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# The Accessibility of Dental Health Services for Consumers/Patients Aged 60+ Against the Extent to Which Health Needs Are Met in the Post-COVID Period

**Abstract**

*Objective*: Human health needs increase with age. Hence, people aged 60+ are among the main beneficiaries within the health care system. At the same time, payment for dental services can be a significant barrier for older people, who usually do not have a considerable disposable income, which may limit their consumption in this area. The aim of this study is to determine consumers'/patients' aged 60+ accessibility of dental services in relation to their reported level of satisfaction of health care needs.

*Research Design & Methods*: The paper is based on an analysis of the legal acts concerning the basket of guaranteed benefits for dental prevention and treatment, as well as on an analysis of the results of a primary research study using an online survey carried out on a research sample of 1,100 people in the Ariadna National Research Panel in November 2022.

*Findings*: Income barriers and public payer regulations result in limitations on seniors' accessibility to dental services, which can result in negative population health outcomes.

*Recommendations*: The consequence of the described state of affairs can include further costs for the public payer related to the emergence of conditions resulting from previously unmet health needs. Thus, the cost-effectiveness of services should be assessed not only from the point of view of current needs, but also with regard to preventive measures concerning the emergence of more costly conditions.

*Keywords*: health care, consumer behaviour, silver economy, dental market, patient/consumer

*Article classification*: research article

*JEL classification*: D12, I13, H2

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## Introduction

Human life is intrinsically linked to the category of needs, i.e. a state of a certain tension, a feeling of lack, or a desire to possess (Burgiel & Sowa, 2000, pp. 23–55). The satisfaction of needs is usually achieved through purchased goods and services. Needs are unlimited in nature, and once they are satisfied, new, hitherto unrecognised needs emerge. By contrast, the goods (including goods and services) used to satisfy these needs are characterised by limitation. This results from the limitation of resources and is a basic assumption of the science of economics (Nojszewska, 1995, p. 12). The characteristics and unlimitedness of needs allow us to claim that they emerge at different stages of human life. However, they may differ from one another. In the case of the elderly, attention is particularly drawn to such needs as (Dyczewski, 1994, pp. 110–112 cited in Kawińska, 2022, p. 16):

- carrying out socially useful activities;
- a sense of social belonging;
- fulfilling certain family and social roles;
- social acceptance;
- maintaining social relations;
- providing opportunities for tasks;
- mental and psychological stimulation;
- health care and access to health care;
- spiritual satisfaction.

Among the groups of needs presented are those related to health. Their satisfaction may also influence the possibilities to satisfy other groups of needs due to the need to maintain well-being in order to fulfil certain social roles or perform socially useful activities. On the other hand, the fulfilment of other types of needs also influences the degree of satisfaction of health needs and, in particular, the self-assessment of health status, both physical and mental, which was significantly disrupted under the conditions of isolation during the COVID-19 pandemic (Bojanowska, 2022, p. 13).

Undoubtedly, however, human health needs increase with age. They are among those most desired by seniors, who are already considered to be over 60 years of age (Fiedorczuk et al., 2016, pp. 117–138). Hence, people aged 60+ are among the main beneficiaries within the health care system (e.g. Worach-Kardas, 2006, pp. 354–355; Spyrka-Chlipała, 2014, p. 240; Gałuszka, 2014, p. 81). As research among European seniors indicates, self-assessment of the health status worsens with each passing year (Romanowska, 2017, pp. 13–14). Additionally, from the economic point of view, demographic changes in Poland allow us to assume that the importance of seniors in the market will increase, and that in 2035 almost one in four Polish residents will be over 65 years of age (Białkowska et al., 2016, p. 58). One branch of health care that can be and is increasingly used by these individuals (Kamińska & Kaczorowska-Bray, 2017, pp. 48–49) is dentistry. This is a rather specific health care market, characterised by the relatively narrow scope of services offered under public health insurance and dominated by services that are commercial in nature. At the same time, payment for dental services can be a significant barrier for older people, who usually do not have a considerable disposable income. Some authors even point to the marginalisation of seniors in the consumer market, and the obtaining of goods necessary to meet needs is sometimes referred to as acquisition rather than purchasing, suggesting that there is not always a traditional buy-sell transaction but, rather, a redistributive, charitable, or social

