

## What is a Premature Death?

*Brooke Alan Trisel*

### Abstract

The one who dies is deprived of goods that this person would have enjoyed if he or she had continued living, according to the popular “deprivation account of harm.” The person who dies “prematurely” is generally thought to suffer the most harm from death. However, the concept of a premature death is unclear, as will be shown. I will evaluate various definitions of a premature death and will argue that the existing definitions are too ambiguous and unreliable to serve as the basis for estimating the degree of harm from death.

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According to the “deprivation account of harm,” the most popular account of how we can be harmed by death, the person who dies may suffer harm by being deprived of goods that this person would likely have enjoyed if he or she had continued living. Proponents of this view continue to work on overcoming the following challenges to their belief. First, because the dead no longer exist, it is not clear *who* is the subject of the alleged harm. It is also not clear *when* death is harmful to the person who dies.<sup>1</sup>

Deprivation theorists often use examples of individuals who died “prematurely” as support for their belief. For example, Thomas Nagel (1979, p. 9) writes: “The death of Keats at 24 [25]<sup>2</sup> is generally regarded as tragic; that of Tolstoy at 82 is not. Although they will both be dead for ever, Keats’ death deprived him of many years of life which were allowed to Tolstoy; so in a clear sense Keats’ loss was greater. . . .” To give another example, Steven Luper (1993, p. 272) writes: “The idea that a premature death is a misfortune for its victim seems rather obvious. I believe that it has been responsible for most of the anxiety which people (such as I) have felt about dying. . . .”

Although deprivation theorists use the concept of premature death in their arguments, they often do not indicate what they mean by a premature death. What is a premature death? The term “premature death” suggests that the person died *before* something, but before what? In response, one might reply that if someone dies prematurely that this means that the person died before the person should have died. However, it is not clear, as will be discussed later, whether this is a non-moral statement or whether it simply reflects one’s desire for the person to have lived longer. The notion of a premature death is ambiguous, as will be shown, and requires clarification.

Nagel argues that we can be harmed by death despite the age at which we die; even a person who lived to the age of 806 could be so harmed. If death can be harmful regardless of the age at which we die, then one might question whether there is a need to clarify the concept of a premature death. Although some deprivation theorists believe that everyone, no matter the age at which they die, can be harmed by death, other deprivation theorists dispute Nagel’s account and suggest that death can be harmful only to those who die prematurely.<sup>3</sup> Therefore, it is important to obtain a better understanding of the concept of a premature death.

Deprivation theorists can be seen as making two claims. First, they claim that death may be harmful to the one who dies. Second, they claim that the degree of harmfulness varies among those who die; one person may suffer little or no harm from death whereas another person may suffer great harm. Why should we be

concerned with the question of how much harm occurs? Why not just focus on the question of whether death is harmful to the one who dies?

If the members of a jury hear a victim of a crime declare that she was harmed, the jurors want to know, not just whether harm occurred, but *how much* the victim was harmed. Did the harm result in the victim being deprived of only a day's worth of lost wages or was the harm so severe that the victim was deprived of the ability ever to work again? Similarly, when it is claimed that a person was harmed by death, it is important to know, not just whether harm occurred, but the severity of the harm.

Deprivation theorists could be correct that those who die may suffer harm, but incorrect regarding how much harm is occurring. This harm, if it is occurring, might be great or negligible. To convince us that the harm from death is significant enough that it warrants our attention, deprivation theorists must have a reliable and objective method for determining the degree of harm. Does such a method exist? What are the methods used to measure the amount of harm? Are these methods reliable indicators of the degree of harm? The principal aim of this paper is to evaluate the methods utilized to judge the amount of harm from death. I will argue that the existing methods are ambiguous and unreliable and need more work if they are to do the job of measuring the degree of harm.

### **I. The Relations Between Deprivation, Prematurity, and Harm**

Joel Feinberg (1993, p. 187) argues: "The degree of harmfulness of a person's

premature death thus depends on *how* premature it is, given the interests that defined his own particular good.” Feinberg’s statement shows that the degree of harm is thought to be positively correlated with the degree of prematurity. In other words, as the level of prematurity or deprivation increases, there is a corresponding increase in the level of harm that is suffered by the one who dies. A person who dies at age 80 is generally thought to suffer little or no harm from death, whereas a person who dies at age 18 is thought to have suffered great harm.

