in the person experiencing compassion.

Nussbaum's case for compassion involves three cognitive elements. The first element is "the judgment of size" (Nussbaum 2001, 321). This component addresses the seriousness of an event or predicaments people can be in. There are various kinds of dilemmas people can be in. Examples are experiencing the death of a family member or friend, having a personal illness, lacking food, having experienced a natural disasters, being old (aging) etc.; even though it may

vary among individuals and societies which plights are judged to be serious, there is an extraordinary "unanimity about the core instances across time and place" (Nussbaum 2001, 307). These constant and central factors produce an adaptive response in regard to the importance of the suffering in the compassionate person. However, the judgment for or against compassion depends upon the "onlooker's point of view" (Nussbaum 2001, 309). The onlooker tries to assess the situation and makes a judgment about what is transpiring to the other person. The onlookers view might even differ from the judgment of the person needing help. Thus, the judgments are dependable on the observer's perspective.

The second cognitive element is "the judgment of nondesert" (Nussbaum 2001, 321). The "nonblameworthy increment" of Nussbaum's compassion addresses the notion of fault (Nussbaum 2001, 311). It is concerned with the element that the person is not to blame for his or her suffering. And even if there is an element of fault on the part of the person, it has to be judged that the person's suffering "is out of proportion to the fault" (Nussbaum 2001, 311). Again, as with the first cognitive element, the second element is dependent on the view of the spectator. A compassionate response calls for blamelessness on the part of the onlooker and the object. It would be deceitful to expect compassion for something the person herself has caused. Strictly speaking, from the point of view of the compassionate person, the disaster the person is going through had to come from the outside. Thus, the onlooker has to judge a person's responsibility and blame to be due to no fault of their own in order to have compassion (Nussbaum 2001). There might be exceptions to Nussbaum's element of blameworthiness in the field of medicine, for example with self-inflicted wounds or conditions, such as alcoholism. In medicine, it's expected to be compassionate for someone who has caused their own harm.

Last, but not least, Nussbaum's third cognitive element of compassion is the eudaimonistic judgment. This element addresses the notion of our understanding that "others are part of my circle of concern" (Nussbaum 2001, 342). The person or the sentient being is an important part of the onlooker's life, and his or her suffering is significant for his or her "goals and ends" (Nussbaum 2001, 319). The suffering is affecting the flourishing of the onlooker and as a result, makes himself or "herself vulnerable in the person of another" (Nussbaum 2001, 319). Thus, "the attachment to the concerns of the suffering person is itself a form of vulnerability" (Nussbaum 2001, 318). The recognition of a person's own linked vulnerability is an "indispensable epistemological requirement for compassion in human beings" (Nussbaum 2001, 319). On this element, Nussbaum and Levinas conform on the emphasis on vulnerability. Once a person considers the other to be part of his or her own circle of concern, the onlooker forms a basis for common vulnerability. "It is on the basis of our common vulnerability to pain, hunger, and other types of suffering that we feel the emotion" (Nussbaum 2001, 319). And it is self-interest and the shared emotions via our thoughts of shared vulnerability which promote a key set of principles that "raise society's floor" (Nussbaum 2001, 321). Hence, "[i]t is through this set of ideas that compassion is standardly connected, in the tradition to generous giving" (Nussbaum 2001, 321).

Nussbaum's third element differs from Aristotle's understanding of compassion because her notion of compassion does not call for a "judgment of similar possibilities" (Nussbaum 2001, 323). Nussbaum differentiates between personal and emotional vulnerability. The person does not have to be personally vulnerable. Being emotionally vulnerable is enough to have compassion for another person's situation. For Nussbaum, compassion is neither linked to fear nor pain. To be more specific, "the affective character of thought (mental pain)" is a separate

element of compassion (Nussbaum 2001, 326). For example, a person can have compassion for another being without having to fear anything for him or herself. Similarly, the emotions compassion surface may be painful for the onlooker. However, for Nussbaum it is unnecessary to require a physical or emotional pain as separate element for a compassionate response (Nussbaum 2001).

Additionally, Nussbaum's understanding differs from Schopenhauer's suggestion that compassion arises out of the notion of empathy. Nussbaum defines empathy as "a participatory enactment of the situation of the sufferer, but is always combined with the awareness that one is not oneself the sufferer" (Nussbaum 2001, 327). For her, empathy is not necessary for emergences of compassion because firstly, "compassion requires its object to be (thought to be) in a bad state" (Nussbaum 2001, 329). For example, a person can show empathy for a character in a play but does not need to have any notable emotions towards the character. Secondly, the onlooker may judge that the suffering of the person is serious, but he or she does not consider "it to be a serious bad thing" (Nussbaum 2001, 329). An example is the "skilled torturer", who is able to empathizes with the suffering of his victims without showing a slightest notion of compassion (Nussbaum 2001, 329). Thus, empathy is required for compassion, but not sufficient for it. Thirdly, a person may emphasizes with "someone to whom one refuses compassion on the grounds of fault" (Nussbaum 2001, 329). For example, a juror may emphasize with the person being accused of a crime, e.g. stealing food out of hunger. However, the crime he or she is accused of (robbery) is due to her or his own fault. And fourth, a person can be empathic, but can withhold the eudaimonistic judgment because he or she does not perceive the person to be important to his or her "scheme of goals and ends" (Nussbaum 2001, 330). So, for Nussbaum empathy is clearly not paramount for compassion, but it can be an eminent route to compassion.

Summary for traditional and contemporary philosophical writings

In summary, Aristotle relates a sympathetic feeling to a painful emotion in regard to the seriousness of the event, the question of fault and an eudaimonistic judgment of the acceptance of being vulnerable yourself and understanding the possibility of suffering happening to oneself. For Rousseau, compassion is a natural feeling ("a pure emotion of nature") and noticing the suffering of another being is the premise of natural science (Rousseau 1754, 19). For Smith, compassion is a mutual sympathy, which is rooted in everybody. It is displayed by an interest in the welfare of others, and to make their happiness by putting ourselves into someone else's shoes. Hume, who does don't use the term compassion, relates the notion of a pity mixture or sympathy to the "desire of the happiness" and an "aversion to misery" for the other person (Hume 1896, 367). For Schopenhauer, the phenomenon of compassion involves a direct participation, "independent of all ulterior considerations, in the suffering of another, leading to sympathetic assistance in the effort to prevent or remove them" (Schopenhauer 1903, 170). For Levinas, compassion "can be affirmed as the very nexus of human subjectivity, to the point of being raised to the level of supreme ethical principle" (Levinas 1998b, 94). Last, but not least, Martha Nussbaum describes compassion as "a painful emotion occasioned by the awareness of another person's undeserved misfortune" (Nussbaum 2001, 301). For her, a compassionate response involves a judgement of size (How serious is the event?), a nonblameworthy increment, and the question of if the other person is "part of my circle of concern" (Nussbaum 2001, 342). For a detailed overview and a quick summary of each authors definition and characteristics of compassion, consult Table 1.

Author	References	Definition or Description of Compassion	Elements or Characteristics of Compassion
Aristotle	*The Art of Rhetoric*	"a painful emotion occasioned by the awareness of another person's undeserved misfortune" (Nussbaum 2001, 301)	Three cognitive elements: • Seriousness • Question of fault • Eudaimonistic judgment (of the acceptance of a) vulnerability and b) possibility of suffering happening to oneself)
Jean Jacques Rousseau	*Discourse of Inequality* (1754)	"compassion is a natural feeling, which, by moderating the violence of love of self in each individual, contributes to the preservation of the whole species" and it is also "compassion that hurries us without reflection to the relief of those who are in distress" (Rousseau 1754, 20)	• Cognitive element: Notice the suffering on the premise of natural science • "pure emotion of nature" which is universal (Rousseau 1754, 19)
Adam Smith	*The Theory of Moral Sentiments* (1759)	Mutual sympathy rooted in everybody; an interest in the welfare of others, and to make their happiness "No matter how selfish you think man is, it's obvious that there are some principles in his nature that give him an interest in the welfare of others, and make their happiness necessary to him, even if he gets nothing from it but the pleasure of seeing it. That's what is involved in pity or compassion, the emotion we feel for the misery of others, when we see it or are made to think about it in a vivid way. The sorrow of others often makes us sad—that's an obvious matter of fact that doesn't need to be argued for by giving examples" (Smith 1759, 2017, 1).	• Relational element: "The emotion we feel for the misery of others" - to put ourselves into someone else's shoes • Impartial spectator: one has to be neutral and altruistic to justify a sympathetic response • Universality: Rooted in everybody
David Hume	*A Treatise of Human Nature* (1739-40)	Hume relates the notion of compassion to the "desire of the happiness" and an "aversion to misery" for the other person (Hume 1896, 367). „For this reason, pity ***mixture*** *of* or a sympathy with pain produces love, and that because it interests us in the fortunes of others, good or bad, and gives us a secondary sensation correspondent to the primary; in which it has the same influence with love and benevolence." (Hume 1896, 385)	• Relational and resemblance element to feel natural sympathy (to identify suffering) • Inclination to act through pity mixture of sympathy (if the person suffers, we are also inclined to act, even if we pity the person) • Universality: Compassion is the basis of morality and can be cultivated

Arthur Schopenhauer	*On the Basis of Morality* (1840)	"The phenomenon of Compassion; in other words, the direct participation, independent of all ulterior considerations, in the suffering of another, leading to sympathetic assistance in the effort to prevent or remove them" (Schopenhauer 1903, 170) "It is Compassion alone which is the real basis of all voluntary justice and all genuine loving-kindness" (Schopenhauer 1903, 170) "When once compassion is stirred within me, by another's pain, then this weal and woe go straight to my heart, exactly in the same way, if not always to the same degree, as otherwise I feel only my own. Consequently the difference between myself and him is no longer an absolute one" (Schopenhauer 1903, 170) "I nevertheless feel it with him, feel it as my own, and not within me, but in another person… But this presupposes that to a certain extent I have identified myself with the other man, and in consequence the barrier between the ego and the non–ego is for the moment abolished…." (Schopenhauer 1903, 170) "natural Compassion, which in every man is innate and indestructible, and which has been shown to be the sole source of non–egoistic conduct, this kind alone being of real moral worth" (Schopenhauer 1903, 264)	• Antagonistic force to egoism (deals with the person's interest and welfare) and malice (directed towards another being) • Notice of suffering: "Locates the suffering in another fellow being" • Reaction to suffering and inclination to act: "and is directly motivated to help" • Universality: compassion exits in human nature
Emmanuel Levinas	*"Useless Suffering" (1982)*	Levinas argues that compassion "can be affirmed as the very nexus of human subjectivity, to the point of being raised to the level of supreme ethical principle" (Levinas 1998b, 94)	Elements of suffering, not compassion: • Consciousness and submission to the consciousness of suffering because "suffering is a pure undergoing" (Levinas 1998b, 92)
Martha Nussbaum	*Upheavals of Thought: The Intelligence of Emotions* (2001)	"a painful emotion occasioned by the awareness of another person's undeserved misfortune" (Nussbaum 2001, 301)	Three cognitive elements: • Judgment of size (How serious is the event?) • Judgment of non-desert (nonblameworthy increment) • Eudaimonistic judgment ("others are part of my circle of concern" (Nussbaum 2001, 342)

Table 1 *Overview table of definitions, elements and characteristics for the field of philosophy*

How does this inform the selection criteria for proxy measures?

Based on the review of the definitions and elements of compassion in the theoretical writings in philosophy, it has to be asked how this informs the selection criteria for proxy measures. By reviewing the common definitions and identifying overlapping described characteristics from compassion between the philosophical authors, it allows us a) to relate and examine this information to data, which is already collected, b) to narrow down the field to a manageable set of potential proxy measures, and c) to compare and contrast the generated list to the other fields evaluated in the following sections of this literature review (religious and spiritual studies, psychological writings). In the end, all of the overlapping gathered information from each section will be used to pinpoint selection criteria for proxy candidates.

Overview of current theoretical perspectives in religious and spiritual writing on compassion

Compassion is present and emphasized in all major religions. For Buddhism, compassion is the primary catalyst for a Buddha's decision to follow a spiritual path once he realized the suffering of other living beings (Dalai Lama 2002; Gold 2008; Pommier 2010). For Christianity, the parable of the Good Samaritan represents one of the well-known models for a compassionate action a Christian can follow by feeling for human suffering and alleviating suffering through his or her action. For Hinduism, compassion is ingrained in the Hindu way of living and it is integral to family relations, the relations within and between castes, government, and a person's service to God. For Islam, displaying compassion is the true spirit of Islam and aids to a peaceful coexistence (Engineer 2005). For Judaism, compassion is imitating the actions of God. For all religions, "compassion lies at the heart of the spiritual and ethical life;" (Armstrong 2011, 21). Thus, from the standpoint of all the major religions, compassion is timeless and a fundamental part of human existence.

Buddhism

Compassion (*karunā*) is an essential and over-arching concept in Buddhism. Buddhism is the only religion within the mainstream spiritual belief systems today in which compassion is included as a concept (Pommier 2010). It is a key aspect of Buddhism and the primary catalyst for a Buddha's decision to follow a spiritual path once he realized the suffering of other living beings (Dalai Lama 2002; Gold 2008; Pommier 2010). In Buddhism, suffering is a shared human experience and compassion is the pertinent response to the suffering of other living beings (including animals).

In Buddhist ethics, rational deliberation and the cultivation of the states of one's mind has to be reached through training. Without the training to refine both, humans are subject to overabundance and shortcomings of their untrained cognitive and non-cognitive abilities and emotional features. In turn, it inhibits the likelihood of an ethical response (Frakes 2010). In Buddhism, in order to achieve the appropriate response, one has to cultivate the Four Divine Abidings/Immeasurables through meditation practices (Gold 2008). Loving-kindness (*metta*), compassion (*karunā*), sympathetic joy (*mudita*), and equanimity (*upekkha*) constitute the four attitudes of mind (Gold 2008). These four attributes are a way to neutralize a person's moral vices and to enable a person's concern for other beings (Frakes 2010).

Compassion has its own standing within the four divine immeasurables. Thus, the question needs to be: what is the definition or the meaning of compassion in Buddhism? The Sanskrit term *karuna* refers to a state of mental outlook which detects a problem or notices the suffering of another sentient being, and as response generates a powerful desire to alleviate or remove the suffering (Rinpoche 2010). In classical Buddhist texts "compassion is defined as the heart that trembles in the face of suffering" (Feldman and Kuyken 2011, 144). It is the main virtue and

noblest quality a human heart can achieve, and it forms the motivation fundamental to all contemplative paths for a bodhisattva (Gold 2008; Feldman and Kuyken 2011). Buddhaghosa, a 5th-century Indian Theravada Buddhist, defined compassion as follows: Compassion "is characterized as prompting the aspect of allaying suffering. […]. It is manifested as non-cruelty. Its proximate cause is to see helplessness in those overwhelmed by suffering. It succeeds when it makes cruelty subside and it fails when it produces sorrow"(Buddhaghosa 1976, IX, 94). Thus, compassion shapes a positive environment to overcome effectively the (negative) Buddhist principles of "no-self (anātman) and emptiness ('sunyatā)" (Gold 2008, 128). Additionally, the experience of emptiness is essential for compassion. It aids to defeat the mind's obscuration of hatred and selfishness. Both lead to the dualistic thinking of us versus them, which in turn poison the mind and results in greed and hatred (Gold 2008; Frakes 2010). The Tibetan word for compassion, *nyjing je*, "connects love, affection, kindness, gentleness, generosity of spirit, and warm-heartedness" (Barad 2007, 13).

Mahāyanā Buddhism

In the Mahāyanā traditions, compassion is a central virtue of the doctrine (Da Silva 1996). It needs to be cultivated and developed through the Four Noble Truths (*Caturāyasatya*) outlined by Siddhartha Gautama (Rinpoche 2010). The first is *dukkha* which implies that "all existence is suffering" (Da Silva 1996); to live is to suffer, and it has to be realized (Rinpoche 2010). The second truth is *dukkhasamudaya,* which implies that every suffering is brought into being by craving (Da Silva 1996). It is the cause of the suffering and it has to be eradicated (Rinpoche 2010). The third truth is *dukkhanirodha,* the truth of the path. It entails that all the suffering can be revoked by removing the necessity for craving through practice (Da Silva 1996; Rinpoche 2010). And the last truth, *moksha*, the truth of salvation, determines that the way to end suffering

is by practicing and achieving the Noble Eight Fold Path[1] (Da Silva 1996, 813; Shah-Kazemi 2011; Rinpoche 2010). Thus, it implies that all living beings are connected/concerted by their common suffering and the aim to be freed of it.

In the Mahāyanā traditions, which translates literally to "'the great vehicle' to enlightenment", the quest is not to reach *nirvana* (to be freed of *samsara*, the cycle of existence), but to become a bodhisattva (Da Silva 1996, 814). A bodhisattva is "a person who is model of benevolence and compassion" who indefinitely sets aside his own liberation in order to help in the deliverance of other beings from suffering (Da Silva 1996, 814). Mahāyanā Buddhists abstain from entering Buddhahood in order to reside among the living beings and to assuage the beings' suffering. Thus, the virtue of compassion is the central doctrine in Mahāyanā Buddhism (Da Silva 1996).

The idea of bodhisattva can be accomplished by every human being through the "process of meditation and practice, study and continued effort" (Da Silva 1996, 814). Suffering is central to all sentient life and all life is full of suffering. The cause for the suffering is the human desire for self-fulfillment and to end *samsara*, the uncontrolled birth, death, and re-birth in the Buddhist tradition. Hence, it is of most importance to practice *bodhichitta/bodhicitta* to reach an enlightenment mind. "Bodhichitta is the continual and spontaneous state of mind that constantly strives to attain this perfect enlightenment solely for the benefit of all living beings" (Da Silva 1996, 186).

Once a person chooses to practice compassion, the person has to master three levels of compassion. The first and basic requirement is to understand the nature of the suffering

[1]"It is the Noble Eightfold Path, the way that leads to the extinction of suffering, namely: 1. Right Understanding, 2. Right Mindedness, which together are Wisdom. 3. Right Speech, 4. Right Action, 5. Right Living, which together are Morality. 6. Right Effort, 7. Right Attentiveness, 8. Right Concentration, which together are Concentration." (Nyanatiloka 2009, 31)

(Rinpoche 2010). Once a person has a will to put an end to his suffering, then the person is able to cultivate a will to alleviate the suffering of other beings on the basis of equality. Hence, "unless a person does not understand one's own misery, he or she cannot understand the other's misery" (Rinpoche 2010, 14). This is the first stage of a compassionate mind and it is called *karunā*. The current (14th) Dalai Lama also calls this stage the "seed of compassion", referring to the "person who has a compassionate motivation" (Barad 2007, 22).

The second category is Immeasurable *karunā* (*Apar-Miyakarunā*,) or the middle stage (Rinpoche 2010). On this level, a person sets his motivations into practice and renounces all immoral actions due to the fact that all of them cause suffering. The person realizes that there is a higher priority to approaching compassion than to any earthly pleasures. This stage demands constant effort and has been referred to as the hardest level (Barad 2007). Last, but not least, *Mahākarunā*, which translates to great compassion (Rinpoche 2010; Gold 2008). It combines compassion and equanimity and pairs it with wisdom to achieve "skillful means" in order to guarantee a continuous presence of the great compassion (Barad 2007; Gold 2008). Once a person reaches the last level of compassion, he will always be committed to the welfare of others. The compassionate person will feel the suffering of other beings as his own and he will try to alleviate or bring an end to the suffering of other sentient beings (Barad 2007). At this point, the person does not differentiate "between self and the others" and he "will also understand the interdependence of every living being" (Rinpoche 2010, 16). As the Dalai Lama puts it "[g]enuine compassion must have both wisdom and loving kindness. That is to say, one must understand the nature of the suffering from which we wish to free others (this is wisdom), and one must experience deep intimacy and empathy with other sentient beings (this is loving-kindness) (Bstan 'dzin rgya 2005, 49).

For the Dalai Lama, skillful means are "the efforts we make to ensure that our deeds are motivated by compassion after considering the particularity of the situation" (Bstan 'dzin rgya 1999, 149). Thus, a person acquires compassion by his own efforts and through practice; the difference between sentient beings becomes negligible. However, a person who only has good intentions does not present compassion. The person has to be open to the suffering of others and wants to commit to relieve it. Thus, his Holiness the Dalai Lama teaches that "for a practitioner of love and compassion, an enemy is one of the most important teachers. Without an enemy you cannot practice tolerance, and without tolerance you cannot build a sound basis of compassion" (Bstan 'dzin rgya 2002, 75). Hence, one a person reaches the stage of *Mahākarunā,* he realizes that compassions needs to be extended to "all beings, who are capable of suffering" (Barad 2007, 26). Compassion is a virtue, which extends limitless and therefore is inexhaustible in the Buddhist tradition.

Christianity

In Christianity, compassion is viewed as bringing about an appropriate emotional response to human suffering and compels a Christian to offer a compassionate action to alleviate the suffering. Charitable giving, particularly giving alms, donating money or volunteering to work with those less fortunate are acts of generosity associated with compassion in the Christian traditions. Through this, compassion functions as an established understanding of every person's relationship with God (Bernhardt 2010). In the early days of Christianity, when the Roman Empire was hit by one plague after another during the 1st and 2nd century, it is reported that the monks of Bishop Dionysius of Alexandria took care of the sick without self-regard, describing early compassionate Christian acts (Stark 2004, 116). The beginning of an affective compassion as a Christian virtue can be traced back to the early 5th century, when Augustine of Hippo

formulated his understanding of Christian compassion in a world of Stoic philosophy (Wessel 2016). In contrast to Aristotle's required elements of compassion, a sufferer is offered compassion indifferently to the person's blameworthiness (Pommier 2010). Aristotle urged that we have to be emotionally distant from the sufferer and follow the decorum of his time. However, this notion of compassion changed with the rise of Christianity in the West, or to be more precise with Augustine of Hippo (Wessel 2016).

Early Christianity and Augustine of Hippo

In early Christian writings, compassion was examined in the philosophical context as a Christian virtue. In the 5th century Augustine of Hippo, at the end of his life, defined compassion in his *City of God* as "a certain feeling […] in our hearts, evoked by the misery of another and compelling us to offer all possible aid" (Augustine of Hippo 2008, 85). It was as a response to the visibility of inhumanity of his time. Augustine's interpretation of compassion incorporates the notion of "the feeling for human suffering […] that results in compassionate action to alleviate suffering" (Wessel 2016, 98). Augustine's understanding of compassion evolves out of his friendships, his grief over a close friend's death and the death of his mother, and his relationship with God.

For Augustine, it took a lifetime to interpret and reflect on his feelings regarding death and suffering during his life. Augustine was struggling with an unpredictability of emotions and the notion of sympathizing with another person's misfortune. For him, it was wrong to wish somebody else pain in order for you to be able to alleviate it (Wessel 2016). In Augustine's writing, a distinction between pity, *miseretur*, and compassion, *misericordia*, can be established. For him, ethical principles were compromised through an act of pity: "If there is indeed a spiteful kindness (which there cannot be), then this man, who truly and sincerely feels pity ('miseretur'),

could long for wretched men that he might feel pity." (Wessel 2016, 112). In order for compassion to be a virtuous act, a proper motivation was needed. If a person had no "commitment or affection", for Augustine, "care remains an empty duty" (Wessel 2016, 115).

In order for Augustine to distinguish compassion from the traditional pagan philosophical understanding at the time, it was necessary to separate the Stoics judgment of the stifled wise man and his sense of subjects being governed by the mind of God. For him, emotions were part of a compassionate response and godlike quality of a human being (Wessel 2016).

> "So far as Christians are concerned, Holy Scripture and sound doctrine agree that citizens of the holy City of God, who live according to God during this earthly pilgrimage, fear and desire, grieve and rejoice, and, because their love is rightly ordered, they think it right to have such feelings" (Augustine of Hippo 2008, 366).

Whereas an agnostic philosopher formulated linguistic distinctions to separate emotions for the mental agitations of the wise man, Christians, on the other hand, directed all their love to God and experienced their emotions virtuously ("all these feelings they have are right") (Wessel 2016). Thus, Augustine rectified the Stoic philosophy of his time in order to embody his Christian *Weltanschauung.* He managed to cut out the ethical danger of experiencing and feeling emotions by using emotions as buildings stones for his virtuous motivation of compassion as an ethical deed.

For Augustine, emotions were elemental to the vulnerability of humans. They were the instruments, which allowed humans to become like God. Augustine detailed that as long as our powerful feelings emanate in context of generosity, the emotions grant us an appropriate response to the agony of life (Wessel 2016).

> "Moreover, in our present state we often yield to them unwillingly, so that sometimes, though not by culpable desire but by praiseworthy charity, we are so affected that we weep against our will. What is true, then, of man, namely, that these emotions arise from the infirmity of human nature, is not true of the Lord Jesus, whose weakness was a result

> of His power. Yet, so long as we are clothed with the infirmities of this life, we are not living a proper human life if we are entirely devoid of these emotions. The Apostle has expressed disapproval and detestation of men who are without natural affection (Romans 1:31), and the holy Psalmist has expressed a reproach in his words: 'I looked for one that would grieve together with me, but there was none.' (Psalm 68:21). So long as we are in this place of misery, we certainly cannot attain to immunity from all grief, unless, as one of the world's great writers realized and remarked, it be bought at the high price of insensibility of soul and sluggishness of body." (Augustine of Hippo 2008, 369-370)

For him, emotions were imperative to humanity. He related their significance to Jesus' painful emotions as human being during his life on earth. In order to deal with the imperfections of Jesus' and our lives, it is essential to acknowledge the reality through our agony and tears. This may allow us to mirror the divine. Similar, charitable work provides humans with the opportunity to imitate Jesus' emotional life experiences, which in turn "makes our image conform to God" (Wessel 2016, 119). Consequently, accepting our emotional vulnerability brings us close to the true self. Augustine's notion of compassion accomplished two things: It brings humans closer to divinity and it allows them to fulfill their humanity. Thus, Augustine's compassion resides in emotional response to suffering of others, shaped by the emotional life of God's son on earth and by related compassionate emotions displayed by God and his angels (Wessel 2016).

Additionally, in his theological writings, Augustine distinguished not only pity from compassion, but also sympathy.

