STANOVNIŠTVO, 2022, 60(2), 107–120
Original research paper

Submitted: 14 Sep 2022 | Revised: 14 Oct | Accepted: 23 Oct 2022
https://doi.org/10.2298/STNV2202107M
UDC 608.1:[612.68:314.118]
First Online: 15 Dec 2022

Bioethical and social constructions of life extension and longevity

Veselin Mitrović [1]

ABSTRACT

This paper explores life span extension and longevity as one aspect of life course, focusing on the bioethical and social implications of the rise of longevity in modern societies. We juxtaposed Potter's categorisation of types of survival with the opposing views about life extension. This ethical and ideological contrast is especially pronounced when it comes to human enhancement, which improves human capacities and functioning above and beyond the statistical norm of human health. In the medium and long term, these interventions would change not only the human species, but also social roles and relationships. The crux of social and bioethical concern could be expressed through the questions: from what age do we start extending human life, and for whom? Does the extension of life lead to the re-establishment of our social roles from youth, or is it just a romantic image of our previous life stage? This study concludes that both paternalistic approaches to life extension and those avoiding modern medical treatments of diseases related to aging are faced with similar epistemological and social reductionism.

KEYWORDS

life-course perspective, bioethics, longevity, elderly, agism, paternalism

[1] *Institute of Social Sciences, Belgrade, Serbia*

Correspondence:
Veselin Mitrović,
Institute of Social Sciences,
Kraljice Natalije 45,
11000 Belgrade, Serbia

Email:
vmitrovic@idn.org.rs

1 INTRODUCTION

In modern societies, individual life span is commonly associated with longevity as a desirable and expected feature of the life course. The proportion of people in advanced age has increased in the countries with the highest life expectancy (Vaupel, Villavicencio and Bergeron-Boucher 2021). Extending people's life span beyond the average life expectancy is a trend that raises many social, medical, and bioethical issues. For example, keeping people alive for longer through improvements in medical technology may create some unanticipated consequences, which some have called "the failure of success" (Alwin 2011). In this paper, longevity is understood as a result of life extension prolonged by various biomedical technologies.

Life span may be analysed from the perspective of one person, but it could also be seen in the frame of one group, population, nation, civilisation, or the entire human species. In this paper, we address the main bioethical issues of the artificial changing of longevity and how this enhanced longevity affects one's life course. We aim to explore how this meddling in the longevity of an individual or group influences their social roles and interpersonal and family relationships, which are all parts of the life course (Silverstein and Giarrusso 2011).

Life extension is not such a new idea historically, and we are acculturated to it. However, recent changes in life extension have spurred bioethical debates. There is no obvious moral or ethical dilemma as in other cases such as abortion, suicide, or end-of-life decisions. The reason for this bioethical discussion is the link between human life span, life extension, and the survival of the human species. Considering this, life extension through human enhancement could be observed via Potter's types of survival of individuals and groups. With this in mind, the question of human survival is raised and may be seen from individual or group perspectives. As individuals, we are aware of our mortality, but at the same time, we know that the generation of humans may prolong civilisation and the life of the human species. "Survival of a civilization is the postponement of an inevitable collapse or crash, with overwhelming decreases in the total number of people. The question is whether a decent civilization could be rebuilt after a crash. The bioethical phrase global survival does not specify what kind of survival is called for" (Potter and Potter 2001). However, survival does not have only these longitudinal and quantitative features, but also a qualitative characteristic. Potter and Potter (2001) suggest five types of survival: "mere," "miserable," "idealistic," "irresponsible," and "acceptable".[1]

Based on this model, due to the reduction of natural resources (especially the supply of drinking water), the dramatic extension of human life and the

[1] "Mere survival" is characterised by the ethics of small groups, similar to the ethics of a "hunting and gathering" society. "Miserable survival" could be understood as living in a state of war, disasters, and in general where anticipation of survival is reduced for individuals and groups. "Idealistic survival" is a type of survival freed from the previous risks. However, it is hardly achievable at the global level. "Irresponsible survival" is doing anything that runs counter to the concepts of idealistic and acceptable survival. It is characterised by "overpopulation and overconsumption, and the depletion and degradation of the biosphere". "Acceptable survival" could be presented as the main goal of bioethics. It based on the increased anticipation of present and future risks to the survival of both humans and the biosphere (Potter and Potter 2001).

https://doi.org/10.2298/STNV2202107M

irresponsible application of biotechnologies may lead to the highly uneven distribution of wellbeing and healthcare, which may result in the extinction of the weaker members of society. The uneven aging of tissues and organs raises the question of what age life extension technology will be applied at and whether it is about extending the maximum or average life span. For this purpose, we will support a relevant analysis of the ideological and theoretical division with the bioethical categorisation of survival types.[2] Modern, developed, and market-oriented societies, which according to Potter are characterised by a culture of irresponsible survival, dictate the basic pattern of that culture, which is reflected across two levels: the freedom of individuals to choose the best way of life for themselves and their children, and enhancement,[3] when people are freed from social responsibility and solidarity (Potter 1988; Parens 1998; Elliott 1998). According to two opposing bioethical streams, such a situation is either justified or absolutely unjustified.