Deprivation theorists believe that death may be harmful to those who die because it deprives them of *goods* that they would have enjoyed if they had not died when they did. For example, suppose that a person has a strong desire to write a best-selling novel and then is killed at the age of 30 before he had the opportunity to complete the novel. His death will prevent him from ever enjoying the satisfaction of achieving his goal. Even if he had lived to the age of 120, he might never have achieved the goal of writing a best-selling novel. Therefore, deprivation theorists, in estimating how much harm occurs, typically only count goods that one would or might have enjoyed if one had continued living.<sup>4</sup>

If a person who has done everything that he wanted to do in life dies at age 45, one could argue that the deprivation of years of life did not result in the deprivation of any goods. Because the deprivation of time does not always result in harm, deprivation theorists are more concerned with determining how many goods were lost to death than simply measuring how much time was lost to death. However, measuring lost

goods or missed opportunities can be very difficult.

What is a good, how do we know that the person who died likely would have enjoyed that good, and how do we place a numeric value on goods to determine the amount and value of goods lost to death? These questions illustrate some of the difficulties one faces in attempting to measure the amount and value of goods lost to death.

People have attempted to measure the amount of harm from death indirectly and directly. The indirect measures focus on measuring the amount of time lost to death, whereas the direct measures focus on measuring the amount and value of goods lost to death. Because deprivation theorists are primarily concerned with lost goods, they tend to use the direct measures of harm, which are more abstract and difficult to quantify than the indirect measures. In contrast, laymen and epidemiologists tend to use the indirect measures of harm.

## **II. Indirect Measures of Harm**

To have the opportunity to enjoy the goods associated with living, one must live for a certain amount of time. If a person lived for only a minute, there would be no enjoyment of goods. There is a correlation between the amount of goods that can be enjoyed in one's life and the length of one's life, but how strong is this correlation? If there were a perfect correlation between the length of one's life and the amount of goods that can be enjoyed in one's life, such that each additional year of life would yield an additional 100 units of goods, then one could indirectly measure goods lost to

death in terms of time lost to death. For example, if the person who died was deprived of five years of life, we would then know that this person was deprived of 500 units of goods.

The indirect measures of harm that will be considered below are based on the assumption that there is a fairly strong correlation between the length of one's life and the amount and value of goods that can be enjoyed in one's life. Is this a correct assumption? If well-being in one's life is not additive,<sup>5</sup> or if one may value goods enjoyed later in life more than goods enjoyed earlier in one's life, then the amount of time lost to death may not be an accurate indication of the value of the goods lost to death. This would pose a problem for the indirect measures of harm.

To judge whether, and to what extent, someone died prematurely, laymen often subtract the age at which the person died from the average life expectancy. For example, if a person died at age 30 and the average life expectancy was 75, then the difference between these two figures - 45 years of life - is thought to be the amount of time lost to death.

Knowing the average life expectancy is useful information for economists. However, using the average life expectancy as a method for determining whether an *individual* died prematurely is arbitrary and problematic. A common misconception of the average life expectancy is that it is a measure of how long an individual can expect to live.<sup>6</sup> The average "life expectancy at birth" measure, which is the most frequently

reported life expectancy measure, does not represent how long any one individual can expect to live. Rather, it represents the average number of years of life that a hypothetical cohort of people can expect to live from the time of birth.<sup>7</sup> For example, the hypothetical cohort of males born in 2002 in the United States can expect to live an average of 74.5 years.<sup>8</sup> This cohort is considered “hypothetical” because the prediction is based on the assumption that they will experience the same mortality rates that prevailed for the actual population in 2002.

Many people assume that all males born in 2002 can expect to live until the age of 74 and, if one of them does not, then they conclude that he died prematurely. Because, however, the life expectancy figure represents the *average* number of years that the hypothetical cohort can expect to live, statisticians who calculate the figure recognize that some males will live until or longer than 74 years and millions of males will have shorter life spans than 74 years.

