In the midst of every crisis, lies great opportunity? Analysing environmental attitudes in the face of the Covid-19 pandemic

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Abstract A widely used media narrative suggests that the environment benefitted from the Covid-19 lockdowns. Numerous publications which came out following the lockdowns only reinforced this view by seeing Covid-19 as an opportunity to think more about the environment. However, these narratives are largely anecdotal, assumptive and pay little attention to the question of what people actually think about the lockdowns in environmental terms. To fill this gap, this study provides the empirical basis needed to either support or reject the aforementioned dominant narrative on Covid-19 and environment. Survey data (eighty questionnaires per country) were collected from participants in Cameroon (Buea), Egypt (Cairo), Italy (several major cities) India (Mumbai and New Delhi), and The Netherlands (mainly Amsterdam). The findings of this study reveal that generally, Covid-19 has not changed the way most people think about the environment. This is either because people were

already pro-environmental before Covid-19, or people see Covid-19 and the visible environmental changes as temporal phenomenon. One other major observation in this study is the regional differences in environmental attitudes in relation to Covid-19. The least change in environmental attitudes was observed in high-income countries and the most change in low-middle-income countries. Therefore, the paper concludes that the importance of Covid-19 on a more sustainable future should not be overplayed or overemphasised. It will take more than a two-year break from normal living to mitigate environmental degradation. Accordingly, pro-environmentalism should focus on other intervention points.

Keywords Covid-19 · Pandemics · Lockdowns · Environmental attitudes

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Introduction

Pandemics are hazards related to large-scale outbreaks of infectious diseases that can greatly increase morbidity and mortality over a wide geographic area and cause significant economic, social, and political disruption (John Peabody et al., 2017). The consequences of pandemics can be described as disasters (Cheval et al., 2020). Pandemics and their ability to spread rapidly are not a novelty in human civilization. For

example, it took just five weeks for the Russian flu pandemic (1889–1890) to reach peak mortality (Hanes et al., 2017). The earliest cases were reported in Russia and the virus spread rapidly throughout St. Petersburg before it quickly made its way throughout Europe and the rest of the world, despite the fact that air travel did not exist at that time. The Antonine Plague (A.D. 165–180), which may have been smallpox, killed over 5 million people in the Roman Empire (Hanes et al., 2017).

Likewise, in a few months, Covid-19 spanned the globe, infecting 183,119,310 and killing 3,965,317 people by July 2021 (Worldometer, 2020) with cases rising at the time of writing this paper. Covid-19 was declared a pandemic on 13 March 2020 and its rapid onset, spatial extent and complex consequences have practically affected more than 210 countries, to become a global pandemic with devastating consequences (Zhu et al., 2020). Most countries responded with extreme social distancing measures such as complete or partial lockdowns which severely diminished human activities. These lockdowns are described by Rotz and colleagues as the ‘anthropause’ (Rutz et al., 2020:1156), referring specifically to a considerable global slowing of modern human activities (notably travel).

At the start of the Covid-19 pandemic, there seemed to be positive impacts on the environment. For example, a reduction in socio-economic activities due to lockdowns has led to a reduction in carbon emissions (Sarkodie et al., 2020; Silva et al., 2020); water quality in urban areas improved as a result of reduction in solid and liquid waste disposal (Zambrano-Monserrate et al., 2020); there was reduced stress on wildlife as human activities slowed down (Corlett et al., 2020); and, there was a 7% decrease in global annual carbon emissions (Kumari & Toshniwal, 2020; Le Quéré et al., 2020). Although there are also negative impacts such as shoreline pollution from the disposal of sanitary consumables (Cheval et al., 2020), mainly positive impacts of Covid-19 have been reported in the domain of the environment.

These changes have led to a narrative which shows how humans, not Covid-19, are the virus and it is all our fault as humans with our unsustainable lifestyles. They have sparked a new wave of ecocentrism which views the pandemic as an opportunity for the planetary systems to heal following decades of unsustainable practices. Nature conservationists and advocates of

green marketing were ready to find opportunities in the face of a pandemic challenge like Covid-19 (Seth, 2021), using the pandemic to reveal the looming threat of grand environmental challenges. As governments reacted in starkly different ways to the Covid-19 pandemic, the scientific community’s reaction to try to understand the virus and develop ways to combat it has also been in starkly different ways too—certainly in terms of linking Covid-19 to global environmental issues. While one group of scientists see the Covid-19 pandemic as an opportunity for the planetary systems to recover after decades of environmental degradation (Bennett, 2020; Cooke et al., 2021; Dufresne, 2020; Friedrich et al., 2021; Halliday, 2020; Honeybun-Arnolda & O’Riordan, 2020; Scott, 2021; Seth, 2021; Steffen et al., 2020), others (Allison, 2020; Newton, 2020) see such a view as a gross exaggeration of the influence of Covid-19 in environmental terms. Nonetheless, most of these arguments and counter-arguments are not based on sufficient empirical evidence. This study exploits this gap by providing empirical evidence to either support or reject these claims.

This paper has the following structure: a review of the wider literature on Covid-19 and the environment; a presentation of the methodology; a review of the theoretical framework needed to analyse the data collected; findings; discussion and conclusion.

Literature review

Conventionally, environmentalism has been understood as discussions and debates around topics such as resource management, policy, law and how these topics impact environmental degradation (O’Riordan, 1976). However, contemporary environmentalism can be subdivided into ecocentrism and technocentrism (O’Riordan, 1976). On one hand, ecocentrism refers to positioning the natural world at the centre of debates and discussions (Honeybun-Arnolda & O’Riordan, 2020). On the other hand, technocentrism sees science and technology as the solution to pressing environmental issues (Klein, 2015). Ecocentrism possesses insights that are highly applicable in 2020 (Honeybun-Arnolda & O’Riordan, 2020) and the current Covid-19 crisis has thrown more light on a new wave of ecocentrism.

