

**THE FAILURE OF SUCCESS HYPOTHESIS AND THE
DEMAND FOR DEATH: A CLUE FROM COMMUNITIES IN EDO STATE.**

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The paper attempts to bring to the fall the situation where individuals only live longer and not healthier with the aid of technologies. It examines the extent to which technology in health production has been effective and pioneers a novel demand for death by the patient as way of reducing the burden of disease and cost of illness when disability has already been measured by both instrumental activities of daily living and activities of daily living. It utilizes the purposive sampling technique, with two structured questionnaires for both members of sampled communities and expert medical professionals to test the failure of success hypothesis and demand for death. It finds that even though respondents see our novel demand for death as a remedy to severe burden of disease and cost of illness occasioned by the failure of success – as validated by the paper - the fear of death and some beliefs about eternity create skeptics for this remedy. However, the experts succumbed to the remedy and that medical assistance may be needed to make death less painful, peaceful and minimize the cost of dying.

1. INTRODUCTION

Over the past years, attention of economic researchers has among others focused on the life expectancy (LE) of a country. This LE index is popularly taken as one of the measures of wellbeing and development. However, sufficing with this is an inconclusive job for the health economist because investment in the health of a nation is worth it if and only if the individuals are productive in order to enhance growth and development. This is why attention has recently shifted to healthy life expectancy (HALE), instead of just LE, which is now only a necessary condition. Christensen, Doblhammer, Rau and Vaupel (2010) asked: “Are we living not only longer, but also better?” HALE is LE free of disability. That is, the number of years an individual lives in which he did not suffer from self-limitations and disability in his daily life; to take care of himself, to do his normal duties and contributes to societal growth and development. Simply put in a layman language, how many years out of the total number of years a man lives he was active? For illustration, if a man has been on life supporting machine or surviving on technology or even drugs, without being able to take care of his daily work but consuming (this time, not just food but medical goods) for ten years, and he is eighty years at the time of death, HALE would mean that he spent seventy year

disability free, which is his actual age. Hence, his prolonged life was not accompanied by similar extension of healthy life, so that longevity does not imply a healthy life (Rogers, Rogers and Balanger, 1990; Verbrugge, 1984 and Olshansky, Rudberg, Carnes and Cassel 1991). Gruenberg (1997) pioneered the works in this area, with negative implications for the application of technologies in providing health care. But the issue around LE free of disability is not as simple as the layman illustration given above, partly because disability can occur at different stages and scattered ages in an individual's life. It involves a lot of calculation with the Sullivan method being the most popular in doing this job. A study by Remero, Leite and Szwarcwald (2005) using the World Health Survey in Brazil reveals that even though the LEs of women were higher in Brazil in 2004, men had higher HALEs.

Conceptually, the failure of success hypothesis states that a cohort with a rising proportion of individuals surviving to some late age will have increased disease and disability at that age. The alternative hypothesis is that exceptionally old people generally enjoy the success of success—that is, increases in the proportion of the population surviving to the highest ages are accompanied by concurrent postponements of physical and cognitive disability (Christensen et-al, 2010)). Gruenberg (1997) had written that advancement in technology for saving lives and providing more efficient medical care resulted in the paradoxical increase in the prevalence chronic diseases. Thus, Remero et-al (2005) argued that mortality measures alone are insufficient for the adequate evaluation of state of health, quality of life or comparative impact of medical interventions. From the foregoing, it is clear that technology is implicated. Despite the celebration of technological breakthrough around the world, it is also seen to have increased LE without the ability of increasing HALE. A question of sensitivity, and an offensive one for that matter, is whether sick people should be allowed to die on demand, especially if it is clear that they will not live their HALE, instead of applying technology to merely extend lives or shifting death time. Economists may not succumb to death on demand because in case the individual becomes well again, he could contribute to production. But we should raise concern about excessive consumption that is not match with production particularly in developing countries where these machines are not so effective in fully restoring the health of patients out of disabilities. In this case, as seen in Havelaar (2007), in calculating the burden of disease and cost of illness, it is not only the economic losses of the person suffering from disability (Direct health care costs) that should be considered, but also those of a third party taking care of him (Indirect health care costs). For a further illustration, a man who has been on stroke cannot take care of himself. He needs a healthy relative or a care giver to be around him at all times, as his disability has reached the activities of daily living (ADL). In this case, it is not only his work in the farm, which he can no longer do that would result to food shortage, but also the production from the farm work which his care giver can longer give to the society will contribute to further food shortage.