The first account (transhumanist) starts with the ethics of the unrestricted use of human enhancement technology (HET). This new technology combines bioscience, nano-science, technology, and ICT. The effect of HET is not limited only to the environment; it is intended to be used inside or on the human body and mind. According to this school of thought, using new biotechnology to enhance ourselves and our offspring is our moral obligation (Savulescu 2007; Agar 2002, 2004). The second account (bioconservative) strongly opposes the usage of HET beyond therapy, i.e., medicine and other healthcare procedures, not to enhance typical human capacities and functions. From this perspective, every usage of HET on healthy people, even the genetic screening of heredity malformation, is against human dignity (Kass 2000, 2001; Fukujama 2003).

The approach used in this and our previous papers sits between these two extreme positions. Such an account is represented through constant and singular analysis of every case in which the new technology is used on healthy people. A later account is necessary for analysing real and possible social and medical issues with human enhancement and reviewing the benefits of such interventions. In this regard, as a result of enhancing the quality of life, its extension also occurs as either an unwanted or intended effect. In both cases, such an effect is almost unquestionably taken as a socially valuable goal.

So far, it is evident that both radical approaches lead to vital changes in any kind and importance of social roles. Whether one opts for dramatic improvement of their own or their offspring's capacities, or abstains from possible therapeutic screening, longevity and life course perspective are changed for one's own good. Both of these patronising approaches are motivated by the moral obligation to defend human dignity or choose one's best way of life. Such paternalistic (Dworkin 2020) approaches to choices regarding life course are just one step from authoritarian socialisation and stand against autonomous choices during one's life course.

[2] A similar methodology is used in: Mitrović (2014).
[3] Enhancement is the improvement or extension of some characteristics, capacities or activities of human beings. On the other hand, a certain distinction needs to be made in relation to therapy that corrects certain disorders or deficiencies, i.e. that aims to bring an unhealthy individual to a healthy state. See more in: President Council on Bioethics (2003).

2 BIOETHICAL ISSUES OF LIFE EXTENSION

Using the bioethical framework presented in the last section, I will analyse the main bioethical issues and social concerns regarding altering longevity and life course. From the bioethical standpoint, life course perspective is additionally complicated because improving quality of life is almost unquestionably accepted as a supreme social value. In this regard, the social aspects of enhancement raise certain social concerns, such as: (1) Due to the social acceptance of new enhancement technologies, will there be an extension of life span through genetic intervention that is accessible to everyone (idealistic survival), or will the justification of individual cases lead to a scenario of irresponsible survival for one group and miserable survival for another group of people (Stock and Callahan 2007)? (2) Could the side effects of the use of biotechnologies for life extension put the human species at "risk of extinction" (Bostrom 2002; Sidel, Gould and Cohen 2002)? (3) Due to the dramatic extension of human life and the irresponsible application of biotechnologies, could overpopulation become so great that biologically and morally superior (powerful) groups use the same means (pharmaceutical and bio-medical) for the selective elimination of a lower species, i.e., old, chronically sick, or physically weaker populations? (4) At what age of life will life extension technology be applied, will the aging process of all organs will be uniform, and how long should the life span then become? Is it about extending the maximum or average life span (Stock and Callahan 2007)?

Considering Agar's (2002: 30) "pragmatic optimism"[4] as contrasted with Gordijn's (2005) and Lindsey's (2005) question about whether something should be considered if, in the foreseeable future, it will not be technologically possible to achieve it, it is necessary to present a framework for possible interventions. Each of the possible technological origins of intervention comes with its own subcategories in bioethical debates on life extension. Those four possibilities can result in: prolonged senescence, reduced mortality ("compressed morbidity"), "decelerated aging" and "arrested aging". On the one hand, the borders between these bioethical discussions are depicted by the rivalry between political affinities and the rivalry between the aforementioned operational frameworks. On the other hand, those limits represent a guide to other research that can be applied to the enhancement of human beings (Juengst et al. 2003: 24).

For the optimal operationalisation and presentation of our results, the last four goals or framework issues can be summarised by two types of biotechnological interventions. The first frame includes interventions to stop aging by creating eternally young bodies through cloning tissue parts or the entire organism, then transmitting recorded synaptic messages and experiences through future technologies (HET).[5] According to some authors, such a scenario will never happen because what some call the soul is impossible to transfer (Agar 2002). Therefore, based on pragmatic

[4] "Pragmatic optimism represents a scenario covering a specific situation with principles and rules, although that technology or intervention may never occur" (Agar 2002: 30).

[5] Please see more in: Mitrović (2012: 52–53) and at: CLONAID (2022).

https://doi.org/10.2298/STNV2202107M

optimism (Agar 2002), it is necessary to consider another framework: the possible impact of technologies in the foreseeable future (Gordijn 2005; Lindsay 2005). In a broader sense, this is about an approach that connects old age with accompanying diseases, thus trying to justify the extension of life by justifying the treatment of those diseases (Post 2007: 304, 312).