Using the average life expectancy as a way of judging whether an individual died prematurely is a crude and inexact method of judging prematurity. It is uncertain why many people use the average life expectancy as a method for judging whether an individual died prematurely. It may be the result of misunderstanding what the measure represents, it may be because the number is readily available, or it may reflect how long they want to live, or perhaps it is all these reasons. In adopting the average life expectancy as the way of judging prematurity, one may be implicitly making a normative statement about how long a person should have lived, as will be

discussed in more detail later.

The World Health Organization (WHO) defines a premature death as a death that occurs before the age of 50. (World Health Report 1998, p. 1) The WHO indicates that the age of 50 reflects the global average life expectancy in 1948. (World Health Report 1998, p. v) This definition exemplifies the arbitrariness of some of the definitions of premature death.

To measure the burden of disease in a society, epidemiologists calculate how many years of life were lost to premature death. This is calculated by subtracting the various ages at which individuals in a population died from the average life expectancy or an arbitrarily chosen number such as the age of 65. This measure is called “years of potential life lost” (YPLL).<sup>9</sup> One problem with this measure, as epidemiologists have recognized, is that it fails to take into account that someone might have died of a different disease from the one that killed the person. For example, if someone dies of heart disease at age 45, it cannot be assumed that this person was deprived of 20 years of life because this person might have developed cancer or another disease and died before age 65. Because of the preceding problem of “competing risks,” as it is called, and other limitations with the YPLL measure, epidemiologists are attempting to develop better population-based measures of prematurity.<sup>10</sup>

To determine, in a precise way, whether someone died prematurely, it would be necessary to have a person-specific measure of prematurity, as opposed to a

population-based measure such as the YPLL measure. If Keats had not contracted tuberculosis, we assume that he had the potential to live much longer than he did and that he had not reached his potential life expectancy. As noted, this notion of a potential life expectancy has been used by epidemiologists. It has also been implicitly used by some philosophers, as will be discussed later.

The notion of a potential life expectancy is appealing, but it is not as clear as it might at first seem. What is a potential life expectancy? A maximum or potential life expectancy can be thought of as a limit. If one reaches one's potential life expectancy, then there is nothing further that could be done to prolong one's life. For example, suppose that a person is dying of kidney failure. Through dialysis, other medical treatments, and good nutrition, this person's life may be prolonged by many years. However, there will be a point at which nothing further could be done to prolong this person's life. When the person reaches that limit, he will be at his potential life expectancy.

The results obtained using the person-specific, potential life expectancy measure may differ from the results obtained by subtracting the age at which a person died from the average life expectancy. Suppose, for example, that a healthy person died in a car accident at age 80, but he could have lived until the age of 100 if he had not been in the car that day. This person's death would not have been premature based on the average life expectancy calculation, but was premature by 20 years based on the potential life expectancy measure. The reverse is also true in that deaths that are

typically thought of as “premature” may not be premature under the potential life expectancy measure, as discussed below.

It is rare for someone born with infantile Tay-Sachs disease<sup>11</sup> (an inherited disease of the central nervous system) to live beyond the age of five. If a child with Tay-Sachs disease dies at age five, then the death of this child would likely not have been premature based on the potential life expectancy measure. Thus, the results obtained using the potential life expectancy measure may seem counterintuitive.

An advantage of the person-specific, potential life expectancy measure over the population-based measures of prematurity is that it would be a more accurate way of judging the amount of time that a person lost to death. However, in determining one’s potential life expectancy we are faced with the problem of competing risks, as noted earlier. If Keats had not died of tuberculosis, he might have died two years later from pneumonia or he could have died in an accident at age 45. There currently is no way of knowing a person’s potential life expectancy, which limits the usefulness of this measure.

### **III. Direct Measures of Harm**

Gisela Striker (1988) has defined premature death, not in terms of how much time was lost to death, but in terms of whether one’s life was “complete” before one died. If one died before one’s life was complete, then one died prematurely, she argues. Striker uses the following analogy to suggest that people are concerned, not with how

long they will live, but about whether they will be able to complete all of the stages of their lives.

