Global Health Issue Research Paper:

Mortality in Children Under Five

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*I have neither given nor received help on this work, nor am I aware of any infraction of the Honor Code.*

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**Introduction**

 Childhood illness and mortality is a big issue in global health; so big that it is the fourth Millennium Development Goal (Holtz, 2017). Child mortality affects children of all ages; although, in this paper I focus on children under the age of five. Some causes of child mortality include undernutrition, and illnesses and diseases, such as pneumonia, diarrheal diseases (cholera, rotavirus, typhoid, shigellosis, dysentery, etc.), malaria, measles, HIV/AIDS, pertussis, meningitis, etc. (Holtz, 2017). Millennium Development Goal 6 addresses the fight against many of these diseases (Holtz, 2017). Some causes of infant mortality include preterm birth, infections, asphyxia, and congenital abnormalities (Holtz, 2017). The populations most affected by mortality of children under the age of five are stated in our Global Health Care: Issues and Policies textbook, including children in developing or low-income countries, Sub-Saharan Africa, eastern Asia, the Caribbean, Latin America, etc. (Holtz, 2017). Child mortality rates are much higher in underdeveloped countries than they are in developed countries for the reason of the lack of access to proper health care resources and services, as well as basic human needs, such as those on the first level of Maslow’s hierarchy of needs: air, water, food, shelter, sleep, clothing, etc. In underdeveloped countries and poor areas, children often (1) do not have access to health care resources (i.e., vaccinations and immunizations) in order to prevent certain diseases, (2) do not have access to health care resources (i.e., technology, medication, skilled health care professionals) in order to treat certain diseases once they are obtained, and (3) do not have adequate living conditions or access to basic human needs, and therefore, obtain diseases due to this or die due to undernutrition. Underdeveloped countries usually have bad economies, and as a consequence of the high rate of child illness and mortality, these countries economic and social statuses become even worse, causing a cycle. Risk factors of child illness and mortality include low birth weight, malnutrition, a weakened immune system, pollution, vitamin and nutrient deficiencies, unsafe drinking water, unhygienic practices and unsanitary facilities, transmission from mother to infant, unsafe living conditions, lack of education, lack of health care resources and services, etc. (Holtz, 2017). Since the Millennium Development Goals were put in place, child mortality has drastically declined (Holtz, 2017). However, this reduction is inadequate in order to reach Millennium Development Goal 4.

**Literature Review**

 In the first article I read by Declan French—entitled “Did the Millennium Development Goals Change Trends in Child Mortality?”—he discusses the Millennium Development Goals’ impact on the status of mortality for children under five. He states that since 2000, there has been a drastic increase in the reduction of child mortality rates worldwide, along with an increase in economic growth rates as well (French, 2016). As stated in the article, some of the reasons child mortality rates have decreased since 1990 are due to the increased amount of supplies delivered to developing countries (mostly from foreign aid), increased funding for health services, the founding of the Global Alliance for Vaccines and Immunization (GAVI) in 2000 (which enabled millions of children to be vaccinated), and the increased access to sanitation and safe water (French, 2016). In the three main sections of the paper, French discusses the methods, the data, and the results, respectively. Listed in the methods are contributing factors, such as “unsafe water, malnutrition, inadequate immunisation, lack of education and lack of access to basic health and social services,” and strategies for change, including “improving national standards and community practices for safe motherhood; improving maternal and newborn healthcare status and access to services; and supporting programmes for immunisation and vaccination, the use of oral rehydration therapy, nutrition and water and sanitation interventions” (French, 2016, para. 14). Should these strategies be put into place, we should ultimately see an overall decrease in child mortality rates, and an increase in global health of children. In the data section, French discusses how and where they got their numbers for the data and statistics regarding child mortality in each developing country. The results come from only developing countries, as they are the main focus of the Millennium Development Goals. The results show that 68 percent of developing countries have improved their rates of decline in child mortality (French, 2016). French also discusses the increase in vaccinations and immunizations, and safe water and sanitation in countries since the Millennium Development Goals were established that has contributed to the decrease of child mortality (French, 2016). To conclude his results, French states that the reason we are closer to reaching Millennium Development Goal 4 is because of economic growth, coming to this conclusion because economic growth had a statistically larger impact on child mortality rates than immunizations, safe water and sanitation (French, 2016). He states that from the statistical data discussed throughout his article, the Millennium Development Goals did not affect child mortality in developing countries.