Considering the relevant methodology, distinguishing health treatments and enhancing healthy people comes to the fore, steering the analysis of interventions towards biomedical and social norms. With this in mind, the question arises of how to determine the social criteria for treating diseases that occur with aging, knowing that the secondary effects of that treatment will lead to an extension of the length of life. At first glance, extending life represents absolute value and brings with it particular social concerns in the form of creating a new life span limit, which an increasing number of people define as 'sick' or 'inferior'. The situation is even more complex because the public's view of aging through degenerative diseases can be an attractive way to gain public justification for life extension research. The very same argument can be effectively used to "refute the claim that the mission of such research is a human redesign or enhancement" (Juengst et al. 2003: 26–27).

The pathologisation of aging along with discriminatory social norms against the old (agism) could, over time, include "rejuvenation procedures" (anti-aging products) as part of basic healthcare, thus creating a new space for trade-offs in medicine. Whether old age will be seen as a disease is not only a question for biomedicine; many other social factors also influence where the boundary lies between the norms of health and disease. Similar to the described bioethical divisions in life extension, there are divisions among "apologetics" who consider "aging a natural process" that should be separated from disease states associated with aging. On the contrary, in the transhumanist spirit, "prolongivitists" see aging as a disease we must treat (Post 2007: 307–309; Ehni and Marckmann 2008: 965).

In addition to these aspects, the above division into interventions with medical goals and interventions guided by specific social values related to gaining better social status also raises the question of social justice. In order to better understand such a question, it is necessary to recall the "double effect" of medical intervention; treating degenerative diseases associated with aging could lead to a better social position. Authors like Harris (2007) justify such a position as unrestricted freedom of individual choice (including the "freedom to fail"), which must not provide maleficence to others. Given the current socioeconomic divisions, it should be pointed out that such interventions would be accessible only to a minority of the population. At the same time, the effects of maleficence need to be analysed from a more comprehensive social perspective, not just a medical one. However, this case represents the issues of moral equalisation of the same activities (often the same intermediate state)[6] with different aims.

[6] Intermediary states of HET often represent a state, feeling, or intermediary health condition in the practical usage of some forms of HET. For example, using synthetic means like human growth hormone (HGH) to enhance a child's capacity to get a scholarship as a future basketball player at college and using the same medicine as pure medical therapy for children with growth hormone deficiency involves the same means (HGH) and the same intermediary states, but the aims are different.

Social justice, in this case, is the source of at least one more issue. This concern is reflected in the idea that the possibility of extending life should be available to everyone. The pursuit of an idealistic type of survival could obscure the voluntary limitation of reproduction, consequently affecting species renewal and the lifecycles of individuals and families, which should be consistent with the rest of our biosphere (Potter and Potter 2001). In this way, prolonging life could in fact have the opposite effect. For these reasons, the analysis of social aspects of enhancement should start with acceptable global survival. Mere and miserable existence derived from unbalanced social distributions is not enough, and irresponsible survival is unacceptable (Potter and Potter 2001:2).

Starting with the global context, efforts to use biotechnologies to influence the process of longevity, and various social and cultural aspects of the life of social communities, some authors raise significant moral questions about the sustainability of global survival. Such an angle of observation could generally be described as a vision of "rational desirability" or of a "good life". The individual level of the relationship between aging and the vision of a good life questions whether aging is intrinsically wrong, that is, whether extending life represents an "intrinsic value" (Post 2007: 318; Ehni and Marckmann 2008: 966). The social aspect of this dilemma relates to the renewal and structure of the population. According to Post (2007), the social aspect reflects the interrogatives of the principle of solidarity and even the wellbeing of the general population in the case of life extension. Technological progress often separates us from developing virtues or even "tempts us to create a new class of eternally young elite, which would, irreversibly, begin to view other unchanged groups as unfit or inferior" (Post 2007: 312).

Bearing these concerns in mind, specific authors state that the views of "apologetics", like those of bioconservatives, stem from the idea that aging is not something to be avoided. Their social analysis argues that older people should free up living space and social positions for generations to come (Ehni and Marckmann 2008: 967). However, this proposal is generally not supported either in Europe, due to the well-known Nazi eugenics programs, or in the USA due to accusations of agism (Ehni and Marckmann 2008). Contrary to the previous bioconservative views of the apologists, let us now assess the transhumanist perspective of the prolongists, that the extension of life is an "intrinsic value"; that people want to live longer because it is a specific intrinsic good, not a social advantage. Additionally, suppose in the spirit of Agar's "pragmatic optimism" that medicine has the means to make these interventions possible; that the risks of cancer caused by the uncontrolled development of transplanted cellular tissue have been eliminated; that safe organ transplants are possible without immune and infectious risks. In this case, hypothetically, say that legislative obstacles blocking the use of embryos and foetuses at an advanced stage of development were also removed, as were specific interventions in the development of human organs in the bodies of transgenetic organisms (Mitrović 2014:102). This scenario would not start from a utopian model of idealistic survival because of the already existing division in the duration of the average life span at the global level.

https://doi.org/10.2298/STNV2202107M

As it stands, there are parts of Africa where the average life expectancy is under 50 years, with about 25–26 million people infected with HIV (60% of the total global number).[7] On the other hand, some rich countries have an average life expectancy of between 70 and 80 years (Pijnenburg and Leget 2006: 585). As such, it is clear that a significant part of the world's population already lives in a miserable survival state. Considering this, the relevant literature emphasises the difficulties in distributing goods to all members of society (Pijnenburg and Leget 2006: 586).