> "Hear the apostle wishing to commend His compassion ('*misericordia*') to us, because for our sake he was made weak that he might gather chicks under his wings (Matt 23:37), as he taught the rest of the disciples, that they themselves might feel compassion ('*compatior*') for the weakness of the weak, those who had ascended to a certain strength from a common weakness; when this one descended from the celestial strength to our weakness, the Apostle says to them, "Feel this in you, which is also in Christ Jesus. " "See fit," he says, "to imitate the Son of God through sympathy ('*compassio*') with the little ones." (Wessel 2016, 123)

In the passage above, Augustine clearly differentiated the Latin meanings of *misericordia, compatior,* and *compassio*. The passages refers to Jesus' compassion in relation to his sufferings, e.g. Jesus' universal suffering on the cross (*misericordia*), the sympathy Jesus taught his disciples to experience (*compatior*), the sympathy his followers should feel (compassio), and last, but not least, the sympathy (*compassio*) Jesus' experiences for humans in his weakness (Wessel 2016). As Wessel explains, Augustine's conceptual development from *misericordia* to *compassio* elicits its theological meaning. Noting that the term *misericordia*" is composed of the words 'miseria' ('suffering') and 'cor' ('heart')" (Wessel 2016, 127), *Misericordia* evokes its relationship to God and his son, whereas *compassio* communicates an emotional aspect of compassion. As with almost all of the philosophical writings, Augustine's *compassio* entails a profoundly sympathetic connection to the suffering beings in order to induce a duty of care (Wessel 2016). Early Christianity's concept of compassion, with its call to attend to the need of suffering not only through feeding or clothing them, but also to feel their suffering (such as with the experience of grief), laid the groundwork for the contemporary understanding of compassion as a Christian virtue.

Contemporary Christianity and the parable of the Good Samaritan

Augustine of Hippo laid the groundwork for the conditions of the contemporary understanding of compassion in Christianity. His notion of being compassionate towards a suffering person, no matter if the plight was brought upon the person through his or her own fault, is present through the Christian scriptures. Compassion accentuates the Christian works for mercy, both in a corporal (e.g. feeding the hungry) and a spiritual (e.g. forgiveness) way (Hayes 2008). Even though human begins are sinners, God shows mercy and compassion towards them (e.g. "He is merciful and compassionate and just", Psalms 111:4; others: Psalms 112:4; Lamentations 3:22;

Micah 7:19) (Conte March 28, 2009, 346). However, compassion is also a visceral reaction based on friendship or agape. It is an emotional response attributed to God himself (Matthew 18:27, Luke 15:20, Luke 10:33) (Hayes 2008; Conte March 28, 2009). Throughout the Christian theology, Jesus displays a compassionate response to his fellow humans in various ways. He shows compassion through his healing (Matthew 14:14; Matthew 20:34; Mark 1:41), his ability of recognizing suffering (e.g. through hunger) (Matthew 15:32, Mark 8:2, 6:34), when he meets a leprosy patient (Mark 1:41) and through his otherworldly teachings (Matthew 9:36; Mark 6:34) (Conte March 28, 2009; Hayes 2008; Bernhardt 2010). Jesus taught and healed with compassion for everybody (Matthew 4:24) (Conte March 28, 2009, 582). As the examples depict, compassion, which is highly linked with passion in the Christian context, does not only need to be felt but it also needs to be cultivated. Compassionate feelings reinforce the representation of God in the person, who endures genuinely the suffering of other beings (Wessel 2016).

One of the most well-known understandings of contemporary interpretations of compassion are exemplified through the depiction of compassion in the parable of the Good Samaritan (Luke, 10:25–37) (Bernhardt 2010).

In the parable, Jesus is challenged by a lawyer to explain why one should love his neighbor as he loves himself. In particular, the lawyer asks, “Who is my neighbor?”. In the parable, a man travels from Jerusalem to Jericho. He is attacked and beaten by robbers and left for dead by the side of the road. Both a priest and a Levite see the hurt man on the side of the road; both avoid the man; when a Samaritan crosses path with the injured man, he feels compassion and aids to his wounds. He brings him to an inn, cares for him, and even pays the manager of the inn to take care of the stranger as long as it takes. He promises to reimburse the manager of the inn for any further expense the injured man would cost. In the parable, the lesson for the lawyer is that true

loving neighbor was not the priest or the Levite; it is the Samaritan, who felt compassion and showed mercy for the injured stranger on the side of the road. Thus, from a Christian standpoint, Bernhardt (2010) defines compassion as follows

> "Compassion is experienced as an interior revolt within the emotional condition of one who is affected by the suffering (Latin: passio) of another human being or of an animal – the suffering that is to say, of a sentient being, a being with a soul (Latin: anima) and thus able to feel pain. Compassion means to share the suffering, to participate in it, to make it one own's feeling, to suffer with the sufferer (Latin: com-passio). The suffering of the other evokes a resonance in me: a co-suffering" (Bernhardt 2010, 90).

In the biblical context of the time, it has to be noted that a Samaritan was a member of an Abrahamic religion, the majority of Jews viewed as rivals and enemies. They were thought to not be part of God's chosen people (Wessel 2016). However, this parable exemplifies that the compassionate human being can be found in any neighbor, not just in people believed to be part of one's proximal circle of family, friends, or one's community. It challenges the conventional belief and expands the understanding of a neighbor to include everybody. From the viewpoint of the Good Samaritan, everybody who is in need of aid has to be considered to be one's neighbor because "he or she is a creature of God and is thus to be respected as God's neighbour" (Bernhardt 2010, 91). The Christian understanding of compassion is therefore, not purely an emotion or affection between the person offering compassion to a person suffering and the suffering individual, but an established understanding of every person's relationship with God (Bernhardt 2010). The parable of the Good Samaritan is probably one of the most well-known and contemporary pieces of the Christian notion of compassion because it does not only exemplify a compassionate response, but also emphasis that all people (as well as animals), no matter of their origin, color, race, etc. need to be treated with compassion.

Furthermore, compassion in Christian traditions exists in a concept of relationship and friendship. It is the focus of Jesus' motives to endure torture and his crucifixion in that humanity may be acquitted of its sin(s). He felt compassion for every human being and accepted the painful death, so others are free of their sin (Pommier 2010). Even though the substitutionary atonement hypothesis is not universally accepted within Christianity (Rohr 2019), it still depicts a compassionate act. The relationship to Christ and God, and vice versa, as well as the relationship to one's fellow humans has to be cultivated with compassion. It is essential for a person's interpersonal interaction and for the existing of society as a whole. Compassion is necessary for a morally upstanding life and a humble existence (Pommier 2010). Thus, the affectional dimension of compassion is not only essential to stimulate and invigorate a compassionate response, but also to establish coherent life-orientation and decision patterns (Bernhardt 2010).

Besides the relational element with God and the affectional dimension, Christianity also observes a voluntary and cooperative element of compassion (Bernhardt 2010). The parable exemplifies that the co-suffering does not only generate an empathic response of feeling sorry for the person suffering, but it leads to a spontaneous action of the person experiencing compassion to alleviate the suffering and its causes. Compassion exceeds a sympathetic or empathic response by prompting an action reaction on the part of the emotionally moved person. It shapes the person experiencing compassion internally by modifying his or her perception of the situation, and externally, by prompting an action response to alleviate suffering (Bernhardt 2010).

The parable manifests the moral lesson of compassion in Christian scriptures. As Pommier (2010) suggests, it may even propose that at the heart of Christianity is compassion. It lies at the center of the Good Samaritan parable. The Samaritan symbolizes Christ. The man who gets

attacked represents fallen humanity. The compassion mirrored by the Samaritan embodies "compassion of Christ in restoring the image and likeness of God to the sinful" (Wessel 2016, 21). Thus, suggesting that compassion has to be offered universally, developed spiritually, and involves self-sacrifice (Pommier 2010).

Compassion nourishes friendship and encourages altruistic behavior. Its apexes in manners acquired and cultivated in accordance with one's fellow human beings. The bonds created throughout a person's interpersonal connections with family, friends, and strangers' cascade into a person's social realm and his or her relationship with God (Bernhardt 2010). Christianity views compassion as a compulsory force of individual enrichment to stimulate further compassionate actions (Hayes 2008). For an altruistic point of view, Christian compassion pursues "the good of the other" by acting on the compassionate feeling and therefore, enhancing their moral character (Hayes 2008, 130). Thus, it is not surprising that the parable of the Good Samaritan, which answers the question of "who should be loved as a neighbor", with everybody, is the personification (prosopopeia) of compassion in the Christian world and the encouragement for charitable actions in the name of Christ.

Hinduism

In Hinduism, compassion is understood as a virtue, a value, and an attitude (Jenkins 2008; Sastry 2010). It is understood as an emphatic response to another being's suffering and the tendency to relief the suffering. It alludes to putting oneself in the situation of another person to understand the pleasure or the pain the person experiences (Sastry 2010). It is fundamental part of human life and it is "framed by the relational propriety dictated by dharma—the sacred order of the Hindu world" (Jenkins 2008, 130). Compassion is ingrained in the Hindu way of living and it is integral to family relations, caste relations, government, and a person's service to God. This

makes it complicated to separate the element of compassion from other integral parts of life such as service(s), not doing harm, generosity (charity), grace, as well as a person's social obligation. All of the listed elements may be expressed through compassion (Jenkins 2008). However, the concept of common suffering (e.g. suffering at a group level) is not present in Hinduism, only personal suffering and a shared feeling or an experience of the other being's suffering (Sastry 2010). Thus, the Hindu notion of compassion differs from other spiritual and religious understandings by playing an intrinsic part in day to day lifecycle and practices.

The Hindu notion of compassion developed and evolved over time. This historical evolvement can be traced in the three contexts: "yogic traditions of introspection, theistic traditions of devotion, and the great medieval compendiums of dharma" (Jenkins 2008, 130). First, compassion in the Vedas; in the early Hindu scriptures, compassion does not play a central role. In the Upanishads, the early texts reflecting on introspective speculations contain a view references to compassion in relation to non-harm. In the later scripts, the Hindu concept of non-harm evolves to a ritualized element and became central to the process of renunciant. However, the emphasis was on not harming other beings than on eagerly helping others (Jenkins 2008).

Secondly, for the theistic tradition of devotion, compassion lowers down from God. God represents the "Ocean of Compassion" and his affection for his devotees (Jenkins 2008). Compassion is sent down from the Lord rather than rise to a higher virtue. A person's compassion is not necessarily an achievement of virtue but rather a deed of commitment to the representation of all virtues. For the devotees, compassion is the result of amorous love toward metaphysical purity and through their passion compassion is express by practical deeds to the Lord. Last, but not least, in the *Dharmashastras*, compassion reigns as the fundamental universal order. In the studies of *dharma*, compassion is arranged and constructed by the day to day

lifestyle of Hinduism, governed by caste, gender, stage of life, and kinship (Jenkins 2008). It has been pointed out that compassion is not necessarily a virtue in Hinduism due to its engrained function in the worldly and daily order of its followers. However, a Hindu's responsibility, morality, and the person's self-interest due to karma align with general altruistic understanding of compassion (Jenkins 2008). In a simplified way, if a person's life is in order in a properly organized universe, the individual's life will be guided by compassion. And where one can find compassion, dharma will be present. Thus, for Hinduism compassion is the core of dharma and true character of a Brahmin (Hindu priest) (Jenkins 2008).

As the previous section explains, in the Hindu tradition the idea of compassion has developed over time. This is also reflected in the application and development of various terms over the centuries. Today, there are seven different terms in use for compassion: *Daya, Karunā, Anukampā, Karunya, Ghrina, Kripa, and Anukrosha*. The more prominent words for compassion are *Karunā, Daya, and Anukampā*. *Karunā* is composed of 'kri' and 'unan' and translates as "to place one's mind in another's favour" (Sastry 2010, 43). *Karunā* refers to a compassion, which originates in grief due to loss or due to difficulties with loved ones. It is largely an emotion. *Daya*, on the other hand, is more inclusive compared to *Karunā.* It relates to treating a relative, a friend, a stranger or even your enemy or opponent as "one's own self" (Sastry 2010, 43). It basically resonates with the 14th Dalai Lama idea of compassion and requires the compassionate person to realize the likeness and resemblance between own self and all other living beings. Thus, represent an attitude or disposition (Sastry 2010). *Daya* stands for the personal suffering in the Hindu tradition and a value every person should be able to obtain and/ or expand over a lifetime (Sastry 2010). *Anukampā*, which is made up of 'kapi' and the suffix 'anu', translates as "to experience mild and gentle moving in the heart following the observance of pain and

suffering in the other person" (Sastry 2010, 44). *Karunā* and *Daya* are used more widely and both termini do not distinguish between the human and animal world. In the Ramāyana scripture, one of the two major Sanskrit epics of ancient India, *Karunā* is uphold as the main desirable sentiment (Sastry 2010).

The dynamics of compassion in Hinduism are not only present in the preaching part, but also in the day to day practices. For example, in order to obtain liberation, the number one requirement in Dharmasūtras of Gautama's eight qualities of the soul is *Dayāsarrabhūteshu*, which translates to demonstrating compassion towards all living beings (Sastry 2010). This is also reflected in five daily rituals (or sacrifices) Hindus are adhering to, to be in good standing with Dharma and to be fit for rebirth. The practices are designed to guide a person in his/her daily life as well as to secure peace, prosperity, and happiness. For example, besides worshiping God, studying the scriptures and contemplating on the sages of the forefathers, two additional yagnas/duties as a Hindu require the practice of compassion through providing food to satisfy a person's hunger and to treat every being with love and respect (Jośī 1916/ 2006). All five sacrifices combined teach and instruct the believing person how to treat "his superiors, his equals, and his inferiors" (Jośī 1916/ 2006, 97). Thus, in the Hindu tradition, compassion is not necessarily to alleviate the pain of other beings suffering, but to "remain concerned about it" (Sastry 2010, 48). This does not mean that no action is required at all. It more reflects on general awareness of cultivating compassion day in and day out.

In contrast to other spiritual and belief systems, compassion has a dynamic aspect, thus is has a cause and effect relationship which is present in the concept of *Ahimsa*. *Ahimsa* can be translated as non-injury and *himsā* as injury (Sastry 2010). What does this imply? Hindus are aware of the fact that avoiding harm for every being is not achievable. It is impossible to be a living being

without harming any other species. As with the growth and prosperity of humanity, human beings are ordained to injure other people and living organisms. This has been done for centuries through the cultivation of land, preparation of food and the discharge of human waste as well as any other human activities one can think of. For example, Hindus acknowledge that in order to advance for example in the field of science it is unavoidable to cause harm or injuries to others. In Hinduism, these unavoidable harms, committed to other beings, are honored in a two-day ritual called *vaishvadeva.* It established as demonstrating compassion towards all inferior life forms a person commits inevitable harm against (Sastry 2010).

In summary, the compassion in the Hinduism is a value or/and attitude and not a feeling or an emotion. *Daya* and *Karunā*are the two Sanskrit terms mostly used in today's references to compassion. Because of the slight differentiation in the meaning of these two words, it is unclear how to distinguish compassion and mercy in the Hindu traditions. On one hand, compassion comes naturally to every person, but on the other hand, the daily practices require the cultivation of compassion for every believer. Thus, every being needs to be treated with compassion, and even more so if it is pain and suffers. Through the dynamic concept of *Ahimsa,* compassion is unavoidable, but at the same time is constrained by *himsa*. Collective suffering is not likely because Hinduism only recognizes personal suffering. However, due to commonality and closeness to others, compassion may be increased. It is the first of the eight qualities of the soul, and therefore, is the not only the basis but also the goal in Hinduism. For Hindus, all of this makes compassion a universal truth in its nature (Sastry 2010).

Islam

Compassion is a key value, a theological concept and a pillar in Islam. According to Engineer, 21st century Indian reformist and social activist, who committed his life to peace and communal

harmony, and was educated in Islamic concepts, claims compassion to be the most enticing aspect of Islamic teachings (Engineer 2005). He traces his claim to the fact that every chapter (expect chapter nine) in the Qur'an starts with the Arabic phrases *Bism Allahir Rahmanir Rahim* (**بسماللهالرحمنالرحيم**). It translates to "I begin in the name of Allah who is Compassionate and Merciful" (Engineer and Evers 2010, 101; Nasir et al. 2016). Thus, compassion symbolizes the true spirit of the Islamic religion (Rassool 2000; Alharbi and Al Hadid 2018). It is in balance with *tawhid*, the concept of monotheism of one God and *risalah*, the messenger ship of Mohammad, aka the word of God as revealed to the prophet Mohammad (Engineer 2005; Alharbi and Al Hadid 2018). It is the fundamental doctrine of Sufis, one aspect of Islam, in which it is called *sulh-i-kul*. It translates to 'peace with all which means no violence and no aggressiveness' (Engineer 2005, NA). Compassion aids to a peaceful and non-violent coexistence according to the Qur'an.

In the Islamic tradition, compassion (*rahmah*) is one of the four key values besides justice (*'adl*), benevolence (*ihsan*) and wisdom (*hikmah*) in the Qur'an (Engineer and Evers 2010). It essential in everyday prayers because Muslims start any reciting of the Qur'an with *Bism Allahir Rahmanir Rahim* (Engineer and Evers 2010, 101). Thus, in Islam, one of the 99 names Islam provides for Allah, is compassion, which every Muslim is reminded of through his or her daily recitations (Engineer 2005). Any Islamic prayer or reading from the Qur'an, in which the names *Rahman* and *Rahim*, God as the compassionate and merciful, are not recited over and over again, are considered as incorrect (Alharbi and Al Hadid 2018). Additionally, the concept of compassion (*rahmah*) is paramount to the existence of Allah. Verse 40:7 of the Qur'an emphasis that it is so central that it incorporates everything which exists in the universe. (40:7 *Allah HummaInni As aluka Bi Rahmatika Al Lati* ***Wasi' At KullaShayin*** *An Tagfirali* translates to 'O

Allah, I ask You by Your mercy which **envelops all things**, that You forgive me') (Engineer 2005, 115). Thus, the Islamic concept of compassion "covers all creatures, including the fauna, the flora and the nonliving" (Alharbi and Al Hadid 2018, 1356). This implies that Muslims should have compassion for all creatures and things.

The imperative element of compassion in the Qur'an is demonstrated through the display of sympathy for the weaker section of society. Sympathy for the *mustadifin,* (weaker sections of society) means being sensitive to the suffering of others, which includes all human beings and not only the ones close to us (Engineer 2005). These includes for example the poor, orphans, widows, people who cannot pay their debt, slaves etc. (Khairuldin, Firdaus, and Mohammad 2013). In Islam a person can only be compassionate once he or she displays sensitivity to the suffering of others unlike. These also extends to the suffering of animal and plants (Alharbi and Al Hadid 2018). An example of such compassionate approach towards an animal goes as follows: A woman was asked by the Prophet if she could recall aiding a person in need in order for her sins to be forgiven. Instead, she explained that she once helped a thirsty dog by fetching water from a pit with her sock. The Prophet responded by forgiving her sins because her act represented compassion towards an animal (Engineer and Evers 2010). Also, any person, who displays cruelty, is not merciful or acts negligently is a sinner and thought not to be a true follower of Islam (Alharbi and Al Hadid 2018). This also accounts for people accumulating wealth without intending to share their fortune (Qur'an Chapters 104 and 107) (Engineer 2005).

Additionally, a compassionate approach is expected towards all fellow human beings no matter of their religious believes or status in life, or the other person's behavior towards you. An example of this is: Every time the Prophet went by a Jewish woman, the woman threw garbage on the Prophet. One day, when the Prophet passed by the location and no trash landed on him, he

started asking around and figured out that the woman was sick. So, he went and checked on the woman. It is said that the woman was so overwhelmed by his compassion, that the person converted to Islam (Engineer and Evers 2010). Thus, the Qur'an encourages people to help those in need either through individuals' deeds and/ or through the payment of taxes. In order to help poorer individuals such as orphans, widows, slaves, the payment of charity (*zakah/zakat and sadaqah*), for which compassion prevails to be paramount is obligatory to all Muslims (Qur'an 9:60) (Khairuldin, Firdaus, and Mohammad 2013; Alharbi and Al Hadid 2018). "Thus it is compassion which makes us real human beings" (Engineer and Evers 2010, 107).

There are different ways of how compassion is being displayed through giving and aiding those in need in Islam. First, through *zakat or zakah*, which is the obligatory annual payment by a person, who has more than he or she needs (Alharbi and Al Hadid 2018). Secondly, through *sadaqah,* which involves the giving of food or clothes to those in need, but without shaming the receiving person (Alharbi and Al Hadid 2018). Alleviate the suffering, doing good for other beings and aiding beings in need, which also includes assisting a traveler to reach his or her destination, is referred to as *fi'sabilillah* by Allah. All of the aiding and giving has to be done in a discrete manner because the prophet says "Give away in a manner that your left hand does not know what your right hand spends" (Alharbi and Al Hadid 2018, 1356)

Another element of compassion for Muslims is that suffering can be both spiritual and physical (material) (Engineer 2005). Physical suffering comes before spiritual suffering, which is derived from the Prophet's saying of: *Al-kalam bad al-taam.* This translates "first eating and then prayers. If one is starving, one cannot pray with complete absorption" (Engineer 2005, 118). This emphasis the prophets message of feeding a hungry person is more important than praying all night long (Engineer and Evers 2010). Additionally, it also reminds one that religious practices

are means to an end and not necessarily the end in themselves (Engineer and Evers 2010). Thus, the fasting month of Ramadan aids Muslims to remind them of both, the spiritual and physical suffering. The alteration between fasting and prayer cultivates a person's sensitivity to the agony of hunger and helps the person to deepen their awareness to the suffering of others. It develops and deepens a person's compassion towards the poorer section of society (Engineer 2005).

In summary, Islam considers compassion to be one of the pillars, which determines human qualities from mandating to feeling sympathy for the poorer sections of society, to alleviate or eliminate their suffering through 'charity' (*zakat/ zakah and sadaqah*), to respect every being no matter of their faith, and to follow Allah's example of being compassionate and merciful. Considering all the elements of compassion in Islam, its continued practice establishes happiness, tranquility and a peaceful coexisting for everybody.

Judaism

In Judaism, the idea of compassion is what Jews presumed to have towards an improvement of humanity as whole entity (Carroll 2010). Compassion can be found among the highest of virtues, and it stands in opposition of cruelty. It is one of the paramount of a compassionate and merciful God (Held 2008). However, in contrast to the other main spiritual and religious belief systems presented here previously, Judaism does not have one central position on the concept of compassion. In contrary, as it has been with everything in Judaism, it is a constant debate on opinions between Rabbis from various centuries. However, there is a mutual understanding in the Rabbinic tradition that compassion is followed by the obligation for justice. It is inadvertently linked with idea of justice and the fundamental message for universal welfare and that we are all images of God (Carroll 2010). Thus, the majority of the Rabbis agree that compassion is the "highest form of *imitatiodei*" (Held 2008) .

One of the central positions on the concept of compassion in Judaism originates with Akiva ben Yosef also known as Rabbi Akiva, who developed the elucidative method of the Mishnah (collection of oral Jewish traditions) at the end of the first century. His answer to the question of 'how do you mobilize a person to feel compassion as well as to act on it?' is: "Love your neighbor as yourself" (Leviticus 19:18) (Held 2008). For Rabbi Akiva, Leviticus 19:18 epitomizes all of Judaism. However, it comes with two limitations. First, the commandment is dependent on if the subject loves oneself. And secondly, the love is contingent on the definition of one's neighbor (Carroll 2010). Thus, from Rabbi Akiva's point of interpretation, the principle of compassion is not universal (Carroll 2010).

Yet, this can be disputed that universality does not originate in the principle of compassion, but in the doctrine that every human being is created in the image of God. This equips everybody "with a conceptual umbrella which of necessity includes all human beings at all times and all places" (Carroll 2010, 56). This idea of compassion was further conceptualized by Rabbi Tanhuma bar Abba (5th century), who provided an answer to the query of being disrespectful to yourself. In his reason, if a person does not display respect towards herself or himself, it does not give a person permission to treat this person without respect. He quotes Sifra 4:12 and disputes the first limitation of Leviticus 19:18. For Rabbi Tanhuma, "any act which dishonors a human being is an act of disrespect to God Himself, precisely because 'In his image he created him (mankind)'" (Carroll 2010, 57). Moreover, the creation of one single human being, who is the progenitor of every human, follows the logic that if someone destroys a person's life, he or she destroys a whole world, and if a person conserves a life, he or she protects a whole word. This idea of a compassionate world is also reflected in the Hebrew word *ben adam*, which literally translates to human being. In Judaism every single human life on this planet is "infinitely and

equally precious as a microcosm and representative of all humanity" (Carroll 2010, 58). Thus, in the Rabbinic/Talmudic tradition, the presumption that every human being is a representation of all humanity, establishes a theoretical basis for approaching every human being with compassion.

In Judaism, compassion does not stand or function alone. Compassion is a proclamation that justice is needed. Compassion is an affirmation that the world is in need of empathy, community and concerned interest(s). Thus, compassion is a feeling in the first place, followed by the obligation for justice. For Jews, justice is a demand, which requires action based on the doctrinal idea that every human being is precious. However, compassion is not necessary for an action to follow. Based on the idea that every human being is a progenitor of all humanity, everyone has a duty to act on it, no matter if the person experiences the feeling of compassion or empathy (Carroll 2010).

The Hebrew language does not have a word for the English compassion. The closest phrase is *rachamim*, which translates as mercy and its root is "*rechem*", which means womb. The womb is representative of a mother and the compassion the mother has for the unborn child. Thus, as a mother loves her children, God displays a motherly love for his children. In Judaism, this motherly love represents the standard for human compassion (Carroll 2010). One representation of the compassionate God can be found in Exodus 34:6-7. The passage depicts a compassionate and merciful God: "Merciful God, merciful God, powerful God, compassionate and gracious, slow to anger and abundant in lovingkindness and truth" (Exodus 34:6). Another example is Exodus 3:7, in which God noted that the people of Israel lived in extreme oppression, and because of his compassion for his children, God was moved to rescue them from slavery. This

example of redemption in Judaism exemplifies that one day God will redeem the whole world (Carroll 2010).

The idea of compassion is heavily linked with the biblical concept that every human being is an image of God. For Jews, God provided a perfect notion of how human civilization and the life within deems to be. However, it is up to the people to evolve and follow God's example by emulating God's features of compassion to restore and improve their world (Carroll 2010). As the Italian Jewish scholar Luzzatto emphasized, the first foundation of Judaism was compassion. God liberated Abraham's children from slavery and instructed them on how "to do 'what is just and right'" (Genesis18:19) (Held 2008, 133). Thus, "Love your neighbor as yourself" (Leviticus 19:18) can be interpreted, as Rabbi Yaakov Tzvi Mecklenburg suggests (19th century), simply as "what ever good things one would like to have done to him by his neighbor, one should do to his neighbor, who is every human being" (Carroll 2010, 64). Thus, for a compassionate world to be possible and universal, respect and tolerance are essential first. The underlying idea of the unity of all people and therefore the idea of compassion being linked to the purpose of creation, constitute the fundamental message of Judaism: that we are all images of God and therefore interested in the wellbeing of the whole world by displaying compassion for every being. Cultivating compassion is one of the central ethical obligation for Jews (Held 2008). Because "The Lord is good to all; and His tender mercies (compassion) are over all His works (creatures)" (Psalm 145:9).