action involved (Bylok, 2017, pp. 63–65). Hence significant funding constraints, which may limit their consumption in this regard. Consequently, these decisions may negatively affect the overall psycho-physical well-being of the elderly, and the unmet dental needs of seniors – especially with regard to prosthetic treatment and rehabilitation of the masticatory organ – result in an increased risk of mental illness, including depression (Barczak et al., 2016, pp. 1030–1036), which is estimated to affect several percent of seniors. There is also criticism and anger associated with emerging deficits in functioning in daily life and the environment (Białkowska et al., 2017, pp. 46–48). Dental-related needs among older people may not only appear more frequently, but may also take on a new character due to the senile nature of certain dental conditions (Dziechciaż et al., 2016, pp. 185–186).

The limited financial possibilities of a significant proportion of people aged 60+, as well as the subject and object limitation introduced by the public payer in Poland (the National Health Fund) – also taking into account the latest changes in the basket of guaranteed services, the withdrawal of the payer from financing amalgam fillings, the consequent financing of the removal of previously placed fillings (MZ Regulation, 2022), and the emergence of the COVID-19 pandemic with the limitations resulting from it – all allow us to propose a research problem, which is the level of the patients'/consumers' accessibility of health care in terms of prevention and dental treatments in the post-COVID period. Thus, the aim of the study is to determine the accessibility of dental services for consumers/patients aged 60+ in relation to their reported level of the satisfaction of health care needs.

## The accessibility of dental services for seniors

Health care services, and therefore dental services, can be obtained in Poland either commercially, i.e. by purchasing certain goods on the dental market and financing this purchase with private funds, or by taking advantage of those publicly financed services offered by entities with a contract with the National Health Fund (NFZ).

A significant proportion of dental services in Poland are provided as commercial services. This is almost 80% of this type of medical services (Suchecki, 2024, p. 150). The material scope of these services is very broad, as treatment entities and dental practices in Poland have a very wide range of services, including those using the most innovative and technologically advanced solutions (Dentonet, 2023). However, the problem is the high prices of these services, which can be a barrier for most social groups, especially seniors, whose material situation has never been the most favourable and has been further aggravated by the results of the COVID-19 pandemic as well as a considerable level of inflation that has emerged since 2021. The relatively low material standard of living of seniors is also indicated, as are the low opportunities to meet higher-order needs, with more than half of pensioners' income being spent on meeting subsistence needs (Uścińska, 2023, p. 6). Despite this, few seniors have a negative subjective assessment of their material situation (GUS, 2022), which may, however, be due to the relatively low revealed needs of this age group. However, nearly half live frugally or very frugally and, as they themselves indicate, this allows them to meet their most important needs (Kuźma, 2023, p. 11). This leads us to believe, however, that the availability of cost-intensive commercial dental treatments for seniors is relatively low, and a substitute good may be those services that are offered within the public health system.

Publicly financed health services, although available to practically all persons living in Poland (with the few exceptions of persons without health insurance and not covered by state care under

other titles, whose catalogue is very capacious) (Law on Benefits, 2004, Articles 2–3, p. 66), nevertheless have their limitations resulting from the insufficient financing of these services and the growing health needs of the population. These limitations are particularly evident in dentistry, where the Polish public payer finances some benefits to all groups of eligible persons and others only to selected ones (mainly children or pregnant and postpartum women). These restrictions are of a subjective, quantitative, and qualitative nature. The most important ones, from the point of view of seniors, are presented in Table 1 and Table 2.

**Table 1.** The list of the main restrictions on the provision of publicly funded dental services in Poland (excluding paediatric dentistry)