From a transhumanist perspective, the question can then be raised as to whether we should ban life extension interventions for those who can afford them if we cannot make them available to everyone (Harris 2004). In other words, this argument says that interventions should be prohibited if we cannot achieve an idealistic survival model. This situation leads to a few circular explanations. We came across such an example with Harris, when one moves from the category of good social condition, without the obligation to do good and with the obligation not to do evil, to the category of improved (prolonged) life course. Therefore, in such a transhumanist framework, social relations are free from social responsibility and solidarity. Since I have previously commented on such a situation in detail, it could be concluded that the extension of life cannot be an internal good if human life is not extended on a social level. Living longer is not worth it if life is prolonged on an individual level (even then, quality takes priority over quantity of life) but – not broadly within the community (Lin and Day 2014; Pijnenburg and Leget 2006: 586–587).

[7] Most relevant data shows that the prevalence of people infected with HIV has been reduced in this region due to a key population programs for HIV reduction. See more in: Garnett (2021).

3 LIFE EXTENSION AND SOCIAL ROLES IN LATER LIFE

Bearing in mind the various interpretations of changing the course of life through life extension leads us to the discussion of restoring the population or creating a significant change in the political and social rights of the community (Shanas and Maddox 1985). The paradox of the bioconservative approach to life extension occurs precisely at this point. Examples such as the "alarming increase" of the elderly population in countries such as China and Japan (Fukujama 2003) do not reveal how to overcome existing divisions in essential medical and social protection, not only in the global disproportion of life expectancy, but also in American society. The contradictory or ambivalent decisions of legislative bodies (Kass 2001) enable the very scenario that transhumanists strive for. In addition, the status and social roles of elderly people vary across different cultures and societies.

Extending an individual's lifespan within a society leads to at least four social problems that are usually related to the relationship between the social structure and the function of the elderly (Rosow 1985: 459). As stated by this author, the essential ambiguities revolve around the concept of the social role of the elderly: (1) the problem of presence: "Is there any role?" Roles are not always sharply demarcated, in the sense that we can't always identify them by type or claim which form of behaviour belongs to that role (Rosow 1985: 459). (2) The problem of the boundary criterion: "What is the role?"

When we establish the presence of a particular role, this does not mean that we have separated the behaviour that goes and does not go with that role; we can't judge what the internal and external properties of the role are, what the specific activities of that role involve, and what is residual or idiosyncratic in that role (Rosow 1985: 459). (3) Interaction problem: "Roles influence each other". This concern could also be called the "substitution problem". The extreme variability of status positions makes this problem more difficult, as different roles change the norms of other roles. In other words, the specific status position of one role influences other individual positions (Rosow 1985: 459). (4) The problem of levels: "The totality of status and roles"; concerns stemming from the previous problem. How does one social actor transform all his social positions and roles into one general level – an abstract social status or role (Rosow 1985: 460)? How does one trade many complex personal roles at the concrete level into roles at the aggregate level? The specific and general levels reflect the prevailing problems of different status patterns and combinations of roles in one's personal life (Rosow 1985: 460). Generally speaking, the tension between social position and informal and formal roles of "less social importance" (the roles that this author usually identifies in early childhood and late old age) determines the overall status that is followed throughout a person's life. With aging, the decline of social functions related to formal and informal roles (mild curvature of the curve) has been recorded, while the status of old people is mainly viewed as having "less social importance" as a result of no longer actively working (Rosow 1985: 474–480). In this paper, by analysing the possibility of enhancing people's quality of life, I have pointed out real and possible social concerns that are reflected in the change in the status and role of the elderly; with the extension of the life span, it is possible to expect that older people will ask to return to the ideal and not the actual image of the role of youth (Elliott 2002; Juengst et al. 2003).