The Covid-19 pandemic has been widely recognized as auguring some kind of turning point in the

global social–ecological system (Kish et al., 2021). The dominant narrative in Covid-19 and the environment literature has been that by triggering systemic change, with socioeconomic disruption spreading through tightly coupled economic, ecological, social, and political systems, Covid-19 pandemic will provide the opportunity to turn a crisis into opportunity (Bennett, 2020; Cooke et al., 2021; Dufresne, 2020; Friedrich et al., 2021; Halliday, 2020; Honeybun-Arnolda & O’Riordan, 2020; Scott, 2021; Seth, 2021; Steffen et al., 2020). The narrative surrounding improvements in environmental indicators was driven by observable cues in nature, like stories of rivers appearing cleaner in Bangalore, or of air becoming clearer in Delhi, or of a stretch of the Himalayas becoming visible from Jalandhar (Thomas et al., 2021). Covid-19 is seen as presenting emerging spaces to implement more ecocentric modes of living that were never previously so readily accessible and desperately needed for life hereon (Honeybun-Arnolda & O’Riordan, 2020). This requires a major transformation of our current ways of life that can attend to the growing complexity and intersectionality of pandemic and environmental challenges (Honeybun-Arnolda & O’Riordan, 2020).

Historically, Kish and colleagues (2021) highlight how during a comparable major crisis in World War II, many merchants and retailers lost both customers and markets, saw key employees drafted, and experienced disrupted supply chains. In turn, this led to extraordinary transformations across various sectors which included: the repurposing of production lines; the entry of women into the workforce; and technical reorganization and productivity gains. In this way, shocks to the system can function to expose new opportunities (Kish et al., 2021).

However, this new Covid-19-inspired ecocentrism is described by some other researchers as a new ecofascism (Allison, 2020; Newton, 2020). As the world is reeling from the coronavirus pandemic, newspapers, blogs, and social media have brought rise to a massive popular belief linking Covid-19 to earth’s vaccine (See Newton, 2020; Searle & Turnbull, 2020) with the move from the real to a digital public life propagating viral videos of wild animals performing unusual behaviours in typically urban habitats. This is analogous to what Nicole Seymour (in Bosworth, 2021:1) describes as a more irreverent ‘low environmental culture’, characterized by humour and

irony. Bosworth argues that humour and irony can lead to the introduction of a new environmental approach characterized by playfulness which can reach out to a more diverse audience (Bosworth, 2021). Such ‘low environmental culture’ utilizes humour in transgressing the emotional norms of piety often associated with mainstream environmentalism. However, there is the issue of credibility in the propagation of these forms of low environmental culture. For instance, the authenticity of some of the videos shared to show how the earth is recovering during lockdowns has been disputed (See Allison, 2020). A study revealed that up to 48% of Americans claim they have been exposed to some sort of Covid-19-related fake news (Mitchell & Oliphant, 2020). This is because platforms for propagating low environmental culture such as social media platforms lack appropriate validity checks.

Other scientists argue that Covid-19 will have basically almost zero impact (Cummins, 2020) as any decrease in emissions will be eaten up by the likelihood of the market rebounding to make up for its lost productivity. Thomas and colleagues (2021) argue that the environmental improvements from the drastic Covid-19 measures have not been as significant as widely projected. They argue that clean rivers are not an indication that river health and aquatic biodiversity, which have been adversely affected by long periods of industrial pollution, have been revived. Additionally, Thomas and colleagues (2021) argue that healing the earth is not just about industrial growth, pollution, and greenhouse gas emissions following a pandemic. Healing the earth is also about addressing unsustainable consumption and inequalities pre, during and post Covid-19 (Thomas et al., 2021). In this regard, some governments and businesses have called for a green economic recovery (GER) from Covid-19. Such a commitment is seen as a promising and urgently needed intervention for planetary restoration (Bennett, 2020). However, a green economic recovery from Covid-19 cannot be built in the image of a pre-Covid era (Taherzadeh, 2021). Taherzadeh sees this approach as deceptive because the GER could delay or disrupt necessary social and ecological transformation needed to save the planet.

Furthermore, some studies have interestingly argued that the Covid-19 lockdowns can actually spell bad news for some species. Rutz and colleagues (2020) state how for some species, the pandemic may

have created new challenges. For example, various urban-dwelling animals have become so reliant on food discarded or provided by humans that they may struggle to survive under current conditions (Rutz et al., 2020). Also, in some countries where lockdowns allow outdoor exercise, humans are flocking to green spaces in or near metropolitan areas, potentially disturbing resident wildlife (Corlett et al., 2020). Furthermore, reduced human presence in more remote areas may potentially expose endangered species, such as rhinos or raptors, to increased risk of poaching or persecution (Buckley, 2020). Additionally, animals that rely on anthropogenic commensalism have, in some cases, not fared well during the lockdown as animal feeders were confined to their homes (Thomas, 2020). Ben Garlick (2020) points to British red kites going hungry due to the reduced availability of roadkill, highlighting how Covid-19 quarantine impacts species differently. While the Covid-19 pandemic has disrupted the global economy and has been controlling the social behavior of the human population, it is uncertain if it will mitigate the current biodiversity crisis and help nature to return to a 'healthier' state (Forti, 2017). On the contrary, in low-income countries, economic hardship linked to Covid-19 may force increased exploitation of natural resources (Gardner, 2020).

Notwithstanding, there is little empirical evidence-base in the literature to support or dispute the aforementioned claims about the relationship between ecocentrism and Covid-19. Not much is based on empirical evidence. Most of the publications are projections, assumptions and speculations with little or no empirical basis. So far, researchers have had to rely predominantly on purely anecdotal and speculative approaches and language with terminology such as 'expected', 'might', 'likely' 'is projected', 'assumed', 'possibly'—not much in certain terms. For example, Puaschunder (2020) argues that this new Covid-19-induced urban exodus 'will likely' spark environmental conscientiousness with individuals moving back into the countryside for social distancing purposes. With city populations moving to rural areas and travels to outskirts ruling over airborne travels, individuals will likely reconnect with nature and environmental attention will become accentuated (Puaschunder, 2020). Rutz and colleagues use the term 'anecdotal' by confirming that observations which indicate that many animal species are enjoying

the newly afforded peace and quiet are basically anecdotal (Rutz et al., 2020).