Ideally, testing this hypothesis in hospitals would have been a good objective but for the lack of institutional clearance and data unavailability encountered. Therefore, the objective of this paper for now is mainly to test whether technological aid in health production is paradoxical in Nigeria—test the failure of success hypothesis - among the sick people in communities in Edo state; Esan North East and Esan Central where inhabits volunteered some information. It only gives a clue for further extension to health providers and the nation at large because of lack of funds for extensive job in Nigeria. At least, such a clue would confirm its existence and gives a challenge and the basis for further study in Nigeria. It assesses the number of patients to whom these technologies were instrumental to their health production in the communities and did a follow up to their current state of health. All ethical conducts, including the confidentiality of patients are strictly observed. We extend this objective to the study's novel concept of demand for death, which we believe can be useful for the purpose of minimizing the burden of disease and cost of illness

occasioned by the failure of success, especially in older cohorts since disease burden reduction- in term of disability adjusted life years (DALYs) and direct and indirect minimization of monetary cost of illness have become of great concern to economics researchers (Murray and Lopez, 1996 and 1996a; Murray and Acharya, 1997; Williams, 1999 and Havelaar, 2007).

From its face value, the demand for death hypothesis put forward here is quite pungent an argument. It is not in the author's knowledge that demand for death has been touched or mentioned in disease burden and cost of illness studies or even in health economics literature before. It is therefore a vivid contribution to economics literature, which we like to pioneer.

Besides being an eye opener to health providers and public health researchers, studies such as this is helpful to hospitals, the nation and health donor agencies in evaluating how successful their efforts and interventions have been in health care provision beyond usage of technology in health production, to contribution to growth and development of the society, as well as recognizing areas of improvement and new policies in health care delivery in order to reduce both the burden of disease and cost of illness. It may also help the government in health care policy direction.

2. Literature Review

Healthy Expectancy, Calculation of HALE and Probability of Survival

“Healthy” expectancy is length of time in different states of health until death and combine information on both mortality and morbidity. The Sullivan method being used in the actual calculation of HALE from LE is complicated and can be done only with data availability. It reflects the current health of a real population adjusted for mortality level and independent of age structure. Healthy expectancy by Sullivan’s method is number of remaining years, at a particular age an individual can expect to live in a health state (Cox and Le Roy, 2006). Cox and Le Roy (2006) give the case of Belgium in 2004, in which women at age 65 could expect to live a further 20.0 years of which 12.4 years (62%) would be spent without restrictions in daily activities due to longstanding illness(s), condition(s) or handicap(s).

The life table by Sullivan method gives the calculation of disability free life expectancy (**DFLE**) from the total **LE** at age **x** denoted as e_x in the life table, and the proportion with disability is π_x , the person years lived without disability is $(1 - \pi_x) L_x$, with L_x as person years lived in age **x**. The summation of person lived years without disability ($\sum(1 - \pi_x) L_x$) is the total year lived without disability. This is then subtracted from **LE** to get **DFLE** or **HALE**. The proportion of remaining life spent disability free can then be calculated by dividing disability free life expectancy by life expectancy ($DFLE_x / e_x$). This life table is a period life table that presents what would happen to a simulated cohort through time if it experienced specified death rates. These death rates are written as $q(x)$, and equal the probability of dying between ages **x** and **x+1** (Tucek, 2009). The life table is not based on the experience of a cohort of individuals born in the same year; it therefore does not match its name “Life table”. Thus, it will be self to conclude that it is because of the fear of death it is called the “Life table”, instead of the “Death table” because it says nothing about life but much about death. However, constructing the life table of Nigeria in order to obtain the **DFLE** will be an elaborate exercise requiring funding. As far as the calculation of **LE** free of disability is concern, no known work has been done among cohorts in Nigeria and as such, no ready empirical analysis is possible for now. We believe that this clue will generate interest and funding for a great accomplishment in this area.