The eighteen year old who wants to continue living is like someone who has watched the first act of an opera and is justifiably annoyed if the performance breaks off at this point. He is angry, not because he had thought he was going to spend three hours instead of only one, but because he wanted to see the entire opera, not just a part of it. (Striker 1988, p. 325)

Stephen Rosenbaum, who has defended<sup>12</sup> Epicurus' argument that death is nothing to us, calls into question Striker's notion of a premature death. He convincingly argues that the idea of completeness is obscure. (Rosenbaum 1990, pp. 32-35) Our lives, in contrast to operas, are not well structured with standard elements and so the task of specifying what constitutes a complete life is dubious, he argues. If our lives did have standard elements, then it would be possible to convert Striker's definition of a premature death into a measure for calculating the degree of harm from death. For example, if there were 100 standard elements to a life, and a person had completed only 60 of these elements before she died, we could then say that the degree of incompleteness of her life was 40 percent. But, as Rosenbaum argues, the task of identifying standard elements appears to be dubious.

Physicians define a "premature birth" as a birth that occurs before 37 weeks of gestation.<sup>13</sup> Thus, birth prematurity is defined in terms of time, perhaps because it is the simplest method for tracking the progress of a pregnancy. However, a premature birth could also be defined in terms of completeness because a fetus must pass

through certain developmental stages before it can survive outside the mother's uterus.

As the above example of a premature birth demonstrates, to define prematurity in terms of completeness, it is necessary to have a clearly conceived notion of the endpoint and of the progression toward the endpoint. Both of these conditions are absent regarding a human life. Viewing this issue from a biological perspective, one might argue that reproduction is an essential stage in the life of a human being and, therefore, define a premature death as a death that occurs before one reproduces. This would be an objective measure of prematurity. But what about people who are unable to have children or who choose not to have children? According to this definition, all of their deaths will be premature, even if they do not die until they are 100 years old.

This biologically based definition of premature death implies that there is nothing more to life than experiencing childhood and perpetuating the species and that one's life is "complete" once one ceases reproducing. In response, one might argue that the task of parenting does not end at reproduction; a parent or adult is also necessary for child rearing. However, questions then arise about how long a parent is needed to nurture a child and whether it takes two parents or just one to do this task. In effect, the definition of prematurity becomes value-laden.

If a person dies, and he had goals in the years leading up to his death, but achieving these goals left him unfulfilled or miserable, then it seems implausible that he was

harmful by death. For this reason, Steven Luper defines a premature death as a death that prevents its “victims from fulfilling *fulfilling* desires.” (Luper-Foy 1993, 271-272) Could Luper’s definition be converted into a measure of harm? As a first step toward determining whether this would be feasible, work would need to be done to identify under what conditions a desire is fulfilling versus unfulfilling.

Fred Feldman (1991) claims that death harms us eternally - a claim that some have disputed.<sup>14</sup> In his essay, Feldman outlines an interesting method for calculating the degree of harm. He assumes that there are possible worlds and then asks us to compare the value of a state of affairs to a person in a world in which he dies at  $t$  to the nearest possible world in which he does not die at  $t$ . He gives the following example to illustrate how his method is used. Feldman asks us to imagine that he is taking an airplane trip to Europe, that the plane is sabotaged, and that he dies when the plane crashes. His method directs us to consider the nearest possible world in which he does not die in the plane crash. If the amount of pleasure minus pain in the world in which he dies in a plane crash is 500 units, but is worth 1,100 units in the nearest possible world in which he does not die at  $t$ , then his death on this trip would have a value of negative 600 and would be a terrible misfortune.