| Group of benefits | Quantitative and qualitative restrictions | Subjective restrictions |
|---|---|---|
| Examination and instruction in oral hygiene and medical consultation – preventive services | A limited number of services within an accepted time frame | Increased frequency for pregnant and postpartum women |
| Imaging diagnostics | A limited number of benefits per time interval; restriction on the educational background of the referring dentist (specialisation requirement); hardware limitation | Increased benefit entitlement for those under 18 years of age |
| Conservative dentistry (caries treatment, tooth fillings) | Material limitations | A wider range of materials for those under 18 years of age |
| Endodontics (root canal treatment) | Incisor and canine treatment only; hardware limitation | Treatment of all teeth in pregnant and postpartum women and for those under 18 years of age |
| Periodontology (treatment of periodontal disease) | A limited number of benefits per time interval | A wider coverage of services for pregnant and postpartum women and for those under 18 years of age |
| Dental surgery | No significant restrictions | No significant restrictions |
| Dental prosthetics | Generic limitations (acrylic dentures, fabric dentures); a limited number of benefits per time interval | Restrictions do not apply to persons after surgical removal of facial tumours |
| Orthodontics, including: orthodontic diagnosis, orthodontic treatment, and control of orthodontic treatment | Deneric restrictions (single- and double-jawed appliances) | Age restrictions (up to 18 years of age) |

Source: Own compilation based on: Regulation of the Minister of Health of 6 November 2013 on guaranteed dental treatment services (i.e. Journal of Laws 2021, item 2148) and Regulation of the Minister of Health of 9 September 2022 amending the Regulation on guaranteed dental treatment services (Journal of Laws 2022, item 1912).

The main limitation is that only a certain number of benefits can be financed within an accepted time frame. A possible increase in the number of benefits is only offered to people up to the age of 18 and, in some cases, to pregnant and postpartum women. However, there is a lack of any facilities for the elderly, who are treated in the same way as other adults, despite increasing health needs in dentistry, including in the case of prosthodontics, which is an area of dentistry that is most often offered to seniors due to the dental deficiencies that usually occur.

Also worth noting are the relatively narrow material options during publicly funded dental procedures. This may result in a lower quality and durability of the procedures performed and,

therefore, in poorer treatment efficacy. The inability to use the latest materials and medical technologies also makes some dentists reluctant to treat in the public system and, consequently, reduces the availability of these services.

**Table 2.** Materials used in the provision of publicly funded dental services in Poland by patient group

| Beneficiary groups | Dental materials |
|---|---|
| All recipients | • material for temporary fillings;<br>• primer cements based on calcium hydroxide, phosphate cement;<br>• glass ionomer cement;<br>• glass ionomer cement with increased density;<br>• resin-reinforced glass ionomer cement;<br>• composite material for filling cavities in upper and lower anterior teeth (from 3+ to +3, from 3- to -3);<br>• root canal filling materials;<br>• gutta-percha studs;<br>• alginate impression mass;<br>• mass for functional impressions in edentulous patients;<br>• surgical threads;<br>• immobilisation splints, ligature wire. |
| Persons under 18 years of age | • a light-curing composite material for filling cavities in incisors and canines in the maxilla and mandible;<br>• slotted lakes;<br>• lacquers;<br>• surgical cement as a dressing for periodontal procedures. |
| Pregnant and postpartum women | surgical cement as a dressing for periodontal procedures. |

Source: Own elaboration based on: Regulation of the Minister of Health of 6 November 2013 on guaranteed dental treatment services (i.e. Journal of Laws 2021, item 2148) and Regulation of the Minister of Health of 9 September 2022 amending the Regulation on guaranteed dental treatment services (Journal of Laws 2022, item 1912).

## Materials and methods

In the study presented here, the core of the study was based on survey research carried out using the online survey technique; it is generally recognised by the scientific community and the researchers' positive approach to this technique was influenced by the emergence of the COVID-19 pandemic and the constraints caused by it (PTBRiO, 2020, p. 30). The technique offers the possibility of efficient data acquisition with relatively limited research costs. However, it should be borne in mind that it comes with fundamental limitations regarding the researcher's limited ability to control the respondents. It is worth noting that there is an increased sense of anonymity on the part of the respondent (Kaczmarczyk, 2018, p. 190).

The data presented in this paper is part of a larger study in which the survey questionnaire consisted of 18 factual questions and seven metric questions. The factual questions focused on changes in the behaviour of market actors operating in the COVID-19 pandemic situation. The metric questions were designed to identify the social, economic, and demographic characteristics of the respondents.

The part of the questionnaire used in the present article included a quotient scale measuring the degree of satisfying basic needs and higher-order needs (Dalati, 2018, pp. 79–96) as well as ordinal scales identifying changes that occurred in consumer behaviour as a result of the outbreak of the COVID-19 pandemic (Maciejewski, 2023, p. 15).