Religion or spiritual tradition/ worldview	**Definition or description of compassion in religious and spiritual writings**	**Elements, characteristics or stages for the display of compassion**
Buddhism	In classical Buddhist texts "compassion is defined as the heart that trembles in the face of suffering" (Feldman and Kuyken 2011, 144) Buddhaghosa, a 5th-century Indian Theravada Buddhist, defined compassion as follows: Compassion "is characterized as prompting the aspect of allaying suffering. […]. It is manifested as non-cruelty. Its proximate cause is to see helplessness in those overwhelmed by suffering. It succeeds when it makes cruelty subside and it fails when it produces sorrow" (Buddhaghosa 1976, IX, 94).	Stages of compassion: the person has to master three levels of compassion: (1) The first and basic requirement is to understand the nature of the suffering (Rinpoche 2010), called *karunā*. (2) The second category is *Immeasurable karunā* (Apar-Miya karunā,) (Rinpoche 2010). On this level, a person sets his motivations into practice and renounces all immoral actions due to the fact that all of them cause suffering. (3) The third stage is, *Mahākarunā*, which translates to great compassion (Rinpoche 2010; Gold 2008). It combines compassion and equanimity and pairs it with wisdom to achieve "skillful means" in order to guarantee a continuous presence of the great compassion (Barad 2007; Gold 2008). At this stage, there is no difference between self and others. Additional aspects: • Compassions needs to be extended to "all beings, who are capable of suffering" (Barad 2007, 26) • Universality aspect: Compassion is limitless, exhaustible, and universal.
Christianity	Compassion for Augustine of Hippo: Augustine's compassion resides in emotional response to suffering of others, shaped by the emotional life of God's son on earth and by related compassionate emotions displayed by God and his angels. Definition: "Compassion is experienced as an interior revolt within the emotional condition of one who is affected by the suffering (Latin: passio) of another human being or of an animal – the suffering that is to say, of a sentient being, a being with a soul (Latin: anima) and thus able to feel pain. Compassion means to share the suffering, to participate in it, to make it one own's feeling, to suffer with the sufferer (Latin: com-passio).	Three elements of compassion in Christian ethics: 1. Relational element with God, 2. affectional dimensions (emotional and rational component) 3. voluntative element of wanting to help (Bernhardt 2010, 92-93). Additional characteristics and aspects: • Doing good in general and awareness of one owns need in various dimensions of life. • Clear difference between pity, sympathy, and compassion • Emotions are part of compassionate response and good like quality of a human being • Emotions are elemental to the vulnerability of humans

	The suffering of the other evokes a resonance in me: a co-suffering" (Bernhardt 2010, 90).	• Generosity/ charitable work provides humans with the opportunity to imitate Jesus' emotional life experience • Compassion induces duty of care • Corporal and spiritual compassion needs to be cultivated • Compassion establishes an understanding of every person's relationship with God • The Parable of the Good Samaritan: Compassion is at the heart of Christianity and has to be offered universally, developed spiritually, and involves self-sacrifice. • Universality aspect
Hinduism	*Karunā* is composed of 'kri' and 'unan' and translates as "to place one's mind in another's favour" (Sastry 2010, 43). *Karuna* refers to a compassion, which originates in grief due to loss or due to difficulties with loved ones. It is largely an emotion. *Daya*, on the other hand, is more inclusive compared to *Karunā.* It relates to treating a relative, a friend, a stranger or even your enemy or opponent as "one's own self" (Sastry 2010, 43). Explanation of compassion in Hinduism: In a simplified way, if a person's life is in order in properly organized universe, the individual's life will be guided by compassion. And where one can find compassion, dharma will be present. Thus, for Hinduism compassion is the core of dharma and true character of a Brahmin (Hindu priest) (Jenkins 2008).	<u>Aspects of compassion in Hinduism</u>: • Compassion is a value and/ or an attitude, not a feeling or emotion • A person should remain concerned of other being's suffering (not necessarily actively alleviate the suffering of another being, but recognizing the suffering part). • Compassion comes naturally, but also needs to be cultivated through daily practices • No direct-action part is essential because the compassion is practiced through daily sacrifices: For example, besides worshiping God, studying the scriptures and contemplating on the sages of the forefathers, two additional yagnas/ duties as a Hindu require the practice of compassion through providing food to satisfy a person's hunger and to treat every being with love and respect (Jośī 1916/ 2006). This is engrained in daily life practices of Hindus. • Through the dynamic concept of Ahimsa, compassion is unavoidable, but at the same time is constrained by himsa • Harm to other beings is unavoidable in order to advance, e.g. in the field of science → Ritual: vaishvadeva to honor every harm done to any being (Sastry 2010). • Every being needs to be treated with compassion at all times (no matter if it is in pain or not). • Universality: Compassion a universal truth in its nature (Sastry 2010).

Islam	Compassion in the Qur'an: Every chapter (expect chapter nine) in the Qur'an starts "I begin in the name of Allah who is Compassionate and Merciful" (Engineer and Evers 2010, 101; Nasir et al. 2016) In the Qur'an, the concept of compassion (*rahmah*) is paramount to the existence of Allah. Through the sympathy for the poor and the weaker section of society, compassion relay means sensitivity and sympathy to others suffering. A person cannot be compassionate unless he or she is sensitive to others suffering. Suffering includes human beings, animals, and plants because Allah envelops all things.	<u>Aspects of compassion in Islam</u> • Relational element with Allah: Allah envelops everything (Qur'an 40:7) • Generosity/charity: The Qur'an encourages people to help those in need either through individuals' deeds and/ or through the payment of taxes. The payment of charity /taxes (zakah and sadaqah), for which compassion prevails to be paramount is obligatory to all Muslims • Aiding and giving has to be done in a discrete manner in order not to shame or blame anybody for needing help • To display respect for all faiths through compassion • Physical and spiritual suffering essential to understand compassion (e.g. practice of Ramadan)
Judaism	• Judaism does not have one central position on the concept of compassion. In contrary, as it has been with everything in Judaism, it is a constant debate on opinions between Rabbis from various centuries. • The closest phrase in Hebrew to the English compassion is *rachamim*, which translates as mercy and its root is "*rechem*", which means womb (motherly love) and thus includes every human being because we are all created in the image of God. • Compassion in Leviticus (19:18): Love your neighbor as yourself • "The Lord is good to all; and His tender mercies (compassion) are over all His works (creatures)" (Psalm 145:9).	<u>Aspects of compassion:</u> (1) Compassion is a feeling and (2) an obligation for justice. • Cultivating compassion is one of the central ethical obligations for Jews because **every human being is an image of God→** This idea of a compassionate world is also reflected in the Hebrew word *ben adam*, which literally translates to human being. • Relational element with God: The element of compassion is in every human being: the creation of one single human being, who is the progenitor of every human, follows the logic that if someone destroys a person's life, he or she destroys a whole world, and if a person conserves a life, he or she protects a whole word.

Table 2 *Overview table of definitions, elements and characteristics for the field of religious and spiritual traditions*

Overview of current theoretical perspectives in psychology writings on compassion

In the field of psychology, the opinions on what compassion is and which elements compassion is made of, are as divided as I illustrated in the previous sections on philosophy and the study of morality. In the field of psychology, compassion has been described as empathic distress (or vicarious emotion), mostly experienced by another's stress, "a variation of sadness and love", and as a "distinct emotion" (Goetz, Keltner, and Simon-Thomas 2010, 363). From a psychological research perspective, an empathic response to suffering emanates from two different kinds of reactions: empathic distress (or personal distress) and compassion (Singer and Klimecki 2014). The following section on psychology writings focuses on authors and opinions, who describe compassion as a distinct emotion which induces a peculiar behavior of wanting to alleviate the person or being from the (momentary) suffering.

Lazarus, who discusses compassion in the context of our psychology of emotions, what role they play in adaptation, and how emotions are expressed and how we can understand them, defines the "core relation theme for compassion" as "being moved by another's suffering and wanting to help" (Lazarus 1991, 289). He ties the emotion of compassion to the feeling of how the person experiences compassion. The emotion, however, is not "felt and shaped […] by whatever the other person is believed to be feeling, but by feeling personal distress at the suffering of another" and the desire of "wanting to ameliorate it" (Lazarus 1991, 289). Thus, an empathic element is essential for his notion of compassion.

Lazarus identifies ego-involvement, blame and future expectancy as appraisal patterns for compassion. Ego-involvement is not necessary but can be present and can play a factor. Future expectancy is also not crucial for compassion, but the gratitude of a victim (the person suffering) may play a role of positive reinforcement. Whereas blame in combination with dehumanization

of a victim (the person in need), on one hand, defeats the purpose of compassion; on the other hand, the term victim is suggestive of a person being helplessness and in need of preventing harm. If no blame is present, a compassionate response is likely, even though this depends on the "dispositional character of the person" (Lazarus 1991, 290). Lazarus implies that the recognition of suffering has to be present. For him, compassion contains an emotional resonance, thus a distinct emotion, which motivates a person to act (Strauss et al. 2016).

Lazarus is not the only author who suggests that compassion is a distinct emotion. Besides Lazarus, Darwin (1871/1901), Trivers (1971), Batson (1991), Kanov (2004), Gilbert (2009/2010), Goetz (2010), and Strauss (2016), just to mention a few, describe compassion as a distinct emotion, which represents a state defined by the individual's emotions. For example, Darwin provides a descriptive example of how compassion can be distinguished from love. "The all-important emotion of sympathy is distinct from that of love. A mother may passionately love her sleeping and passive infant, but she can hardly at such times be said to feel sympathy for it." (Darwin 1871/1901, 162). Trivers discusses compassion (he used the term sympathy) in the context of altruistic gestures, which involves an intricate array of emotional stages such as liking the other individual, having gratitude, being angry, or the feeling of guilty (Trivers 1971). Thus, compassion is needed "to motivate altruistic behavior […and…] the greater the potential benefit to the recipient, the greater the sympathy and the more likely the altruistic gesture, even to strange or disliked individuals." (Trivers 1971, 49).

However, compassion does not only consist of affective and behavioral elements. Kanov et. al (2004) explore the role of compassion within organizations. For the authors, compassion starts at the individual level attributable to the three interrelated elements (as subprocesses) of noticing, feeling, and responding (Kanov et al. 2004). For them noticing another's person suffering is

regarded as becoming aware of the other person's suffering by identifying cognitively the suffering, or by experiencing a direct reaction or even having an unconscious physical experience to the suffering (Kanov et al. 2004). The second element, feeling is defined as an emotional response to the suffering and as a resemblance to the empathic concern by taking up the other person's perspective, and by feeling and imaging the person's condition (Kanov et al. 2004). Last but not least, responding is the reaction to the noticing and felling, which in turn promotes the person's desire to act to alleviate or eliminate the other person's suffering (Kanov et al. 2004). The affective, behavioral and cognitive elements of individual compassion work in a "processual and relational" manner to form a system of organizational compassion to "collectively notice, feel, and respond to pain experienced by members of that system" (Kanov et al. 2004, 808). Therefore, from a psychological and behavioral point of view, compassion in an organization turns into a collective feature of the organization once the three features are propagated and coordinated across the individual members of the organization. Additionally, Kanov et al.'s elements of compassion propagate the Buddhist concept that compassion has affective, behavioral as well as cognitive elements, whereas the cognitive component implies managing to put oneself in the other being's experience (Strauss et al. 2016)

Goetz et al. present a functional analysis of an evolutionary concept of compassion. The authors defined compassion along the line of Lazarus's (1991) and Nussbaum's (1996, 2001) definitions as "the feeling that arises in witnessing another's suffering and that motivates a subsequent desire to help" (Goetz, Keltner, and Simon-Thomas 2010, 351). It is clearly distinguished from empathy and described as a "vicarious experience of another's emotion" (Goetz, Keltner, and Simon-Thomas 2010, 351). Goetz et al. emphasis that their treatment of compassion differs from compassion as an attitude (Sprecher and Fehr 2005; Fehr, Gordon, and Sprecher 2009) or as a

benevolent response without the present of suffering or blame (Wispé 1986; Post 2002). The author represent compassion as a "distinct affective experience whose primary function is to facilitate cooperation and protection of the weak and those who suffer" (Goetz, Keltner, and Simon-Thomas 2010, 351). Their empirical review highlights that compassion has a distinct appraisal pattern, which adheres to undue suffering. Compassion depicts a specific signaling behavior, which originates in the caregiving process in relation to posture, touch as well as vocalization. And once a person experiences compassion, he or she follows a "phenomenological experience and physiological response" profile which aligns with social approach patterns (Goetz, Keltner, and Simon-Thomas 2010, 351). Hence, their empirical research paper details the concept of an evolutionary approach to compassion. For example, the authors detail how the affective state of compassion has a different response profile "from those of distress, sadness, and love" and (Goetz, Keltner, and Simon-Thomas 2010, 354).

Goetz et al. (2010) distinguish love and sadness from compassion. For example, compassion is distinct from love. Even though love can have many forms, the closest to compassion are romantic and maternal love. Both are concerned with affection. In this case, affection is acknowledgement of positive features of the other person, and its ambition to be close, physically and psychologically (Goetz, Keltner, and Simon-Thomas 2010). However, this is very distinct from compassion. A compassionate response is quick and applicable to signs of suffering without having the necessity to being "accompanied or perceived by love" (Goetz, Keltner, and Simon-Thomas 2010, 355). Thus, "[c]ompassion is distinguished from love at the level of antecedent events: Compassion responds to suffering and negative events, whereas love are primarily positive" (Goetz, Keltner, and Simon-Thomas 2010, 358). In contrast to love, a sad response, even though it includes negative antecedents, is different from compassion because it

has implication for oneself. The sadness is caused by the individual loss. Another person's misfortune causes a compassionate response. Thus, the distinction between the other and oneself is critical for the distinguishing sadness from compassion (Goetz, Keltner, and Simon-Thomas 2010).

Goetz et al. (2010) accentuate that compassion consists of state-like (display of compassion through appraisal patterns) and trait-like (enduring affective trait) tendencies. In regard to appraisal processes (state-like), compassion is shaped by three conditions. It is formed through a) the relevance of the sufferer to the self, b) the sufferer's deservingness of help, and c) the individual's ability to cope with the situation at hand" (Goetz, Keltner, and Simon-Thomas 2010, 356). From a trait-like perspective, compassion is an emotion which tends to reduce the suffering of vulnerable offspring, functions as an attractive trait in mate selection and predictive element for "cooperate relations with non-kin" (Goetz, Keltner, and Simon-Thomas 2010, 356). Appraising also includes oneself. Goetz et al. also noted that appraising a person's own resources is essential for compassion. One has to feel confident and able to cope adequately with the given situation. If an individual does not know how to cope, and this involves the physiological as well as the psychological level, the individual is more likely to be distressed and feel anxious (in a given situation). In turn, this can diminish a person's emotional regulation capacities, "such as cognitive load or physical or emotional fatigue", which abates compassion and heightens the feeling of emphatic distress as a response to the suffering of another being (Goetz, Keltner, and Simon-Thomas 2010, 358). Thus, any variable, which has the potential to enhance the coping mechanism for a person aids to having a compassionate response than feeling distress (Goetz, Keltner, and Simon-Thomas 2010). This aligns with the Buddhist concept of happiness and

being able to recognize another being's suffering in order to elicit a compassionate response and Kanov's element of being able to put oneself in the others situation.

In this manner, compassion differs from (empathic) distress by displaying dissimilar behaviors, phenomenologies, and autonomic profiles. For Goetz, empathy is involved in a compassionate experience profile, but compassion does not involve "an empathic state of mirrored distress, fear, or sadness" (Goetz, Keltner, and Simon-Thomas 2010, 363). Hence, if a person experiences compassion, the person's desire to reduce the other's suffering is compassion, whereas if the person feels distress, the action that follows (e.g. wanting to escape), is to reduce the person's own suffering. Scilicet (in other words), compassion is a distinct emotion, with a close relationship to the stages of "sympathy, pity, and empathic concern" (Goetz, Keltner, and Simon-Thomas 2010, 364).

Additionally, compassion in the realm of psychology also has to be evaluated in the context of caring. Gilbert discusses compassion in the context of caring and compassion-focused therapy (psychiatric therapy). He defines compassion as a "deep awareness of the suffering of another coupled with the wish to relieve it" (Gilbert 2009a, 13). He argues on the same line as Darwin (1871) and Goetz (2010) that compassion has an evolutionary concept, which regulated and motivated the bonds and engagements for cooperative behavior essential for the survival of the group (Strauss et al. 2016; Goetz, Keltner, and Simon-Thomas 2010). For Gilbert, compassion consists of affective, behavioral and cognitive elements, which are made up of the following six attributes: care for well-being, sensitivity, sympathy, distress tolerance, empathy, and non-judgment (Gilbert 2009b, 202-203). Gilbert defines the care for well-being as follows: "This requires harnessing the motivation to be caring for the purpose of alleviating distress and facilitating the flourishing and development of the target of the caring" (Gilbert 2009b, 202). The

second element, sensitivity, requires the individual to be sensitive "to distress and needs, and able to recognize and distinguish the feelings and needs of the target of their caring" (Gilbert 2009b, 202). The element of 'care for well-being' resembles the Buddhist call of first needing to be enabled to be well and happy and the second element, sensitivity, to be able to recognize the suffering of others.

The third element is sympathy. This element incorporates the emotional part of compassion for Gilbert. Having sympathy for another being "involves being emotionally moved by the feelings and distress of the target of their caring" (Gilbert 2009b, 203). Without emotions, compassion cannot be present. Next element (fourth) is referred to as distress tolerance. This element deals relates to reaction of a person to not being overwhelmed by the experienced emotions to the suffering of another individual. "Having distress tolerance means being able to contain, stay with and tolerate complex and high levels of emotion, rather than avoid, fearfully divert from, close down, contradict, invalidate or deny them" (Gilbert 2009b, 203). Fifth, is empathy. As we have seen with Kanov and Goetz, having and display and empathic feeling is attributed to a compassionate response profile. "Feeling empathy involves working to understand the meanings, functions and origins of another person's inner world so that one can see it from their point of view" (Gilbert 2009b, 203). And last but not least, non-judgment. Being non-judgmental involves "not condemning, criticizing, shaming or rejecting" (Gilbert 2009b, 203). Here, Gilbert follows in the footsteps of the philosophers of Levinas and Nussbaum, who argue that not blaming the sufferer for the situation is imperative to a compassionate response.

In contrast to Gilbert, Levinas, and Nussbaum, Pommier derives her notion of compassion from a Buddhist perspective and Neff's definition and model for self-compassion. For her dissertation, Pommier applied Neff's self-compassion model to a model of compassion for others (Neff 2003;

Pommier 2010). Her "compassion scale" elements involve kindness, mindfulness, and common humanity.

Kindness, as the first element, is opposed to indifference. She defines kindness as "being understanding towards others who are suffering instead of being critical or indifferent towards them" (Strauss et al. 2016, 17). For her, it is the warmth and the understanding of kindness which have the potential to establish a connection between the onlooker and the person in need of help thus assisting in the progress to form a basis for "the will to act" (Pommier 2010, 55). Kindness eliminates the indifference which may keep a person from helping. Thus, once a person feels kindness for another being it will be hard "to ignore or discredit that individual's suffering (Pommier 2010, 55). In Pommier's model, kindness or warm-heartedness replaces the cognitive element of previous models.

Her second element, mindfulness stands in opposition to disengagement. Mindfulness is identified as "the ability to notice another person's suffering and remain open to it without feeling so distressed that you disengage from that person" (Strauss et al. 2016, 17). Mindfulness allows for an emotional balance. It empowers the individual to identify and act in response to aid another. If the person is overwhelmed by his or her emotions, the individual may reject and even disregard the sufferer needing help. Mindfulness has the potential to regulate disengagement to the extent that one is not overwhelmed by the suffering of the other. Thus, mindfulness initiates the "process to be initiated permitting feelings of kindness and common humanity to follow" (Pommier 2010, 56).

The last element, common humanity stands in contrast to separation. It is conceptualized as "realizing that all humans suffer and that one could find oneself in the position of the sufferer if one was less fortunate" (Strauss et al. 2016, 17; Pommier 2010). It allows for the ability to

recognize a person's own common humanity towards others and may prompt volunteers to recognize the plight of people they are trying to help. It provides volunteers with the ability to accept and understanding that "homeless, disabled, poor, sick, or old are people" are not different from them (Pommier 2010, 50). "Common humanity acts as a universal denominator" (Pommier 2010, 50). During the volunteering process, the onlooker realizes that he or she could also be in the place of the person who is suffering and needs help. Thus, there is a sense of "there but for the grace of God, go I" (Pommier 2010, 50).

Pommier adopted Neff's compassion scale with the intent of being used in psychology (for counseling and therapy) as well as with medical professionals. She destined the scale to be used for assessing compassion as a powerful, important, and complex concept within a scientific analytical way (Pommier 2010). Pommier demonstrated through a scientific analysis of compassion that our intellect and our emotions are not mutually exclusive. She is one of the first who dared to subject compassion to a scientific analysis. She realized that science is need of an understanding if compassion because without it our "sense of humanity, our intellect is lost" (Pommier 2010, 153).

Last, but not least, Strauss et al.'s (2016) definition and elements of compassion need to be included in the writings on clinical psychology on compassion. In their review on compassion, the authors proposed a definition of compassion in order to have a psychometrically robust measure of the compassion construct. Strauss et al. (2016) suggested that compassion encompasses the examination of feeling, which arise when a person witnesses the suffering of another and develops a subsequent desire to help. Strauss et al.'s definition includes five elements. First, one has to recognize the suffering of the being. Secondly, it is essential to understand the suffering is universal human experience because we all experience emotional or

physical suffering at one point in our lives. Thirdly, one feels empathetically for the person experiencing suffering and one connects through distress (emotional resonance). In contrast to Goetz et al., Strauss et al. call for the openness and tolerance when experiencing uncomfortable feelings such as distress, anger, or fear, which may arouse in the response to another's suffering. This is essential to be able to accept the person's suffering. And last but not least, is the element of action. All of these motivate one to act in order to alleviate the suffering (Strauss et al. 2016).

Author	Definition or description of compassion	Elements or characteristics of compassion
Lazarus (1991)	Lazarus defines the "core relation theme for compassion" as "being moved by another's suffering and wanting to help" (Lazarus 1991, 289).	Lazarus identifies ego-involvement, blame and future expectancy as appraisal patterns for compassion
Kanov (2004)	Compassion consist of affective and behavioral elements and cognitive components as a dynamic process Individual compassionate response advances to a compassion as a feature of an organization	Kanov's key elements of the process of compassion are "noticing another's suffering, feeling the other's pain, and responding to that person's suffering" (Kanov et al. 2004, 812) Noticing: [involves]"being aware of a person's suffering, either by cognitively recognizing this suffering or by experiencing an unconscious physical or effective reaction to it" (Kanov et al. 2004, 812) Feeling: The person response emotionally to the suffering of another and he/ she experiences 'empathic' concern through the adoption of the other's person perspective and images for feels their condition Responding: The person has a desire to act to alleviate the person's suffering.
Goetz (2010)	Compassion is "the feeling that arises in witnessing another's suffering and that motivates a subsequent desire to help" (Goetz, Keltner, and Simon-Thomas 2010, 351).	Compassion consists of state like (display of compassion through appraisal patterns) and trait like (enduring affective trait) tendencies. In regard to appraisal processes (state like), compassion is shaped by three conditions. It is formed through a) the relevance of the sufferer to the self, b) the sufferer's deservingness of help, and c) the individual's ability to cope with the situation at hand" (Goetz, Keltner, and Simon-Thomas 2010, 356). From a trait like perspective, compassion is an emotion which tends to reduce the suffering of vulnerable offspring, functions as an attractive trait in mate selection and predictive element for "cooperate relations with non-kin" (Goetz, Keltner, and Simon-Thomas 2010, 356). Appraising also includes a person's own resources.

Gilbert (2009)	"A deep awareness of the suffering of another coupled with the wish to relieve it" (Gilbert 2009a, 13)	Compassion consists of affective, behavioral and cognitive elements, which are made up of the following six attributes: care for well-being, sensitivity, sympathy, distress tolerance, empathy, and non-judgment (Paul Gilbert 2009b, 202-203).
Neff (2003) & Pommier (2010)	Neff defined self-compassion as being composed of three main components: self-kindness, common humanity, and mindfulness (Neff 2003). Pommier derives her definition from Neff (Pommier 2010).	1. Kindness is opposed to indifference. It is defined as "being understanding towards others who are suffering instead of being critical or indifferent towards them" (Strauss et al. 2016, 17). 2. Mindfulness stands in opposition to disengagement. Mindfulness is identified as "the ability to notice another person's suffering and remain open to it without feeling so distressed that you disengage from that person" (Strauss et al. 2016, 17). 3. Common humanity stands in contrast to separation. It is conceptualized as "realizing that all humans suffer and that one could find oneself in the position of the sufferer if one was less fortunate" (Strauss et al. 2016, 17; Pommier 2010)
Strauss (2016)	Strauss et al. (2016) suggested that the compassion encompasses the examination of feeling, which arise when a person witnesses the suffering of another and develops a subsequent desire to help.	1) Recognizing suffering 2) Understanding the universality of suffering in human experience 3) Feeling empathy for the person suffering and connecting with the distress (emotional resonance) 4) Tolerating uncomfortable feelings aroused in response to the suffering person (e.g. Distress, anger, fear) so remaining open to and accepting of the person suffering 5) Motivation to act/ acting to alleviate suffering (Strauss et al. 2016, 19)

Table 3 *Overview table of definitions, elements and characteristics for the field of psychology*

Neuroscience and the discovery of the neuronal network for a compassionate response

Neuroscience delivers the scientific proof of a unique neuronal response network in our brain to a compassionate response. The following section describes the difference between the neuronal responses to emphatic distress and compassion in human brains in the domain of pain research.