Measures and Prevalence of Disability

Disability is measured by a set of items, which are self-reported limitations with severity of disability ranked by the number of positively answered items. Disabilities in activities of daily living (ADL), which shows dependence of an individual on other individuals to assist in daily life

is the most severe case. These activities include among others, feeding, bathing or showering, dressing, transferring from bed and chair. Disability in instrumental ADL is less severe. This refers to disabilities affecting a broad range of activities, such as telephone use, shopping, housekeeping, preparation of food, doing laundry, use of various types of transport, handling of drugs, and management of finances (Robine, Romieu and Michel, 2003).

As usual, lack of data availability has greatly limit the disability prevalence in Nigeria, but giving the lack of improved medical access, increasing road accidents, stress, unfavourable working conditions such as those of factory workers who can only be compared to robots, low wage, maternal morbidity, increasing prevalence rate of tropical diseases such as malaria, leishmaniasis, schistosomiasis, onchocerciasis, lymphatic filariasis or elephantiasis, chagas disease, Africa typanosomiasis, dengue, meningitis and other diseases such as HIV-Aids, hemolytic fevers like Lassa, cancer, prostrate and malarial, deteriorating life style due to poverty and so on, one will be correct to say that disability is increasing in Nigeria. In short, the less welfare improves, the more the disability.

Contrarily, reports support increasing evidence that disability prevalence, measured by these indices, has been falling in the developed countries. Report shows reductions in disability by 0.4% –2.7% per year during 1980s and 1990s (Freedman and Martin, Schoeni, 2002). Parker and Thorslund (2007) conclude that most ADL indices are improving in the United States. However, the Hartford (2016) Disabling Perceptions Survey is mixed. Desai, Pratt, Lentzner and Robinson (2001) also report that between 1993 and 2002, indices for ADL and instrumental ADL improved significantly after adjustment for age among Americans and Japanese. The proportion of people reporting any disability fell by 4.4% per year (Desai, Pratt, Lentzner and Robinson, 2001). A large annual fall of 5.5% between 1991 and 1992, and between 2002 and 2003, in general disability was reported for France after a smaller fall of 1.6% in the previous decade (Cambois, Robine and Mormiche, 2007). Reports in Spain are contradictory—annual reductions of about 10% in prevalence of disabilities affecting ADL (Zunzunegui, Nunez, Durban, García de Yébenes and Otero Á), and a worsening of an index of basic ADL by 0.5% for men and 1.9% for women per year (Sagardui-Villamor, Guallar-Castillon, Garcia-Ferruelo, Banegas and Rodriguez-Artalejo, 2006) in the presence of strong improvements in functional limitations. In Finland between 1993 and 1995, and 2001 and 2003, the index decreased annually by 6.3% for women and 5.1% for men (Sulander, Rahkonen and Uutela, 2003). Puts, Deeg, Hoeymans, Nusselder and Schellevis (2008) documented little improvements for the Netherlands. In Contract to the results of most advanced countries, Sweden recorded an increase in ADL and functional limitations for elderly people from the mid-1990s after decreases between the 1980s and 1990s (Parker, Schön, Lagergren and Thorslund, 2008). Disabilities affecting ADL and instrumental ADL might be increasing in young old people in the UK and in baby boomers in the USA (Bhattacharya, Choudhry and Lakdawalla, 2008).

Some Empirical Tests of the Failure of Success or Success of Success Hypothesis

Neither data of failure of success or success of success exists in Nigeria at the moment. We can at best confirm its existence or otherwise in this study. This hypothesis was tested from the records of Danish 1905 Cohort Survey, which longitudinally assessed the entire Danish 1905 cohort from 1998 to 2005 (Christensen, McGue, Petersen, Jeune and Vaupel, 2008). In the aggregate, this cohort had only a small reduction in the proportion of independent individuals at four assessments between age 92 and 100 years: 39%, 36%, 32%, and 33%—a nearly constant proportion of individuals in the cohort were independent over the 7–8 years of follow-up. However, for participants who survived until 2005, prevalence of independence fell by more than a factor of two—from 70% in 1998 to 33% in 2005.