Feldman’s method is a direct measure of harm insofar as it attempts to measure whether the person would have been better off if he had not died at  $t$ . The focus is on measuring quality of life as opposed to quantity of life. However, the method also implicitly relies on the notion of a potential life expectancy discussed under the

indirect measures of harm. For example, regarding the possible world in which he does not die in the airplane crash, he writes: “Suppose I there do live to enjoy many happy years of retirement.” (Feldman 1991, 216)

Jeff McMahan (1988) had earlier proposed and ultimately rejected an account similar to Feldman’s. In his paper, McMahan reflected on an example where a young officer, if he had not been shot and killed by Ivan, would have been killed a few seconds later by a bullet from Boris. Regarding the example, if the officer had been killed a few seconds later by a different bullet, then his death from the earlier bullet deprived him of only a few seconds of life. In his reply to McMahan, Feldman seems to want us to imagine that in the nearest possible world that the officer “is wounded, but recovers and goes on to live a long and happy life.” (Feldman 1991, 226) Of course, if we imagine this, we will then conclude that the officer’s death from Ivan’s bullet was very harmful.

As noted earlier, epidemiologists are seeking to improve the “years of potential life lost” measure because it fails to take into account competing risks. It is unclear whether the method proposed by Feldman accounts for competing risks. For example, if a 35-year-old dies of cancer, but would have died at the age of 36 from a ruptured aneurysm in his brain if he had not earlier died of cancer, what would his potential life expectancy be with Feldman’s method? If we imagine that this person lives a long and happy life in the possible world in which he does not die at  $t$  from cancer, we would then greatly overstate the amount of harm that this person suffered from his death at

age 35.

It is also unclear whether the method proposed by Feldman properly accounts for individuals born with genetic diseases who have a short life expectancy. As mentioned, it is rare for children with Tay-Sachs disease to live beyond the age of five. Suppose that a child with Tay-Sachs disease dies at the age of three in an airplane crash. With Feldman's method, are we to imagine that the child lives a long and happy life in the possible world in which he does not die at age three or should we, as I believe, imagine that the child lives until the age of five?

If we presume that the child with Tay-Sachs disease would have lived a long life if he had not died in the airplane crash, we will misjudge how much this child was harmed by his death at age three. In the future, treatments may be available to prolong the lives of children born with Tay-Sachs disease. If so, then children born *at that time* may have a potential life expectancy that is much longer than five years.

#### **IV. A Thought Experiment About Premature Death**

What conditions would need to be present for a world to have no premature deaths? If we were immortal or, in other words, if there were no deaths, then there would be no premature deaths. Immortality is the most obvious scenario in which there would be no premature deaths. Are there any scenarios in which there would be deaths in a world, but no premature deaths?

Suppose that there was a world in which everyone dies on his or her 50<sup>th</sup> birthday. For the sake of brevity, this world will be called “Lifespan 50.” On Lifespan 50, a person born in 1980 would live until the year 2030 and someone born in 2000 would live until the year 2050. No one could die sooner or later than the age of 50. For example, no one could die at age 40 or live until age 70. Would this scenario in which everyone has a fixed lifespan of 50 years be an example of a world in which there are deaths, but no premature deaths?

If one were to define a premature death as a death in which one dies before one’s potential life expectancy, then this world in which no one dies before their potential life expectancy would be a world without premature deaths. However, if one were to adopt Striker’s definition of a premature death as a death that occurs before one’s life is complete, then Lifespan 50 would not be a world without premature deaths. For example, if a person is in a vegetative state from the age of 15 to 45 and then recovers some functional capabilities, when this person dies at age 50 his death would be premature, Striker would likely argue. Although he lived to his potential life expectancy of 50 years, his life was incomplete and so his death was premature.

The question of whether there would be premature deaths in a world in which everyone has a lifespan of 50 years was discussed above. Below I consider a different question. Would the people on Lifespan 50 consider their upcoming deaths to be premature? Some people may be fully satisfied with living 50 years of life. Others, however, might wonder what it would be like to live beyond their 50<sup>th</sup> birthday. They

might think how much better life would be if they could live until the age of 60 or 70.

There could be a discrepancy between whether they consider their upcoming deaths premature and whether their deaths would actually be premature. According to the potential life expectancy definition of a premature death, their deaths would not be premature because they live until their potential life expectancy. But if, for example, a person became a grandmother at age 49, and she intensely desired to interact with her grandchildren, she may consider her upcoming death to be premature.