The reliability of the scales used (i.e. the internal consistency of the tool) was calculated using Cronbach's α coefficient. The coefficient values obtained for all the scales used in the questionnaire were well above the 0.7 level, which is a level accepted as one describing scales with a high level of reliability (Aron et al., 2013). Another coefficient for estimating reliability is McDonald's ω coefficient. Like Cronbach's α coefficient, it is based on the internal consistency method. In the literature, researchers point to its advantages over the commonly used Cronbach's α (Ciżkowicz, 2018; Kalkbrenner, 2024, pp. 93–105). Some researchers indicate that it is a better indicator of internal consistency (Graham, 2006; Revelle & Zinbarg, 2009). This is particularly evident with multidimensional scales (Osburn, 2000). It seems reasonable to use both α and ω in testing the reliability of the adopted scales in a survey instrument. It is assumed that McDonald's ω, like Cronbach's α, should reach values between 0.70 and 0.95 (Moumni et al., 2016, p. 910). The scales used in the study fell within the designated range. They ranged from 0.829 to 0.856 (Cronbach's α value) and from 0.821 to 0.852 (McDonald's ω value).

Given that at the time of the quantitative survey (November 2022), the pandemic status had not yet been revoked, measurement was chosen to be done through one of the online research communities. These were registered participants of the Ariadna National Research Panel. According to the information provided by the Research Panel, the sociodemographic profile of those registered in the panel overlaps with that of Poles using the Internet (Ariadna, 2024), although the researchers point to concerns about the activity of some panel members and the ‚tacit resignation' from participation in the community despite not deleting their personal account (Siuda, 2016, pp. 49–59). A research sample was drawn randomly from approximately 300,000 panel members (Rószkiewicz et al., 2021). The sample size was set so that the maximum measurement error at the confidence level of 95% and a fraction size of 0.5 is no more than 3%, which is the level of error acceptable in social research.

A link with an invitation to take part in the survey was sent to 8,046 adult and registered panel members. 1,439 (17.88% of those invited) respondents responded to the invitation and 1,208 (15.01% of those invited) respondents completed the survey. Due to the disadvantages of the research technique used and the limited control over the respondent with regard to the completion of the questionnaire, attention was also paid to the length of time taken by the respondent to complete the questionnaire. In testing the tool, it was determined that it was not possible to read the entire questionnaire and reliably complete it in less than 10 minutes. Thus, it was decided that all questionnaires that were completed in less than 10 minutes would be removed from the database. The study resulted in 1,100 completely and correctly completed questionnaires (13.67% of those invited), which were qualified for further analyses. Analyses of the data obtained were carried out with the help of the IBM SPSS Statistics 28 software.

The study was conducted in accordance with ethical standards, taking into account the International ICC/ESOMAR Code (ESOMAR, 2016). The research also received a positive opinion from the Commission for Ethics in Research with Human Participation of the University of Economics in Katowice (No. 001/11/2022). The survey was anonymous and the data collected did not contain characteristics that would allow the respondents to be identified.

The selection of the respondents was quota based on gender and the status in generational groups. The characteristics of the research sample are shown in Table 3.

As can be seen, the size of the generational groups (Z, X, Y, and Baby Boomers) is equal, which facilitates comparative analyses between the oldest generation and the other generations.

**Table 3.** The characteristics of the research sample

| Specification | | Sample size | |
|---|---|---|---|
| | | in lb. | in % |
| **Gender** | Women | 569 | 51.7 |
| | Men | 531 | 48.3 |
| **Belonging to a generational group** | Generation Z (18–24 years of age) | 275 | 25.0 |
| | Generation Y (25–39 years of age) | 275 | 25.0 |
| | Generation X (40–59 years of age) | 275 | 25.0 |
| | *Generation BB (60–80 years of age)* | *275* | *25.0* |
| **Educational level** | Basic | 45 | 4.1 |
| | Basic vocational | 115 | 10.5 |
| | Medium | 506 | 46.0 |
| | Higher | 434 | 39.4 |
| **Place of residence** | Village | 280 | 25.5 |
| | Cities with up to 50,000 inhabitants | 275 | 25.0 |
| | Cities with 51,000–200,000 inhabitants | 265 | 24.0 |
| | Cities with more than 200,000 inhabitants | 280 | 25.5 |
| **Subjective assessment of one's own material situation** | Very bad | 26 | 2.4 |
| | Bad | 121 | 11.0 |
| | Sufficient | 628 | 57.0 |
| | Good | 289 | 26.3 |
| | Very good | 36 | 3.3 |
| **Household size** | 1 person | 144 | 13.1 |
| | 2 persons | 368 | 33.4 |
| | 3 persons | 239 | 21.7 |
| | 4 persons | 223 | 20.3 |
| | 5 persons and over | 126 | 11.5 |