Also, Seth's (2021) claim that environment stewardship has emerged as a spinoff of green marketing that will last post Covid-19 is based on mere projections drawn from secondary data with no evidence from empirical primary data to back up such claims. Seth (2021: 129–130) actually argues that 'environmental stewardship "is expected" to even see a better pinnacle as pandemic of Covid-19 draws an end'. Thus, assuming or hoping that the changes observed during the lockdowns will have a longer lasting impact. Do people actually see Covid-19 as providing a new opportunity for the earth to heal? To what extent do the current environmental changes due to Covid-19 actually impact people's environmental attitudes? These are questions which this paper will seek to answer. Environmental attitude is acquired over time and influences people's environmental concern and protection (Wiidegren, 1998). Examining this requires a theoretical framework of attitude formation that can address new or emergent, unstable attitude objects. An attitude object consists of whatever a person is thinking about at the time of measurement. The only requisite for an attitude object is that it is discriminable, or a subject of thought (Eagly & Chaiken, 2007). Have the short-term positive environmental changes witnessed as a result of a slowdown of human activities during Covid-19 had any impact on people's environmental attitudes?

Theoretical framework

Research on public concern for the environment is well established in the social sciences (Walton & Jones, 2018). In social psychology studies (Block, 1990), there are three major aspects of psychological time: time duration (persistence of events or the interval between events), time succession (sequential occurrence of events as reflected by their temporal order), and time perspective (a person's experiences and conceptions of past, present, and future time). This paper focuses on time perspective because of the importance of both the past and future for present attitudes and behaviour. Keough and colleagues (1999) define time perspective as, 'the often-nonconscious process whereby the continual flows of personal and social experiences are assigned to temporal categories, or time frames, that help to give order,

coherence, and meaning to those events’ (Keough et al., 1999: 150). Peoples’ conceptions of the past, present and future thus form past, present and future time perspectives—and measurable differences exist in the extent to which individuals overemphasize one of the three when making decisions in their lives (Milfont et al., 2012; Stolarsky et al., 2018).

Operational definitions for the measurement of this construct in this paper will be more specific. For example, when people are confronted with an attitude object, they use a time perspective to compare what used to be in the past with what is in the present. These comparisons help in shaping desired or ideal futures.

The anthropocene is the proposed new geological epoch that posits that human activity is the prime driver of physical and biological changes in the Earth system (Keys et al., 2019). Conventionally, the negative consequences of these changes are much more delayed and signals of global environmental changes are often weak—both in terms of physical, perceptive signals and in terms of temporality—(Hoegh-Guldberg et al., 2019), and sensory and memory mechanisms are unable to discern them as they are below the common thresholds of discernability (Milfont & Demarque, 2015). However, sudden events can reveal sudden environmental change because sudden events (like a pandemic) and disasters (e.g., bushfires) have stronger physical signs and/or lower temporal delay (Yamori & Goltz, 2021). For example, it is easier to notice deforestation and air and water pollution than global climate change. This effect is stronger because such sudden occurrences give people the opportunity to compare the present to what used to be over a shorter period of time. A pandemic and the associated lockdown offer people the sudden opportunity to view air pollution differently. People suddenly have an opportunity to visualize pollution levels during the present crisis and compare to what used to be in the past before the occurrence (Newburger & Jeffery, 2020; Searle & Turnbull, 2020; Seth, 2021). In this case, the pandemic is understood as an attitude object because it is assumed that it will shape environmental attitudes (Seth, 2021).

Attitude objects usually consist of physical, concrete objects, individuals or groups of people, abstract ideals and values, and issues and policies (e.g., Covid-19 and the associated lockdown measures). The way people react to attitude objects defines their attitude towards the object (Maio et al., 2018). Attitudes are

defined as individuals’ predisposition to respond to attitude objects in a preferential manner (Feeley & Weiss, 2016). More specifically, environmental attitudes are a psychological tendency expressed by evaluative responses to the natural environment with some degree of favour or disfavour (Milfont & Duckitt, 2004). The way people react to an attitude object such as a pandemic can be fourfold: attitude change, ambivalence, indifference and no attitude change (Maio et al., 2018). These four reactions could answer the question about how people actually react to the temporal changes initiated by Covid-19 and the associated lockdowns. These four reactions will constitute the analytical frame of this paper in the subsequent findings section. Ambivalence refers to mixed beliefs (when people see both negative and positive outcomes or elements in an attitude object).

A given attitude object can evoke multiple potential attitudes according to the context in which the attitude object is perceived (Ferguson & Bargh, 2007; Haddock & Maio, 2019). The time perspective as a construct is determined by characteristics of the context or place (Keough et al., 1999; Simões et al., 2020). Place is one of the two or three most important ideas in geography. Geographical definitions of place since the 1970s have focused on the combination of location (an objective, definable point in space) and meaning (Cresswell, 2004). In other words, places are locations with meaning. Researchers have also examined the importance of identification with a specific place (Korpela et al., 2009; Ratcliffe & Korpela, 2018; Scannell & Gifford, 2010; Stiglbauer & Weber, 2018). According to Hernandez and colleagues (2010), place identity refers to ‘a conception of the self that has been constructed on the basis of the place to which individuals belong’ (Hernández et al., 2010: 281). From this conception, it is easy to see how place and environmental identity may overlap, and researchers have found that identification with a specific place can influence a number of pro-environmental attitudes and practices (Devine-Wright & Clayton, 2010; Filimonau et al., 2018).

Lefebvre (1974) emphasized that spaces change over time, as do their uses, representations and symbolic associations. Place is a particular form of space, created through acts of naming as well as through distinctive activities and imaginings (Hubbard, 2005; von Bromssen, 2017). Place is dynamic and subject to constant change in its material structure

and meaning; not isolated from outside influences. So, as people, ideas and objects pass in and out of a place over time, they change place and are also changed by place. According to the concept of ‘the spatial turn’ in Human Geography, social change can no longer be satisfactorily explained without a conceptualization of the spatial component of social life (Baroutsis et al., 2017; Löw, 2013; Löw & Weidenhaus, 2017;)—with place as a form of space.