One way that Lifespan 50 differs from the world in which we live is that everyone in this imaginary world knows when they will die, assuming that they remember when they were born. If one knew the date at which one would die, one could avoid beginning projects late in one's life so that these projects would not go uncompleted because of death. However, as shown by the example above where the grandmother wants to interact with her grandchildren, death may prevent us from realizing some of our desires even if we knew the exact date on which we will die.

In this thought experiment, suppose that a life-prolonging substance is created that would allow people to live until age 60, but that there is only enough of this substance for half the population. The other half of the population will live until age 50. Will the people who will not receive the substance die prematurely at the age of 50?

Before addressing this question, it will be useful to reflect on the psychological

reactions of the people who will not be receiving the substance. As argued, before the life-prolonging substance became available, some people on Lifespan 50 would likely have been satisfied with living 50 years. If they were not selected to receive the life-prolonging substance, would they still be satisfied with 50 years of life, or would they, as I suspect, think that they will be dying prematurely at the age of 50?

They will live just as long (50 years) as they would have lived before the substance became available, but they would likely no longer think of themselves as having lived a full life. What would lead them to think that they are dying prematurely? As will be explained, I believe that the answer can be traced to rising expectations and to the desire for fairness. First, the availability of the life-prolonging substance would change their expectation about how long a person can live. They become aware that it is physically possible for a person to live until age 60. Second, previously everyone lived the same amount of time. However, because they will not be receiving the life-prolonging substance, they will not live as long as the people who will be receiving the substance, which raises issues about fairness. They had been satisfied with 50 years of life, but now that they know that half the population will live until the age of 60 they think that they are entitled to live until that age.

Issues around fairness can introduce bias into judgements about whether, and to what extent, someone died prematurely. At the beginning of this section, we reflected on the question of whether there would be premature deaths in a world in which everyone had a lifespan of 50 years. An example of a person who was in a vegetative

state from the age of 15 to 45 was considered and it was concluded that this person would die prematurely at age 50 based on Striker's definition of a premature death. What if a person on Lifespan 50 did nothing but play video games from the age of 15 to 45 and then decided, as the date of his death approached, that he should do more with his life? Because he started so late in life, he will not enjoy nearly as many goods as other people who began enjoying the goods of life at a younger age. When he dies at the age of 50, will his death be premature?

Because this individual had the opportunity to enjoy various goods in life, but chose to spend his life playing video games, I suspect that some people would argue that his death at age 50 was not premature. In contrast, the person in the vegetative state from age 15 to 45 did not choose to live in such a state. The person who was in the vegetative state and the former video game player enjoyed similar amounts of goods in their lives, but judgements may differ about whether these individuals died prematurely. If so, what does this say about these judgements? I believe that it shows that considerations of fairness often underlie, and can bias, judgements about the degree to which someone was harmed by death.

If, for example, a child with Tay-Sachs disease dies in an airplane crash at age three, and it is assumed that this child would have lived a long and happy life if this child had not died in the crash, then this assumption may reflect an underlying desire for there to be equal amounts of well-being, or at least equal life spans, among all individuals. Are there objective grounds for taking fairness into account regarding

judgements of prematurity? If it could be demonstrated that we are *entitled* to live to a certain age, this would provide an objective basis for taking fairness into account regarding judgements of prematurity. For example, if one were entitled to live until age 65, and then is born with Tay-Sachs disease and dies at age five, then a great injustice would have occurred. This person would have been deprived of 60 years of life that she was entitled to live. The death would be premature because the person had an entitlement to live until the age of 65 and this person's right to live until that age was violated when she died at the age of five.

Are we entitled to live to a certain age? If so, what is the source of that entitlement? Nature is impersonal and has given us no assurances regarding how long we will live. Unless we are entitled to live to a certain age, which appears doubtful, there is no basis for including considerations of fairness in judgements about whether, and to what extent, someone was harmed by death.

What does it mean when someone claims that a person died "too soon" or "should have lived longer"? The person might be making a non-moral claim about the death. For example, if the person was young and appeared to be in good health, they may be claiming that the conditions did not seem sufficient to have caused this person to die when he did. On the other hand, the word "should" in the claim "he should have lived longer" may simply reflect their desire for the person to have lived longer. Without probing the thoughts of the person who made the claim, we would not know whether the claim is non-moral or normative.