Similar results were obtained for other functional outcomes, such as grip strength, cognitive composite score, and symptoms of depression (Christensen, et-al, 2008).

In Demark, assessments between centenarians 1895–96 and 1905 cohorts reveals a success of success, since although nearly 50% more people from the 1905 cohort reached age 100 years than did people in the 1895–96 cohort, disability level did not increase. Indeed, some improvement was noticed for women (Engberg, Christensen, Andersen-Ranberg and Jeune, 2008). And this agrees with findings in young-elderly people (aged younger than 85 years) that prevalence of disability was decreasing and that individuals were both living longer than they did in previous years and also had better functional states in consecutive cohorts due to prevention of disease and disabilities together with treatments and better environmental improvement (Manton, 2008). However, Danish centenarians still had worse physical functionality than did Chinese centenarians, and female centenarians in China had worse function than did male centenarians (Wang, Zeng, Jeune and Vaupel, 1997), which agreed with the common view in clinical medicine and gerontologists that the substantial rise in proportion of exceptionally long-lived individuals in successive birth cohorts is the result of help given to an increasing proportion of frail and ill people into advanced old age, with huge personal and societal costs (Baltes and Smith 2003).

Demand for Death

Although demand for death is yet to be recognized as a concept in economics, it does exist. Demand for death may be useful as a way of reducing and eliminating the burden of disease and monetary cost of illness of the individual, family and the society, as well as increasing productivities by avoiding waste. This paper pioneers works and raise interest in this area. Evidence of such demand are scattered in the form of suicide (in the case of what we would call direct demand for death). However, not many countries of the world have legalized it. The Supreme Court of Canada only recently overturned the country's ban on physician assisted suicide and directed provinces to enact guidelines for regulation of the practice, making Canada the newest country to allow this practice. White (2016) believes that Canada will soon surpass Belgium and the Netherlands in terms of just how radical their policies will be. In the latest statement from the Canadian Association of Physician Assistants, the body declared:

“In some instances where the supervising physician feels that it is appropriate and the situation warrants it, regulated PAs should be permitted to administer medications that provide an assisted death. This would occur by way of delegation and the physician would assume ultimate responsibility for the act” (White, 2016).

But how bad the news of death is, the agony of losing a dear one, the societal stigma of suicide, the religious belief in the sin of suicide and the fear of destination of eternal life after death, all contribute to make suicide an abominable act, not to be allowed or contemplated even when the burden of disease and cost of illness have become too high for the individual to bear as disability is measured by ADL. In some cases, the sick individual would wish he had died; the relatives who bear the burden and cost would also wish the individual had died, and most importantly, the physician would know that the disease is chronic and terminal, yet the factors listed above are always considered, making many to be skeptics. As a result of these considerations, death becomes the most expensive commodity ever; at the time it is most desirable and needed to satisfy the human wants of lowering disease burden and minimizing cost of illness, even though its monetary cost may be very low- at time, less than a dollar to buy poison. The demand for death would yield its utility when all parties bearing these unwanted burdens and costs would be satisfied by

channeling energies and resources to alternative uses that would either benefit them or the society. It should be noted at this point that utility itself is both of non-ethical connotation, as well as has its intrinsic value; such that the goods or services that satisfy one individual's want may not necessarily be what another individual consider good and proper, and that a commodity that satisfies even the same individual's want at a time may actually not be desirable at another time (Zúñiga, 2005). However, demand for death may only be contemplated under the extreme case of selfreported limitations and ADL, and not under instrumental ADL and not by relatives reported limitations. It can only also be in the case when the individual involved is willing and desire to die and directly or indirectly ask for it, and not when death occurs from ignorance or risky actions.

