



Economics of death and dying: a critical evaluation of environmental damages and healthcare reforms across the globe

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Abstract

The economics of death and dying highlighted that environmental factors negatively influence healthcare sustainability. Therefore, this study conducted a system-based literature review to identify the negative externality of environmental damages on global healthcare reforms. Based on 42 peer-reviewed papers in the field of healthcare reforms and 12 papers in the field of environmental hazards, we identified 25 factors associated with death and dying and 15 factors associated with health-related damages across the world respectively. We noted that environmental factors are largely responsible to affect healthcare sustainability reforms by associating with the number of healthcare diseases pertaining to air pollutants. The study suggests healthcare practitioners and environmentalists to devise long-term sustainable healthcare policies by limiting highly toxic air pollutants through technology-embodied green healthcare infrastructure to attained efficient global healthcare recovery.

Keywords Death · Dying · Healthcare sustainability agenda · Environmental factors · Global evidence

Jel classification I11

Introduction

Death and dying are one of the crucial facts that nobody can deny, so a person prepared it in their lives to manage (i) “Haqooq Allah” (Arabic word: means duties towards Allah), (ii) “Haqooq-ul-Abaad” (Arabic word: means duties towards mankind), (iii) family supported care materials, and (iv) funeral expenses, and many more associated work for this finite world. This study is one of the initiatives to analyze the death

and dying concepts in the Eastern and Western World and its identified potential factors that are helpful to determine sound healthcare infrastructure for the betterment of the patient’s lives with intensive care therapy. The following studies are reported in a similar connection, i.e., Azaiza et al. (2010) reported the death anxiety among elderly Arab Muslims in Israel and found that nursing home residents, woman, and uneducated subjects have a larger fear of death anxiety, which does not show any differences based on religiosity.

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The study conclude that strong family setup with social support decreased the fear of death anxiety among elderly Arab Muslims. Tayeb et al. (2010) identified the different factors of “good death” among Muslims and identified three potential factors including (i) strong beliefs on religious matter, i.e., “Kalma Shahadah ((bearing witness that there is no true God but Allah and Muhammad (Peace Be Upon Him) is verily His Servant and His Messenger)),” (ii) death body image (buried with washed and wrapped with white cloth), and (iii) feeling about their security of their beloved ones that the family may survived after their death by the will of God Almighty Allah. These factors give strong feelings to the Muslims about “good death.” Joarder et al. (2014) explored the death meaning among elderly peoples reside in Bangladeshi village and concluded that the subjects have a clear understating about the journey of soul life after death, the concepts of soul-body duality, and good/or bad death. The death anxiety and fear were linked with some secular issues, while longevity was associated with spiritual belief. The fusion of large cultural coexistences among Muslims and Hindus, the ideas of death, and its spirituality coexist in many domains but not very much specific. The meaning of death is spiritually linked with the religious factors to support strong conviction on life after death.

Before going in a more detail, the subject matter, the study discussed the theories of death and dying and environmental theories, which further create an association between them to achieve global environmental sustainability agenda.

Theories of death and dying

The death and dying is conceptualized by the seminal work of Glaser and Strauss (1965) and Kubler-Ross (1969). Glaser and Strauss provoked the need to give awareness to death and dying peoples of the USA and proposed four mutual way of awareness, including (i) closed awareness, (ii) suspected awareness, (iii) mutual pretense awareness, and (iv) open awareness. The “closed awareness” is somehow kept by the physicians to do not tell the patients about his/her death and dying situation by its moral obligations. The “suspected awareness” was get hold the patients by either medical chart as suggested by the physicians or overhead staff that knew about the patient’s health life profile. The “suspicious patient” wants to know should I die or dying? If so, when? The “mutual pretense awareness” is the act of knowing both the parties, including physicians/staff and patients that the illness is reported severely and usually not been handling efficiently before disease to survive the patient; however, both pretend otherwise. Finally, the “open awareness” is the opposite to closed awareness where both the staff and patient acknowledge that he/she will be dying in some day. Kubler-Ross (1969) presented the five stage model of dying by drawing an interview of 200 suspected dying patients and concluded

some major observations, including (i) denial, (ii) anger, (iii) bargaining, (iv) depression, and (v) acceptance. Buckman (1993) commented the Kubler-Ross five stages of dying and concluded that although number of precedents have been included in the dying stages; however, few more should have to be included that usually come across visible in the characteristics of dying person, including, fear of dying, hope, guilt, despair, and humor. Copp (1996) defined “readiness to die” theory where 4 modes of patient-body/soul split theory presented, including (i) person ready but body not ready, (ii) person ready and body ready, (iii) person not ready but body ready, and (iv) person not ready and body not ready.