As Hume (1992, p. 469) is well known for pointing out, people have a tendency to go beyond making statements about the way something “is” to making statements about the way something “ought” to be. This leap from “is” to “ought” frequently seems to occur when people learn that someone died at a young age. Instead of simply concluding that the person died at a young age or had a shorter than average lifespan, they claim that the person died “too soon,” implying that this person ought to have lived longer than he or she did live.

If someone declares that a person’s height is below average, then this individual is making a descriptive statement. However, if this person goes on to declare that this individual is “too short,” then this person may be making a normative statement about how tall this individual ought to be. In the same way, when someone declares that a person’s death was “too soon,” “premature,” “untimely,” or “before his time,” this person may be making a normative statement about how long this person should have lived.

As argued, the judgements that people make about whether, and how much, someone was harmed by death can be biased by the desire for fairness. These judgements can also be influenced by our feelings toward the person who died. For example, Adolph Hitler’s lifespan was shorter than average, but no one would claim that he died prematurely.

## **V. The Ambiguity of Measures of Harm**

Above we considered what effect the availability of the life-prolonging substance would have on whether the people on Lifespan 50 consider their upcoming deaths to be premature. Due to issues of fairness, those who did not receive the life-prolonging substance would likely think that their deaths will be premature, but is there an objective basis for their conclusions? In other words, when they die at age 50, will they have in fact died prematurely?

Let us first reflect on this question using Striker's definition of a premature death. As argued, it is unclear what are the elements of a "complete" life. For the sake of argument, suppose that there are 100 standard elements to a life and that some of the people who will not be receiving the life-prolonging substance had completed all of the elements. They observed all of the opera, to use Striker's analogy. In not receiving the additional ten years of life, the only thing they missed was the unexpected encore. In that case, their deaths at age 50 were not premature. But is this ten additional years of life simply supplemental, like an unexpected encore, or did the experiences that may occur during those ten years somehow become additional elements of what makes a life complete?

Because of the ambiguity of the notion of "completeness," it is not clear whether the individuals who will die at age 50 will have died prematurely. What if we use the potential life expectancy definition of a premature death? Can we then tell whether the deaths of those individuals who did not receive the life-prolonging substance will

be premature?

In the introduction to this thought experiment, it was stipulated that the potential life expectancy of everyone in this imaginary world was 50 years. Based on this stipulation, it was concluded that there would be no premature deaths on Lifespan 50 based on the potential life expectancy definition of a premature death. However, with the creation of the life-prolonging substance, things have become more complicated. What is the potential life expectancy of those individuals who will not be receiving the life-prolonging substance? Is it 50 years or is it 60 years? Before addressing this question, it is necessary to obtain a better understanding of the concept of a potential life expectancy.

Through genetic engineering and anti-aging drugs, future generations may have the potential to live longer than we do. Even if everyone born in the year 2100 would have the potential to live until age 177, it would not be true that anyone currently alive has a potential life expectancy of 177 years. Thus, for the notion of a potential life expectancy to make sense, it must take into account the context or, in other words, the conditions that were in effect at the time the person was alive. To give another example, if there were an undiscovered substance deep in the Atlantic Ocean that would prolong human life by 500 years, it would not be true that anyone currently alive has a potential life expectancy of over 500 years. For this to be true, we would have to know about this substance, have the technology to extract it from the ocean, and find a way of making it useable.

With this clarification, let us return to the question: What is the potential life expectancy of those individuals on Lifespan 50 who did not receive the life-prolonging substance? If these individuals were given the substance, they would live until age 60. However, they are not given the substance. The question becomes whether we should take into account that these individuals did not have access to the substance in judging their potential life expectancy. If we omit this fact from our analysis, it would be concluded that they had a potential life expectancy of 60 years and were deprived of 10 years of life when they died at age 50.