As reviewed extensively in the previous section, from a psychological research perspective, an empathic response to suffering emanates from two different kinds of reactions: empathic distress (or personal distress) and compassion (Singer and Klimecki 2014). Empathic distress is indicative of a self-related emotion. The person experiences a negative feeling, e.g. stress, which usually shows in poor health and burnout. The person exhibits non-social behaviors such as having a desire to retreat from the situation in order to protect oneself from negative feelings (Singer and Klimecki 2014). Compassion, on the other hand, is an other related emotion, usually exhibited through being concerned with the other's person suffering and the motivation to help. This shows through "approach and prosocial motivation" (Singer and Klimecki 2014, R875). The psychological perspective on empathic responses made it possible for the field of neuroscience to map a person's response to empathic distress or compassion through the domain of pain research. Pain studies and related modification of these exploratory neuroscientific studies have shed new light on our current understanding of compassion. Neuroscience researchers were able to locate and map the neuronal networks involved in empathy and compassion within a person's brain structure through the application of functional magnetic resonance imaging (fMRI) (Immordino-Yang et al. 2009).

A recently published meta-analysis (2019) on empathy of pain studies indicates that a underlying core network, which can be modulated by several secondary networks, exists (Jauniaux et al. 2019). Among the three relevant factors, visual cues such as body parts activated areas in the

brain “related [to] sensorimotor processing (superior and inferior parietal lobules, anterior insula) while facial expression distinctly involved the inferior frontal gyrus” (Jauniaux et al. 2019, 1). Visuospatial perspectives, which compare your perspective to others, presented itself through activations “in the left insula” (Jauniaux et al. 2019, 1). However, if a cognitive stimulus was used to compare it to the other-perspective, responses were activated “in the inferior frontal and parietal lobules, precentral gyrus, and cerebellum” (Jauniaux et al. 2019, 1). This indicates that certain regions of our brains are activated either if we experience pain ourselves or when we have the experience of pain through a vicarious feeling with a suffering other.

So, how can these empathic responses further be distinguished? One way of studying these neural responses is to either expose study participants to physical pain or through visual cues of another person experiencing pain (suffering). By comparing brain activities during both processes, researchers were able to reveal the shared neural networks (Singer and Klimecki 2014). In general, fMRI studies have demonstrated that “empathizing with another person’s feeling relies on the activation of neural networks that also support the first-person experience of these feelings” (Singer and Klimecki 2014, R876). These responses are mainly located in the left (anterior) insula (Jauniaux et al. 2019, 1). To be more specific, if a person experiences empathy for pain, portions of the regions related to the anterior insula and a specific part of the anterior cingulate cortex are active in response to painful stimulation to the person’s body or the vicarious pain due to visualization of another person’s experiencing pain (Singer and Klimecki 2014; Immordino-Yang et al. 2009). Neuroscientific research studies on the investigation of vicarious pain and related brain responses to other factors such as person-specific characteristics (e.g. gender) or context-specific characteristics (e.g. a person, who belongs to your group, suffers vs. a person, who does not belong to your group, suffers) confirmed that there is even a

proportional response to the stimulus. For example, Singer and Klimecki's studies demonstrated that the "magnitude of the empathy-related signal in the anterior insula predicted the extent to which participants later engaged in altruistic helping behavior" (Singer and Klimecki 2014, R876).

Cross-sectional studies such as conducted by Lutz and Davidson (2008) on regulation and neural network activity of emotions related to compassion meditation (loving-kindness-compassion meditation state) of experts to novices revealed that different parts of our brains get activated and to varying degrees. Once the expert mediators were exposed to distressing (negative) noises, an instinctive increase in activation was observed in the middle insula as compared to the novices (Lutz et al. 2008). Singer and Klimecki (2014) took the plasticity of the socio-emotional brain research even two steps further. First, they scanned brains of mediation-naïve participants before and after the participants either received empathy or compassion training. During the scanning process, the study participants were shown short clips, depicting the suffering of others. Through self-reporting, participants disclosed their emotions for each short film (Klimecki et al. 2013). The group, which received compassion training for several days compared to a memory control group, had an increased activity spanning from the medial orbito-frontal cortex and the striatum. Thus, if a person receives short-term training in compassion for just a few days, the compassion training has the potential to foster positive feelings. These positive feelings and reactions to the distress of other people are activated in a different region of the brain compared to empathy (Singer and Klimecki 2014).

Secondly, Singer and Klimecki conducted a longitudinal study to investigate if the negative effect of empathic distress (withdrawal) could be mitigated through compassion training. In their longitudinal study, participants first received empathy training before they underwent

compassion training in the second section of the study. During the empathy training, the same regions in the brain (related to empathic distress), in the "insular and anterior middle cingulate cortex", were activated, in addition to a rise "in self-reported negative affect" (Singer and Klimecki 2014, R877). However, once the study participants completed their compassion training, a decrease in negative effects and an increase in positive effects were reported. Additionally, the previously observed activation of the brain regions aligned with their previous findings of the meditation-naïve participant study. This indicates that compassion is "located" in the "medial orbitofrontal cortex and ventral striatum" (Singer and Klimecki 2014, R877).

So why are these findings so important? First, these series of studies substantiate what philosophy, religions, worldviews and psychology have been trying to emphasis: empathy and compassion are different. The discoveries of two distinct, non-overlapping neuronal network responses are confirming this hypothesis. It demonstrates that the responses to having an empathic distress versus experiencing a compassionate response are distinct. Secondly, compassion training indeed elicits changes in varying regions of a person's neural network. This confirms the Buddhist view on compassion and its relationship to happiness and well-being. Additionally, it underscores the health care world's call of incorporating compassion training into the nursing and medical school curricula. (And I would even suggest including compassion training in the curricula of public health and bioethics programs.)

Authors	**Empathy for pain neuronal network**	**Compassion neuronal network**
Singer (2014)	Encompassing anterior insula and anterior middle cingulate cortex (Singer and Klimecki 2014, R877)	Medial orbito-frontal cortex and ventral striatum (Singer and Klimecki 2014, R877).

Table 4 *Difference in the neuronal response network between empathy and compassion*

Key elements or characteristics of compassion for a spatial epidemiology of compassion

After reviewing the definitions and descriptions, elements and characteristics of compassion in the fields of philosophy, in the major world religion and spiritual traditions, as well as in the field of psychology, the questions arise a) what are some common definitions or elements that can be drawn from the various fields? b) are any of them measurable? and c) how do they inform spatial relationships of compassion?

First, compassion is essential and at the core of ethics, especially at the heart of the argument for many pro-compassionate philosophers such as Schopenhauer and Nussbaum. Even though critics such as Kant and Nietzsche would oppose the omnipresent rhetoric of compassion that has been present within the 21st century, compassion, nevertheless, managed to emerge as a key aspect for bioethics and any related fields utilizing bioethics (e.g. healthcare, public health, scientific research involving humans and animals). In the field of virtues and justice ethics, compassion is viewed as a logical human reaction and answer to suffering. For example, Aristotle argues compassion to be defined as "a painful emotion directed at another person's misfortune or suffering" (Nussbaum 2001, 306). For him, this description of compassion follows a natural order of identifying the seriousness of the suffering, questioning if the person is at fault or not and accepting the possibility that oneself is vulnerable and the possibility that the suffering might happen to oneself. Nussbaum follows a similar trajectory as Aristotle, but differs from the cognitive element of fault to non-blameworthiness. Thus, her definition differs slightly by adding undeserved misfortune, but both highlight the painful emotional part of the subject of suffering. In contrast, Hume and Schopenhauer lift the status of compassion to the next level. Both relate the notion of compassion as an evidence for the goodness of humankind. Both declare

compassion to be the basis of morality by tying it to a natural feeling of sympathy, and independent of any ulterior motive, having a desire for the other person or being to experience happiness and thus, displaying an inclination to act to remove or alleviate the suffering. Rousseau and Smith locate their concept of compassion in a universal aspect. Rousseau, for example claims compassion to be a "pure emotion of nature" which is universal (Rousseau 1754, 19). For him, compassion has an evolutionary aspect by contributing "to the preservation of a whole species" (Rousseau 1754, 20). Noticing the suffering is based on the premise of natural science and thus, compels us to act to alleviate the distress of other (Rousseau 1754). For Smith, compassion displays a mutual sympathy which is rooted in everybody, thus is universal. We all have an interest in the welfare of others to make their happiness by taking a neutral, impartial, and altruistic stand to justify a sympathetic response (Smith 1759, 2017). Even though each of the discussed philosophers approaches the discussion from different angles and establishes a slightly varying multifaceted concept of compassion, there are two common and overlapping characteristics: recognition of suffering and the desire to act.

Additionally, almost all of them allude to a measurable variable for identifying suffering within a population. There is one theme, which is common throughout the philosophical writings in regard to suffering. However, it is most obvious in the writings of Aristotle, Levinas, and Nussbaum in regard to suffering and resources: what Nussbaum called 'central disasters' for humankind. For Aristotle, it is related to the size of the issue at hand. His examples for such central disasters are of "various kinds of death, personal ill-treatment and injuries, old age, disease, and lack of food", which he identifies having been unusually constant in human life (Aristotle and Freese 1921, 1386a 9). For him, these are so constant that human beings view these disasters "to be central" (Nussbaum 2001, 308). These misfortunes are noteworthy

unanimity in regard to core situations across time and space. What distresses, worries, and agonizes us, are what societies and individuals take to be severe disasters (Nussbaum 2001). Levinas cites descriptions of physical pain, such as being homeless or hungry, having and illness or disease, or ageing as leaving an individual without the necessary resources in a stage of suffering (Edelglass 2006). Nussbaum also provides a clear description of a constant and central factor, which produce an adaptive response in regard to the importance of suffering in a compassionate person. Even though it may vary among individuals and societies which "disasters" are judged to be serious, there is an extraordinary "unanimity about the core instances across time and place" for Nussbaum (Nussbaum 2001, 307). Thus, all three philosophers are in unanimity of what can be attributed to the suffering for humans and are in a consensus that some causes (e.g. diseases) have been constant across time and space. This is exactly what the field of spatial disease ecology and public health has been identifying and mapping over the last century: the outbreak and spread of infectious disease, e.g. the current outbreak of COVID-19; the prevalence of chronic disease, such as cardiovascular disease, in a population; and the effects of natural disasters. In this manner, the philosophers' definition of compassion and their indications of a recurring element of space and time links these characteristics to a geographical representation of compassion – or a proxy for it.

So how does this inform the selection of proxy candidates? Recognizing the suffering in another person or being and experiencing a desire to act to alleviate or eliminate the suffering in the other are two characteristics of compassion most philosophers acknowledge. Both elements postulate a place to start looking for potential data sets. Additionally, the examples of disasters and diseases the philosophers are mentioning in connecting with compassionate acts, which also have been constant over time and space, provide another starting point to inform and aid in the

identification of potential proxy candidates. For example, how do people express their desire to act and alleviate or eliminate suffering in other beings? In the time of COVID-19 and self-isolation, acts such as purchasing groceries for the elderly or a person infected with COVID-19, or donating money to food banks are deemed compassionate actions. In the healthcare realm, healthcare personnel such as physicians and nurses from totally unrelated fields are providing care to patients in need. Thus, a potential starting point related to the alleviation of suffering, and therefore locating an indirect measure of compassion may be at hospitals, and in generosity and charitable giving data.

Secondly, compassion is at the core of major world religions and spiritual worldviews. Major religions, and spiritual traditions incorporate compassion in their lists of commandments, orders, rules or rituals for (daily) practices to be followed (e.g. daily rituals in Hinduism or practices in Islam) to strive for good behavior and peaceful coexistence. In Judaism, compassion is a feeling and an obligation for justice and THE central ethical obligation for Jews because every human being is an image of God (Carroll 2010). In Islam, compassion (*rahmah*) is paramount to the existence of Allah because Allah envelops everything, which includes humans, animals, as well as flora and fauna (Qur'an 40:7) and implies that Muslims should have compassion for all creatures and things (Engineer 2005; Alharbi and Al Hadid 2018). In traditional Buddhist text "compassion is defined as the heart that trembles in the face of suffering" (Feldman and Kuyken 2011, 144), needs to be cultivated by going through three different stages to reach a natural state, in which there is no difference between the self and others (Rinpoche 2010), and compassion needs to be extended to " all beings, who are capable of suffering" (Barad 2007, 26). In Hinduism, compassion is an attitude, which guides one's life to be in order in a properly organized universe (Jenkins 2008). Various terms are used, but *karunā* and *daya* are the two

prominent, with slightly different meanings. K*arunā* refers to compassion, which originates in grief due to loss or due to difficulties with loved ones and is largely an emotion. Whereas *daya* is more inclusive and relates to treating a friend, a stranger or even your enemy as "one's own self" (Sastry 2010, 43). Compassion is practiced through daily sacrifices because Hindus recognize that harm to other beings is unavoidable in order to advance (Sastry 2010). And in Christianity, compassion implies to "share the suffering, to participate in it, to make it one's feeling, to suffering with the sufferer" (Bernhardt 2010, 90). It resides in the emotional response to the suffering of others, is shaped by a person's relationship with God and by the emotional life of God's son on earth and an it is displayed by the action of relieving suffering and doing good in general through charity, which, in turn, brings a person an awareness of one's need in various dimensions of life (Bernhardt 2010).

So, what are the overlapping elements, besides the emotional response to suffering, from the major world religions? Out of the five major religions discussed, three provide information for the identification of proxies for compassion. First, Buddhist teaching associates compassion with a natural state that arises from a sense of wellbeing or right view; "unless a person does not understand one's own misery, he or she cannot understand the other's misery" (Rinpoche 2010, 14). Thus, one has to appraise of one's own resource and limitations in order of even being able to advance to a neutral state of mind to identify and recognize the suffering in other beings.

So how does this inform the potential selection of a proxy? The Buddhist notion of understanding one's own misery in order to identify and locate the suffering in another being, directs us towards the understanding of well-being and happiness. The 14th Dalai Lama states that "hope and happiness are positive factors for our health. Health depends on a happy state of mind" (Dalai Lama October 31, 2014, NA). For him, a calm mind free of anger and fear is even

more important than a person's physical experience (Dalai Lama October 31, 2014). Why? Because in order to develop a compassionate human affection, a calm, sorted, and trained mind leads to more compassionate reactions in our brain functions (as neuroscientific experiences established). Fear and anger clutter our thinking and therefore, our potential to develop a compassionate feeling and action for another being. Thus, the pursuit of happiness and well-being provides a guide on the likelihood of developing compassion. And psychologists have developed theoretical frameworks and models, which allow them to measure well-being on different levels. One of these theoretical models of happiness, which is called PERMA, was developed by Martin Seligman and has been modified for the use and extraction of PERMA information on social media sites. Therefore, the mapping of well-being might function as a proxy for the likelihood of compassion (on a population level).

Secondly, both Christianity and Islam associate compassion with acts of generosity, particularly giving alms or volunteering to work with the less fortunate. In Christianity, generosity or charitable work provides human with the opportunity to imitate Jesus' emotional life experience and relate to the suffering of other (Wessel 2016). In the Islamic traditions, the Qur'an encourages people to help those in need either through individuals' deeds and/ or through the payment of taxes. The payment of charity/taxes (*zaka*h and *sadaqah*), for which compassion prevails to be paramount is obligatory for all Muslims (Engineer 2005; Alharbi and Al Hadid 2018). Thus, from the perspective of both of these religious traditions, charity or generosity would provide a geographic representation of compassion – or a proxy for it.

Last, but not least, the last element, which allows for the mapping of a potential proxy measure of compassion, is derived from all fields discussed previously. Neuroscience delivers the scientific proof that the neuronal response profile for compassion is distinct from other brain

communications such as empathy (Singer and Klimecki 2014). Neuroscientific network mapping through fMRI depict the neuronal activity response between an empathic (vicarious) emotion differ from a compassionate response (Singer and Klimecki 2014). Confirming what many of the listed definitions and descriptions in the fields of philosophy, the religious and spiritual traditions, as well as psychology, have been associating all along: the response for compassion differs from empathic response and one key element for compassion is relieving suffering. For example, psychology provides the 'what' and 'how' various levels of compassion play a role in human interaction. Even though the field claims compassion to be a multifaceted conception, it identifies it to be a distinction emotion with multiple components, which differs from love, sadness, and emotional distress. Lazarus (1991), for example, defines "the core relation theme for compassion" as " being moved by another's suffering and wanting to help (Lazarus 1991, 289). Goetz details compassion as "the feeling that arises in witnessing another's suffering and that motivates a subsequent desire to help" (Goetz, Keltner, and Simon-Thomas 2010, 351). In Strauss et al.'s review of how compassion could function as a psychometrically robust measure of the compassion construct, their fifth element calls for the "motivation to act […] to alleviate suffering" (Strauss et al. 2016, 19). The action of alleviating, eliminating or preventing suffering for others function as a third element for locating a proxy. Therefore, one place to look at a spatial epidemiology of compassion would be websites of hospitals, where people go to alleviate mental and physical suffering. For alleviation of suffering, compassion seems to be a value for people seeking medical care and so that the website of a hospital may be seen as an advertisement (or promise) of compassionate action.

Material and Methods

The use of proxy measures for compassion and spatial epidemiology

The following section addresses objective 2: Identify candidate proxy measures of compassion from the datasets and objective 3: Explain the assumptions in responds to why the proxy measures are expected to be valid. First, it is explained why proxy measurements are need. Secondly, the selection criteria for the proxy candidates are described and third, each of the proxy measures is specified.

The use of proxy measurements

In science, proxy measurements are often used as an indirect measure for variables, which are problematic to quantify or cannot be measured or calculated at all (Frost 1979; The Minitab Blog September 22, 2011). In the absence of variables for the research in question (Frost 1979), a proxy measure is preferable over not having any statistical data at all (The Minitab Blog September 22, 2011). A proxy is usually a variable, which can be easily measured and obtained. Even though the proxy measure may not seem of great relevance in itself, it has the potential to display a close likeness (similarity) with the variable or outcome of interest (The Minitab Blog September 22, 2011). One example of the use of a proxy measurement in social science is the per capita GDP for the intended variable of quality of life. In environmental sciences, satellite images of ocean surface color provide information for the depth that light penetrates into the ocean over large areas or the widths of tree rings function as statistical data for historical environmental conditions (The Minitab Blog September 22, 2011). In the case of empirical models, proxy measurement can benefit an analysis because the research intentionally included the variable in the model in order to improve his or her results. In comparison to confounding variables, which are dangerous for an empirical analysis if the researcher is not aware of them,

the use of proxy measurement has the potential to benefit one's results (The Minitab Blog September 22, 2011). Of course, if the variables are understood incorrectly, the proxy variable may have a negative impact on the accuracy of the empirical model and can also be confounders (Frost 1979). However, as Montgomery et al.'s comparative demographic research on living standards demonstrate, proxy variables can be very weak predictors and can have extremely low R^2 values, as in their case with consumption per adult; however, the research concluded that their proxy-based estimates "are likely to be sufficiently powerful to merit consideration" and provide generally reliable guidance to the sign and magnitude of the preferred estimates" (Montgomery et al. 2000, 2). Since there are no specific statistics for the variable of interest, compassion, this bioethics thesis suggest the use of proxy measurement to analyze and to determine the likelihood of compassion.

General selection criteria for proxy measures

Today's world is full of data. Everything from which items a person is shopping for on a regular basis to a person's personal health information. Data are collected at every point possible. However, a lot of data is not accessible publicly. Information regarding a person's personal health is and should be protected. However, as a researcher, it can be frustrating and expensive to not have access to data sets related to your research question and topic. For the purpose of this exercise, I wanted to demonstrate that for complex and very theoretical topics such as with measuring compassion, there is a way to find data sets, which are easily and publicly ready for use. Thus, one of the first general criterion for selecting proxy measures was that the data had to be available publicly.

The next general criterion deals with money. Since this is a bioethics thesis and no money was available to purchase any data, the data had to be free of charge. The reasoning behind this

criterion was not only that no monetary amount was available to me, but also that anybody else who wants to apply the practical framework of this bioethics thesis for another abstract and complex topic has an opportunity to do so. Searching and locating corresponding data sets can be frustrating to begin with. Being granted access to the data even more so. However, if this thesis proves one thing, it is that identifying related data free of charge is doable.

The third criterion was that the data had to be in a format which could be downloaded or that the data could be extracted conveniently. The format did not have to be necessarily in an Excel format. Text files, PDFs, and any other format, which either could be transformed into a usable format or from which the data could be obtained were deemed as suitable. For example, if the relevant data were listed in a table within a report, the table was extracted, entered into Excel and formatted for use in ArcGIS. Last, but not least, the data had to be linked to a code book or any detailed description explaining the provided information. Without the information regarding what each of the variables represents and how the data for each of the variables were collected or calculated, any data set is unusable. One important lesson I learnt from this criterion is that you have to pay attention to the details and evaluate carefully if the data truly represents what you are looking for. For a brief overview of the general selection criteria, consult Table 5.

General selection criteria for proxy measure candidates
• Data had to be available publicly
• Data had to be free of charge
• Data had to be in a format which could be downloaded or extracted without major difficulties
• Data had to linked to a code book or any detailed description explaining the provided information

Table 5 *General selection criteria for proxy measure candidates*

Data selection reasoning behind proxy measurements for compassion: well-being, generosity, and hospitals

What data can be used to track or monitor compassion or describe its distribution? At the heart of compassion is the responsiveness to suffering and the desire to act to alleviate or eliminate the suffering of others. Buddhist teachings associate compassion with a natural state that arises from a sense of well-being or right view. Additionally, philosophers such as Adam Smith point out that one has to be an impartial spectator. One has to be neutral and altruistic to justify a sympathetic response (Smith 1759, 2017). In the psychological writings, Strauss et al. refer to compassion as being able to tolerate the uncomfortable feelings arose in response to the suffering person (Strauss et al. 2016). Moreover, Gilbert incorporates the essentiality of well-being into the first element. It is defined as requirement of "harnessing the motivation to be caring for the purpose of alleviating distress and facilitating the flourishing and development of the target of the caring" (Gilbert 2009b, 202). A person has to be in a good mental state in order to care for another. Thus, this element of 'care for well-being' resembles the Buddhist call of first needing to be enabled to be well and in the right state of mind. Hence, in order to develop a compassionate human affection, a calm, sorted, and trained mind is essential, which in turn leads to more compassionate reactions in our brain functions (Dalai Lama October 31, 2014). And this is exactly what neuroscientific studies confirmed by comparing compassionate and empathic responses in trained versus untrained people for compassionate behavior (Singer and Klimecki 2014, R877). Furthermore, fear and anger clutter our thinking and therefore, our potential to develop a compassionate feeling and action for another being. All of these indicate that the person experiencing compassion has to be aware of his or her own limitations. He or she needs to be in a balanced state of mind. This, in turn, points towards the idea of being well in order to

elucidate a true compassionate response. One has to appraise his or her own resources and limitations in order to be able to recognize the suffering and to develop the desire to alleviate or eliminate the suffering for others. Thus, the pursuit of well-being can function as a guide and proxy candidate on the likelihood of developing compassion.

Additionally, Christianity and Islam provide another way of how to measure the action element of the desire to decrease the suffering of others. Both link compassion with acts of generosity or charity, in particular giving alms or volunteering to work with those less fortunate. Both of these two acts enlist compassionate behaviors designed to alleviate or eliminate suffering in the view of these religions. Volunteering your expertise, labor, or time and/or donating money or items are both listed as examples of compassionate acts and part of the elements of compassion in Christianity and Islam. The religions consider it to be part of a person's deed to society. These are two examples of compassionate behavior societies have been tracking over place and time. Especially in the United States of America, volunteering rates have been recorded per city and states, allowing for easy comparison within the US. Hence, there are two other additional ways to examine a spatial epidemiology of compassion through the proxy variables for generosity (volunteering in the US) and charitable giving data based on individual tax revenues.

However, generosity and charitable giving are not the only two ways people approach the element of the desire to alleviate, eliminate or prevent suffering. Attending to a person's pain, either emotional or physical, has been done on a daily basis around the world in healthcare facilities. People visit their healthcare providers to ease their pain and healthcare personnel attend to the needs of their patients in order to alleviate mental and physical suffering. It has to be noted that not every healthcare provider might care for his or her patients in a compassionate way. However, over the last decades, more and more US healthcare centers, and hospitals have

incorporated compassion into their core values, standards, and operational procedures. What compassionate care is and how to increase compassion and establish a meaningful collaboration between the patient, the patient's family and his or her healthcare providers have evolved to a central thematic in compassionate healthcare. Providing compassionate care in hospitals has become a central theme and well-discussed topic in the realm of bioethics. Thus, a third example for one to look at a spatial epidemiology of compassion would be websites of hospitals in the US.

Why hospital websites? In the US, the healthcare system is mostly operating on a privatized level. In this business model, hospitals are competing for the same "customers" (patients) among each other and therefore have a need to promote the services offered. However, purely listing the services healthcare facilities provide is no longer enough. The internet made it possible that if people have the means to, they will not only look for the best physician in terms of scientific credentials, but also research and investigate how the healthcare personnel is treating their patients in general. "For good health, human connection matters" (Trzeciak and Mazzarelli 2019, 58). Being treated by a healthcare provider who believes in a caring relationship with the patient can make a meaningful difference for the patient's health outcome and psychological health (Trzeciak and Mazzarelli 2019). Thus, establishing and promoting compassion on an organizational level among the hospital personnel, and providing compassionate care through high compassion physicians and nurses can make a difference. However, as of now, there is no direct simple and nationwide way to measure compassion for each hospital in the country and compare the results between each other and on a state level. Nonetheless, if a hospital values compassion, the keyword will be listed on the hospital's website. Thirty years ago, this methodology would have not been possible. Through the rapid development of technology and

the extensive presence and coverage of the internet, selecting US hospital websites as go to source for the evaluation of alleviating and eliminate suffering deemed to be an obvious choice. Through a simple way of extracting the keyword count of compassion on hospital websites and with the aid of the tools of descriptive (spatial) epidemiology, maps can be generated from the statistical data of this proxy candidate. For a brief overview for each of the elements, reasoning and justification for the selection of the proxy measure, please consult Figure 1 and Table 6.