The Muslims belief about death and dying concept is the virtue of his/her Creator, God Almighty, whom have been sent in the world to obey “duties towards God” and “duties towards humanity/mankind”, and this deed will be accomplished till at their lives and rewarded it in the both of the world, i.e., existing life and life after death. The Holy Qur’an is the message from God Almighty that Muslims spend their entire life according to Islam (Sajid 2009). The life after death theories provoked the existence of God Almighty Allah (monotheism) who is the sole creator of this universe and gives life and then death and again give life, so a person gives call on the day of judgment to get reward for what he/she do it in his/her life in the finite world.

Environmental theories

The environmental impact of health has a serious concern on socioeconomic and environmental objectives, which required sustainable healthcare policies in order to limit toxic air pollutants to achieve United Nation sustainable development goals (SDGs). The previous literature is well documented in presenting different environmental theories, which need to be understand for its negative impact on global healthcare sustainability agenda, including the following:

Environmental Kuznets Curve (EKC) The EKC has shown a hypothetical relationship between country’s per capita income and its associated high toxic air pollutants that negatively impact on country’s health and wealth. The main assumption is that economic growth exhibits a curvy relationship between the two stated factors, as in the early growth stages, emissions intensity increases along with the increase in country’s wealth, while at the later stages, due to advancement in the cleaner production, the country moves towards prosperity by reinvesting the money into carbon mitigation efforts, which tend to decline global emissions (see, Stern 2004, Dinda 2004). Mathematically, the equation is modeled by using the logarithm of the indicators in a quadratic function, i.e.,

$$\ln(EI) = \alpha_0 + \alpha_1 \ln(Y) + \alpha_2 \ln(SQ.Y) + \lambda \ln(X) + \varepsilon \quad (1)$$

where, EI shows per capita emissions intensity, Y shows per capita income, SQY shows square of Y , and X shows other potential regressors.

Figure 1 shows the inverted U -shaped EKC relationship between EI and Y for ready reference.

Figure 1 shows that emissions intensity (EI) initially increases as country moves towards industrialization that harmed natural environment in a form of high carbon emissions and larger depletion of resources, while after reaching at certain threshold level, the curve return to decline due to reinvest the income in environmental protection that would be helpful to lessen air pollution and conserve natural resources.

Pollution haven hypothesis (PHH) The PHH shows that industrialized nations always found a discounted economic and natural resources to setup their factories abroad in order to produce massive goods and high economic rents, which often comes with high emission concentration in the atmosphere. These unsound environmental practices are largely been visible due to low stringent environmental regulations, which increase its economic and environmental costs in the form of global healthcare damages. The pollution intensive production is merely been visible by some other factors including financial and trade liberalization policies, which supports country's economic growth on the cost of high emissions intensity, which sabotaged the United Nation SDGs. The EKC hypothesis provides a good platform to assess PHH during industrialization phase where massive industrialization leads to deteriorate natural environment, which further re-correct in the post industrial phase where the reinvestment of fund in the sustainability agenda leads to lessen carbon emissions and restore country's natural resources (see, Eskeland and Harrison 2003, Cole 2004, Levinson and Taylor 2008). Figure 2 shows the hypothetical PHH for ready reference.