Such problems of circular or empirically arbitrary explanations lead us to approach the method of analysis that I described at the very beginning of the paper: applying both definitions of enhancement (biomedical and social), and only then using the principles of social justice. Bearing in mind the previously described scenario where some get to live much longer than others and, on the other hand, the requirement for good global survival, it is first of all necessary to establish whether 70–80 years is a desirable and aspirational lifespan for human beings. If the goal is the specified range of life, then in the case of miserable survival, it is necessary to approach the use of biomedicine to the adopted level. In the case of developed societies that are led by irresponsible survival (starting from the mentioned level and moving upwards), it is necessary to strive to control diseases of old age and raise the quality of life in later years, which does not conflict with the initial framework: Potter's acceptable survival for as many people as possible, which would be in harmony with the rest of our biosphere. In this regard, Pijnenburg and Leget (2006) remind us that the pursuit of a better quality and not a longer life is not comprehensive, as improving the quality of life will inevitably produce a double effect that results in a longer life (Stock and Callahan 2007).

https://doi.org/10.2298/STNV2202107M

However, even if there is a social consensus on the dramatic extension of people's lives, the question of where to stop at the limit of health remains unresolved. Given that we know that organs and tissues do not age equally, when should we intervene in the treatment of diseases of old age? Establishing a limit and putting an exact time on access to improvement interventions is complicated by the described health risks involved in tissue repair research with the help of non-specialised embryonic stem cells. On the other hand, that intervention is complicated by unknowns regarding the duration of the differentiation time of the cells that should be applied to fix the tissue. In addition, the study entitled "Biological Anthropology and Human Aging" (Crews 1993) shows that genetics and aging are related, but that this relationship is highly complex. With this statement, we want to emphasise that it is essentially easier for a specific genetic change to affect the appearance of diseases that shorten life than to prolong life with one convenient genetic change. Numerous changes damage the complex integral system (organism) while repairing only some parts (Crews 1993: 406).

We should also keep in mind that when weighing up such risks and benefits, the decision to test these technologies would prevail despite the risks, as experimentation would obviously take place on older adults who will die in the foreseeable future regardless. In the case of successful interventions, the new image of a long, healthy old age does not have to mean spending free time only on golf, fishing, or tourist trips as predicted by many authors; the benefits are also reflected in the extended working capacity of these individuals (Stock and Callahan 2007: 408–416). Such views are often reduced to contentious debates about euthanasia, which due to their history can play a crucial role in people refusing to accept this kind of approach that does not take into account the risks posed to elderly people. The public perception of the social role and status of older people is a related problem. Generally speaking, their role would deviate from the norms enjoyed by human subjects in biomedical research and would be based on age discrimination. Conversely, if such interventions manage to bring benefits beyond the enjoyment of free time, there may be a demand for older people to once again take on the social role of youth by embracing such activities as returning to active work or reparenting. Is technology and science ready to give them "enjoyment" in such a social role? The hypothetical answer would be yes, with the help of tissue and organ cloning and changes in the neuro-endocrine system: "egg cell banks", "surrogate mothers", and the like. However, a crucial question then arises: Is society ready to cope with the new offspring of the "rejuvenated" (enhanced) generation? In that case, not only would there be a problem between the enhanced and the "normal", but there would also be intermediate layers that complicate an already complex situation. Grandchildren and great-grandchildren would practically collide in time and space with the new children of the rejuvenated, which would lead to a paradox of generations and, more precisely, a paradox of status and roles; the second generation of children would discriminate against the first generation descendants of enhanced individuals and the like. In that case, the more powerful groups that taught the ethics of applying biotechnology to the elderly could use other unenhanced social groups as samples for testing new technologies. Bringing life extension interventions to

an acceptable level of success would increase the risk of overpopulation, which could be addressed by the well-known but now scientifically based selection of enhanced and long-lived groups.

The question immediately arises as to whether medical treatments in later years (from 80 to 100) are justified, given that families and the wider community would be less able to take care of the elderly. Such a situation coud lead to increased agism (Post 2007; Ehni and Marckmann 2008: 967). To an extent, this became clear during the COVID-19 pandemic, when elderly and unwell people were endangered in multiple ways. They might already suffer from health issues related to old age, but living in care homes and loneliness are the most relevant yet invisible risks of additional marginalisation for elderly people. During COVID-19, such circumstances led to higher mortality. At the same time, elderly people were dying alone due to pandemic isolation rules, with concern about the destiny of their descendants dominating. Moreover, during COVID-19 it was clear that life-saving procedures were afforded to people on the basis of factors like age, intensifying the agism that elderly people already experience (Jecker 2022).

4 CONCLUSION

Unlike previous social inequalities, this division between forever young and "normal aging" would be scientifically based and justified, making it potentially even dangerous for the survival of weaker social groups and communities. In addition, the very process of social-biological differentiation would change the life course, including longevity and related social roles. Numerous morally questionable kinds of research would accompany it, and the subjects of those studies would be the last to feel their unwanted effects. With that in mind, some authors (Elliott 2007) have questioned the current social role of bioethicists. Does that group of scientists have the power to prevent the existential risks of certain social strata, or are they under the influence of the biotechnology industry? In this regard, the question arises not only of the survival of bioethics (defined by Potter (1971) "as a bridge to the future"), but also of the diversity of the human species and the entire biosphere. With the positive results of current technological achievements and scientific knowledge in prolonging the life of some animal species (Tian, Seluanov and Gorbunova 2017; Omotoso, Gladyshev and Zhou 2001), it is to be expected that research efforts, under the justification of disease control in old age, will continue, resulting in this knowledge being applied to humans. There are two fundamental approaches that can predict in which direction this research will go. The first includes a scenario that seems unlikely from today's perspective and involves interventions to stop aging by creating eternally young bodies through the cloning of tissue parts or the entire organism and the transmission of recorded synaptic messages and experiences. The second direction represents, for now, a more realistic trajectory of scientific progress in extending people's lives and, in a more general sense, implies an approach that connects old age with accompanying diseases, thus trying to justify the extension of life through the treatment of those diseases.