Direct and Indirect Demand for Death

Direct demand for death can occur in two ways: (i) the individual eats or injects poisonous substance into his system, either by himself or through the assistant of another person, say a physician or non-physician clinician and (ii) the individual deliberately ignores the advice of a medical practitioner against certain foods or drinks that are capable of accelerating the death of that individual. Indirect demand for death can occur when the individual refuses to take or be administered drugs that could shift his death time forward into the future or he opts for voluntary discharge from the hospital against the advice of a medical practitioner, in the case of in-patient.

3. Research Method

The study adopts a multi-stage sampling technique, which combines purposive sampling and random sampling to select two local government areas of Esan North East and Esan Central of Edo State. It uses two structured questionnaires for communities members and medical practitioners (who are experts) to elicit responses on effectiveness of technologically aided treatment and the continued state of health of such patients upon discharge from hospitals, and the indicators that concern the demand for death respectively. With supports, a more extensive works would be considered. Out of about 1,200 questionnaires distributed in the communities, 815 were successfully retrieved, and out of about 300 questionnaires distributed among expert medical practitioners, 204 were retrieved. It may be necessary to re-emphasis that this paper is only a clue, hence the narrow scope and limited method applied. We consider these good enough since this first work since it is a clue, being pioneered.

4. Presentation of Results and Discussion

Table 1: Percentage (%) Respondent on Patients' Health State with Technology Treatment

Health State of Patients	Number	Percentage (%)
Survived from Illness	200	100
Fully Recovered – out of disability- Before Discharge from Hospital	0	0
Slightly Recovered Many Year After Discharge from Hospital (Never out of Disability)	175	87.5
Fully Recovered Many Years After Discharge (Out of Disability)	6	3

Never Recovered At All Till Death	19	9.5
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Source: Authors' Computation from Field Survey

Table 1 shows the percentage responses of respondents on patients treated with the aid of technology in their communities. It shows that of the 200 patients who survived after treatments, none of them left the hospital fully recovered, while 175 (87.5%) only slightly recovered after many years of leaving the hospital. Out of the 200 patients who survived, only 6 (3%) got fully recovered and out of disability, and 19 (9.5%) never recovered till death. The failure of success lies in the 87.5% who only slightly recovered because they could not contribute to development as they were never out of disability, even though technologies have preserved their lives. Those individuals in those communities do not only consume normal goods, but also medical goods, putting stress on the already scarce resources of their families. Moreover, the economy is not only loosing from the services they cannot render but also from those which their caregivers cannot render as a result of their severe disability.

Table 2: Respondents' Perspectives on Indicators of Failure of Success and Demand for Death

Respondents' information	Agree	Strongly Agree	Disagree	Strongly Disagree
1	0	780	20	15
2	90	690	16	19
3	80	700	30	5
4	70	710	10	25
5	70	710	20	15
6	100	680	15	20
7	101	602	15	97
8	32	3	91	689
9	34	2	80	700

Source: Authors' Computation from Field Survey. Key:

1. In my community, patients treated with the aid of technology are usually brought home from hospitals without fully recovered.
2. Such patients usually spend long period of time in disability if at all they ever recover.
3. Most of the patients never recover.
4. In my community, there have been cases where patients preferred death to his state of disability and suffering in illness.
5. In my community, there have been cases where relatives of patients preferred death to their states of disability and suffering in illness.
6. In my community, there have been cases where residents preferred death of patients to their states of disability and suffering in illness.
7. In my community, there has been the case where residents thank God that a patient has dead because of his/her state of disability and suffering in illness.
8. Death is not bad for a severely ill patient in state of permanent severe disability and permanent suffering in illness.

9. Medical practitioner should be allowed to help if a patient with permanent severe disability prefers death instead of allowing him/her to take poison and experience a painful death process.