The most significant pro found in this article is the overall decrease in child mortality rates, and the facts to prove it. On the other hand, these rates did not decrease as much as expected. Also, the decrease came from economic growth, as concluded by the author, rather than the main focuses of the Millennium Development Goals: safe water, sanitation, immunizations. Aside from these three things, there were more strategies listed in the beginning that were not discussed later in the article, which is a con. Whether they were not discussed because they were not implemented or they did not show enough statistical difference was not clear. However, if they had been executed, more change would have been expected. I believe that increasing access to safe water and sanitation, as well as providing immunizations is extremely important to continue to implement. Although, I believe more needs to be put in place than just these three things in order to promote significant change. Perhaps the author is right and we need to focus more so on growing the economy in developing countries to see the necessary change.

The second article I read, entitled “World Health Organization perspectives on the contribution of the Global Alliance for Vaccines and Immunization on reducing child mortality,” discusses the impact from the Global Alliance for Vaccines and Immunization (GAVI) in partnership with the World Health Organization (WHO) on achieving Millennium Development Goal 4. Globally, child mortality has significantly decreased since 1990 until 2013, from 12.6 million to 6.3 million deaths (Bustreo, Okwo-Bele, & Kamara, 2015). By the end of 2013, GAVI had immunized hundreds of millions of children, preventing six million deaths (Bustreo et al., 2015). Death of children under five is most often caused by these three diseases: malaria, pneumonia, and diarrheal diseases (Bustreo et al., 2015). The importance of vaccines is emphasized in the article, stating that they are a cost-effective intervention that prevents many diseases (Bustreo et al., 2015). The contribution that GAVI has had, along with the WHO, on vaccinating children in developing countries is discussed throughout. About six years ago, the Decade of Vaccines-Global Vaccine Action Plan (GVAP) was launched by the World Health Assembly with the goal of making vaccinations available to everyone worldwide by 2020 (Bustreo et al., 2015). Truly making vaccines accessible to everyone would completely change the outlook of global health, and drastically reduce the number of childhood deaths. The article discusses four of the vaccinations they provide in separate sections: pneumococcal vaccines, rotavirus, measles and hib meningitis infection (Bustreo et al., 2015). They also talk about GAVI’s influence on Millennium Development Goal 5, as they provide the HPV vaccination to young girls and women (Bustreo et al., 2015). They conclude the article by stating that GAVI has helped make advancements towards Millennium Development Goal 4 over the years; however, support is needed to continue and strengthen these efforts in order to fully achieve this goal.

The focus on vaccinations in this article is a huge pro, as vaccinations and immunizations can prevent many life-threatening diseases. Making vaccines available to developing countries that would not otherwise have access to them is making them one step closer to achieving the Millennium Development Goals and having a true health care system. I personally think making vaccines available worldwide is necessary to reach global health and the Millennium Development Goals. However, the con to this is that they are only avoiding diseases that are preventable by vaccination. There are many other diseases and issues that cause child mortality throughout the world, including the ones discussed in the first article: water and sanitation. Another pro is that GAVI is also combating maternal mortality and illness. In some ways, improving maternal health (MDG 5) in turn helps to reduce child mortality (MDG 4). The first two articles I read discussed methods to improve child health, both including vaccinations and immunizations. However, the second article focused on efforts by GAVI and WHO in regard to vaccination, while the first article discussed safe water and sanitation as well and included influence by worldwide economic growth.

The third article I read was titled “Progress towards Millennium Development Goal 4/Authors’ Reply.” The first sentence of the abstract stood out to me, stating that in order to reach Millennium Development Goal 4, the original strategies and period of time need to be reevaluated (Kerber et al., 2012). The article was split up into three different sections, each written by different groups of authors. The first section of the article examined the rise and fall of child mortality rates since 1990, as the other articles have done, stating that the rates peaked in 2000 most likely due to the accurateness and completeness of the reporting (Kerber et al., 2012). Therefore, the significant increase in numbers is due to the improvements in data collection rather than increase in childhood deaths. The article continues talking about numbers: how if the rate of children under five mortality fluctuates, it can in turn affect the rate of neonatal mortality, and vice versa (Kerber et al., 2012). Also, using one mortality rate to calculate the other will ultimately end in an underestimation or overestimation for one or the other (Kerber et al., 2012). In the second section of the article, they state that it will take much longer to achieve Millennium Development Goal 4 than originally expected, and that using resources effectively is necessary to make this happen (Kerber et al., 2012). The authors “argue that the intergenerational transfer of poor health in many developing countries will inevitably slow down progress, even under ideally implemented interventions” (Kerber et al., 2012, para. 8). They believe that maternal height is correlated with child mortality in majority of the developing countries, and that an intergenerational, holistic focus is necessary to achieve child health (Kerber et al., 2012). In the third section of the article, the authors examine estimates for vital registration, explaining that they differ from other estimates because they derive their numbers from different sources (Kerber et al., 2012). The authors of the third section state that they agree with the authors of the first section about data collection, and the authors of the second section about the relationship between maternal height and child mortality (Kerber et al., 2012). The third section concludes with the authors’ beliefs that child mortality rates have been decreasing over the past few decades and will continue to decrease in the coming years (Kerber et al., 2012).