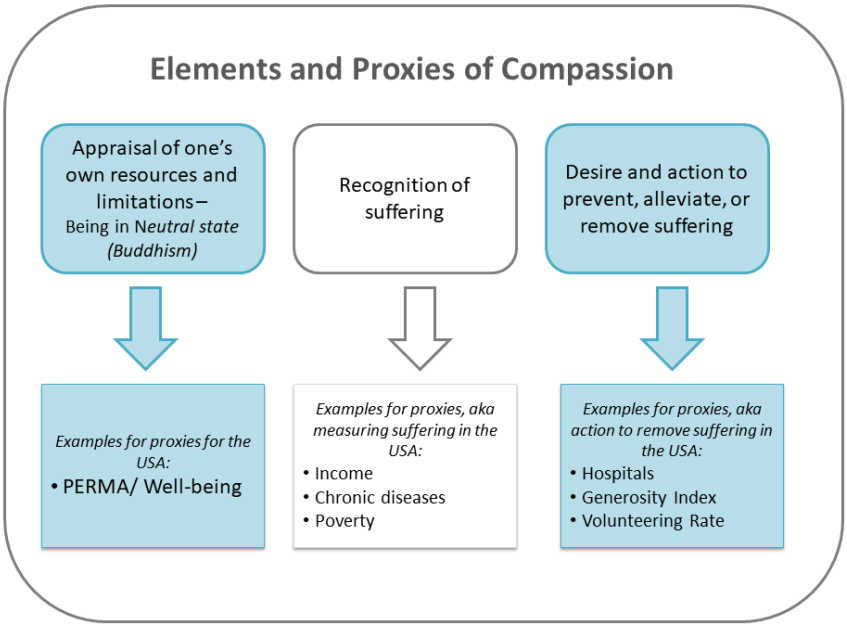


Figure 1 *Elements and proxy measurements for compassion. Blue highlighted boxes identify the elements addressed in this section*

Criterion	Reasoning	Justification	Example for proxy candidate measures
Appraisal of one's own resources and limitations (being in a neutral state)	• Buddhism and the association of compassion with a neutral state that arises from a sense of well-being or right view • Being an impartial spectator (being neutral – Adam Smith) • Being able to tolerate the uncomfortable feeling aroused in the response to suffering (Psychology – Goetz et al.)	• In order to develop a compassionate human affection, a calm, sorted, and trained mind leads to a more compassionate reaction in our brain functions. (Scientific proof: Neuroscientific studies revealing a different neuronal response network for empathy and compassion)	PERMA/ well-being score (University of Pennsylvania)
Desire and action to prevent, alleviate, or remove suffering	Christianity & Islam link compassion with acts of generosity or charity, in particular giving alms or volunteering to work with those less fortunate	Both religions encourage people to help those in need either through individuals' deeds and/ or through the payment of taxes. Both of these acts depict compassionate behaviors enlisted by these religions and are part of the elements of what compassion is.	• Generosity Index • Volunteering Rate
Desire and action to prevent, alleviate, or remove suffering	Over the last decades, more and more US hospitals and healthcare facilities have incorporated compassion into their standards, values, and operational procedures. Thus, compassionate care represents this element.	Providing compassionate care in hospitals has become a central theme and well discussed topic in the realm of bioethics. Hospitals advertise their core values, such as compassion, and standards on their websites. This information can be extracted and used to depict this element of compassion.	Hospitals websites

Table 6 *Criterion, reasoning, justification and example of proxy candidate measure for compassion*

Well-Being and its use as a proxy measurement

In general, the concept of well-being has been explored in the realm of positive life outcomes, such as longevity and being healthier overall (Diener and Chan 2011). However, in the context of assessing an overall evaluation of well-being on a population level, Seligman's PERMA

model of well-being has been applied with its multi-dimensional measures to evaluate the natural language of twitter users (University of Pennsylvania 2019). The University of Pennsylvania assessment is based on a previous application of the PERMA measure for the neutral language in *Facebook* posts (Schwartz et al. 2016). PERMA stands for the following items: positive emotions, engagement, relationships, meaning, and achievement. Positive emotions include feeling good valences such as happiness, excitement and joy. Affective, behavioral and cognitive elements are part of the multi-dimensional measure engagement. It assesses how deeply a person is absorbed in his or her activity. In this case, it measures the "involvement and participation in group activities, enthusiasm and interest in activities, commitment and dedication to work, and focused attention to tasks at hand" (Schwartz et al. 2016, 518). Relationships involve being connected authentically to others. This includes being able to trust others, the perception of others being there if one needs them, getting social support, and also giving back to others (Schwartz et al. 2016). Social relationships have been found to have a tremendous impact on longevity versus morality (Diener and Chan 2011). Meaning in life represents the person's feeling of having awareness of his or her purpose in life. It relates to a purposeful existence. This also encases "transcending the self, feeling a sense of connection to a higher power or purpose, and provides goals or a course of direction to follow" (Schwartz et al. 2016, 518). Achievement includes having a sense of accomplishment and success in life. Objective markers such as awards or honors characterize achievements. In the case of the language assessment through *Facebook* and *twitter,* the last element centers on the subjective side of achievements and accomplishments. It engulfs "a sense of mastery, perceived competence, and goal attainment" (Schwartz et al. 2016, 518). All of these elements add up to the appraisal of one's own resources and limitations

in order to be in a neutral state of mind to develop a compassionate response as for example, Buddhists traditions call for.

PERMA stands for	This involves
Positive emotions	feeling good
Engagement	being absorbed completely in activities
Relationships	being connected authentically to others
Meaning	having a purposeful existence
Achievement/ **A**ccomplishments	having a sense of accomplishment and success

Table 7 *Elements of PERMA (Schwartz et al. 2016, 518).*

Generosity

There are two different data sets available for measurements of generosity and charitable giving in the US: a data set with information regarding volunteering and charitable giving data. Both measurements align with the Christian and Islamic association of compassion with the acts of generosity and charity.

Volunteering and its use as a proxy measurement

The Cooperation for National and Community Service records the numbers of volunteers, demographics of volunteerism, volunteering hours, volunteerism by organization type etc. and calculates the volunteer rate on a state and national level. For the purpose of examining the volunteering as a proxy measure for compassion, I am interested in the volunteering rate per state over time in order to assess geographic trends for compassion across the US mainland[2].

Charitable Giving – Generosity Index and its use as a proxy measurement

Information on charitable giving is recorded as a Generosity Index. As previously indicated, the Generosity Index is calculated based on two indicators as recorded on personal income tax returns in the United States: "The percentage of tax filers donating to charity indicates the extent of generosity, while the percentage of aggregate personal income donated to charity indicates the

[2] Alaska and Hawaii are not included in the maps

depth of charitable giving" (Fuss and Palacios December 2019, 2). For the purpose of examining the Generosity Index as a proxy measurement for compassion, I am interested in the index per state over time in order to assess geographic trends for compassion across the US mainland.

Hospitals and Compassion

In order to assess the action component of relieving suffering and to evaluate regional geographical trends, one place to look for a proxy measurement for compassion were websites of hospitals. The U.S. Department of Homeland Security provides a data set, which includes the majority of hospitals within the US. Hospitals, which value compassionate care, have a tendency to prompt and advertise it to the public. In the 21st century, one place to look for such information is on websites by counting how many times the word is being used. Thus, by counting the numbers of the keyword "compassion" on the hospital websites and aggregating it to county levels, geographic trends across the US mainland for the compassionate element of relieving suffering can be depicted.

Data

For the second objective, various data sets were identified based on the proxy measurements of compassion. Now, I turn to the questions of "where do the data come from" and "how were the data obtained. The following section provides information on where and how the data were obtained for each of the identify proxy candidates and details and explains the spatial analysis applied. The first data set contained the locations and websites of hospitals in the US. The other three data sets were: the PERMA (well-being data set) from University of Pennsylvania, data related to volunteering in the USA (volunteering rate) and a fourth data set for charitable giving based on the Generosity Index from the Fraser Institute. All the data sets were downloaded or extracted and used for spatial analytical work.

Well-Being Data

The PERMA *z-score* was downloaded from http://map.wwbp.org/ (University of Pennsylvania) in September 2019. The data file was available as an Excel file on FIPS (county level data) as a z-score (without interpolation). The z-score was calculated on its measurements across regions according to analyses of the language shared in public tweets from individuals within those regions (2010-2014) (University of Pennsylvania 2019). Counties without any data had no publicly available tweets during the timeframe. The University of Pennsylvania PERMA data set is a twitter-based assessment. The University of Pennsylvania research team gathered publicly available tweets, which were posted between 2010 and 2014, and evaluated the characteristics of the tweets through a language-based assessment. The language for each tweet was examined and determined how closely the terms used on twitter reflected the characteristics for well-being based on statistical models. The results for each public tweet were aggregated for each county with a *z-score*. There are multiple counties, which did not have any public tweets during the

study period (Heidke, Howie, and Ferdous 2018). For more detailed information about the methods for how the data was collected, analyzed and modeled, please consult Schwartz et al. 2016 (Schwartz et al. 2016).

Generosity and Charity Data

Volunteering Rate for State in the USA

The dataset for volunteer per state over the recent years was downloaded from https://data.nationalservice.gov/Volunteering-and-Civic-Engagement/Volunteering-and-Civic-Life-in-America/spx3-tt2b. The data file was available as an Excel file. Volunteering is presented as rate per state. No information on county level was available as of February 2020. All the data points included in the data file were collected via national surveys conducted by the National Service in partnership with the U.S. Census Bureau and the Bureau of Labor Statistics. The file included information on the volunteering rate per state. The earliest year available with data for all states was 1989 and the latest year was 2017. The latest version of the data was published by the Corporation for National and Community Service on April 16, 2019.

Generosity Index for States in the USA

The data sets for the Generosity Index for the US states were extracted from the Annual Reports for Generosity in the United States from the Fraser Institute. These data were publicly available and therefore utilized. I extracted the Generosity Index from the reports (pdf-files) for the years 1996, 2007, and 2017. 1996 was the first available year on the Fraser Institute website and the recently published report for 2019 included the data for the year 2017. The Generosity Index was calculated based on two indicators as recorded on personal income tax returns in the United States: “The percentage of tax filers donating to charity indicates the extent of generosity, while

the percentage of aggregate personal income donated to charity indicates the depth of charitable giving" (Fuss and Palacios December 2019, 2). The files included information on the Generosity Index per state. For comparison reasons, I decided to extract the data from the reports for the tax years 1996, 2007 and 2017. The Fraser Institute data for the USA was identified because it is publicly available, and the index takes into account individual total earnings.

Hospital Data

The data set for hospitals for the United States of America was obtained from https://hifld-geoplatform.opendata.arcgis.com/datasets/hospitals/data. It is provided by the U.S. Department of Homeland Security. The shape file was downloaded in October 2019. It contains locations of hospitals for 50 US states, Washington D.C., US territories of Puerto Rico, Guam, American Samoa, Northern Mariana Islands, Palau, and Virgin Islands. The hospital data set contains 7,581 records, 34 variables and has already been cleaned and geo-coded by the U.S. Department of Homeland Security. 7,437 records remain only considering facilities in mainland USA. Closed hospitals were filtered out, which left a final entry with 7,005 records.

The hospital Excel file only contained hospital facilities, which were verified by state departments or federal sources. The information is referenced in the SOURCE field. Nursing homes or other health centers are not included in this data set. The categorization of hospitals by types is as follows: children, chronic disease, critical access, general acute care, long term care, military, psychiatric, rehabilitation, special, and women. For simplicity and depiction purposes, only the hospitals for Mainland USA (the 48 states and Washington D.C)[3] were used. Besides the geo-coded addresses, the hospitals data set also included variables of interest such as county FIPS code,

[3] Alaska and Hawaii are not included in the maps

latitude and longitude coordinates as x and y coordinates, website, number of hospitals per FIPS, status, and beds.

Shape files for Mainland USA

The US counties shape file was imported from the ESRI online databank. The US counties shape file was uploaded by the user esi0_giscdc on July 12, 2016 and the geographic coordinate systems used was GCS WGS 1984. The shape file for the states of California and Washington was generated from the US counties shape file by selecting the counties corresponding to the state name. Both newly created shape files for the states were projected to NAD 1983 (2011) State Plan.

The US State outline shape file was obtained from https://catalog.data.gov/dataset/tiger-line-shapefile-2017-nation-u-s-current-state-and-equivalent-national. It already had the projection of WGS 1984 Web Mercator Auxiliary Sphere.

The US Major Cities shape file was retrieved from the ESRI online databank. The cities shape file had the projection of WGS 1984 Web Mercator Auxiliary Sphere. The layer file was updated on 06FEB2020. It presented the locations of cities within the United States with populations of approximately 10,000 or greater, all state capitals, and the national capital. Its layers symbolized the cities by population class, based on the 2015 projected population, and it used the manual classification method.

Data	Source
Well-Being Data	
Well-being/ PERMA z-score – County level (Excel file)	http://map.wwbp.org/
Generosity and Charity Data	
Volunteering Rate – State level (Excel file)	https://data.nationalservice.gov/Volunteering-and-Civic-Engagement/Volunteering-and-Civic-Life-in-America/spx3-tt2b last update April 16, 2019
Generosity Index 1999 – State level (Pdf file - Table 11)	https://www.fraserinstitute.org/sites/default/files/GenerosityIndex1999.pdf
Generosity Index 2007 – State level (Pdf file - Table 4)	https://www.fraserinstitute.org/sites/default/files/Generosity_Index_2007.pdf
Generosity Index 2017 – State level (Pdf file - Table 4)	https://www.fraserinstitute.org/sites/default/files/generosity-index-2019.pdf
Hospital Data	
Hospitals (Excel file)	https://hifld-geoplatform.opendata.arcgis.com/datasets/hospitals/data latest version: October 7, 2019
Key word count for compassion	Bing search (R Code)
Shape Files for ArcGIS	
US State outline shape file	Data.gov (https://catalog.data.gov/dataset/tiger-line-shapefile-2017-nation-u-s-current-state-and-equivalent-national) – December 2, 2017
Census shape file (2016)	ArcGIS/ ESRI Online database
USA Major Cities shape file (2015 population)	ArcGIS/ ESRI Online database

Table 8 *Overview of Data sets and Sources*

Methods for the acquisition of the keyword counts for compassion on hospital websites

Search Engine Utilization

In order to determine the number of keywords on a website, a specific search function on a search engine can be utilized. The function "site:" followed by a web address and a keyword searches an entire published website for the specific term. For example, "site: emoryhealthcare.org compassion" yields the entries as well as the number of times the term "compassion" is published on all pages of the website emoryhealthcare.org (Figure 2).

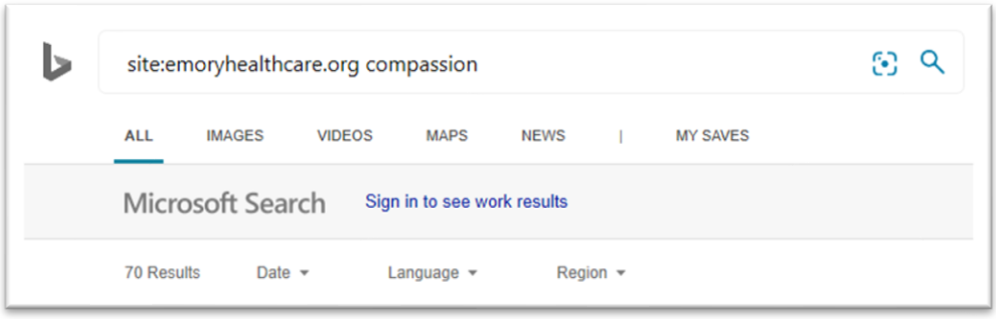


Figure 2 *Results for keyword search "compassion" on "emoryheathcare.org" in Bing search engine*

Programmatic search of keyword "compassion" counts for each hospital website

Conducting a systematical search of each listed hospital in the hospital database would require a long time to be completed by hand. Therefore, an algorithm in R (v3.6.1) (R Core Team 2014) was composed to search programmatically each hospital website for the keyword "compassion" and record the number of search results. Due to several restrictions by Google, including a limit on how many searches can be made using a programmatic approach (where no human is actively searching), Microsoft's search engine Bing was utilized for the data collection process. Bing does not limit the number of searches and has no restrictions on scripts performing searches on their search engine.

The hospital database contains a variable named "website", where, when applicable, a valid web address is listed. First, to ensure high data quality, even when a website was recorded, a search was performed to web scrape[4] the Bing search results for a valid address. To determine and search for a valid web address, the name of the hospital, the street address, the city, the state as well as the zip code from the database were used to create a search term. For example, "Mercy Hospital Ozark" had no website listed in the database, therefore, the search term "Mercy

[4] Web scraping refers to extracting data from websites.

Hospital Ozark 801 West River Street Ozark, AR 72949" was used to perform a regular search on Bing. This programmatic step included extracting the search result's URL and recording it in the database. The first search results on Bing showed the hospital page with the address "https://www.mercy.net/practice/mercy-hospital-ozark". Then, the script cleaned the URL to include only the main domain "mercy.net". Then, this final domain was recorded. In some cases, the first Bing result did not yield a valid address, and therefore the second entry on the search results page on Bing was utilized for further procedures.

The next step included a programmatic procedure of performing up to three searches for each hospital entry. This step included one search of the website entry from the database, if applicable, as well as up to two domains of the previously recorded URLs and the keyword "compassion". The results were then recorded, and the procedure was repeated for all 7005 hospitals in the database. Since each step took 30 seconds to over a minute, the entire database required a considerable time to be completed.

The recorded results were then evaluated, and irrelevant keyword counts were eliminated, such as domains including unsuitable URLs, for example "mapquest.com" or "yellowpages.com" that could not be used to perform the required searches (Figure 3). Several hospitals did not return any keyword search results and were marked as "NA" in the database and manually spot checked to confirm the results. The final variable "keyword count" per website included a valid number of keywords determined by the programmatic procedure for each hospital in the database. The process was executed on February 14, 2020.

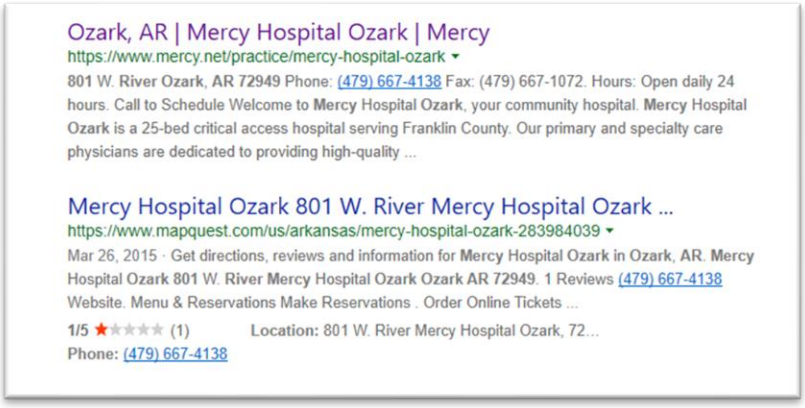


Figure 3 *First and second search result for Mercy Hospital in Bing as example*

ArcMap10.3.1

All the geo-coded hospital data points and every other acquired shape file were projected into WGS 1984 Web Mercator Auxiliary Sphere in order to progress with spatial analyses for USA mainland. This projection allowed for easy overlay of other web layers from other services, such as BING or Google Maps. In ArcMap 10.3.1(ESRI May 16, 2015), Global Moran's I, Local Moran's I and Hot Spot Analysis with Getis-Ord Gi* were applied on the continuous variables for the counts of compassion. Moran's and Getis tests are best on averages/ continuous variables. However, since the continuous variables were extremely rightly skewed, the compassion count variable was log transformed (log10) to acquire normal distributions and a more constant variance. State shape files were projected into NAD 1983 (2011) for Washington and California.

Global Moran's I

In order to identify patterns, Global Moran's I can be used. It assesses if the counts for compassion are spatially auto-correlated. Moran's *I* is the spatial version of the Pearson-product moment correlation index, which assumes a null – hypothesis that the local observations are spatially independent and that the observed levels are assigned at random locations. Under spatial independence, the mean value of Moran's *I* is close to zero (-1/(N-1)) so observed values

of Moran's *I* near zero suggest an absence of spatial autocorrelation. The alternative hypothesis suggests that the observations are not independent and that *I* is not zero. Hence, if the observed value of Moran's *I* is close to 0, no spatial autocorrelation is present. If $I > 0$, positive spatial autocorrelation is displayed, indicating that similar values (high or low) are spatially clustered together (clustered pattern). If $I < 0$, negative spatial autocorrelation occurs, where neighboring values are dissimilar (Waller 2004).

Anselin Local Moran's I (LISA)

In order to assess local spatial autocorrelation, the Local Indicators of Spatial Analysis (LISA Statistics) was applied. This is also referred to as Anselin Local Moran's I. The null hypothesis for the LISA statistics is that there is no association between the "compassion levels" at one location and "compassion levels" observed at nearby sites; the values of I_i are close to zero. The alternative hypothesis implies that nearby sites have either similar or dissimilar disease ("compassion") frequencies and I_i is large and either positive or negative (Waller 2004). The inverse distance weighted option was selected due to fact that it implements the assumption that things which are close to one another in space are more alike than things which are further apart. The applied false discovery rate (FDR) correction box was also checked for each LISA. The FDR procedure allows for correction and reduction of a critical p-value threshold in order to account for multiple comparisons and spatial dependency (Caldas De Castro and Singer 2006).

With this, local spatial clusters "may be identified as those locations or sets of contiguous locations for which the LISA is significant" (Anselin 1995, 95). All analyses defined neighbors using a default distance. The analysis was applied on the aggregated data for counties, keyword counts on hospital websites and the log transformed variables. In general it has to be stated that the tests of spatial autocorrelation (a) measure the strength of spatial dependence, hence summarize to which

degree similar observations tend to occur close to each other, (b) test assumption of independence of randomness and (c) account for spatial effects in a future regression model (Waller 2004).

Hot spot analysis with Getis-Ord Gi*(d)

Hot spot analysis with Getis-Ord Gi*(d) or Gi(d) allows the analyst to identify local spatial clusters, or also called hot/cold spots, by comparing the value of a given data point to all the other values within the specified distance(s). With Gi(d) the point under consideration is not included. Gi*(d) includes the point of interest in the definition of hot/cold spot (Ord and Getis 1995). Getis-Ord Gi*(d) was utilized in ArcMap 10.3.1 (ESRI May 16, 2015). The analysis was applied on the aggregated county data (log and not log transformed key count for compassion on hospital websites variable). Inverse distance was also applied in order to account for the fact that features are considered to be neighbors of every other features, with decreasing weight, and to assure that if two points are coinciding, a given weight of 1 will be given to avoid 0 division and no exclusion of data points (Ord and Getis 1995); The 'apply false discovery rate correction parameter' was checked in order to account for multiple comparison and spatial dependence (Caldas De Castro and Singer 2006).

The Gi*(d) output for each feature (county) in the dataset is a z-score and a p-value. In order for a "cluster" to be a statistically significant hot spot, the "cluster", in this case the county (FIPS), needs to be surrounded by other counties with high values. The analysis uses the local sum for each feature and its neighbors, and compares it to the sum of all features in the dataset. If the local sum differs extremely from the expected local sum and there is little chance that this result is random, the Gi*(d) puts out a statistically significant z-score. The larger a statistically significant z-score is, the more extreme is the clustering of high values next to each other, thus hot spots. The reverse applies for cold spots (clustering of low values) (ESRI 2020).

Additional Questions and Hypothesis for Hospital Data

In order to explore the second objective, the additional questions and hypotheses were addressed through the use of spatial epidemiology tools of Global Moran's I, Local Moran's I, and Getis Hot/Cold spot analysis in ArcGIS 10.3.1 (ESRI May 16, 2015) on the data set of hospitals in the USA and to generate the keyword count of compassion on US hospital websites through R (R Core Team 2014). For details, consult Table 9.

Spatial Method	**Sub - Question**	**Null-Hypothesis**
Global Moran's I (Spatial Patterns)	Are the keyword count results for compassion on hospital websites results spatially auto-correlated? Hence, a) does the aggregated data on county level present global autocorrelation for mainland USA and the selected states? And b) does the aggregated data on county level present local autocorrelation for mainland USA and the selected states?	There is spatial autocorrelation present in the keyword count for compassion on hospital website on the county level on the US mainland and in the selected states.
Local Moran's I (Spatial Clustering)	Is spatial clustering present in the keyword count results for compassion on hospital website? Hence, are there obvious cluster areas for the keyword count results for compassion for mainland USA and the selected states?	There is local spatial clustering present in the keyword count for compassion on hospital websites on the county level in the USA and in the selected states of California and Washington.
Getis Gi*(d) (Spatial Hot Spots)	Where are the hot spots/ cold spots for high/ low compassion levels located for the selected proxies? Where is the "compassion" concentrated in the USA based on compassion counts from hospital websites?	There are hotspots and cold spots present in the keyword count for compassion on hospital websites on the county level in the USA and in the selected states of California and Washington.

Table 9 *Overview of spatial method and related questions and hypotheses*

Results

The main purpose of this bioethics thesis is to explore the feasibility of using existing datasets to generate spatial representations of compassion. In the absence of a case definition and direct measures of compassion, the next best approach is the use of proxy measurements to get a sense of how compassion is distributed in place and time in the US. Thus, after first establishing and extracting the overlapping elements of compassion from different perspectives, angles and disciplines, including philosophy, the spirituality and religious traditions, and psychology, secondly, identifying candidate proxy measures of compassion from datasets and thirdly, explaining the assumptions in response to why proxy measures are expected to be valid, the fourth section depicts the maps of the proxy measurements (Objective 4). All the maps illustrated in this section were generated in ArcGIS 10.3.1 by myself (ESRI May 16, 2015). The used data points were downloaded or extracted as explained previously.

Well-being Trends (geographically)

The provided z-scores for PERMA / well-being were plotted for each county in the US. Out of the 3109 counties on the US mainland, 2028 had a data for well-being (65%). 35% (or 1081) counties did not have publicly accessible tweets in the assessed time period (2010-2014). In general, there is a distinct east and west trend in regard to publicly available tweets. This trend is not surprising, given the majority of the population on the US mainland are concentrated along the coast lines. The counties with the highest score for well-being are (1) San Miguel, Colorado, (2) Hill, Montana, (3) Chaffee, Colorado, (4) Summit, Utah, (5) Eagle Colorado, (6) Chippewa (Minnesota), (7) Marin, California, (8) Pitkin, Colorado, (9) Gray, Texas, and (10) Jefferson, Iowa. Thus, out of the top ten counties with the highest well-being score, 40% are in the State of Colorado (Figure 4). The bottom ten countries for well-being, with the last named first, are

(2028) Lincoln, Missouri, (2027) Starke, Indiana, (2026) Brown, Ohio, (2025) Sandusky, Ohio, (2024) Belmont, Ohio, (2023) Vermillion, Indiana, (2022) Labette, Kansas, (2021) Fulton, New York, (2020) Logan, West Virginia, and (2019) Palo Pinto, Texas. Thus, 30% of the lowest ranking counties for well-being are located in the State of Ohio (Figure 4).