Therefore, it is also important to emphasize the contextualised dimension (place) of time perspective, in order to comprehend the complexity of the dynamics in the relationship between an attitude object, time perspective and reactions. This study assumes that people are exposed to an attitude object and the temporal changes associated with the attitude object. The probability that this attitude object and temporal changes will influence reactions depends on the place in which these interactions play out. If the time perspective offers a cognitive frame influencing individuals’ attitudes, it seems important to examine the potential moderating role that the place could play in this relationship. In order to account for the element of place in the framework, this study examines data from five countries—Egypt, Cameroon, The Netherlands, India and Italy.

Materials and method

The study was conducted between June 2020 and October 2020. Survey data were collected from participants in Cameroon (Buea), Egypt (Cairo), Italy (several major cities) India (Mumbai and New Delhi), and The Netherlands (mainly Amsterdam). Eighty questionnaires were administered in each of the five countries. Although the questionnaires were in English, people in The Netherlands and Italy responded in English. The selection of the countries and regions or cities within the specific countries was based on the convenience of having contacts in these places. The main author resides in the Netherlands, and the co-authors are based in Egypt and Cameroon. The choice of Mumbai and New Delhi is based on academic and personal contacts in these cities. Because of the Covid-19 pandemic, only online surveys were administered. Participants were randomly selected under each gender category and included men and women with diverse demographic

characteristics. Table 1 shows the demographic background of respondents across the five countries.

This was largely a descriptive study, with only limited analysis of the data (descriptive analysis). Categorical variables are described using frequencies/percentages. Environmental attitude is a latent construct which cannot be observed directly. It can only be inferred from overt responses (Himmelfarb, 1993). The question on peoples’ attitude on whether Covid-19 has changed the way they think about the environment has four responses: 1.) ‘Yes’, meaning that Covid-19 has changed the way people think about the environment; 2.) ‘No’ meaning that Covid-19 has not had any effect on how people think about the environment; 3.) ‘I am not sure’ response indicating ambivalence; 4.) ‘blank’, a response indicating indifference. These possible reactions to an attitude object will constitute the analytical frame for this study.

Findings

Generally, Covid-19 has not changed the way most people think about the environment

The objective was to investigate whether people thought their attitudes towards the environment had changed or not owing to the pandemic and the associated lockdowns. The results indicated that Covid-19 has not changed the way most people think about the environment. A slight majority (52%) of respondents did not think Covid-19 had had any impact on how they think about the environment. Relating this finding to the theoretical framework, it is possible that when faced with an attitude object, the time perspective gives people the opportunity to compare what was before to what is now in order to shape their attitudes. Covid-19 as an attitude object has generally not had enough impact in shaping environmental attitudes. With Covid-19 as an attitude object, the time perspective has not been strong enough in influencing peoples’ attitude changes. Covid-19 has not played a more important role in influencing people’s environmental attitudes as expected or assumed for two reasons: People recognize the temporality of Covid-19; and, some people were already environmentally conscious or already had concerns for the environment before Covid-19.

Table 1 Demographic background of respondents across the five countries

Country	Percentage of women in sample	Percentage of men in sample	Lowest age in sample	Highest age in sample	Average age
Cameroon	47	53	20	50	31
Egypt	57.5	42.5	19	61	27
India	70	30	21	65	24
Italy	60	40	22	32	26
The Netherlands	70	30	20	80	44

The temporality of Covid-19

Some people downplayed the impact of Covid-19 by seeing the time perspective from a completely different angle; not the one presented in the theoretical framework for this study. Although the time perspective in the framework refers to the opportunity to compare what was before to what is now in order to shape their attitudes, some respondents view the time perspective in relation to the temporality of the attitude object itself and not its impact. Such respondents believe the attitude object is temporal. Therefore, they do not see how the impacts of the attitude object will be long-term. They view general environmental issues linked to general consumerism as more long-term problems (attitude objects) which preceded Covid-19. They believe these longer-term attitude objects are more effective in shaping environmental attitudes than a shorter-term attitude object such as Covid-19. This explains why in Fig. 1 people rank broader environmental issues higher when it comes to reasons for changing environmental attitudes than Covid-19. The following quotations illustrate respondents' concerns about the temporality of Covid-19.

... I don't think things have changed or will change with the way we live, especially with these high temperatures (global warming). Although I appreciate the space and quiet during Covid-19, I'm also aware of how habits are hard to change. (Italian woman, aged 28)

No, Covid-19 has not changed the way I think about the environment because things will go back to the way they have always been after

Covid-19 is gone. (Cameroonian woman, aged 32)

Covid-19 is just another virus that affects human beings out of several other viruses. However, pollution never got less nor did humanity develop new habits towards the environment because of a virus. (Egyptian man, aged 25)

People keep wasting, if all is well, no Covid-19, they fall into their old pattern. A disease does not change mindsets. (Dutch woman, aged 69)

There are the extreme habits of water wastage, detergent usage, hoarding, plastic usage, inappropriate discarding of waste which will have a long-standing negative impact beyond the Covid-19 crisis which is temporal. (Cameroonian man, aged 37)

Pre-existing concerns for the environment

Results indicated that some people who stated that the Covid-19 pandemic did not have any effect on their environmental attitudes also said that they already held pro-environmental views before the pandemic and that did not change during the pandemic. Therefore, in relation to such people, Covid-19 is not a 'game changing' attitude object as widely expected. In other words, people already cared about the environment before Covid-19. The following quotations explain such views:

At a personal level, Covid-19 has not changed the way I think about the environment. I have been trying to be an environmental and social

Fig. 1 Reasons for changes in concern for the environment within the last year.

conscious citizen for a long time. (Dutch man, aged 28)

Before Covid-19 I was very much aware of the existing environmental issues and already started changing my lifestyle to protect mother nature for the past few years. (Indian woman, aged 31)

I still have the same way of thinking towards environment as I did before Covid-19. (Egyptian woman, aged 27)

My way of thinking about the environment had changed already before Covid-19. (Italian woman, aged 28)