Source: Own compilation based on primary research.

## A presentation of primary research results

Among the questions asked of the respondents were those related to the level of the satisfaction of needs in selected areas. Among these were those arising from health services. The level of the satisfaction of health-related needs by gender, generational group, and the size of residence is presented in Table 4. The results are the average of the values specified by the respondents on a scale from 0% to 100%.

The respondents estimated that their health care needs were met at a level close to 55%. Men (58.1%) rated this level higher than women (51.4%), and rural residents (55.9%) rated it better than urban residents (54.1%–54.2%). Interestingly, a higher level of the satisfaction of health care needs was declared by older respondents – representatives of the Baby Boomers generation

(56.6%) and Generation X (57.1%) – than by younger respondents, particularly Generation Z (only 51%).

**Table 4.** The level of satisfaction of health care needs (in %, N = 1100)

| Specification | Total sample | Respondents by | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Gender | | Generational group | | | | Places of residence | | | |
| | | K | M | Z | Y | X | BB | W | M | Ś | D |
| **Health protection** | 54,6 | 51.4 | 58.1 | 51.0 | 53.8 | 57.1 | 56.6 | 55.9 | 54.1 | 54.2 | 54.2 |

Note: K – female, M – male, Z – generation Z (18–24 years old), Y – generation Y (25–39 years old), X – generation X (40–59 years old), BB – generation Baby Boomers (60–80 years old), W – rural residents, M – small town residents, M – medium town residents, D – large town residents

Source: Own compilation based on primary research.

The COVID-19 pandemic was a challenge for economies, societies, but also, and perhaps especially, for individuals. The impact of the pandemic varied in nature, but referred, among other things, to the deterioration of health. The declared severity of the COVID-19 pandemic with regard to health is shown in Table 5.

**Table 5.** Impacts of the COVID-19 pandemic considered by the respondents to be most severe for them and their households (in %, N = 1100)

| Specification | Total sample | Respondents by | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Gender | | Generational group | | | | Places of residence | | | |
| | | K | M | *Z* | *Y* | *X* | *BB* | W | M | Ś | D |
| **Deterioration of mental condition** | 40.2 | 46.9 | 33.0 | *46.5* | *37.1* | *41.5* | *35.6* | 35.0 | 39.3 | 43.0 | 43.6 |
| **Deterioration of physical condition** | 34.4 | 33.7 | 35.0 | *33.1* | *28.7* | *34.9* | *40.7* | 33.2 | 33.5 | 35.8 | 35.0 |
| **Permanent deterioration of health** | 20.7 | 22.5 | 18.8 | *19.3* | *14.5* | *22.2* | *26.9* | 20.0 | 21.1 | 20.4 | 21.4 |

Note: K – female, M – male, Z – generation Z (18–24 years old), Y – generation Y (25–39 years old), X – generation X (40–59 years old), BB – generation Baby Boomers (60–80 years old), W – rural residents, M – small town residents, M – medium town residents, D – large town residents

Source: Own compilation based on primary research.

More than 40% of the respondents felt that the pandemic had caused that they or members of their households experienced a deterioration in mental health. This was clearly more often indicated by women and urban residents as well as representatives of the youngest generation (46.5%), while it was answered much less frequently by the oldest respondents – 35.6%. However, this group most often indicated a deterioration in physical condition (40.7%). One in five respondents stated that one could speak of a permanent deterioration in health. Here, similarly, representatives of the Baby Boomers generation were more likely than younger respondents to indicate this as an effect of the COVID-19 pandemic.