However, the question immediately arises of how to determine the social criteria for treating diseases that occur with aging, knowing that the secondary effects of that treatment will lead to an

https://doi.org/10.2298/STNV2202107M

increase in the length of life. Starting from the framework of transhumanism, a particular stream of experts (prolongists) advocate a certain pathologisation of aging; they see aging as a disease we must treat. In contrast to them, bioconservatives (apologetics) see old age as a natural part of human life. This second framework, which opposes life-prolonging interventions, warns that the pathologisation of aging and existing discrimination against the elderly (agism) could be used to justify the reconstruction of the human species. Both streams argue about problems related to such interventions' positive or negative impacts on human health. In addition to this significant issue, the problem has much more profound social consequences. Regardless of whether or not we start from an idealistic type of survival in which such interventions are available to everyone, the question of the limit of longevity would be raised, bearing in mind the current difference in average life expectancy not only globally, but also in particular regions of the same countries. Therefore, neither option considers the current state that one part of the population, choosing irresponsible survival, deepens or pushes another part of the population from mere to miserable survival. It is also necessary that any acceptance of the benefit that the extension of life brings with it must take into account not only the risks to the health of the individual, but also the question of what age of life we start from and what limit of longevity we strive for.

Even if a consensus on idealistic survival were to be reached and the side effects were removed, the question that we warned about would be raised: the overpopulation of the planet and the demand for a renewed identity from youth. In that case, society would face the problem of a job shortage caused by the dramatic increase in the age until which people can work, as well as the paradox of generations, i.e., social roles. According to some, the success of life extension would enable not only the enjoyment of the roles of "little social importance", which typically entail spending free time on various hobbies and vacations, but rather the extension of people's active working lives and participation in all formal and informal roles associated with younger people. A renewed but inauthentic image of youth could also require reparenting (due to the removal of biological risks, legislative obstacles would also be removed), which would lead not only to discrimination between two generations (parent-children), but a multi-layered generational gap. This would open up the possibility of conflicting social roles and functions at each of the resulting social levels.

ACKNOWLEDGMENTS

This paper was written as part of the 2022 Research Program of the Institute of Social Sciences with the support of the Ministry of Education, Science and Technological Development of the Republic of Serbia.

REFERENCES

Agar, N. (2002). The problem with nature. *The Hastings Center Report*, 32(6), 39–40. https://doi.org/10.2307/3528132

Agar, N. (2004). *Liberal Eugenics–In Defence of Human Enhancement*. Carlton: Blackwell Publishing.

Alwin, D. F. (2011). Scholarly Foreword. In R. A. Settersten & J. L. Angel (Eds.), *Handbook of Sociology of Aging* (pp. v–vii). New York: Springer.

Bostrom, N. (2002). Existential Risks. *Journal of Evolution and Technology*, 9(1), 1–31.

CLONAID (2022). CLONAID: Pioneers in human cloning. Retrived from https://www.clonaid.com/

Crews, E. D. (1993). Biological Anthropology and Human Aging. Some Current Direction in Aging Research. *Annual Review of Anthropology*, 22, 395–423. https://www.jstor.org/stable/2155854

Dworkin, G. (2020). "Paternalism". In E. N. Zalta (Ed.), The Stanford Encyclopedia of Philosophy (Fall 2020 Edition). Retrieved from https://plato.stanford.edu/archives/fall2020/entries/paternalism

Ehni, H-J., & Marckman, G. (2008). The Normative Dimensions of Extending the Human Lifespan by Age-Related Biomedical Innovations. *Rejuvenation Research* 11(5), 965–969. https://doi.org/10.1089/rej.2008.0749

Elliott, C. (1998). What's wrong with enhancement technologies? CHIPS Public Lecture. University of Minnesota, February 26, Center for Bioethics, University of Minnesota. Retrieved from http://www.ucl.ac.uk/~ucbtdag/bioethics/writings/Elliott.html

Elliott, C. (2002). The importance of being human? *The Hastings Center Report*, 32(6), 42–45.

Elliott, C. (2007). The Tyranny of Expertise. In L. A. Eckenwiler & F. G. Cohn (Eds.), *The Ethics of Bioethics: Mapping the Moral Landscape* (pp. 43–46). Baltimore, MD: Johns Hopkins University Press.

Fukujama, F. (2003). *Naša posthumna budućnost: posledice biotehnološke revolucije*. Podgorica: CID.