I already knew a lot about the environment before Covid-19. (Cameroonian man, aged 34)
I always knew that we are harming the environment everywhere on earth. Perhaps at first Covid-19 showed how pollution percentages had decreased in many places around the world, yet, way before Covid-19 we already knew we

have a lot of work to do regarding using plastic, converting to renewable energy, and much more. (Egyptian man, aged 27)

Even before this pandemic, I was always aware of how we are destroying the environment and the effects are evident with global warming, erratic weather patterns etc. (Indian woman, aged 38)

There are regional differences in peoples' reaction to the link between Covid-19 and the environment

There is reason to believe that rich and poor countries are experiencing the Covid-19 crisis very differently (Thomas et al., 2021), which makes systematic documentation of the impact of Covid-19 on environmental attitudes in distinct settings critical. The findings reveal that place or context plays a significant role in the relation between environmental attitudes and Covid-19. Higher-income countries (The Netherlands and Italy) did not display more positive changes in attitudes towards the environment than lower-and-middle-income countries (Cameroon, Egypt and

Fig. 2 Responses to the question about the impact of Covid-19 on environmental attitudes in 5 countries.

India). The findings on Fig. 2 illustrate that people in Cameroon, India and Egypt reported more changes in environmental attitudes as a result of the Covid-19 crises than people in the Netherlands and Italy who experienced more strictly enforced lockdowns. The key reason for these differences in attitudes to the environment in Covid-19 times between higher income countries (Italy and the Netherlands) and middle-lower-income countries (Cameroon, India and Egypt) is degree of lockdown enforcement in the various countries.¹

Lockdown in Egypt

In Egypt, the government closed schools and universities on 15 March 2020. This was followed by other measures restricting public gatherings including funerals. A few days later, it was announced that all flights into and out of the country were to be suspended. Weekly prayers in Mosques and Churches were also suspended and cinemas and theatres closed. Some companies allowed their employees to work from home. But, in Cairo where the data were collected, there was never much chance of social distancing, because of the populous nature of the city, with 21 million inhabitants and 19,376 people per square kilometre (Populationstat, 2020). Buses fill to overflowing, passengers dangle out of open doors.

¹ Yes, denoting changes in attitudes and No, denoting no changes in attitudes.

Millions live in informal settlements with narrow streets. In general, unlike many other Arab countries, Egypt did not try to impose a very strict lockdown. Public transport was running, factories were operational and shops stayed open (The Economist, May 2020).

Lockdown in Cameroon

A report on Cameroon Online (2020) indicated that residents of major cities in Cameroon were not serious with social distancing measures and wearing of masks. Cameroon was the Covid-19 epicentre in western and central Africa. The first cases were detected at the airport of the capital, Yaoundé on 5 March 2020. Additional cases were soon recorded in Douala, the largest city (Doctors Without Borders, 2020). Despite early measures taken by the Government to isolate initial cases, testing and contact tracing, community transmission took hold. The extent of transmission because of limited access to testing services made assessment difficult. Cameroon's response to the pandemic has faced significant constraints in regard to the capacity to scale up testing and expand contact tracing and the provision of intensive-care unit/ventilation support; and personal protective equipment for medical staff. The rapid implementation of community education programs, emphasizing hand hygiene and social distancing, is difficult, especially in poor, often overcrowded, urban centres. Nevertheless, after the first Covid-19 cases were detected in

Yaoundé, health-sector officials held a meeting with the Minister of Health to plan epidemic containment and impact mitigation measures.

It was observed that despite efforts by the government to prevent Covid-19, the main challenges were hugging, handshaking, the belief that the disease has not yet arrived in Cameroon, or the belief that it is a ‘white man’s disease’. The non-respect of social distancing can be observed in markets, streets, churches and vehicle parks. According to Cameroon’s Public Health Emergency Research Centre, Cameroonians have realised that there is a high recovery rate with a very small number of people dying. As a result of the issues raised in this section, people in Cameroon are generally not worried about Covid-19. Therefore, it has been difficult to impose a full Covid-19 lockdown in Cameroon.

Lockdown in India

Although India ranks high on the Oxford Stringency Index (OxCGRT) (Hale et al., 2021), it has been a challenge to actually control lockdown regulations on the ground. OxCGRT collects publicly available information on indicators of government response. These indicators take policies such as school closures, travel bans, etc. and record them on an ordinal scale; the remainder are financial indicators such as fiscal or monetary measures. India imposed a nationwide lockdown in March 2020 (like most of the world). However, that has since been relaxed in phases despite the country recording millions of Covid-19 cases (BMJ, 2020). By September 2, 2020, over 800,000 patients were under medical supervision, the largest number in the world after the US and more than 66,000 patients had died (BMJ, 2020). This number increased to 30,663,665 cases and 404,240 fatalities by July 7, 2021 (Worldometer, 2020). Although measuring the level of compliance of a nationwide lockdown in a vast country is inherently difficult, Bansal and Hasin (Bansal & Hasin, 2020) used anonymised location data aggregated at the country-level from phones released by Google as an indicator for the level of social distancing during the different phases of India’s lockdown. These researchers show that movement to grocery stores and pharmacies, regardless of the announcements in India, went up steadily after an initial drop in the first phase of the lockdown in March 2020. A strict implementation of the lockdown

measures in India has not been possible (Thomas et al., 2021). Evidence of lax adherence to Covid-19 lockdowns in India can be found in the continuation of group events such as weddings (Hindustan Times, 2021: March), and religious festivals (Indian Express, 2021: March) in direct defiance of rules prohibiting mass gatherings. These acts of defiance are reportedly at the background of the latest spike in infections in India with the Delta Covid-19 variant (Hindustan Times, 2021: March).