Figure 2 shows that negative correlation between Q and RI, which implies that higher regulatory intervention reduces

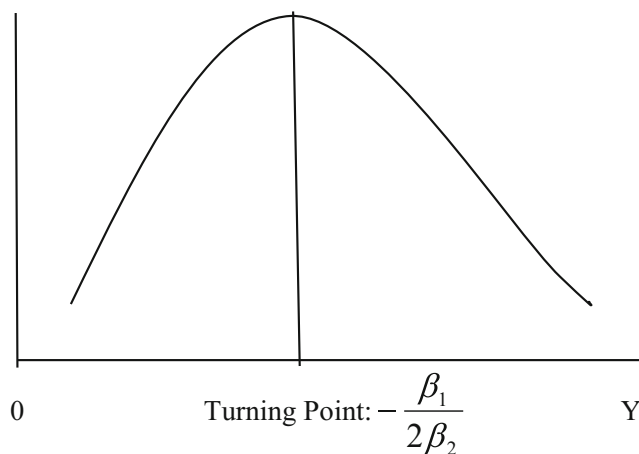


Fig. 1 A hypothetical EKC relationship between EI and Y

industrial output that is one of the basis to shifts industrial production from developed to developing countries due to ease of environmental regulations.

Population-associated emissions (IPAT hypothesis) The $I = PAT$ is commonly used equation in the environmental sciences to study the impact of population growth (P), affluence (A), and technology (T) on emissions intensity (I) across countries. It is assumed that all these three factors are largely responsible to deteriorate natural environment in the form of high carbon emissions. The human factor used country's wealth and technology in order to proceed towards industrialization and produced massive public and private goods, which often caused high toxic air pollutants that are severely affected country's health and wealth (see, Chertow 2000, York et al. 2003, Dietz et al. 2007). The given equation is written in the following way:

$$\ln(\text{CO}_2) = \alpha_0 + \alpha_1 \ln(\text{PG}) + \alpha_2 \ln(\text{GDPpc}) + \alpha_3 \ln(\text{TECH}) + \lambda X_i + \varepsilon \tag{2}$$

where CO_2 shows carbon emissions (proxy used for emissions intensity), PD shows population density (proxy used for population growth), GDPpc shows GDP per capita (proxy used for affluence), TECH shows technology, and X shows other exogenous factors.

Figure 3 shows a hypothetical relationship of IPAT for ready reference.

Figure 3 shows the positive association between I and PAT due to low advancement in the cleaner production technologies in the country profile, while this relationship could be averted when the following situation would arise, i.e., population genius principle, sustainable development, and green technology (see, Shouket et al. 2019; Hishan et al. 2019; Saleem et al. 2019). These three situations merely attained in the developing countries; thus, the curve is still shown with positive slope (negative impact).

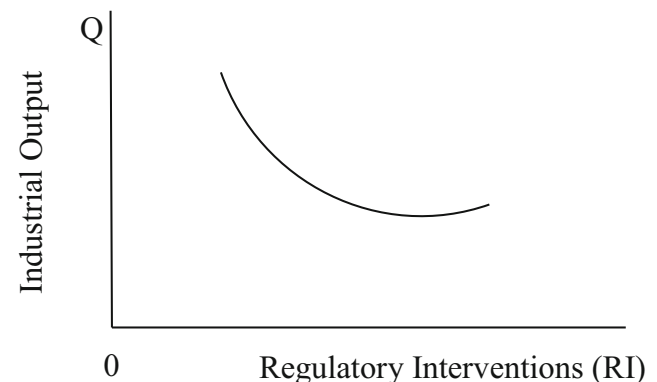


Fig. 2 A hypothetical PHH

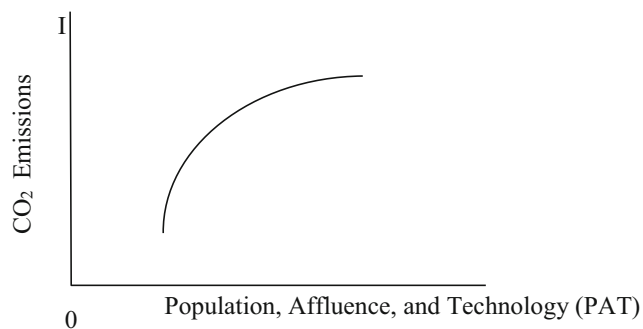


Fig. 3 A hypothetical relationship of IPAT factors

Environmental sustainability agenda The term “environmental sustainability” is most commonly referred with the term “sustainable development” that has three main pillars, i.e., social sustainability, environmental sustainability, and economic sustainability. The environmental sustainability is the rate at which countries produced renewable resources and lessen air pollution that supports the country’s long-term vision of sustained growth (Hansmann et al. 2012). The United Nation presented the sustainable development agenda in the historic UN Summit in September 2015. The UN suggested 17 goals that would transform the global planet with shared prosperity. Among 17 goals, the goal-13 is related with climate change that is the major concern area of the globalized world to mitigate high-mass carbon-GHG emissions through sustainable instruments. The United Nation (UN) integrated environmental sustainability in to the different sustainable development goals (SDGs) by 2030, which is pivotal for long-term sustained growth across the globe (UN 2016).