Whether they had access to the substance should be considered in determining their potential life expectancy. If they did not have access to the life-prolonging substance, then their potential life expectancy was 50 years and so they did not die prematurely. Similarly, suppose that there are two 50-year-old men with advanced colon cancer on Earth and that there is a proven drug on the market for prolonging the lives of individuals with this type of cancer. If one person has the ability to pay for this expensive medicine and the other does not, it would be reasonable to conclude that the person who does not have access to the drug has a shorter potential life expectancy than the other person.

A distinction should be made between retrospective and prospective judgements about prematurity. One can ask “Was the person’s death premature?” If the person is still alive, one might also ask “When he dies, will his death have been premature?” In the

thought experiment, both types of questions were asked.

In our daily lives, retrospective judgements about prematurity are probably much more common than are prospective judgements. This is fortunate because prospective judgements are much more difficult to make than retrospective judgements. Based on the potential life expectancy definition of a premature death, it was concluded that there were no premature deaths on Lifespan 50, even after the life-prolonging substance became available. This, however, ignores other factors that may have affected the potential life expectancy of the individuals in this imaginary world. For example, if a massive asteroid was on a course to collide with their planet shortly after the life-prolonging substance had been created, then, assuming that all life would be wiped out, the potential life expectancy of those who received the life-prolonging substance would not have been 60 years.

With retrospective judgements about whether someone died prematurely, there are still many factors that need to be considered in determining how long the person who died could have lived, but because the death has already occurred and we are still alive to discuss it, this rules out scenarios, such as asteroid impact, that could have occurred, but did not occur.

## **VI. Conclusion**

Direct and indirect measures of harm have been evaluated. The definition of a

premature death that is based on the concept of a complete life is too ambiguous to serve as the basis for estimating the degree of harm that may be suffered by people when they die. The notion of a potential life expectancy was also found to be ambiguous. For this notion to be more useful in estimating the amount of time a person lost to death, as argued, one would need to take into account the conditions, including competing risks, that would have influenced or determined how long she would have lived if she had not died when she did. We may misjudge the amount of time that this person lost to death if the conditions under which the person lived are disregarded and it is assumed that the person would have lived until age 65 or another arbitrarily chosen age.

Deprivation theorists might concede that there are problems with the existing measures of harm, but then argue that it is unimportant to know how much harm is suffered. However, as I argue at the outset, it is not enough to know that harm occurs. It is also important to know the degree of harm.

Luper (2006, p. 11) notes: “[P]roponents of the harm theses still have work to do, for their view is not secure unless it is clear that we can be the *subject* who incurs harms associated with absent goods, and unless there is a clear *time* when the harms are received.” If these challenges can be overcome, the next challenge will be to determine how much harm is occurring. As argued here, the concept of a premature death is ambiguous and can be value laden and therefore requires refinement if it is to serve as the basis for estimating the degree of harm.

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NOTES

<sup>1</sup> A collection of essays discussing these questions can be found in Fischer (1993). For a recent attempt to state when death is a misfortune, see Bradley (2004).

<sup>2</sup> John Keats died at the age of 25 from tuberculosis.

<sup>3</sup> See, for example, McMahan (1988).

<sup>4</sup> For further discussion, see Luper (2006).

<sup>5</sup> Velleman (1991) argues this point.

<sup>6</sup> For further discussion of this misconception, see Strauss (2003).

<sup>7</sup> For further discussion, see Arias (2004).

<sup>8</sup> Arias (2004, 3). In 2002, average life expectancy at birth in the United States was 79.9 for females and 77.3 overall.

<sup>9</sup> For further discussion, see Lee (1997).

<sup>10</sup> See, for example, Lee (1997, 1456).

<sup>11</sup> For more information on this disease, see Gravel (1995).

<sup>12</sup> See Rosenbaum (1986).

<sup>13</sup> See, for example, The World Health Report (1998, 68).

<sup>14</sup> For discussion of why Feldman's claim that death harms us eternally has been disputed, see Luper (2006, 12).

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*Brooke Alan Trisel has published articles on human extinction, judging the value of life, futility, and temporality. He works as a Senior Program Analyst in the state of Ohio.*

Email: [triselba@cs.com](mailto:triselba@cs.com)