Lockdown in the Netherlands and Italy

The primary policy response to suppress the spread of Covid-19 in high-income countries such as Italy and the Netherlands has been to lock down large sections of socio-economic activities. In the first wave of infections in April 2020, there were strict lockdown rules in both Italy and the Netherlands. These lockdowns were stricter in Italy where the infection and mortality rates were amongst the highest in the world (Belenky, 2020). Although some of these restrictions were eased over the summer, with a new spike in cases across Europe in the autumn of 2020, countries imposed new restrictions (Smith-Park, 2020). In the Netherlands, from 14 October, 2020, all bars, restaurants and coffee shops (marijuana shops in Amsterdam and other major cities) were ordered to close and only allowed to serve takeaways (Nltimes, 2020). The sale of alcohol in shops and restaurants was banned after 8 pm, and people were not allowed to drink alcohol in public after that time. People were advised to stay at home and work from home as much as possible, and a maximum of three people were allowed to visit homes per day (only four could meet outside). The measures were expected to stay in place for at least four weeks subject to revision based on the observation of infection rates (Government of the Netherlands, 2020). Towards the end of the year, the measures were tightened further with the closure of all schools, kindergartens and all non-essential shops (Government of the Netherlands, 2020). The closure of primary schools and kindergartens was lifted in early February, 2021 but, secondary and higher education institutions remained closed at the time. In Italy, there were new government regulations announced on October 18, 2020. In these new regulations, mayors were given the powers to close public areas after 9 pm (The Florentine, 2020). Bars and restaurants had to

close at midnight and only up to six people were allowed to gather in a group. Local conferences, festivals and amateur contact sports were suspended (The Florentine, 2020). Although it was already mandatory to wear masks in outdoor spaces across the country prior to these new restrictions, compulsory mask regulations were extended to indoors everywhere except in private homes (The Florentine, 2020).

Despite the stricter lockdown implementation in Italy and the Netherlands, and the apparent visible positive environmental effects of the lockdown such as cleaner rivers and canals, less pollution (noise and air) (Newburger & Jeffery, 2020), people in these high-income countries still reported less impact of the lockdowns on their environmental attitudes. On the other hand, in Egypt, Cameroon and India where the lockdowns were less strictly enforced, there were more significant changes in people's attitudes towards the environment as a result of Covid-19 (see Fig. 2). The next section will attempt to understand the reasons for these spatial variations in the effects of Covid-19 on people's environmental attitudes and links to lockdowns.

Discussion

Livelihood security/insecurity and understandings of basic needs.

People in low-middle-income countries are more likely to suffer economically from lockdowns and the overall economic impacts than people from higher-income countries (Sumner et al., 2020). It is now clear that the steps taken to control the spread of Covid-19 across the world, though seen as necessary by some, will have significant negative consequences for the global economy (McKibbin & Fernando, 2020). This will pose significant economic challenges to livelihoods. Although the International Monetary Fund states that the impact is going to be felt more keenly in low-middle-income economies where levels of poverty, unemployment, and structural obstacles to economic recovery are higher (Crutsinger, 2020), this study contends that with stricter lockdown restrictions in high-income economies, it is people in high-income countries who are feeling the more realistic impact of Covid-19 restrictions on livelihoods. A person's livelihood refers to the means of securing basic

necessities of life which include: food, water, medicine, shelter and clothing, on a sustainable basis with dignity (Frankenberger & McCaston, 1998). Therefore, despite the promises of a welfare state in relation to relieving the risk of loss of livelihood in the case of an attitude object such as the Covid-19 lockdown, people who are experiencing a stricter lockdown are more concerned about emerging threats to livelihoods than people living under less strictly imposed lockdown regulations.

Covid-19 has produced a more abrupt change in livelihood needs for people in higher-income countries where the lockdowns have been more strictly imposed than in lower-income countries where lockdowns are less strictly imposed. Changes in lifestyle are less visible under less strict lockdowns. Therefore, this study argues that when people face a sudden change in lifestyle which threatens their basic livelihood needs such as loss of jobs, food insecurity, inability to access basic recreation activities such as sports and theatre, more advanced needs such as a clean and sustainable environment will rank lower. When these basic needs are threatened by an attitude object such as Covid-19 lockdown, environmental concerns become less important. This could explain why most people in the Netherlands and Italy, living under stricter lockdowns which have seen their basic lifestyles and needs altered or threatened, do not feel Covid-19 has had much of an impact on their environmental attitudes. This is because during a crisis, the focus shifts to prioritising individual basic needs concerns over greater good for all concerns such as the environment. This effect is stronger for people living under strictly imposed lockdowns than those under less strictly imposed lockdowns.

The same basic needs over advanced needs argument explains why lockdowns have been more difficult to enforce in lower-middle-income countries. In high-income countries, economic losses are often mitigated by government protection programs, employer adjustments to hours or compensation, or household savings (Egger et al., 2021). In low-middle-income countries with absent or limited formal social safety nets, declines in economic activity linked to Covid-19 lockdowns can have more adverse welfare consequences, especially for those working in the informal economy (Egger et al., 2021). Over a quarter of economic activity and half of all workers in Africa, Asia, and Latin America are in the informal sector

(Medina & Schneider, 2019). Threats to incomes and basic needs in these informal sectors through strict lockdowns could push millions of already vulnerable households in Cameroon, Egypt and India into more poverty. For example, Bansal and Hasin (2020) suggested that lockdowns have been difficult to implement in India because people must come out of their houses (despite severe movement restrictions) for falling supplies of daily essentials and medicines (basic needs) at home (Bansal & Hasin, 2020). In such contexts as India, strict lockdowns that are not accompanied by adequate welfare measures may result in heightened social tensions and civil unrest. A respondent from India supported the basic needs first argument by highlighting that people have other more urgent problems than Covid-19. She believes the awareness raised by Covid-19 is not as important as more urgent basic needs problems people face in India. She said:

Very few people [have reflected on the bigger picture during this time]. And once again coming from India, we are struggling to find adequate groceries during Covid-19. It's more a matter of survival as there is minimal support from the government in putting systems in place. That is why a strict lockdown will not work here. (Indian woman, aged 40)

Another woman from the Netherlands added that:

The world is upside down now. Do I even need to explain on this??? We have other problems than the environment. (Dutch woman, aged 31)

Differences in trust in Covid-19 governance between higher and lower-middle-income countries