Research gap(s)

The earlier systemic review of literature on healthcare sustainability is largely based on hospital-based patient surveys that focused on different thematic variations, including communities of practice in the healthcare sector (Ranmuthugala et al. 2011), environmental sustainability (McGain and Naylor 2014), healthcare innovation (Lennox et al. 2018), health effects of climate change (Nichols et al. 2009), and redesigning healthcare organizations (Obucina et al. 2018). These studies comprehensively surveyed in different hospital settings and proposed the number of policy implications for the betterment of attaining global healthcare sustainability. This study is unique in a sense that it is not hospital-based patient survey, and it is fairly conducted in open economy environment where healthcare sustainability is affected by toxic air pollutants, which is mostly found with the earlier literature review based on mixed methods. The study has filled the literature gap by interconnected both the healthcare infrastructure and environmental factors that are fairly absent in the earlier literature in macroeconomic settings. The study is in line with the United Nation SDGs that emphasized the need of mitigating high

carbon emissions through sustainable policy instruments (SDG-13), which would be helpful to redesign healthcare policies (SDG-3) for the betterment of the patients, hospital infrastructure, and reduce communicable diseases.

Study design, results, and discussion

The study design is qualitative in nature, as environmental and healthcare-related data is retrieved from the past scholarly papers and on the basis of information; the study identified the number of critical factors that negatively influenced healthcare agenda across the globe. The systematic literature review comprises the following steps, i.e., an appropriate database selection, journal selection, and article selection. The Google scholar, PubMed, and Science Direct are used as a database selection, while journal and its article are selected on the basis of relevance of the current study. The stated database is selected due to its highly visibility and acceptability in the academic and research arena. The following key search terms are used to select the articles, i.e., healthcare sustainability, environmental impacts on health, environmental sustainability, and death and dying factors. The Boolean operators, i.e., “AND,” “OR” are used in the search terms. These key search words were displayed a high number of results, which have been critically evaluated as per the study themes and its relevance, while rest were discarded due to irrelevant study scope. Further, to establish the face validity and reliability of the selected scholarly papers by reporting the current and latest research in the highly cited impact factor journals, mostly retrieved from Science Direct and Pub Med data base. Table 1 shows some healthcare-related critical factors in the Eastern countries.

On the other stream of literature based on Western culture that has different death and dying concepts, it has a certain dimension to view death fear and anxiety, emphasized to better their lives by healthcare reforms, latest technologies, and healthcare utilization. Table 2 shows the meta-analysis of 30 current studies about healthcare factors for ready reference. The table shows 17 covariates of death and dying concepts in Western world, including (i) the number of physicians that should be in required numbers to handle and counseling the patients about their healthcare symptoms, illness, medications, and other healthcare advices for spending healthy life, (ii) advanced medical technologies that may increase the life of patients, and (iii) Euthanasia (means assisted suicide), whether it would be physician-assisted suicide or it would called mercy killing; however, it would be assisted when the patient has no other choice to reduce its pain by many years and give up by its pain, so it would be assisted by the doctor for escape out from this world. The fourth factor is absence of law for euthanasia, i.e., in many Western countries where there is no religious commitment and there is no concept of life after death, so the frustration begins when the person’s sick life is prolonged, and