There are clear geographical trends from a state perspective. The counties with the highest scores for well-being are located in the North-Western part of the US. These include the states Washington, Montana, Oregon, and Idaho. In the central mountain region, Utah and Colorado, and Arizona score high on well-being. People in Vermont and New Hampshire are also on the higher end of the well-being scale. Nevada and a central pocket which incorporates Southern New Mexico, Kansas and Oklahoma depict low well-being scores. In the north eastern part of the US, Ohio, Illinois, West Virginia, Western Pennsylvania, and Eastern Kentucky belong to the states with low scores for well-being (Figure 4). Counties with no publicly available tweets are depicted in white and counties with a high well-being score are in dark blue in Figure 4.

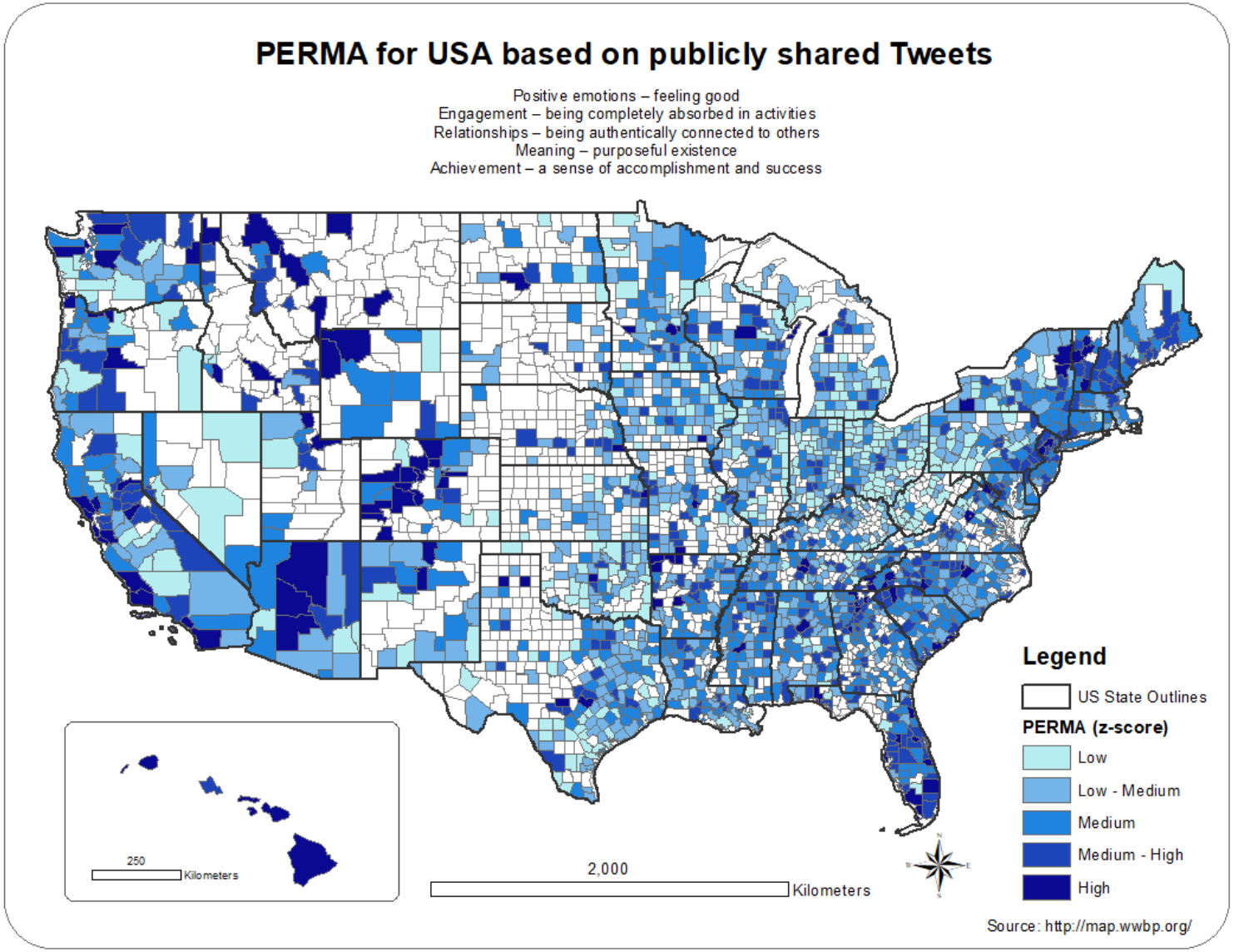


Figure 4 *Spatial distribution of well-being (PERMA) based on publicly available Tweets in the USA*

Generosity and Charity Results

Volunteering in the USA on State Level

There are distinct regional trends for volunteering in the USA. People in the northern part of the USA spend more time volunteering than the population in the southern states (Figure 5). Utah was the top states for people volunteering in the year 2007 and 2017. In 1989, it ranked second after North Dakota (Table 10). Over time the past 30 years, Utah, Minnesota, Iowa, and Nebraska made it into the top ten states in the assessed years of 1989, 2007, and 2017 (Table 10). Montana made it into the top 10 states with the highest volunteering rate in the years 2007 and 2017 (Table 10). States with a high volunteering rate are in dark blue in Figure 5.

Volunteering Rate – Top 10 States

National Rank	1989	2007	2017
1	North Dakota	Utah	Utah
2	Utah	Minnesota	Minnesota
3	South Dakota	Alaska	Oregon
4	Minnesota	Montana	Iowa
5	Idaho	South Dakota	Alaska
6	Iowa	Iowa	Nebraska
7	Wyoming	Nebraska	District of Columbia
8	Washington	Kansas	Montana
9	Nebraska	Vermont	Maine
10	Wisconsin	Washington	Idaho

Table 10 *Top 10 Ranked US States based on Volunteering Rate for the Years 1989, 2007, 2017 (Fraser Institute)*

People in the southern parts of the US spent less time volunteering compared to the northern states (Figure 5). States in the south east, such as Florida, Georgia, Alabama, Mississippi, and Louisiana, form a “cluster” with lower volunteering rates in general. This trend has been constant over the past 30 years (Figure 5). Even though each year a different state was at the bottom of the

list, there are various states, which have been listed with the lowest volunteering rate in the country. These states are New York, Alabama, New Jersey, Nevada, and Louisiana. California and Mississippi both were listed with low volunteering rates in the years 2007 and 2017 (Table 11). States with a low volunteering rates are in light blue in Figure 5.

Volunteering Rate – Bottom 10 States

National Rank	1989	2007	2017
51	New York	Nevada	Florida
50	Alabama	New York	Mississippi
49	Tennessee	New Jersey	Nevada
48	New Jersey	Florida	New York
47	Connecticut	Mississippi	California
46	Rhode Island	Louisiana	Louisiana
45	West Virginia	Arizona	New Jersey
44	Nevada	California	Georgia
43	South Carolina	Alabama	New Mexico
42	Louisiana	Hawaii	Alabama

Table 11 *Bottom 10 Ranked US States based on Volunteering Rate for the Years 1989, 2007, 2017(Fraser Institute)*

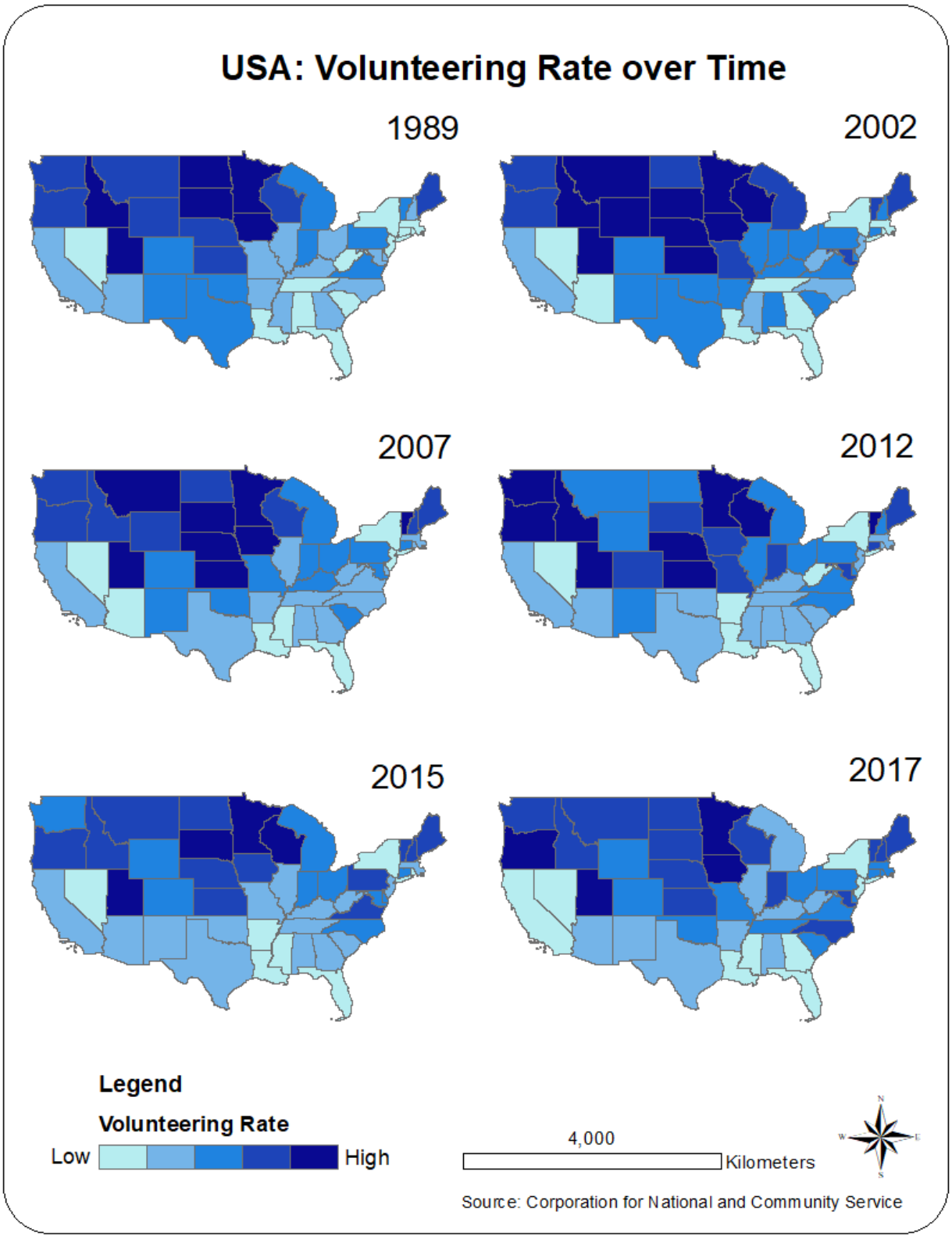


Figure 5 *Volunteering Rates per State for the US Mainland for the Years 1989, 2002, 2007, 2012, 2015, 2017*

Generosity Index in the USA on State Level

In 2017, the highest scoring USA state was Utah (scoring 8.8 out of 10.0), followed by Maryland (7.7) and Georgia (7.5) (Table 12). Over the past twenty years, Utah and Maryland were the top two highest scoring states for charitable giving in the USA. Overall, 7 states were constantly in the top 10 for the national rank for the Generosity Index: Utah, Maryland, Georgia, District of Columbia, Connecticut, New Jersey, and New York (Table 12). However, there is no clear north-south trend in the generosity index data. States with a high Generosity Index are in dark blue in Figure 6.

Generosity Index – Top 10 States

National Rank	1996	2007	2017
1	Utah	Utah	Utah
2	Maryland	Maryland	Maryland
3	New York	District of Columbia	Georgia
4	District of Columbia & New Jersey	Connecticut	District of Columbia
5	NA	Georgia	Connecticut
6	Minnesota	New Jersey	New Jersey
7	Connecticut	Minnesota	Virginia
8	Delaware	New York	New York
9	California, Colorado, Georgia, Massachusetts	Virginal	Massachusetts
10	NA	Colorado	California

Table 12 *Top 10 Ranked US States based on the Generosity Index for the Years 1996, 2007, 2017 (Fraser Institute)*

In 2017, the lowest scoring USA state was West Virginia (scoring 1.8 out of 10.0), followed by Alaska (2.5) and North Dakota (2.6) (Table 13). In the years 1996, 2007, and 2017 the states of West Virginia, Alaska, North and South Dakota, New Mexico, and Louisiana were in the bottom 10 states for the Generosity Index (Table 13). Maine and Vermont were listed in the bottom 10

states in the year 2007 and 2017 (Table 13). As with the higher scores for the Generosity Index, with people donating money to various causes, there is no north-south division. States with a low Generosity Index are in light blue in Figure 6.

Generosity Index– Bottom 10 States

National Rank	1996	2007	2017
51	West Virginia	West Virginia	West Virginia
50	South Dakota	North Dakota	Alaska
49	North Dakota	South Dakota	North Dakota
48	Louisiana	Alaska	New Mexico
47	Texas	New Mexico	Maine
46	Alaska	Louisiana	South Dakota
45	New Mexico	Vermont	Vermont
44	Mississippi	Texas	Indiana
43	Tennessee	Maine	Louisiana
42	Arkansas	Wyoming	Ohio

Table 13 *Bottom 10 Ranked US States based on the Generosity Index for the Years 1996, 2007, 2017 (Fraser Institute)*

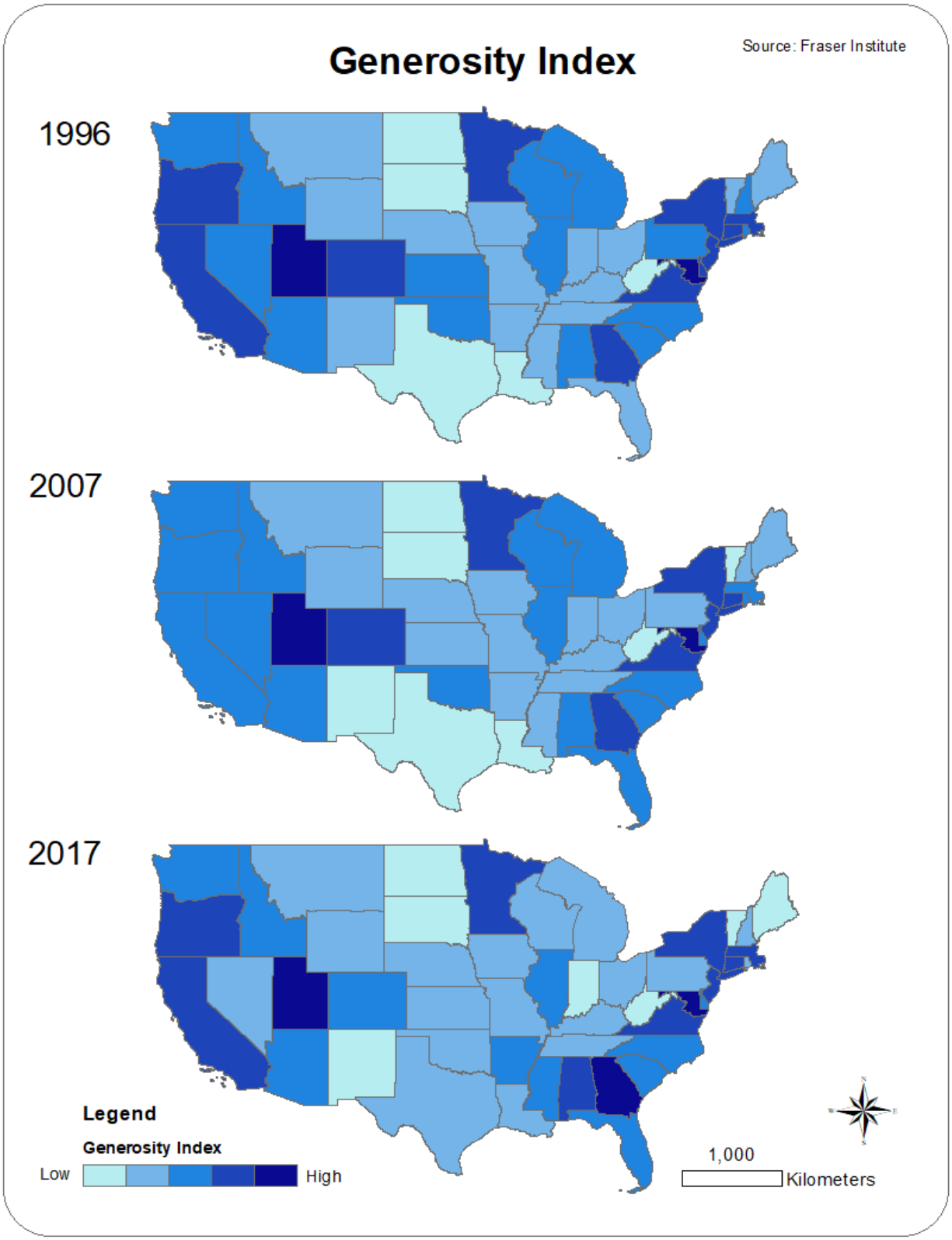


Figure 6 *Generosity Index based on Taxes per State for the US Mainland for the Years 1996, 2007, and 2017*

Hospital – Keyword count results for compassion on Hospital websites

Descriptive results for the hospital websites for the term "compassion"

On average there are 2.8 **hospitals** per county in the US; 19.7% of the US mainland counties (614) were found to not have hospitals. Los Angeles County in California has the highest number of hospitals (127), followed by Harris County in Texas (80), Cook County in Illinois (71), and Maricopa County in Arizona (69). For visualization of hospitals per county consult Figure 7 to 9.

Overall, the keyword "compassion" could not be found on websites for 42% of the hospitals via the Bing search engine. The key count for the term "compassion" ranged from 1 to 321,000 per hospital. Since the continuous variable was extremely rightly skewed, the variable was log transformed (log10) to acquire more approximate normal distributions and a more constant variance. In order to detect spatial patterns in the data, the counts were aggregated for all hospitals per county (based on FIPS code).

The US mainland has 3109 counties. 80.3% or 2495 counties yielded results for the term "compassion" being listed on hospital websites. The log transformed variable for each county was plotted in order to identify preliminary patterns. Interpolation was not applied because if a county does not have a hospital, there cannot be a prediction for that county. Counties with either no hospitals or no results are in white. Counties with high counts for the keyword "compassion" are in dark blue (Figure 10 &11). In Figure 11, a shape file with the major cities (cities with higher populations) was included in order to depict the major metropolitan areas on the US mainland.

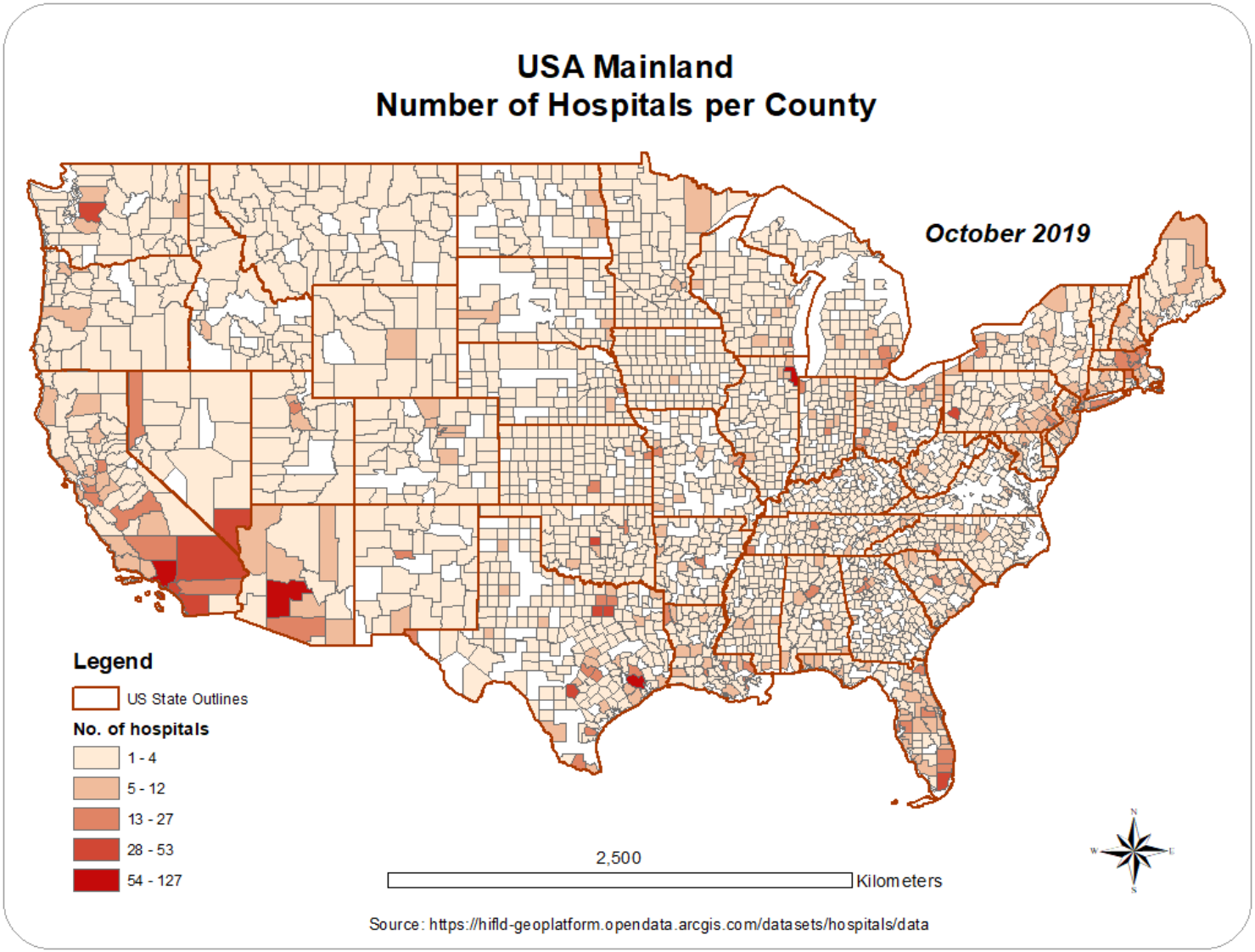


Figure 7 *Number of Hospitals per County for Mainland USA (October 2019)*

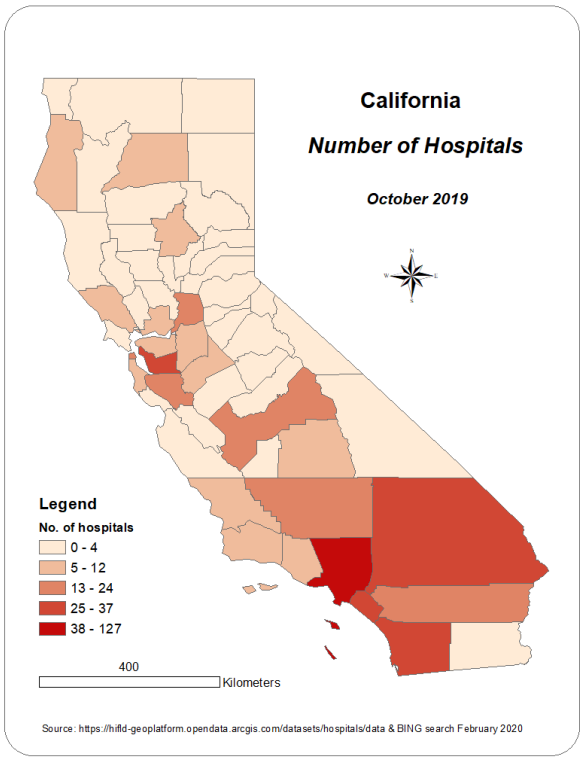


Figure 8 *Number of Hospitals in California*

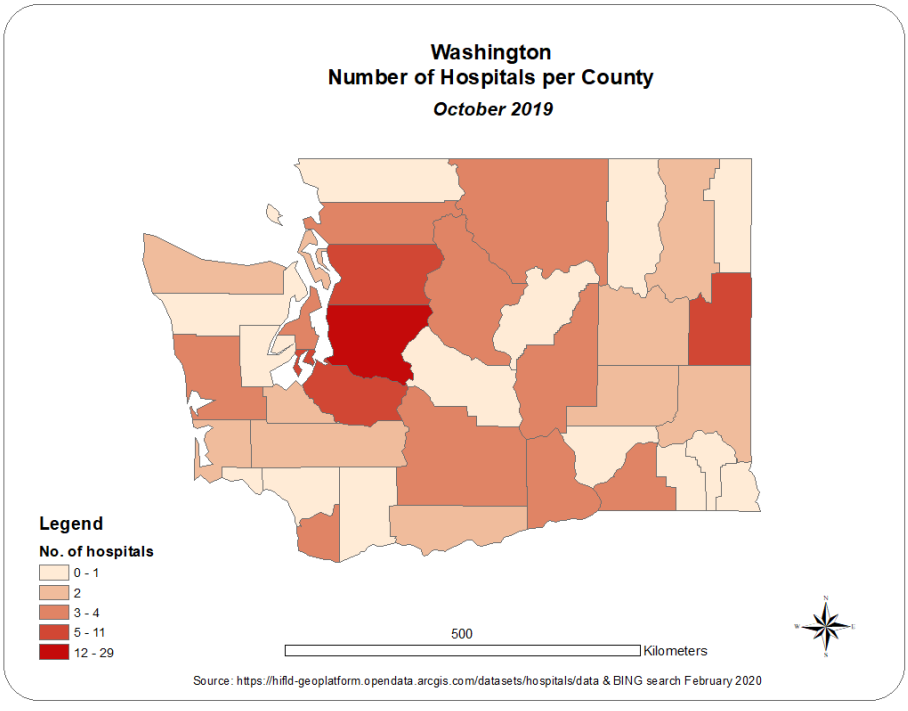


Figure 9 *Number of Hospitals in Washington*

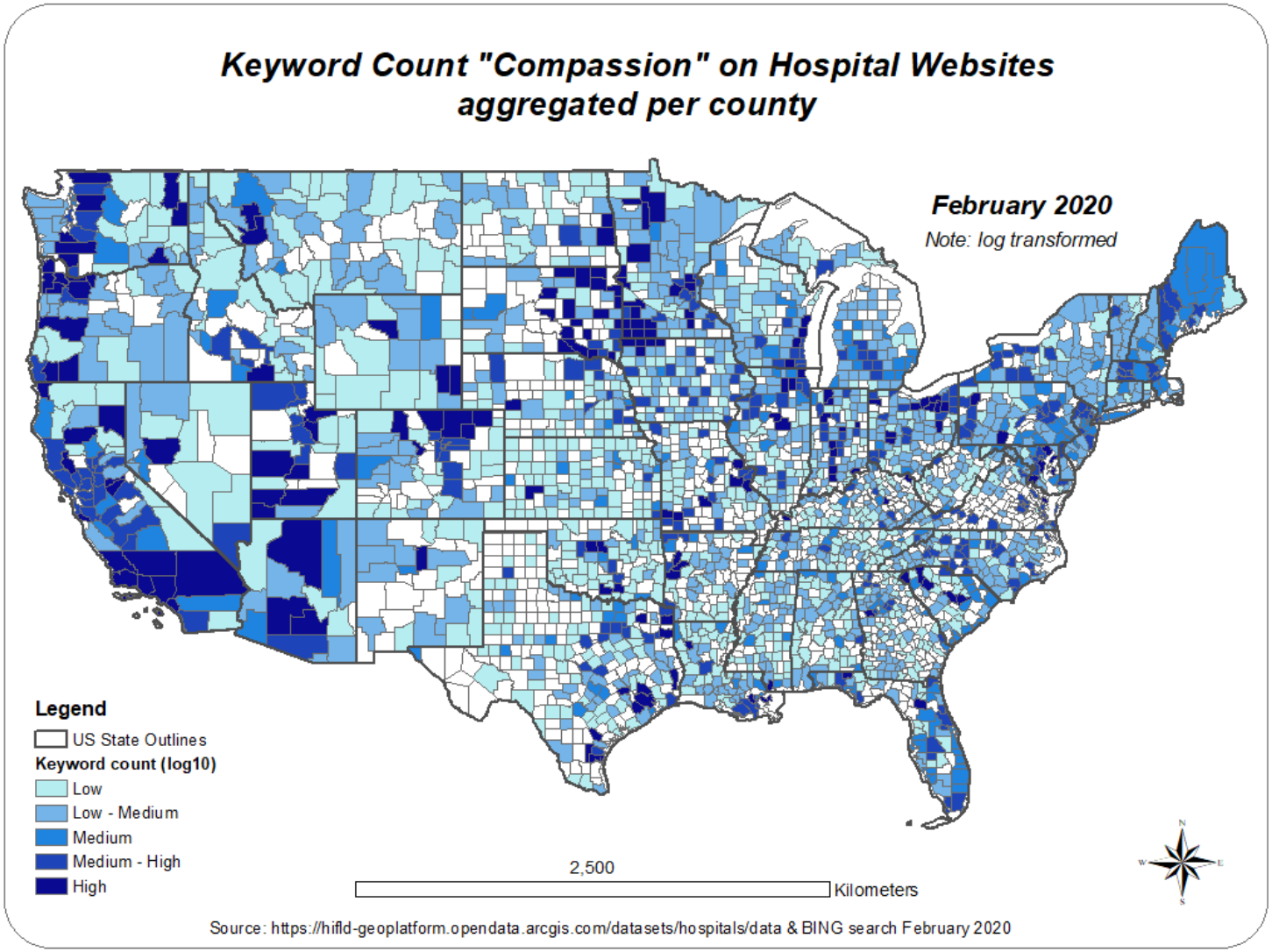


Figure 10 *Keyword Count "Compassion" on hospital websites aggregated per county*