## Discussion

Health, both physical and mental, is among the greatest values for seniors and directly affects their comfort, quality of life, and life expectancy (Lada, 2018). Although dental health problems do not usually affect life expectancy (a lack of teeth can, however, affect the risk of overall mortality (Owczarek-Drabińska et al., 2021, p. 151)), they significantly affect the value of the QALY (*Quality Adjusted Life Year*) indicator, which includes not only changes in life expectancy but also people's level of comfort and the quality of life. It is also used to assess the cost-effectiveness of financing individual health services (Błachnio, 2016, p. 169; Wieczorkowska, 2013, p. 120; Ostrzyżek & Marcinkowski, 2009, p. 466).

People aged 60+ rate their health needs relatively highly – i.e. higher than in the case of other generational groups – despite objectively higher health needs due to the ageing of the body. However, the question arises whether this is not due to relatively low expectations of various goods and services (e.g. Waręcki & Gądek-Hawlena, 2023, p. 125). The low income and low purchasing capacity of this social group are the reason for significant consumption constraints, although it is pointed out that this group is not heterogeneous and medical services are often the products of choice despite the existing constraints (Bylok, 2013, p. 141). Interestingly, in the long term, health care is perceived as a luxury good, and only in the short term can it be said to be a necessity good (Strzelecka, 2024, p. 150).

Seniors' income constraints allow us to assume that their accessibility of commercial dental services is also limited, while the National Health Fund's offer of dental treatment is rudimentary due to subject, quantity, and technological limitations. There is also a lack of any facilities for senior citizens, who are treated in the same way as other adults, despite the increase in health needs (not only in dentistry). These limitations are due, among other things, to increasing health needs due to an ageing population, which at the same time may result in less revenue for the National Health Fund under public health insurance (Mruk, 2017, pp. 228–229). A typically ‚senior' dental condition is missing teeth, to which dental prosthetics responds. The changes concerning the addition of collegiate procedures to the basket of guaranteed benefits, such as overdentures in 2025, are to be commended. However, health care providers and dentists signal that formal errors in the regulation and the lack of valuation prevent them from providing these services (Pedryc, 2025). It can thus be assumed that there are unmet health needs in this age group, whose unmet needs may lead to further health problems (Mełgieś & Miaskowska-Daszkiewicz, 2023, pp. 209–219). Dental check-ups and prophylaxis-related visits are particularly important, as nearly 100% of Poles struggle with dental caries (Mielczarek et al., 2017). However, the omission of prophylaxis or even dental treatment is often observed in this age group (Baginska et al., 2020).

Although the topic of the accessibility of dental services for people aged 60+ is rarely addressed by researchers, the important role of this area of health care for the well-being of seniors is pointed out (Białkowska et al., 2016, p. 59; Fobelová, 2017, p. 164).

## Conclusions, implications, and the limitations of the research

Although people aged 60+ rate the satisfaction of their health care needs at a similar level to younger people, their health care needs are undoubtedly higher than those of other generations. The surveyed seniors are mostly retired. This determines their lower purchasing capacity, including on the dental services market, so that at least some of them have to give up commercial dentistry

in favour of that offered under contracts with the National Health Fund. However, these services are associated with significant limitations. There is also a lack of any increase in this accessibility for seniors, even in the case of prosthodontics, which is particularly targeted at older people who often suffer from missing teeth. Nor can dental needs be assumed to be of a higher-order nature, especially as possible conditions and problems in this area affect the overall physical, mental, and social well-being of older people. The most recent changes and subject extensions in the field of prosthetic services are to be welcomed, but formal errors have been made, resulting in a lack of feasibility in practice.

The limited availability of publicly funded dental services for people aged 60+ could result in a significant increase in health care needs. Introducing the possibility of more frequent preventive visits or the introduction of better dental materials for older people could increase their quality of life and, consequently, improve the overall well-being of this social group. Consequently, it may be cheaper to keep them healthy despite the availability of relatively more expensive services.

The study presented here has some limitations. The primary data concerned health care in general. The results in relation to dentistry, although within the framework of those presented in the article, are not necessarily the same. It would be worthwhile to carry out a study of the degree of the satisfaction of needs in different age groups, but taking into account the needs for dental services specifically. It would also be worthwhile to carry out qualitative research as a complement to this quantitative research.

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**Data Availability Statement**
All data will be available and shared upon request.