During the pandemic, trust was found to be strongly correlated with citizens' compliance to measures designed to flatten the infection curve (Bargain & Aminjonov, 2020). Individuals perceiving more disinformation will be less willing to seek additional information and will report lower willingness to comply with official guidelines (Hameleers et al., 2020). As is the case in most low-income countries, studies have revealed that trust and lockdown efficiency tend to go hand in hand (Egger et al., 2021). This means people in low-middle-income countries

may have lower trust in the governments (in terms of welfare provision and disaster management) and will also be more likely to resist lockdown regulations. Morganstein and Ursano (2020) highlight the concept of 'tipping point' in disaster prevention and mitigation policy-making. The term 'tipping point', frequently used in the field of climate science and popularized by Malcolm Gladwell, describes a phenomenon whereby a small change in the balance of a system results in a relatively large downstream effect (Gladwell, 2000). The result of overshooting this tipping point is a significant increase in community distress, which may be associated with reduced adherence to recommended health behaviours (Gladwell, 2000). This necessitates an understanding of sociocultural and contextual factors within the communities to optimize response and recovery efforts and maintain public trust in institutions' ability to handle disasters such as Covid-19. A variety of factors may provoke tipping points in response to a pandemic such as Covid-19. One of these factors is poor communication (Morganstein & Ursano, 2020).

Efficient communication is a critical tool in anticipation of and response to disasters. Communication shapes public perceptions and impacts community behaviours (Dodgen et al., 2017). Communication during times of crisis helps build public trust, enhances participation in critical behaviours such as evacuation, shelter in place, and recently with Covid-19, social distancing (Flynn et al., 2017). Basic principles include amongst others; telling the truth, saying what is known and unknown (not being ashamed of saying 'we don't know', committing to answering questions and following up, avoiding false reassurances, and using language that can be understood by the intended audience. Existing literature and experience of disaster managers demonstrates that leadership behaviours have a significant impact on the recovery of communities and organizations following disasters and adherence to safety regulations (Flynn et al., 2017). Excerpts of a communication by the Dutch prime minister Mark Rutte to the people of the Netherlands at the beginning of the Covid-19 pandemic provide an example of what efficient communication in a disaster should be. Mark Rutte said:

... The reality is also that in the coming period a large proportion of the Dutch population will become infected with this virus.... Until a

vaccine is available, coronavirus will continue to sweep the world, and it won't spare the Netherlands. ... We don't know how long these measures need to be in place and whether more measures are necessary. At this point we also don't know how the virus will behave in the coming weeks and months... Whatever happens, this will be a difficult time. (Rutte, 16-03-2020)

This level of honesty by the Dutch prime minister Mark Rutte at the beginning of the Covid-19 pandemic might sound like doomsday prophecy or scenario but it could have played a major part in winning the trust of the citizens of the Netherlands. When the public trusts those delivering messages, understands information provided, and believes that disaster response resources are being provided in an equitable manner, compliance with recommended public health behaviours increase (Morganstein & Ursano, 2020). For instance, a Pew Research Center poll conducted in 2020 revealed that up to 73% of people in Western Europe trust their governments' handling of the Covid-19 pandemic (Pew Research Center, 2020). Public attitudes toward own country's dealing with the coronavirus epidemic are linked to adherence to Covid-19 regulations (OECD, 2021).

Such level of honesty and communication is often lacking in communication about disasters in low-income countries (and even some high-income countries). This can lead to mistrust and lack of cooperation from the general public. In Cameroon, the early days of the pandemic were characterized by mixed messages by politicians and a politicization of the Covid-19 pandemic. Professor Maurice Kamto leader of the principal opposition party—*Mouvement pour la Renaissance du Cameroun* (MRC) in criticism of the government's response (or lack of) response to the coronavirus pandemic launched a fundraising initiative to counter the spread of the virus. This MRC fundraising initiative was opposed and outlawed by the Minister of Territorial Administration, Paul Atanga Nji, who published a press release on April 7, 2020, asking the MRC to stop the fundraising operations because they are organized 'in defiance of the legislation in force'. The minister was supported by other opposition leaders such as Joshua Osih of the Social Democratic Front (SDF) and veteran politician Bello Bouba Maigari who equally accused the MRC of using the coronavirus crisis to score political points

under the humanitarian umbrella. To make the matter worse, a paper reported that the government was encouraging Cameroonians to produce loads of chloroquine—a drug with unproven effectiveness in treating the coronavirus (Cameroon Insider, 2020: April).

In Egypt, Salem (2020) reported that at the beginning of the pandemic, officials suppressed data, manipulated death reports, expanded an emergency law to allow arrests of anyone contradicting state Covid-19 news, arrested critical doctors, and muzzled journalists (Salem, 2020). Despite these measures, the low official number of cases inside the country was suspicious and, alarm was spreading among Egyptians (Salem, 2020). These mixed messages in communication could possibly affect adherence to Covid-19 regulations even if people had trust in the Egyptian government in other sectors or domains.

The consequence of lack of trust in governments' handling of the Covid-19 pandemic becomes a 'blessing in disguise' in environmental terms. People who do not trust their governments' handling of Covid-19 will likely flaunt Covid-19 regulations as was the case in Cameroon and Egypt. Consequently, it is near 'business as usual' for citizens of these countries and as the previous section argues, their basic needs remain largely unaffected. One respondent in Egypt said, 'In Egypt there was no full lockdown. So not much changed has changed here' (36-year-old woman, Egypt). Consequently, with basic needs not largely threatened by strict adherence to lockdowns, people can pay more attention to wider environmental issues. This explains why environmental attitudes changed more in response to Covid-19 in low-middle-income countries with comparatively lower levels of trust in governments' handling of Covid-19.

On the other hand, the consequence of a higher trust in governments' handling of the Covid-19 pandemic as reported in The Netherlands and Italy (Pew Research Center, 2020), is a 'curse in disguise' in environmental terms. People who trust their governments' handling of the Covid-19 crisis are more likely to adhere to regulations (Briscese et al., 2020). This leads to stricter lockdowns compliance in these cases which as in the previous section, translates to more threats to basic needs. For this reason, environmental concerns become relegated to the bottom of people's lists of priorities. This explains why in the Netherlands and Italy where there is comparatively more trust in

governments and compliance, Covid-19 did not change people's attitudes towards the environment.