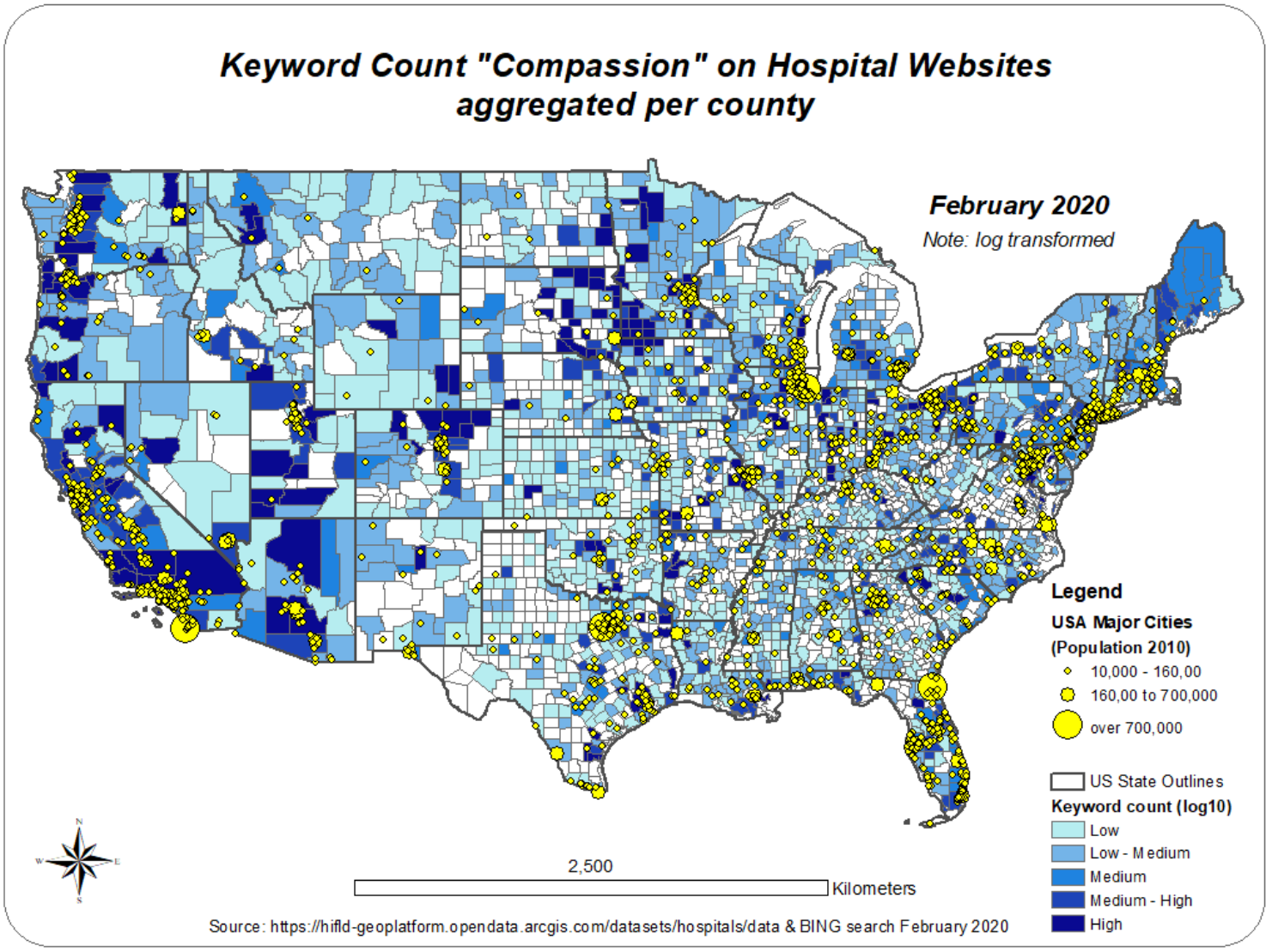


Figure 11 *Keyword Count "Compassion" on hospital websites aggregated per county and the USA major cities*

Global Moran's I - Analyzing Patterns

The Global Moran's I analyzes spatial patterns. A positive Global Moran's I index value suggests spatial clustering while a negative Global Moran's I index value pinpoints towards a dispersed pattern. For results for the keyword "compassion" on hospital websites, the Global Moran's I revealed no significant spatial autocorrelation for the compassion counts for hospitals aggregated by county (FIPS) with or without log transformation. The Moran's I values indicated perfect randomness for the national level and the two states, California and Washington. For detailed results consult Table 14. The Global Moran's I for the selected states, California and Washington, depicted no autocorrelation. There is no indication that similar values (either high or low) were clustered spatially. For detailed results consult Table 14.

	Moran's I	**Z-score**	**P-value**
Compassion counts for hospitals per FIPS for *Mainland (log transformed)*	0.18*	27.45	0.00***
Compassion counts for hospitals per FIPS for *Mainland*	0.05*	9.99	0.00***
Compassion counts for hospitals per FIPS for *California (log transformed)*	0.06*	1.21	0.23
Compassion counts for hospitals per FIPS for *California*	0.19*	38.56	0.00***
Compassion counts for hospitals per FIPS for *Washington (log transformed)*	0.15*	1.54	0.12
Compassion counts for hospitals per FIPS for *Washington*	-0.12*	-0.89	0.37
no significant autocorrelation, **significant autocorrelation, Statistically significant at p < 0.05			

Table 14 *Results for Global Moran's I for compassion for hospital webpages*

Local Moran's I (LISA) – Custer and Outlier Analysis

The use of Local Moran's I allows for the analysis of spatial clusters and outliers. Local Moran's I with inverse distance for the original average count of compassion per county revealed a few bigger and scattered local spatially autocorrelated clusters (high-high values) throughout Washington, Oregon, Southern California, and Southern Arizona. There are two smaller local spatially autocorrelated clusters in the state of Ohio and Texas. There were no low-low clusters detected (Figure 12).

In contrast, the LISA statistic for the log-transformed variable displayed various local spatially autocorrelated groups for the keyword "compassion" throughout the USA mainland. Local spatially autocorrelated clusters (with high-high values) were detected in the state of Washington towards the Pacific and the border of Oregon, two big clusters in California, on the South Dakota – Minnesota border, on the Wisconsin – Illinois border, on the Ohio - Pennsylvania border, and one bigger cluster in the Pennsylvania – New Jersey – Maryland region (Figure 13). The "compassion clusters" depict a clear trend, centering in the North-Eastern part and along the Pacific coast of the USA.

Low-low value groups were present in the Southeastern and South-Midwestern states of the US mainland. The low-low clusters are concentrated in the states of Kansas, Oklahoma, Arkansas, Louisiana, Mississippi, Alabama, Kentucky, and Tennessee (Figure 13). As Figure 13 depicts, the LISA for log transformed compassion variable revealed more local spatial autocorrelation groups than the non-log transformed compassion variable.

For the states of California and Washington, Local Moran's I with inverse distance for the log transformed compassion variable depicted clear high-high clusters in three southern counties of California (Figure 14), two high-high clusters in the State of Washington, and two high-low and

one low-high outlier in Washington (Figure 15). Given that Los Angeles county has a high concentration of hospitals (Figure 8), it is promising to discover that the keyword concentration for compassion is also present in this county (Figure 14).

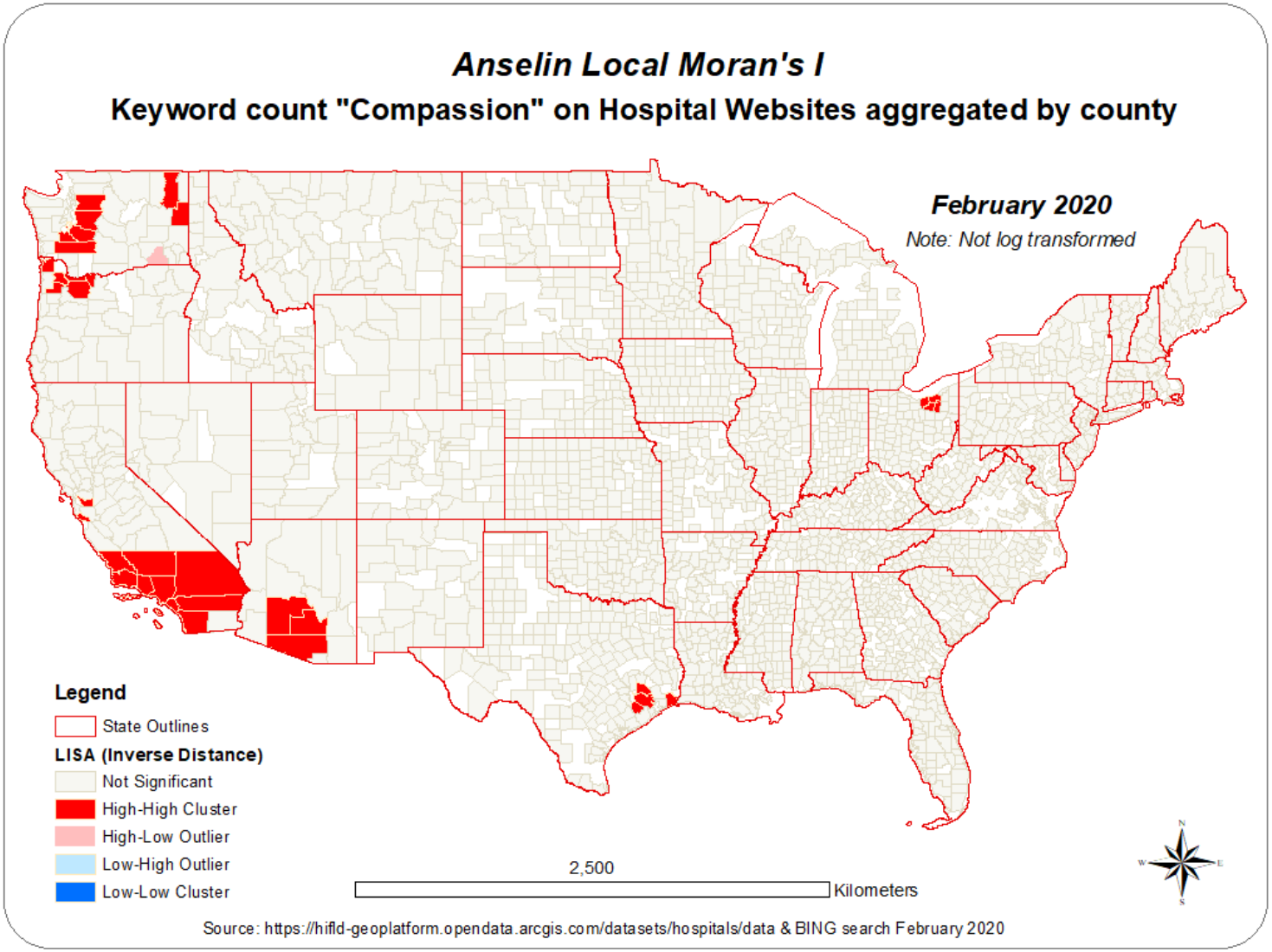


Figure 12 *Cluster and Outlier Analysis: Anselin Local Moran's I for Compassion aggregated per US county (USA Mainland)*

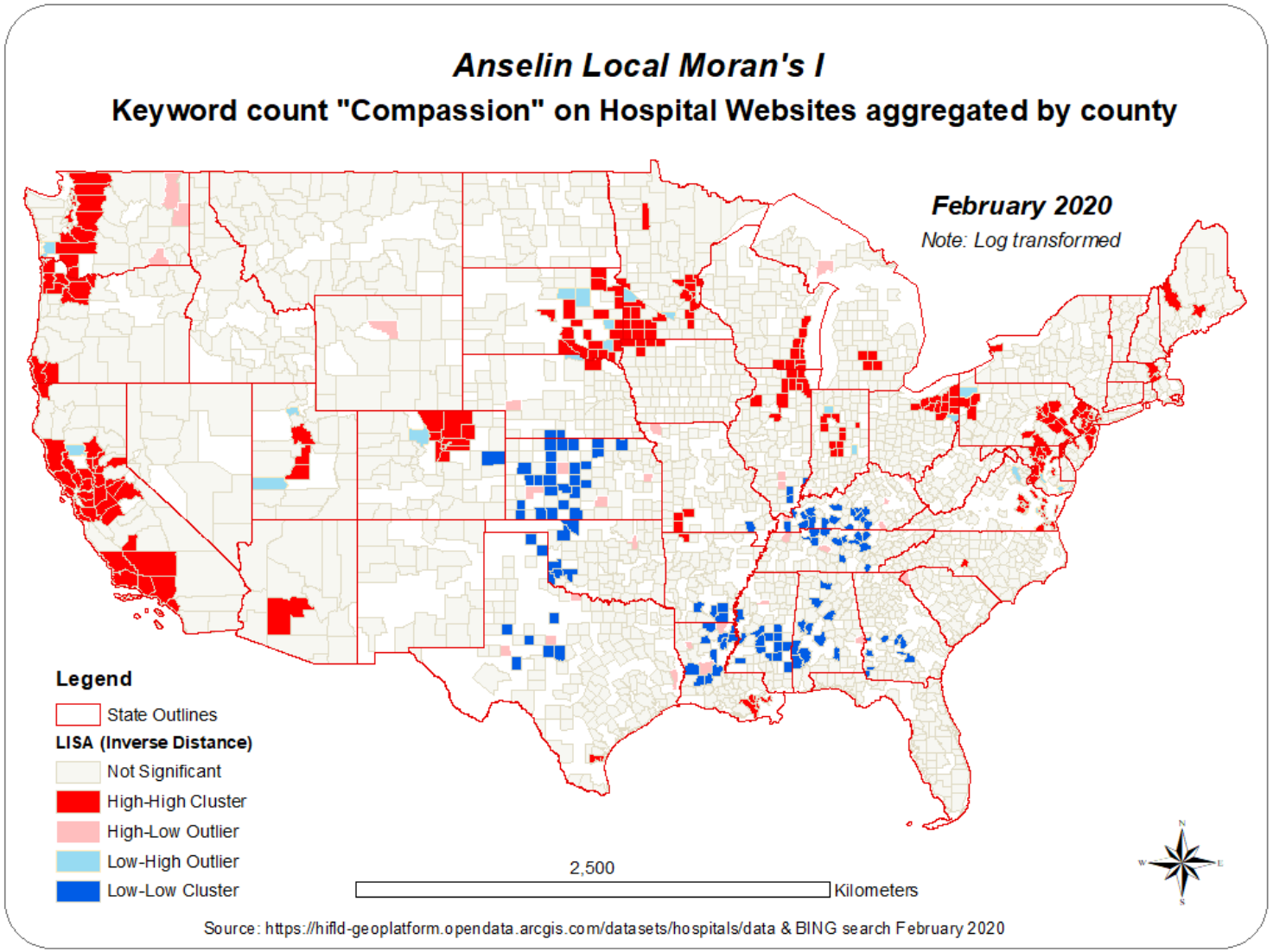


Figure 13 *Cluster and Outlier Analysis: Anselin Local Moran's I for Compassion aggregated per US county (USA Mainland) for log transformed data*

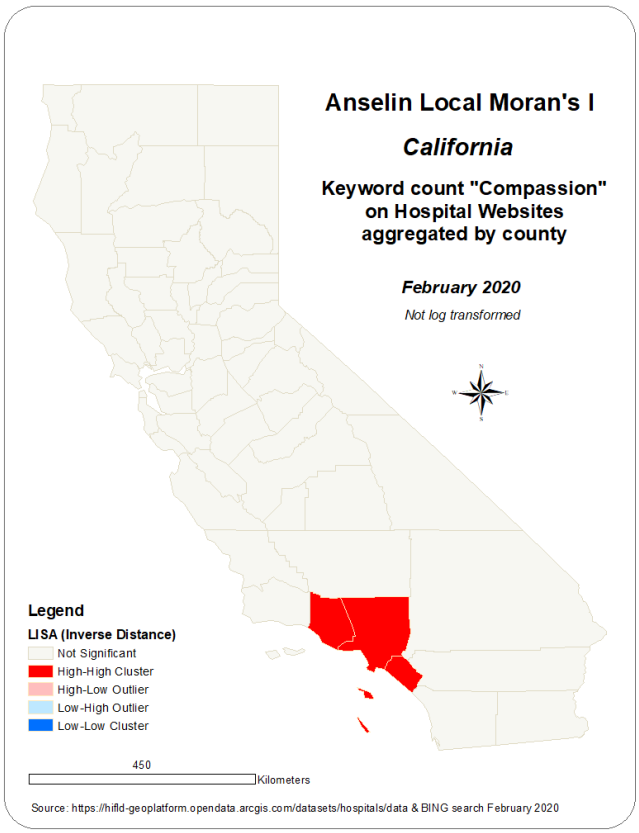


Figure 14 *Anselin Local Moran's I for keyword compassion for hospital websites for California counties*

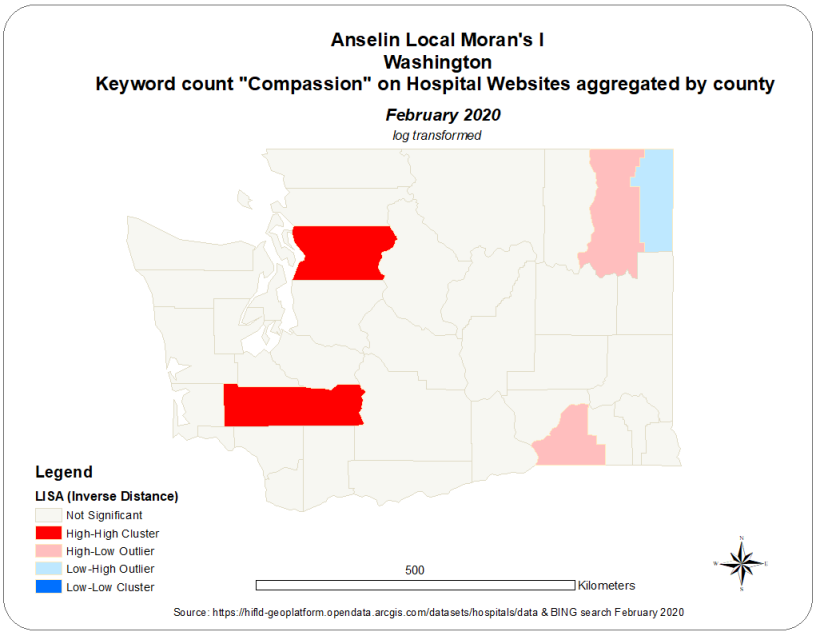


Figure 15 *Moran's I for keyword compassion for hospital websites for Washington counties*

Getis-Ord Gi*(d) Hot Spot Analysis

The Getis-Ord Gi *(d) depicts hot and cold spots in an analysis. For the Gi*(d), local clustering for the non-transformed compassion variable revealed a few clusters in the state of Washington, Oregon, Nevada and Arizona. One significant hot spot ($p < 0.01$) was located in Southern California (Figure 16). No significant cold spots were detected. The log transformed compassion variable detected neither hot- nor cold-spots indicating that neither high-high or low-low values cluster spatially and there are no significantly unexpectedly high numbers of compassion counts or to be more specific changes in numbers of the keyword "compassion", given the number of hospitals in these counties.

For the Gi*(d) statistic, local clustering for the non-transformed compassion variable revealed one significant hot spot spreading over two counties ($p < 0.01$) and one significant hot spot ($p < 0.05$) in the Southern California; no cold spots were detected (Figure 17a). The log transformed variable revealed various significant cold spots ($p < 0.01$) throughout the state of California indicating that hospitals with a low count for "compassion" are clustered within these counties (Figure 17b).

For the Gi*(d) statistic, significant local clustering for the non-transformed compassion variable revealed two hot spots ($p < 0.01$) and one hot spot ($p < 0.05$) in Washington (Figure 18). The log transformed compassion variable detected neither hot- nor cold-spots for Washington.