Table 1 Critically reviewed healthcare factors in Eastern countries

Authors	Country	Results
Cheraghi et al. (2016)	Iran	Based on critical review of the past literatures, the clinical draft has been made for resuscitate dying patients to improve (i) their <i>quality of life</i> , (ii) <i>overall healthcare costs</i> , and (iii) <i>treatment costs</i> .
Dadfar et al. (2016)	Iran	146 volunteer subjects have been studied to assess their perceptions <i>about death anxiety and religious spiritual wellbeing</i> in Iran and found some connections in sub-items interrelationship between the two factors; however, at aggregate level, the study does not establish any significant association between the two stated factors, based on available sample size.
Gameel and Kandeel (2016)	Egypt	The study is all about the cancer and intensive care unit's patients that observed by the attended nurses about their feeling of death and anxiety in Mansoura hospital and found some reported illness that affect the quality of life of the dying patients. Hence, the study enforced the need of quality guidelines related with healthcare policies to improve <i>end of life care in hospitals</i> .
Asadzandi et al. (2017)	Iran	Baqiyatallah hospital is used as a sample unit to assess the hospitalization and healthcare reforms regarding the death and dying patients and found some critical facts that been observed by the attending nurses in their patients, including <i>fear of death, early death, and grave fear</i> ; however, <i>spiritual care</i> gives more energy to believe on "life after death" that reduces the fear of death, which needs more policy cautions to be made in hospitals for developing healthcare guideline about spiritual care.
Razban et al. (2016)	Iran	The study emphasized the need of " <i>life sustaining treatment</i> ," which is viably possible when the patients who suffered with unrecovered illness to get a positive response to their family and their support that improve quality of dying patient's life. Thus, the need of general awareness about the life-sustaining treatment required more general education about life care treatment to the common peoples that responsibly do act with the patients in end of life care treatment.
Soleimani et al. (2017)	Iran	330 cancer patients participated in the study to assess their perceived death anxiety and quality of life, and found that cancer patient moderately shows death anxiety and their <i>quality of life scale</i> decrement over the time. The death anxiety largely visible in those patients that have a daughter while the patient has a son shows improve quality of life and less death anxiety.
Ahaddour et al. (2017)	Moroccan Muslim women lives in Antwerp (Belgium)	The study shows that <i>life after death</i> journey gives more relaxation to the Muslims that reduces death and dying anxiety and gives more religious life to be prepared for the next infinite life in the other world.
Nia et al. (2015)	Iran	11 war veterans during Iran-Iraq wars subject results were documented in the study about death anxiety and concluded to the four main points, i.e., <i>fear of life after, farewell, separation, and physical dissolution</i> .
Abdel-Khalek (2004)	Comparative study of Egypt, Kuwait, and Syria	Death anxiety scale was used to assess anxiety level in three countries and found that Egyptians were likely to feel death <i>anxiety for postmortem event and lethal diseases</i> , while grave fears more likely to see in all three countries. Kuwait has a high mean value of death anxiety scale as compared to the rest of two countries. The female reported high death anxiety as compared to their counterparts in all three countries.
Abdel-Khalek and Tomas-Sabado (2005)	Egypt and Spain nursing students	Two different sample of nursing students being evaluated in the study to evaluate different death anxiety scales and found that Egyptian sample has a high mean score value of death anxiety as compared to the Spanish sample, which confirmed that <i>general anxiety and death anxiety</i> although have a different <i>stress level</i> , however, both are correlated between two assigned samples.
Abdel-Khalek and Al-Kandari (2007)	Kuwait	236 subjects were used to conduct in the study to identify the possible determinants of death anxiety among both the gender and found that women have a greater fear of death as compared to their counterparts, while middle-aged peoples have a lower mean score value of death anxiety as compared to the younger once. The results further show that <i>respondents' age</i> substantially decreases the death anxiety; however, <i>fear of death, postmortem, and notorious</i> infections more pronounced in the sample show greater degree of death anxiety.
Chuin and Choo (2009)	Malaysia	Based on 320 subjects, the study examined the linkages between <i>death anxiety and intrinsic-extrinsic religious orientation</i> of the sample and found that intrinsic religious orientation substantially decreases the death anxiety while extrinsic religious orientation largely visible in order to increase death anxiety level. The death anxiety is found equal level of intensity between young and adult in a county.