Garnett, P. G. (2021). Reductions in HIV incidence are likely to increase the importance of key population programmes for HIV control in sub-Saharan Africa. *Journal of the International AIDS Society*, 24(S3), e25727. https://doi.org/10.1002/jia2.25727

Gordijn, B. (2005). Nanoethics: From Utopian Dreams and Apocalyptic Nightmares towards a more Balanced View. *Science and Engineering Ethics*, 11(4), 521–533. https://doi.org/10.1007/s11948-005-0024-1

Harris, J. (2004). Immortal ethics. *Annals of the New York Academy of Sciences,* 1019(1), 527–534. https://doi.org/10.1196/annals.1297.098

Harris, J. (2007). *Enhancing Evolution – The Ethical Case for Making Better People*. Prinston: University Press.

Jecker, N. S. (2022). Too old to save? COVID-19 and age-based allocation of lifesaving medical care. *Bioethics*, 36(7), 802–808. https://doi.org/10.1111/bioe.13041

Juengst, E. T., Binstock, R. H., Mehlman, M., Post, S. G., & Whitehouse, P. (2003). Biogerontology, "Anti-Aging Medicine," and the Challenges of Human Enhancement. *The Hastings Center Report*, 33(4), 21–30. https://doi.org/10.2307/3528377

Kass, R. L. (2000). The moral meaning of genetic technology. *Human Life Review*, 26(1), 76–87. http://hdl.handle.net/10822/517120

Kass, R. L. (2001). Preventing a brave new world. *Human Life Review*, 27(3), 14–35.

Lin, H-Y., & Day, T-H. D. (2014). A Study of Aging Topic Focusing On The Catholic Social Doctrine And A Sen's Capability Approach. *Journal for the Study of Religions and Ideologies*, (13)37, 125–147.

Lindsay, A. R. (2005). Enhancements and justice: problems in determining the requirements of justice in genetically transformed society. *Kennedy Institute of Ethics Journal*, 15(1), 3–38. https://doi.org/10.1353/ken.2005.0004

Mitrović, V. (2012). *Iskorak bioetike: Nove bioetehnologije i društveni aspekti „poboljšanja" zdravih*. Beograd: ISI and Čigoja.

Mitrović, V. (2014). The Contingency of the "Enhancement" Arguments: The Possible Transition from Ethical Debate to Social and Political Programs. *Journal for the Study of Religions and Ideologies*, 13(37), 93–124. http://jsri.ro/ojs/index.php/jsri/article/view/725

Omotoso, O., Gladyshev, V. N., & Zhou, X. (2001). Lifespan Extension in Long-Lived Vertebrates Rooted in Ecological Adaptation. *Front Cell Dev Biol*, 18(9). https://doi.org/10.3389/fcell.2021.704966

Parens, E. (1998). Special Supplement: Is Better Always Good? The Enhancement Project. *The Hastings Center Report*, 28(1), S1-S17. https://doi.org/10.2307/3527981

Pijnenburg, M. A. M., & Leget C. (2006). Who wants to live forever? Three arguments against extending the human life span. *Journal of Medical Ethics*, 33(10), 585–587. https://doi.org/10.1136/jme.2006.017822

Post, G. S. (2007). The Aging Society and the Expansion of Senility: Biotechnological and Treatment Goals. In B. Steinbock (Ed.), *The Oxford Handbook of Bioethics* (pp. 304–324). Oxford: Oxford University Press.

Potter, V. R. (1971). *Bioethics: Bridge to the Future*. New Jersey: Prentice Hall.

Potter, V. R. (1988). *Global Bioethics – Building on the Leopold Legacy*. Michigan: Michigan State University Press.

Potter, V. R., & Potter, L. (2001) Global Bioethics: Converting Sustainable Development to Global Survival. *Global Bioethics*, 14(4), 9–17. https://doi.org/10.1080/11287462.2001.10800809

President Council on Bioethics (2003). *Beyond Therapy: Biotechnology and the Pursuit of Happiness*. New York: Georgtown University Press.

Rosow, I. (1985). Status and Role Change through the Life Span. In H. R. Binnstock & E. Shanas (Eds.), *Handbook of Aging and the Social Science* (pp. 457–482). New York: Van Nostrand Reinhold Company.

Savulescu, J. (2007). Genetic Interventions and the Ethics of Enhancement of Human Being. In B. Steinbock (Ed.), *The Oxford Handbook of Bioethics* (pp. 516–536). Oxford: Oxford University Press

Shanas, E., & Maddox, G. (1985). Aging Health, and the Organization of Health resources. In H. R. Binnstock & E. Shanas (Eds.), *Handbook of Aging and the Social Science* (pp. 592–618). New York: Van Nostrand Reinhold Company.

Sidel, W. V., Gould, R.M., & Cohen, H.W. (2002). Bioterrorism Preparedness: Cooptation of Public Health. *Medicine and Global Survival*, 7(2), 82–89.