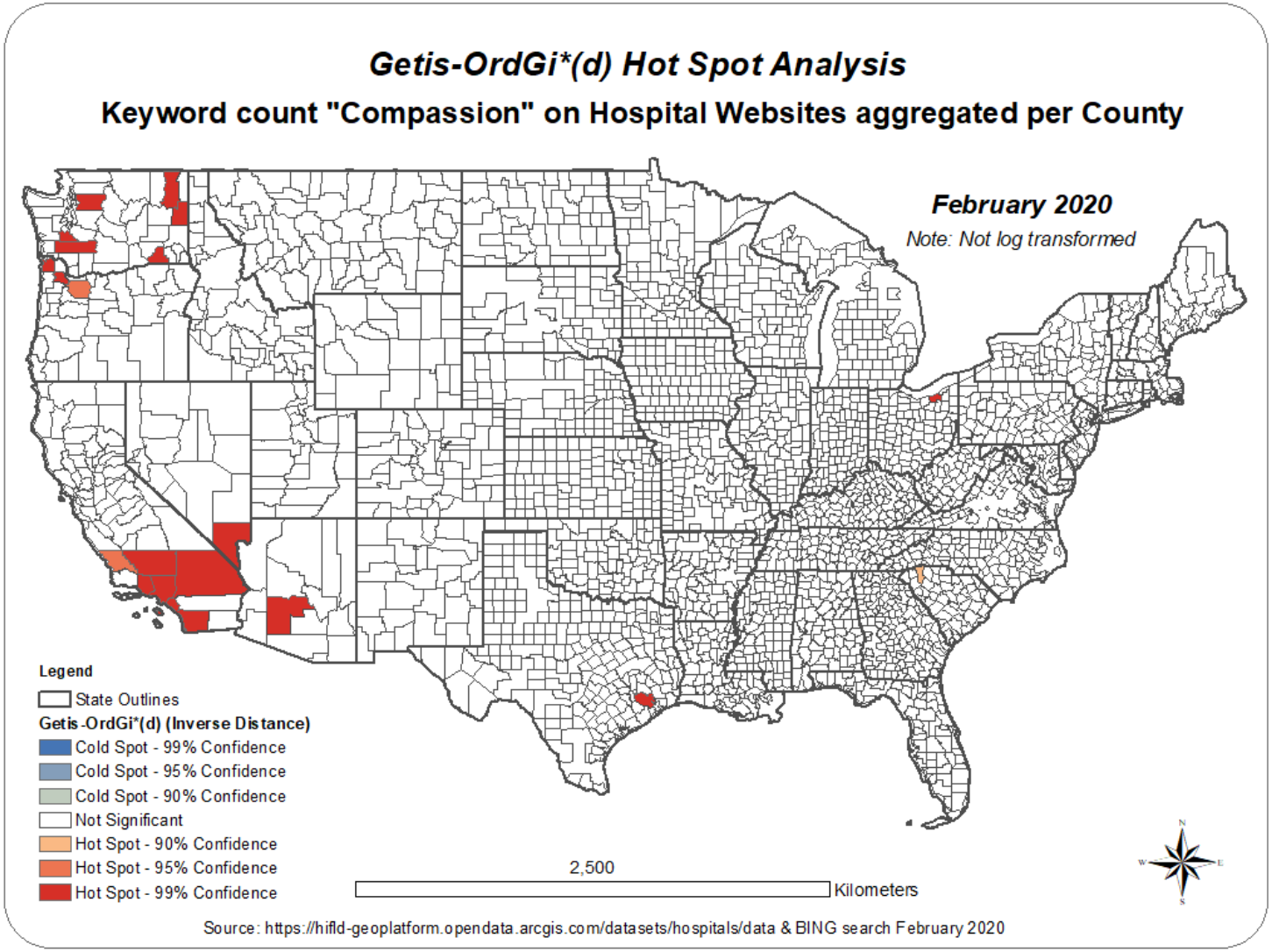
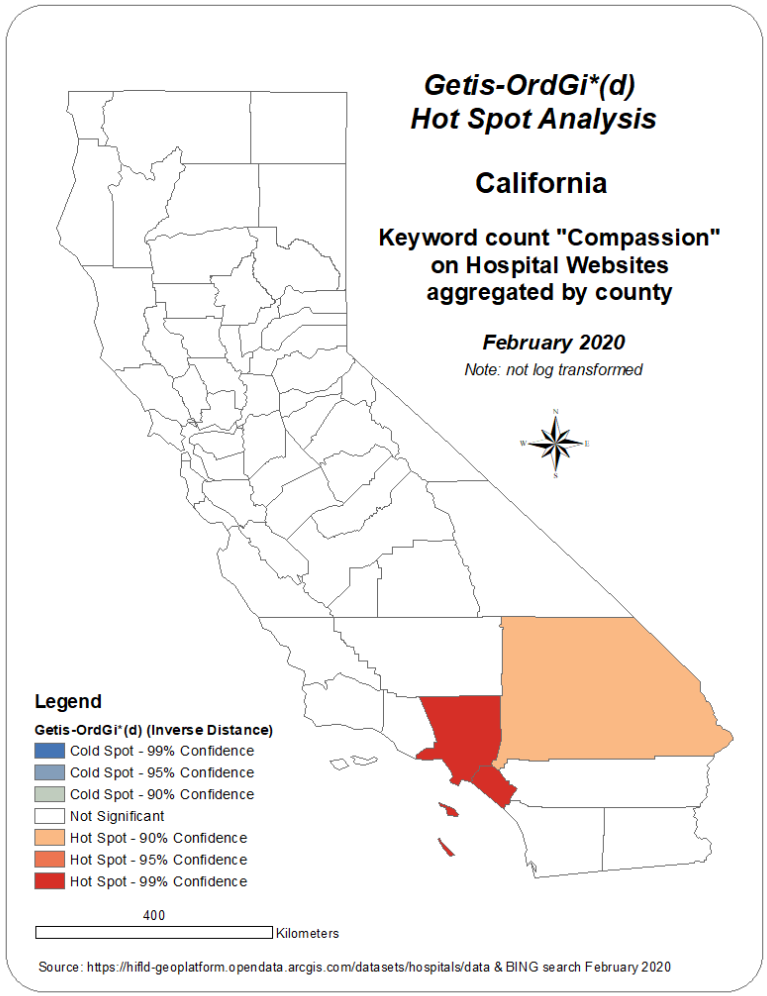


Figure 16 *Getis –Ord Gi*(d) Hot/Cold Spot Analysis for compassion for hospital websites per county*



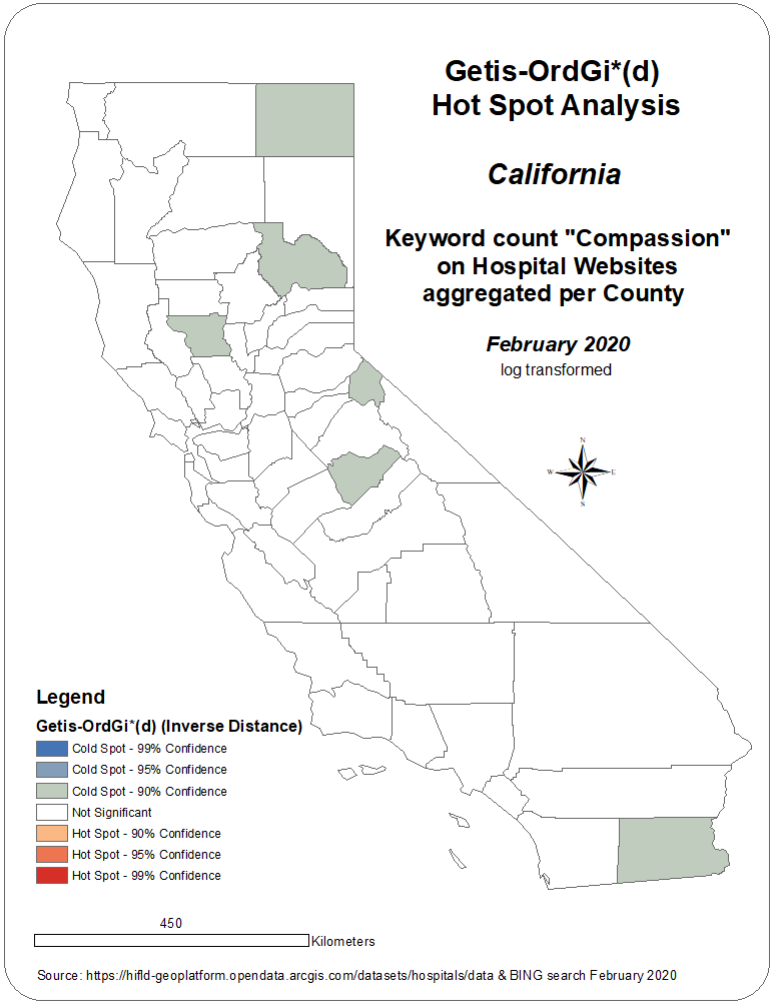


Figure 17a & b *Getis –Ord Gi*(d) Hot/Cold Spot Analysis for compassion for hospital websites per county for California; left(a): compassion variable was not log transformed; right(b): compassion variable was log transformed*

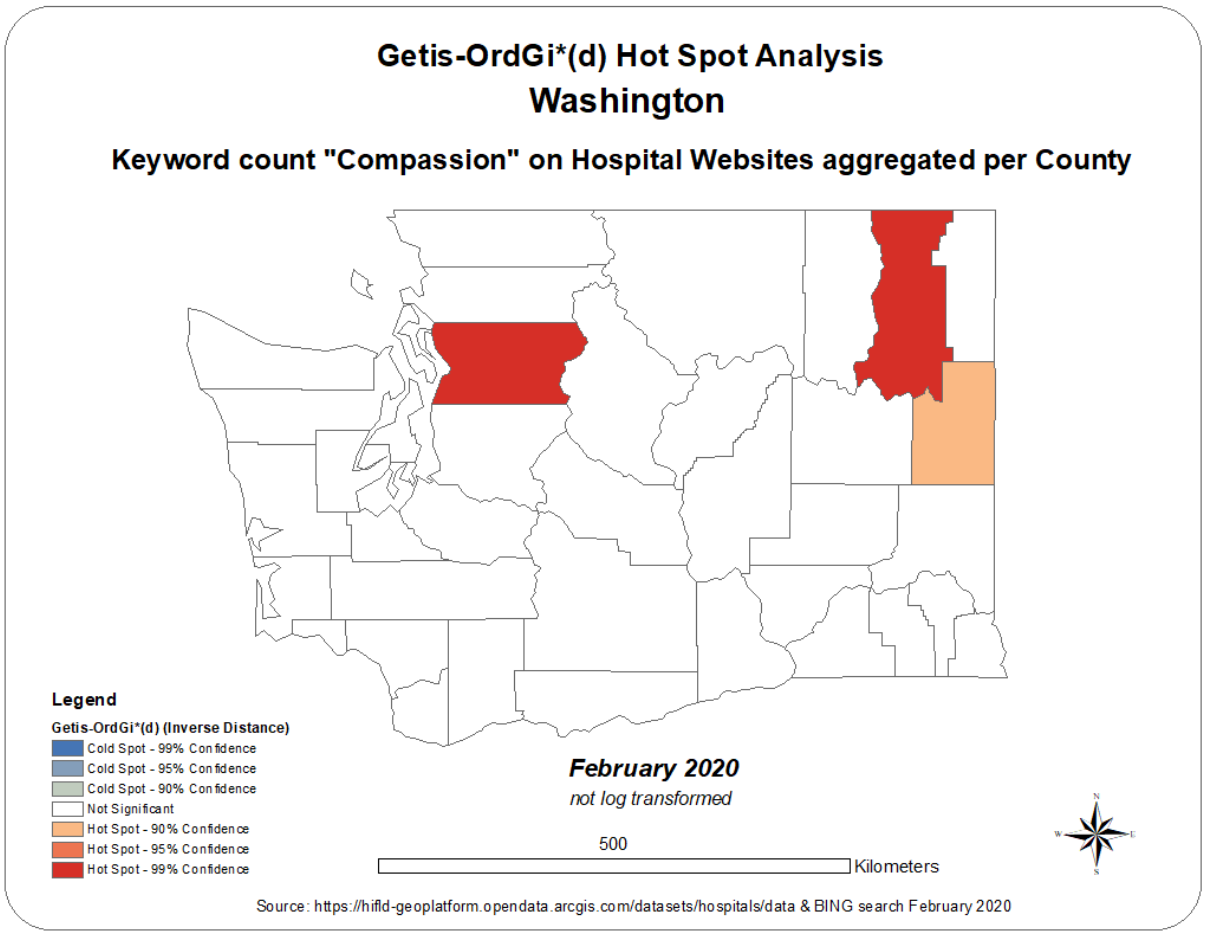


Figure 18 *Getis –Ord Gi*(d) Hot/Cold Spot Analysis for compassion for hospital websites per county for Washington with non-log transformed compassion*

Discussion

The last section of my bioethics thesis addresses Objective 5: Propose a plausible interpretation of mapping/ spatial analysis of the proxy measures.

Over the past centuries, philosophers such as Aristotle, Adam Smith, Jean-Jacques Rousseau, David Hume, and Arthur Schopenhauer, all concur that compassion is the foundation of all ethics (Frakes 2010; Addiss 2017). The major religious and spiritual worldviews incorporate compassion in their lists of commandments, orders, rules or rituals for (daily) practices to be followed. Advances in neuroscience with fMRI made it possible to distinguish and depict that the neuronal response network for compassion differs from the neuronal response network for empathy (Singer and Klimecki 2014), aided to the continuing debate among psychologists whether or not compassion is a distinct emotion (Goetz, Keltner, and Simon-Thomas 2010). However, even though the opinions are divided among the various fields of how compassion should be defined and which element does or does not belong to a compassionate response, there are overlapping characterizations, which help to develop a programmatic approach to measure a long believed abstract and immeasurable concept.

In this thesis, I have shown that the theoretical field of bioethics and the tools of spatial disease ecology/spatial epidemiology can complement each other to inform a spatial distribution of compassion, thus a spatial distribution of an ethical concept, on a population level. Descriptive epidemiology has the power to visualize representation of compassion via geospatial data. For example, it allows us to depict “hot spots” of compassion and track changes over time. The identification of proxy measures makes it possible to depict compassion through the various definitions and elements proclaimed by the disciplines of philosophy, religious and spiritual worldviews, and psychology. The overlapping elements of what I describe as appraisal of one’s

own resources and limitations to being in neutral state or right state of well-being, the recognition of suffering, and the action part of having a desire to alleviate, eliminate or prevent suffering of others are central to all three fields (Figure 1). Through these elements, data sets related to the specific concepts of compassion from the different religious traditions and the general agreed-upon action part of wanting to eliminate the suffering of other beings were identified.

How do the proxy measures of volunteering and charitable giving relate to the specific concepts of compassion, in this case to the action element of relieving suffering? In the case of the action part for the traditions of Christianity and Islam, compassion was revealed to be strongly associated with the acts of generosity and charity. In Christianity, giving alms or volunteering to work with others who are less fortunate are central to compassion (Bernhardt 2010). In Islam, the Qur'an encourages people to help those in need either through individuals' deeds and/ or through the payment of taxes. The annual payment of charity (*zakah/zakat)* by a person, who has more than he or she needs (Alharbi and Al Hadid 2018) and the giving of food or clothes to those in need, without shaming the receiving person (*sadaqah*) (Alharbi and Al Hadid 2018) prevail to be paramount and obligatory for compassion in the Islamic traditions (Qur'an 9:60) (Khairuldin, Firdaus, and Mohammad 2013; Alharbi and Al Hadid 2018). Thus, the Christian and Islamic concept of giving overlap and this element of compassion can be found in the form of volunteering and charitable giving (Generosity Index) today.

So, how do the maps of compassion for volunteering and charitable giving (Generosity Index) compare to each other? Do the maps point to the same "hot spots" or better, do the maps depict the same geographical trends? One overlapping results for both maps is that Utah has been ranked in the top two spots for the volunteering rate and the Generosity Index for US states over

the past thirty years. Thus, Utah is a constant "hot spot" for compassionate behavior depicted through more people volunteering their time and more people giving money to charitable causes (Fuss and Palacios December 2019). It can be speculated that the cause for a higher volunteering rate and more charitable giving in Utah lies in the high percentage of Christians in Utah, with the majority of people reporting to belong to the Church of Jesus Christ of Latter-day Saints (LDS), referred to as Mormons. 67% of the population of Utah are members of the Mormons (Jones June 22, 2004). Thus, the compassionate behavior trend in Utah circles back to the general display of compassion through alms and volunteering in the Christian traditions. However, in general both maps depict varying geographical trends with volunteering have a clear north-south division, but not the Generosity Index. Interestingly, there is one distinct difference between the southern states. For the Generosity Index, especially the states of Georgia, Alabama and Florida, rank on the higher end for giving money to charities, whereas for people volunteering their time, the majority of the southern states fall onto the lower end of the spectrum.

How do the proxy measures of well-being relate to the specific concepts of compassion, in this case to the being in a neutral state or right place to identify the suffering in another being? In the Buddhist tradition, in order to practice compassion, one has to understand his or her own misery, in order to relate to another's misery (Rinpoche 2010); one has to renounce all immoral actions due to the fact that all of them cause suffering (Rinpoche 2010); and one has to combine compassion and equanimity to achieve "skillful means" in order to guarantee a continuous presence of compassion in order to be committed to the welfare of others (Barad 2007; Gold 2008). Once a person is in the neutral state, in which the person does not differentiate "between self and the others", he "will also understand the interdependence of every living being" (Rinpoche 2010, 16). For Smith, a relatable concept applies. For him, one has to be an impartial

spectator, one has to be neutral and altruistic in order to justify a sympathetic response (Smith 1759, 2017). Thus, both concepts point towards the underlying idea that a person has to be well, has to be able to recognize his or her own limitations and resources as well as has to have a good standing / relationship to life in general. All of these characteristics are present in the PERMA/well-being score.

Does the PERMA/well-being map point to the same "hot spots" or better, does the map depict the same geographical trends as the volunteering rate and the Generosity Index? The PERMA results are available on a county level, whereas the volunteering rate and the Generosity Index are depicted on a state level. However, there are some generally overlapping geographical trends for people volunteering their time and well-being. Both maps depict higher levels of volunteering and well-being in the northwestern states of the US. The states of Washington, Oregon, Idaho, and Montana form one "cluster" of high well-being. And the states of Utah (county of Summit in particular), Colorado, down to Arizona depict another well-being "cluster" In contrast to the volunteering rate and the Generosity Index, Florida ranks on the higher end for people reporting to be well.

Last, not but least: How does the proxy measure of counting the term "compassion" on hospital websites relate to the specific concepts of compassion, in this case to the action element of alleviating suffering? In what way do the "counts" map compassion? The most prevalent element, which overlaps with the definitions and the action element of compassion in every single field discussed (philosophy, religious traditions, and psychology), is the desire to relieve suffering. But how can you measure a compassionate response to relieving or eliminating suffering? From a public health or healthcare perceptive, mapping the actual suffering has been done for centuries through epidemiological tools of for example mapping of individual cases of a

particular disease. However, how do you map the direct response to alleviate suffering? The better question here is, where do people go to alleviate physical and mental pain in general? The answer is hospitals. But just mapping the location of hospitals does not reveal anything regarding whether the hospital provides compassionate care. However, since the majority of the healthcare institutions in the United States operate on a private level and therefore, need to advertise their services, the websites of hospitals can function as a starting point to investigate if compassion plays a role for the institution in question. In the United Kingdom, one of the six core values in the NHS constitution is compassion (Department of Human Health & Social Care October 14, 2015). Thus, making compassion a required value for every NHS institution. Emory Healthcare's vision statement, for example, states the following: "To be recognized as a leading academic and community health enterprise, differentiated by discovery, innovation, education, and quality, *compassionate*, and patient- and family-centered *care*" (Emory Healthcare 2019). So, counting how often the term "compassion" is listed on a hospital website and aggregating the keyword counts on a county level, can provide a glimpse into the world of how the definitions of compassion and compassionate care in hospitals relate to each other. However, it has to be noted that advertising compassionate care and compassion as value on their websites, does not automatically transpire to hospital personnel really providing compassionate care.

Does the "compassion count" map point to the same "hot spots" or better, does the map depict the same geographical trends as the volunteering rate and the Generosity Index maps? Once again, it has to be noted that the volunteering rate and the Generosity Index are average on a state level, but the "compassion count" is aggregated on a county level. Nevertheless, general inferences can be made from all three maps. Local Moran's I revealed significant, local spatially autocorrelated clusters (with high-high values) in the state of Washington towards the Pacific

and the border of Oregon, two big clusters in California, on the South Dakota –Minnesota border, on the Wisconsin – Illinois border, on the Ohio - Pennsylvania border, and one bigger cluster in the Pennsylvania – New Jersey – Maryland region (Figure 13). The "compassion clusters" for "compassion counts" on hospital websites depict a clear trend, centering in the North-Eastern part and along the Pacific coast of the US mainland. Multiple counties in Utah also rank on the higher end of "compassion counts" for their hospitals. Thus, the hospital count data follow along the geographical trend for the volunteering rate and Generosity Index: Based on the element of alleviating suffering, compassion seems to be clustering in the northwestern states of the US as well as in the state of Utah.

In what way might this provide a model for mapping (and monitoring) ethics, or better, ethical behavior? In what way does mapping of compassion or its analogues, in the case of this thesis, help us to inform the field of bioethics? First, a model for mapping ethical behavior provides ethicists with a way to monitor and track ethical behavior over space and time. Compassionate behavior may fluctuate depending on various circumstances. Identifying germane information for suitable proxy measurements can aid to better prepare and deal with disturbing and violent behavior, for example, in times of disease outbreaks and natural disasters. Mapping provides an opportunity to depict and monitor the decrease or increase of compassionate behavior in communities over time. For example, if a county or state, which in the past scored high in compassionate behavior based on one of the analogues, and suddenly ranks in the bottom, an investigation should be conducted. Secondly, identifying "hotspots" for compassionate behavior in populations assists ethicists in evaluating and studying the reasons and causes for such a display and practice of compassion. For example, as with the ongoing COVID-19 pandemic, people are practicing social distancing to save lives. However, communities are also looking out

for each other. People, who have been strangers before the outbreaks, are assisting each other by shopping for the elderly and immunocompromised. People are donating money and food to food banks. These are all compassionate actions, which can be traced and investigated. As with the example of a sudden decrease in compassionate behavior, an investigation should reveal what might have caused a sudden increase in compassion. After the COIVD-19 outbreaks ends, tracing the "hot spots" for compassionate behavior and preparing a fact-finding mission on the reasons why people felt the need to be more compassionate should be on the radar of researchers in bioethics and public health.

In this thesis, the state of Utah ranked on the higher end in every proxy measure. So, follow up questions to explore are, for example, why is Utah constantly ranking in the top spots for volunteering their time, being extremely chartable by donating money, people scoring high in regard to their well-being, and hospitals listing the term compassion repeatedly on their websites. What makes Utah a compassionate "hotspot"? Given that Utah has displayed this trend for the volunteering rate and the Generosity Index over the past thirty years, ethicists need to inquire what they can learn from the people in Utah in regard to compassionate behavior. The opposite is true for "cold spots", which are mostly located in the southern states of the US mainland. So why do the people in the south-eastern states display a less compassionate behavior compared to the states in the northwestern part of the country? These follow up question can only be asked because this thesis made it possible to map compassionate behavior based on analogous variables in the first place. Thirdly, through the identification and the use of proxy measurements, spatial epidemiology of compassion can help us understand and develop hypotheses regarding the spatial clustering of ethics, in this case the spatial clustering of compassionate behavior. One might speculate that the population of Utah displays higher compassionate behavior due to their

rules and values set by the Mormon Church. Or that people in the southeastern states do not have the opportunity to display more compassionate behavior through volunteering their time or giving money because lower incomes do not allow them to. These are all hypotheses which need further research, but I am able to state these hypotheses because spatial epidemiological mapping of proxy measures for compassion made it possible to identify the spatial patterns.

How can these findings be used in bioethics?

How can this exercise and these findings of my bioethics thesis be used by folks in bioethics? First, my "mapping" exercise was applied to a complicated, very contextual, and abstract topic and can serve as an example of how a step by step approach provides a way of arriving at easily understandable and informational materials. My approach can be used as a template upon which information and metrics related to other values essential in bioethics (e.g. justice) could undergo further investigative work through a more practical instead of a theoretical approach. In the case of this bioethics thesis, the maps can supply the context for further discussions. The maps display where the current "hotspots" of compassion are. However, these discussions do not necessarily need to focus on these clusters. The maps are also highlighting the lack of compassion (compassionate behavior), and therefore can function as identifying opportunities to investigate, for example, if other bioethical values are also lagging behind in this community or area.

Secondly, human values in healthcare and medicine are fundamental to bioethics. However, discussions with policy- and lawmakers about theoretical topics can be dry and disappointing due to the lack of unsuitable informational material. Policy- and lawmakers are interested in how their planning process and implemented actions can have an immediate impact and need guidance from bioethicists not only on the contextual and ethical suitable part, but also on which areas or locations they should tackle first. For example, in the case of the compassion maps

generated in this thesis, it becomes obvious that Utah has an extremely compassionate population. However, other states such as Mississippi and Alabama are not doing as well and further actions from policy and law makers might be necessary to mitigate a further decline. For example, the maps generated from the hospital website data could be used as supporting materials for the call for an improvement in providing better healthcare in state such as Alabama. In this case, the maps provide extra supporting material for the discussion of why southern states might lag behind in health coverage and outcomes (Artiga and Cornachione January 2016). There are various counties in the southern states where hospitals with a low count of compassion on their website clustered together. As stated earlier, the human connection matters for good health (Trzeciak and Mazzarelli 2019). A compassionate connection from a physician, a nurse, or any other hospital employee can have a meaningful and measurable effect on a patient at the individual level (Trzeciak and Mazzarelli 2019). Aggregated over the whole organization and then aggregated by count or by state, this can have a measurable impact on the care provided overall. Hence, the information utilized from this exercise aids bioethics in their call for an emphasis in training healthcare personnel in how to provide effective compassionate care.

Strengthens and Limitations

The strengths of this bioethics thesis are: First, through the compilation of definitions of compassion and the identification of common elements for compassion in the fields of philosophy, religious and spiritual traditions, and psychology allows for the identification of data sets to be used as proxy measures for compassion. Secondly, the programmatic approach to web scraping of a key word for a large number of data points in the hospital data set allows for an insight into compassionate practices on hospital levels. Thirdly, repeatability with the same database over time should yield a spatial-temporal picture of growth or decline of compassionate

practices in hospitals. Fourth, the calculations for the volunteering rate and the Generosity Index (by the Fraser Institute) have been constant over time. Thus, the results are easily comparable and depict a spatio-temporal picture of compassionate behavior.

The limitations of this thesis are: First, the use of proxy variables representing the elements of suffering and the action part of wanting to help and alleviate or eliminating the suffering are not direct measures of compassion on a population level. Secondly, the repeatability due to hospitals updating their websites, by adding and removing web pages, including the term "compassion" can lead to slightly different results. Additionally, if hospitals deploy a completely new marketing strategy and publish a new website, including new content, previous results will not be comparable. Thirdly, the compassion analysis for hospital websites only depicts a snapshot in time and does not show trends over time. Fourth, hospitals could advertise compassionate care and compassion as value on their websites, but this may not correlate to hospital personnel really providing compassionate care. Fifthly, the volunteering rate and Generosity Index are averaged on a state level, whereas the PERMA/well-being and compassion counts for hospital websites are based on county levels; this does not allow for direct comparisons, just for comparing general geographical trends. Sixth, it has to be noted that charitable giving in society might vary highly depending on the governmental structure and taxation laws of the country. A country that has higher taxes to provide universal health coverage and other societal protection mechanism (e.g. housing) for its people might have a lower generosity index compared to countries with lower taxes and a privatized healthcare structure. This complicates a comparison between countries, while still allowing a comparison of compassionate behavior within the country.

Conclusion

This thesis reviewed definitions/descriptions and elements of compassion in the fields of philosophy, major religious and spiritual worldviews, and psychology. It identified three overlapping elements: the appraisal of one's own resources and limitations to be in neutral state or right state of well-being, the recognition of suffering, and the action part of having a desire to alleviate, eliminate or prevent suffering of others are central to all three fields (Figure 1). Then, I identified publicly available data sets, such as the PERMA/well-being score from University of Pennsylvania data on the volunteering rate in the USA, and the Generosity Index from the Fraser Institute. An additional data set with information for hospitals in the US was available for download. For the USA hospital data set, an R script was developed to web scrape counts of the keyword 'compassion' on hospital websites. Global Moran's I, Local Moran's I, and Getis Gi(d) were applied to identify clusters and hotspots in the mainland of the USA. Thus, I mapped characteristics or elements of compassion that are emphasized and overlapping in the fields of philosophy, world religions, and psychology.

For the action element of relieving suffering, the "compassion" keyword count revealed spatial clustering in the north-western and south-western parts of the US, with southern California and the State of Washington being hotspots. The action element derived from the Christian and Islamic traditions of giving alms and volunteering was represented through the volunteering rate and depicted high volunteering rates in the northwestern states of the country with a clear north-south division. For the charitable giving, represented by the Generosity Index, over the past twenty years, Utah and Maryland were the two highest scoring states for individuals giving money to charities. The proxy measure for appraisal and being in a right state of mind to acknowledge another's suffering; the PERMA/well-being score depicts a clear east-western

trend, with people in the northwestern parts of the country indicating having a better general satisfaction with life. Thus, the programmatic approach to measure an abstract concept with the application of spatial epidemiological tools through the identification of proxy measures in order to demonstrate a spatial epidemiology of compassion to inform compassionate behavior for ethics can help us understand and develop hypotheses regarding the spatial clustering of ethics. Why? Because "[e]very statement of compassion can have a measurable, incremental effect. The power of 'compassion' is not a binary thing, the power of compassion is cumulative. More compassion equals more power" (Trzeciak, Roberts, and Mazzarelli 2017, 109).

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