Source: literature extracted from past studies. Italic text highlighted the main factors of death and dying

Table 2 Critically reviewed healthcare factors in Western countries

S.No.	Authors	Physicians	Medical technologies	Euthanasia (assisted suicide)	Absence of law for Euthanasia	Hospital expenditures	Healthcare utilization	Euphemisms (loaded language)	Ecstasy (emotions)	Mysticism (spiritual belief)
1	Rukunmauykit and Pholphirul (2017)	✓	✓	✓						
2	Jones (2016)			✓						
3	Bekelman et al. (2016)			✓		✓				
4	Hänggi and Diederich (2017)						✓			
5	Estey (2017)								✓	
6	McNiven (2016)		✓							✓
7	Beard and Burger (2017)									
8	Woodthorpe (2017)									
9	Hooker et al. (2016)									
10	Ashby (2017)		✓				✓			
11	Mercan et al. (2016)									
12	Savage (2016)									
13	McKenzie et al. (2017)			✓	✓					
14	Chow (2017)									
15	Ortu et al. (2019)									
16	Jong and Halberstadt (2017)									✓
17	Dew et al. (2016)								✓	✓
18	Borgstrom and Ellis (2017)									✓
19	Flannelly (2017)									
20	Walter (2017)									
21	Keehan et al. (2017)									
22	Semplicini (2017)	✓	✓			✓	✓			
23	Barratt et al. (2017)					✓				
24	Visser (2017)								✓	
25	Van Brussel and Carpentier (2017)								✓	
26	Gibbs et al. (2015)								✓	
27	Meghani and Hinds (2015)		✓			✓	✓			
28	Darer et al. (2015)	✓				✓	✓			
29	García-Gómez et al. (2015)					✓	✓			
30	Ryan (2015)			✓						

S.No.	Mortality	Funeral Expenditures/ Industry/contents	Endemic (disease/ condition)	Weight loss due to losing a loved ones	Death anxiety, loss and fear	Health inequality	Digital death	Nursing
1								
2								
3								
4								
5								

Table 2 (continued)

S.No.	Mortality	Funeral Expenditures/ Industry/contents	Endemic (disease/ condi- tion)	Weight loss due to losing a loved ones	Death anxiety, loss and fear	Health inequality	Digital death	Nursing
6	✓							
7		✓						
8		✓						
9			✓					
10	✓		✓					
11				✓				
12					✓			
13					✓			
14					✓			
15					✓			
16								
17		✓			✓			
18					✓			
19					✓			
20		✓			✓			
21								
22								
23						✓		
24								
25					✓			
26		✓					✓	
27								✓
28					✓			
29	✓					✓		
30								

Source: Authors extracted from different literatures.

Note: The check mark shows that the given factors are associated with the cited studies

Table 3 Environmental effects on public health: latest estimates

Authors	Environmental and other factors	Health concerns
Alias et al. (2019)	Industrial toxic air pollutants, PM10 concentration, etc.	Acute coronary syndrome, asthma, cardiovascular disease, neurobehavioral function, etc.
Koolen and Rothenberg (2019)	NH3, NOx, SOx, PM concentration, etc.	Declining life expectancy
Saleem et al. (2019)	CO2 emissions and PM2.5 concentration.	Life risks of maternal death, under -5 mortality rate, prevalence of undernourishment, etc.
Aggarwal et al. (2019)	Oxidative and epigenetic factors	Increase COPD incidence
Kuo et al. (2019)	PM, O3, SO2, and NO2	Increase childhood asthma hospitalization
Guo et al. (2019)	SO2, PM2.5, O3, NO2, etc.	Respiratory diseases
Pratali et al. (2019)	PM10, black carbon, etc	Lungs and cardiovascular diseases
McElhaney et al. (2019)	Vaccines preventable disability	Pneumonia, influenza, and lower respiratory tract infection
Horiguchi (2019)	Cadmium exposure	Renal dysfunction
Becquart et al. (2019)	Natural disasters	Incidence of cardiovascular diseases (CVD)
Fan et al. (2019)	PM2.5, PM10 concentration	CVD, respiratory, and lungs cancer
Yamanda (2019)	Natural disasters	Chronic pulmonary diseases (CPD)