Table 2 presents data on indications of failure of success and demand for death in four scales. Out of the 815 respondents, 780 strongly agreed that patients treated with technology are brought home from the hospital not fully recovered. 690 also strongly agreed that the patients usually spend long time in disability. 700 strongly agreed that the patients never recovered, even after resources have been wasted on them for a long time. There also lies the failure of success; that even though technology has succeeded in preserving lives for a long time; it really fails to restore health of individuals in Nigeria to enable productivity. This implies that we have been mere interested in living longer and not living healthier. With respect to our demand for death, the table indicates that even the patients would prefer to die as a result of severe state of disability. It also shows that the patients' relatives would also prefer that the patient dies in order to be relieved of the stress, just as the residents would do. But in our theoretical foundation, only the opinion of the patient may be necessary in policy formulation. However, 689 respondents strongly disagreed that death is a bad option for a severely ill patient in severe state of disability, just as they strongly disagreed that medical assistance should be required to reduce the cost of dying for a severely ill patients. These results are contradictions and not surprising, it only conforms to our earlier theoretical explanation of the high cost of death. It is at this point the paper may suggest government intervention because the respondents contradicted themselves; seeing the gains of a severe disability patient's death to his family and the economy, yet dismissing death as an option. Hence, we decided to also seek the views of experts (without sentiments) in tale 3 below.

Table 3: Experts' (Medical Practitioners) Perspectives on Indicators of Failure of Success and Demand for Death in Nigeria

Respondents' information	Agree	Strongly Agree	Disagree	Strongly Disagree
1	50	150	4	0
2	39	161	2	2
3	68	132	1	3
4	60	90	4	50
5	23	177	4	0
6	55	145	3	1
7	29	171	3	1
8	81	129	0	4

Source: Authors' Computation from Field Survey Key:

1. In my hospital, technology is very useful in the treatment of patients.
2. Most patients treated with the aid of technology in my hospital are not fully recovered before they are discharge.
3. In my hospital, even if patients treated with the aid of technology are discharged, it takes a long time before they can come of out of disability.
4. In the case of severe disability, technology is not likely to make patients fully recover again in life.

5. There are cases of suicide or attempted suicide because the patients are tired of their state of disability.
6. There are cases where patients deliberately eat the food they are told to avoid in order to be healthy or live long.
7. There are cases where patients in severe state of disability opt for discharge from the hospital against medical advice.
8. Medical assistance can be helpful when it is clear that a patient will never be out of disability and he/she prefers death.

Table 3 shows the professionals' (experts) position on the indicators of failures of success and demand for death. It shows almost the same results with those of the community members except that the experts strongly agreed that medical assistance can be helpful in minimizing the cost of dying for a severely ill patient. In short, only 4 medical practitioners disagreed and they strongly did. The table also gives a clue on the Direct and Indirect demand for death, which we also give in theoretical foundation. Colum 5 shows that patients see suicide as option to their state of disability while 6 shows that patients deliberately accelerate their death time by taking food they are told to avoid. These are direct demand for death because poisonous substances are injected or swallowed into the system. 7 is an indirect demand for death because the patient has indirectly elected to die when he has refused medical care even if he did not inject or swallow poison.

5. Summary of Findings, Recommendations and Conclusion

The indicators show that the failure of success hypothesis is validated in the areas covered. This means that even though technology has succeeded in saving lives, it has only made the population lived longer and not better or healthier. The burden of disease becomes so high, as production become lower than consumption because the severely disabled individuals consume more, since they need both the normal market goods and medical goods. The society does not only lose from his inability to work, but also from that of his caregiver. It finds that even though all respondents agreed that this above situations hold, only the experts medical professional succumb to the demand for death to lessen the burden of disease and cost of illness, as well as the use of medical assistants to minimize the cost of dying.

This should be understandable since the mere mention of death is enough to create skeptics because it is fearful, but if disability is already measured by ADL and death is demanded by the person (not relatives or any other person on his behalf) to end the pains, disease burden and cost of the illness, it follows that medical assistance may be needed to lessen the pains of dying, rather by self-medicated poison that may lead to unwarranted kind of death process, or by lengthen the process of dying. There may then be the need for an expert medical practitioner to help optimize dying process; to make such death less painful, less stressful and very peaceful when disability is already measured by ADL. In this way, there will be no need for self-medication of poisons that might injure some of the unaffected internal organs (which could be voluntarily donated to others) and make the individual unhealthy even at death.

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