The biggest pro I saw in this article was in the very beginning of the abstract: the fact that they recognized that the original strategies and period of time for the Millennium Development Goals need to be reevaluated (Kerber et al., 2012). In order to fix any problem, you must first recognize that there is one. As we know, the Millennium Development Goals were not achieved by 2015, as they were set out to be. However, what is interesting is that this article was written in 2012, whereas the previous two articles were written after the goals were expected to be accomplished. This means that they anticipated three years ahead of time that they were not going to achieve all of their goals by 2015, and this allowed them more time to reassess their plans, which is another pro. Although, a con is that when I read the article, I did not see a plan for new strategies to reach this goal. The article focused mainly on data collection, rather than methods to continue to reduce child mortality rates, as the first two articles did. A con stated in the article is the inaccurateness of the numbers regarding death rates, etc. The different methods of data collection discussed leads to different numbers, which is misleading to know which method is correct. With advancements in technology and data collection, it is hard to know for sure what the rates used to be before these new resources; therefore, making it difficult to truly know how it has changed. This article differed from the others because it was separated into three sections by different authors who had differing opinions on the issue.

The fourth article I read was titled “Measles Mortality Reduction Contributes Substantially to Reduction of All Cause Mortality Among Children Less Than Five Years of Age, 1990-2008.” Throughout the article, the authors discussed how efforts to reduce measles mortality has contributed to lowering overall child mortality rates (Van den Ent, Brown, Hoekstra, Christie, & Cochi, 2011). From 1990 to 2008, measles as the cause of death in children under five dropped 6%, equaling to a 23% drop in all-cause mortality (Van den Ent et al., 2011). The authors state that the declining mortality rate is due to implementing interventions and socioeconomic development; though, this decline is insufficient (Van den Ent et al., 2011). As stated previously, the occurrence of child mortality is seen more prominently in rural areas, poor areas, and Sub-Saharan Africa (Van den Ent et al., 2011). Compared with the two major causes of death (diarrheal diseases and pneumonia), measles deaths made the largest decline from 1990 until 2008: from 872,000 deaths to 118,000 deaths (Van den Ent et al., 2011). Immunization programs have been put into place to immunize millions of children to prevent many different diseases; for example, The Measles Initiative (Van den Ent et al., 2011). However, there were many who did not receive vaccines through the immunization programs: an estimated 23.8 million young children and infants (Van den Ent et al., 2011). In situations and areas where difficulties capturing data are experienced, they use modeling instead, including both proportional mortality models and natural history models (Van den Ent et al., 2011). Since 2007, funding for the measles immunization programs has significantly dropped, therefore causing measles outbreaks to rise back up again (Van den Ent et al., 2011). The authors conclude with the idea that in order to achieve Millennium Development Goal 4, more aggressive efforts to prevent death caused by measles need to be put into place, as well as additional efforts to combat pneumonia, diarrheal diseases, and malaria (Van den Ent et al., 2011).

In this article, a pro is that they mentioned both the impact of health interventions as well as socioeconomic growth on child mortality. The first article also mentioned both of these things, but stressed that economic growth was the biggest factor. A con is that, in some parts of the article, it seems as though the authors believe focusing on reducing measles deaths will reduce child mortality. Despite that, it is necessary to tackle other diseases that cause death in children in order to see a more significant and impactful change in mortality rates. Another con is the fact that funding for measles control has decreased, causing death by measles to rise again. Even though measles deaths have significantly declined, without continuing immunization programs, the rate of measles deaths will not stay this low. On the other side of this, the authors of this article are making more people aware of this issue, which is a pro. This article discussed issues with data collection, but not as much as the third article did. One thing that all of the articles so far have shared is the dates in which they discuss data, all starting in 1990 and ending in the 2000s.