they asked to give up by his/her life as per physician-assisted suicide, but however, there is no visible law that is available for euthanasia patients that legally documented, (v) hospital expenditures or length of stay in hospitals may increase the hospital/medicated expenses that further frustrated the patients about their lives to give up, (vi) healthcare utilization is pronounced for reduction of healthcare expenses, (vii) Euphemisms (means loaded language) is used in a person’s death as per condolence, or grief; however, it might be taken bad expression by their family members by using these loaded words for it, (viii) ecstasy is used for full of emotions when a person died or near to die, and the family emotions may come out to memorize for their beloved ones, (ix) mysticism (means spiritual belief) views on death and dying, and (x) mortality is the fact for life ending. The 11th factor is funeral expenditures that put a burden on the person’s family that give up by his/her life and planned to arrange his/her expenses for its dignity, (xii) endemic (means disease) condition is affected person’s healthy life, (xiii) weight loss is a natural occurrence in many conditions due to losing their loved ones life, which is affected the person’s family members or closed ones till many days/weeks/years, (xiv) death anxiety and loss and fear is a natural phenomenon that almost everybody feels in their elderly life in general; however, this may happened in every stage of life, (xv) health inequality is an another factor of improper health attendees as rich peoples acquired better health facilities in private hospitals and taken expensive medicines, while there is limited health facilities available to the poor peoples and become more ill due to improper healthcare facilities, (xvi) digital death is the new buzz word that captured death ceremonies in a digital cameras and upload in a social world for getting more sympathies and well wishes, and finally (xvii) nursing facility may reduce the fear of death and anxiety, as patient get paid full attention to recover from its disease in their early symptoms.

In a similar line, Zaman et al. (2016) confirmed that healthcare activities highly influenced with toxic air pollutants need to mitigate with global sustainable healthcare policies. Khan et al. (2017) argued that healthcare inequalities damaged the process of global pro-equality growth argument. Aldakhil et al. (2018) concluded that food, beverages, tobacco consumption, and smoking prevalence in the male and females largely compromised healthcare sustainability across countries. Table 3 shows the environmental effects on public health across the globe.

These factors are highly responsible that negatively influenced healthcare agenda all across the globe. The stated literature contribute in the academic research in the two main perspectives, i.e., first, the death and dying studies were mainly identified with some psychological and religious factors, while secondly, the environmental factors that are closely associated with health damages including high risk of respiratory and lung cancer, CPD, CVD, renal dysfunction, and asthma exhibit the negative environmental outcomes on health, which sabotaged the United Nation healthcare sustainability agenda. Thus, the healthcare officials and environmental protection agencies required extensive sustainable development policies to mitigate highly toxic air pollutants that majorly caused healthcare damages across the globe.

Conclusions and future research directions

Conclusions

The study used systematic review of literature to evaluate the environmental impacts of healthcare damages across the globe. The results identified more than 40 important factors

that are associated with sustainable healthcare infrastructure, which highlight the need of long-term healthcare sustainability policies for protection from toxic air pollutants that lead to death and dying across the globe. The following main outcomes were revealed with the systemic review, i.e.,

- i) Death is a universal truth and no one can escape out from it.
- ii) “Life after death” gives conviction to the peoples to work out for the humanity and for the whole world, and to obey “Haqooq Allah” and “Haqooq Abaad.”
- iii) Fear of death, death anxiety, and depression are associated with gender, religion, education, age, and other subjective matters.
- iv) The loss of hope and health recovery may increase the fear of death, anxiety, and depression, and
- v) Hospitalization, healthcare costs, and funeral expenses are specific antecedents related with the person’s family, whom have been severally sick from many years and died later.

The following proposed options suggested to the government officials, healthcare professionals, and policy planners to emphasized the need of healthcare reforms across the globe, i.e.,

- i) Sustainable healthcare reforms are indispensable for sound health; therefore, healthcare infrastructure should be well equipped and fully advanced to recover the patients’ health at their early stage of symptoms.
- ii) Psychologists, healthcare professionals, and other clinical trials may be helpful to reduce the fear of death and dying, and give hope to the patients to come back to their healthy lives, and
- iii) Government and physicians should have to provide healthcare intensive therapy to all the peoples on equality basis.

Limitations and future research directions

The study is qualitative in nature, and it has used systematic review of literature to find the important antecedents of sustainable healthcare infrastructure across the globe. The study is limited with the qualitative data and not used any secondary data for empirical estimation. The study suggested to use a specific secondary data set to statistically analyze the environmental impacts of healthcare damages in a panel of low-, middle-, and high-income countries through sophisticated econometric techniques, which would be helpful to generalize the results in a more efficient way.

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