Spirituality, the environment and Covid-19 attitudes

Spirituality could have played a role in the finding that more people in low-middle-income countries witnessed a change in attitudes towards the environment during the Covid-19 crisis. One religion with significant environmental undertones is Hinduism. No religion, perhaps, lays as much emphasis on environmental ethics as Hinduism and ecology is an inherent part of a spiritual worldview in Hinduism. In adherence to Hindu Divine law (*Dharma*) is based on the understanding that everything in the universe has been created by God and God is in all living and non-living things (Gairola, 2020). Therefore, in environmental terms Hindus believe that nature is part of our existence. When we waste the earth's resources, we get bad *Karma* by creating a bad environment for future generations (Gairola, 2020). On the other hand, engaging in environmentally-friendly behaviour is the path towards salvation for present and future generations. *Karma* is a Sanskrit word meaning 'action'. It refers to a cycle of cause-and-effect that is an important concept in many Eastern Religions, particularly Hinduism and Buddhism. In its essence, *karma* refers to both the actions and the consequences of the actions (Brown, 2021). The future is not unchangeable and *karma* is not fate. The course of the future can be changed by changing volitional (intentional) acts and self-destructive patterns (Brown, 2021). In environmental terms, we can change the course of environmental degradation by our actions today. The practice of *Ahimsa* in Hinduism (compassion for all living creature) accounts for most Hindu's being vegetarians (Renugadevi, 2012). Considering Hindus make up 80.5% of the population of India (Government of India, 2001), it is likely that relatively high rate of responses from the sample in this study linking Covid-19 to environmentalism could have been linked to Hindu spiritual ethics. Some participants made reference to the bad things we do in this world being rewarded with Covid-19. Some of these are as follows:

I mean, all bad and neglect to the environment will come back to us, and this happened during

Covid-19...bad Karma] (26-year-old, woman, India).

This is a response of nature for all the things we have done to the environment. (27-year-old woman, India)

I am a Hindu and nature is everything for me, it's what I get inspiration from and the best teacher anyone can have. I am a vegan because I believe that all living creatures have an equal right to live. Covid-19 reinforced my believe that human interference with nature is the only thing that disturbs balance in nature (43-year-old woman, India)

In Cameroon, the relatively higher number of people linking Covid-19 with the environmentalism could also be explained by conventional African beliefs in socio-natures which echoes the worldview of Hinduism and the environment too. A socio-ecological framing of the environment is consistent with a holistic framing of nature and culture as one in several conventional African societies which have long emphasized the interrelatedness or interconnectedness of everything in nature (Behrens, 2010). Such indigenous African knowledge systems have long been pivotal in sustainable resource use (Agrawal, 2014) in Africa. Conventional beliefs and practices which demonstrate the close relationship between humans, animals and the lived environment have been a universal phenomenon among several societies. In many indigenous societies, this relationship has been highlighted by belief in totems and taboos. Totems are considered as an emblem consisting of an object such as an animal or plant that serves as the symbol of a family or clan (Kosoe et al., 2020). In Africa for instance, where the use of animal totems was and is quite widespread, it is often the duty of each community member to protect and defend the community totem (Diawuo & Issifu, 2015). An obligation which ranges from not harming that animal, to actively feeding, rescuing or caring for it as needed, and treating the habitat of the totem with respect. Although up to 70% of people in Cameroon profess Christianity as their religion (World Atlas, 2021), it has been proven that side by side with their high levels of commitment to Christianity and Islam, many people in Africa still retain beliefs and rituals that are characteristic of conventional African religions (Pew Research Center, 2010). This could account for the

relatively high number of people linking Covid-19 to environmentalism in the African countries included in this study. The following quotes from some respondents in Cameroon support this suggestion:

The nature is fighting back for all the bad things we have done (37-year-old man, Cameroon)

Humans and human power have taken a back seat while the environment recuperates. Nature's way of telling us to go slow on consumption or suffer the consequences (36-year-old woman, Cameroon)

I think that Covid-19 is our own fault, it was bound to happen by the way we treat animals and produce our food. We have lost our touch with the environment and now we are forced to rethink in what kind of world we want to live. I think every person should make an effort to improve our environment. (33-year-old woman, Cameroon)

Conclusion

The popular media narrative focused exclusively on visible changes in air and water to suggest that the environment benefitted from the lockdown. Numerous publications which came out following the lockdowns only reinforced this view, given that it is only expected that environmental indicators such as water and air quality would improve in the event of a shutdown of industrial activities and the suspension of traffic. However, these narratives paid less attention to the question of what people really think about the lockdowns in environmental terms. Most of the narratives lack any empirical backing to show what people's responses to the lockdowns in terms of environmental attitudes will be. The findings of this study reveal that, generally, Covid-19 has not changed the way most people think about the environment. This is either because people were already pro-environmental pre-Covid-19, or people see Covid-19 and the visible environmental changes as temporal phenomenon with little chance of persisting in the long-run when life returns to 'normal'. One other major observation in this study is the regional differences in environmental attitude change in relation to Covid-19. The least change in environmental attitudes was observed in high-income countries and

the most change in low-middle-income countries. A number of factors are advanced in this study (linked to degrees of lockdown) to explain these variations and they include: livelihood security/insecurity and understandings of basic needs, differences in trust in Covid-19 governance, and spirituality.

This evidence-based knowledge is vital for shaping a sustainable future. Against the backdrop of the current Covid-19 crisis lies an opportunity for rebuilding a more sustainable and equitable society. However, the influence or the importance of Covid-19 on a more sustainable future should not be overplayed or overemphasised. It will take more than a two-year break from normal living to mitigate environmental degradation. It has been revealed that the lockdowns have not produced anywhere near the level of emissions reduction needed in for example just meeting the Paris Agreement (Goodbun, 2020). So yes, Covid-19 has been influential to an extent in raising of awareness of how quickly some systems can start to repair themselves, but nothing more than that. The scale of the changes required to meet the demands of the environmental crisis we are currently facing are much larger than Covid-19 lockdowns.

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