The fifth article I read was entitled “Reducing mortality from childhood pneumonia and diarrhoea: The leading priority is also the greatest opportunity.” As stated earlier in this paper, pneumonia and diarrheal diseases are the top two causes of death in children younger than the age of five in developing countries. In order to achieve Millennium Development Goal 4, the priority focus needs to be placed on preventing and treating these two diseases in lower income countries (Rudan, Nair, Marušić, & Campbell, 2013). The authors state that increasing child health interventions has the potential to prevent diarrhea deaths by 95% and pneumonia deaths by 67% before 2025 (Rudan et al., 2013). In underdeveloped countries, they do not have access to good health care, and therefore, do not have access to vaccinations to prevent, and antibiotics to treat, these diseases (Rudan et al., 2013). Procedures have been put into place to lower the prices of vaccines and bring them to developing countries, where they would otherwise not have them (Rudan et al., 2013). Rotavirus, one of the most common diarrheal diseases, is now preventable by vaccine; therefore, pneumonia and rotavirus can be vaccinated for together, as they share many of the same risk factors (Rudan et al., 2013). Preventing and treating these diseases, “along with increased political stability in many low– and middle–income countries, their economic development, improved sanitation and access to care, progress in empowering and educating women in the society and strengthening health systems,” are all important factors in significantly reducing child mortality worldwide (Rudan et al., 2013, para. 5). In the last paragraph, the authors talk about many other articles that are or will be published regarding this issue to allow readers to stay updated on this global problem (Rudan et al., 2013).

A pro of this article is that they are bringing vaccinations for pneumonia and rotavirus into underdeveloped countries, so that children there can prevent these diseases. Because these two diseases are the most fatal for children under five, focusing on preventing and treating these diseases is a smart strategy to decrease the mortality rate. The other articles recognized these two diseases, but did not place the necessary emphasis on them as this article did. However, as with the article about measles, the focus is only on certain diseases, rather than all-cause deaths, which is a con. Although this strategy will prevent deaths by pneumonia and diarrhea, it will not prevent deaths by other causes. One pro that all five articles share is the emphasis on the necessity of reducing childhood mortality.

**Discussion & Relevance**

 I have included discussion and relevance of this topic throughout my introduction and literature review, including the significance of this problem worldwide, what has been achieved so far in the efforts to reduce this problem, what methods are going to be put in place over the years to come and the funding to support these strategies. However, in this section, I will emphasize the major points and go into more detail of the themes and issues regarding child mortality, such as health care access, social justice and human rights.

Mortality of children under five is most often seen in poor, rural areas, and underdeveloped countries, where access to health care is frugal. It is extremely unfair that helpless children become ill with life-threatening diseases because of the poor living conditions they are brought into. Health care is a basic human right that unfortunately many people do not have. Lack of health care services and resources in developing countries remains a social justice and global health issue that affects millions of people. Establishing universal health care worldwide would drastically reduce the number of deaths in children under the age of five, and also help to correct many of the other issues presented in the Millennium Development Goals. The first level of Maslow’s hierarchy of needs shows us the primal human needs, including air, food, water, shelter, clothing, sleep, etc. These are the most basic things that a human needs in order to survive, and there are children in this world who do not have these fundamental necessities to allow them to live past their fifth birthday. The thought of this in itself should make people want to strengthen the actions necessary to reduce child mortality in these low-income countries. This also brings up the issue that many people remain uneducated on this matter, not understanding the magnitude and seriousness of it. Many people in these underdeveloped countries who are suffering from these problems remain uneducated as well, including the mothers of these ill children. While the literature shows that methods are and have been in action to halt this issue, the literature also shows beliefs from many people that these actions are insufficient. There remains the gap in the literature: it was not stated what methods are going to be implemented to make these actions sufficient, and how these methods will be implemented. Perhaps this is a gap because the assumption is that the methods previously established will be continued at a higher, more effective rate.

 The issue of child mortality in some cases is very closely related to maternal health, which is Millennium Development Goal 5 (Holtz, 2017). If women in developing countries and poor areas had access to proper perinatal health care before, during, and after pregnancy, they could potentially avoid these deaths, especially neonatal and infant deaths. Going along with maternal health, maternal education would also help to lessen the prevalence of this issue. Many women in low-income areas do not have the basic education that they need, nor do they have the necessary understanding of pregnancy, childbearing, and motherhood in order to raise a healthy child.

 The problem of child mortality is a global health issue that is relevant enough to be one of the Millennium Development Goals. This shows the magnitude of the matter, and how important it is to be addressed in a timely manner to prevent future unnecessary deaths. While this problem is more prevalent in certain areas, it is an issue that can affect everyone, as infection and disease knows no borders.

**Conclusion**

 Child mortality remains an issue in global health, even after the expected date of achievement for the Millennium Development Goals. Millions of children die from easily preventable diseases and causes due to lack of resources and safe living conditions. As all of the authors in the literature I researched agreed, more needs to be done to reach this goal before the next target date. In conclusion, to accomplish Millennium Development Goal 4, we must continue, and strengthen, the efforts to reduce child mortality. This includes becoming educated on this issue and educating others, and providing resources to improve living conditions and health care services to improve health and prevent infection and disease, to underdeveloped countries to combat the most life-threatening diseases and causes of mortality for children under the age of five. In order to achieve this goal, and reach global health, we must first come together as one.

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