Silverstein, M., & Giarrusso, R. (2011). Aging Individuals, Families, and Societies: Micro–Meso–Macro Linkages in the Life Course. In R. A. Settersten & J. L. Angel (Eds.), *Handbook of Sociology of Aging* (pp. 35–49). New York: Springer. https://doi.org/10.1007/978-1-4419-7374-0_3

Stock, G., & Callahan, D. (2007). Debate: The Ethics of Life Extension. *Rejuvenation Research*, 10(3), 407–416. https://doi.org/10.1089/rej.2007.0599

Tian, X., Seluanov, A., & Gorbunova, V. (2017). Molecular Mechanisms Determining Lifespan in Short- and Long-Lived Species. *Trends in endocrinology and metabolism: TEM*, 28(10), 722–734. https://doi.org/10.1016/j.tem.2017.07.004

Vaupel, J. W., Villavicencio, F., & Bergeron-Boucher, M-P. (2021). Demographic perspectives on the rise of longevity. *Proceedings of the National Academy of Sciences*, 118(9), e2019536118. https://doi.org/10.1073/pnas.2019536118

How to cite: Mitrović, V. (2022). Bioethical and social constructions of life extension and longevity. *Stanovništvo,* 60(2), 107–120. https://doi.org/10.2298/STNV2202107M

Bioetička i društvena konstrukcija produženja života i dugovečnosti

PROŠIRENI SAŽETAK

Perspektiva životnog toka i bioetika dele neke od vitalnih tema koje su predmet različitih nauka i disciplina. Neke od njih su vitalna pitanja iz oblasti biologije, demografije, antropologije, sociologije i drugih društvenih nauka. U oba slučaja, jedno od najvažnijih pitanja je dugovečnost i s njom povezane društvene funkcije i uloge pojedinaca i grupa. U ovom radu smo pristupili ovim temama iz ugla bioetičke metodologije, odnosno koristili smo Poterovu kategorizaciju tipova preživljavanja i suprotnih stavova u debatama o produženju života. Ova etička i ideološka suprotnost posebno dolazi do izražaja kada se radi o poboljšanju ljudske vrste. Poboljšanje je definisano kao podizanje ljudskih kapaciteta i funkcionisanja izvan i iznad statističke norme ljudskog zdravlja. Iz bioetičkog ugla posmatranja, perspektiva životnog toka je dodatno komplikovana jer poboljšanje kvaliteta života gotovo nesumnjivo dovodi do njegovog produženja, a samim tim postaje prihvaćeno kao jedna od najviših društvenih vrednosti. Međutim, ovakvo bezuslovno prihvatanje akcija srednjoročno i dugoročno vode u menjanje ne samo ljudske vrste nego i u etički upitne promene društvenih uloga i odnosa. Polazeći od relevantne metodologije, društveni aspekti poboljšanja u okviru životne perspektive mogu se posmatrati kroz društvene brige i pitanja, kao što su: da li će usled društvenog prihvatanja novih tehnologija poboljšanja doći do produženja životnog veka genetskom intervencijom, dostupnom svima (idealistički opstanak), ili će opravdanje pojedinačnih slučajeva dovesti do scenarija neodgovornog opstanka jedne i mizernog opstanka drugih društvenih grupa? Da li bi neželjeni efekti upotrebe biotehnologije za produženje života mogli da dovedu ljudsku vrstu u opasnost od izumiranja? Usled dramatičnog produženja životnog veka i neodgovorne primene biotehnologija, prenaseljenost bi mogla (objektivno ili subjektivno iz perspektive „poboljšanih") da postane tolika da biološki i moralno superiorne (moćne) grupe pristupaju upotrebi istih sredstava (farmaceutskih i biomedicinskih) za selektivno eliminisanje niže vrste, odnosno svih onih koji su stari, hronično bolesni i društveno slabi i ranjivi. Zatim su tu pitanja koja pored društvenih imaju i biološku pozadinu, poput onih: u kom životnom dobu će se primenjivati tehnologija za produženje života; da li će proces starenja svih organa biti ujednačen i koliko životni vek treba da traje? Da li se radi o produženju maksimalnog ili prosečnog životnog veka? Sva ova bioetička pitanja i brige se odražavaju u perspektivi životnog toka, menjajući društvene uloge i funkcije potencijalno podmlađenih grupa. Međutim, ukoliko sva ova pitanja sažmemo u osnovnu društvenu i bioetičku zabrinutost, ona bi mogla da se izrazi kroz pitanja: od kog životnog veka počinjemo da produžavamo ljudski život i kome? Da li produžavanje života vodi ponovnom uspostavljanju naših društvenih uloga iz mladosti ili je to samo romantična slika našeg prethodnog života? Ova studija zaključuje da se paternalistički vođeni pristupi produženju života ili, u suprotnom slučaju, izbegavanju moderne medicine u otklanjanju bolesti koje se javljaju sa starenjem susreću sa sličnim epistemološkim i društvenim redukcijama u oblasti perspektive životnog toka.

KLJUČNE REČI

perspektiva životnog toka, bioetika, dugovečnost, starije osobe, ejdžizam, paternalizam

https://doi.org/10.2298/STNV2202107M