THESISES OF THE DOCTORAL (PhD) DISSERTATION

THE CHANGE IN HEALTH BEHAVIOR AS A RESULT OF THE COVID-19 EPIDEMIC WITH SPECIAL REFERENCE TO SPORT CONSUMPTION

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1. BACKGROUND, OBJECTIVES, AND RESEARCH HYPOTHESES OF THE STUDY

The global pandemic Covid-19 in 2020 had a major impact on the whole world. It caused significant disruption to the global economy and our daily lives.

As a result of the Covid-19 pandemic and the epidemiological measures introduced in connection with it, the opportunities for sports have significantly decreased and people's physical activity has decreased. The time spent sitting increased in parallel. Physical inactivity increases the risk of chronic disease, which was also associated with chronic stress during the epidemic, affecting the functioning of the immune system, increasing the chance of infection and further reducing the propensity to exercise during quarantine. Thus, the various negative effects add up.

This research analyzes how the epidemiological measures introduced after the onset of Covid-19 pandemic affected the health behavior of the population, how it developed during the epidemic period and then after the epidemic situation ended. We paid special attention to the changes in sports consumption habits. Based on the above, it was assumed that the physical activity of the population decreased significantly even in those social groups and in those geographical areas, among which the proportion of people who regularly exercised was higher. However, with the end of the epidemic, given the long period of confinement, perhaps even non-athletes began some exercise (e.g., walking) to compensate for the isolation, home office work.

Due to the Covid-19 epidemic, personal contacts around the world have been digitalized, impoverished, and community events have been almost

completely delayed. Consequently, shopping habits, eating habits have changed, home-office-type, homework, distance learning, restrictions, or even fear of infection have changed, the concept of “leisure time” and the way it is spent have changed, and exercise opportunities have also impoverished. Our lifestyle and, within that, our health behavior have changed significantly. However, the question also was to what extent, during and after the prolonged and recurrent epidemic periods, the elements of our lifestyle have changed compared to the pre-epidemic situation, whether the rebound effect would prevail.

The first step of the research was to explore the antecedents and relevant literature. In this regard it was necessary to review such basic concepts - and their evolution - as health, health behaviour, and health development. It was indispensable to identify the models related to the former concepts. It was essential to know the role of physical activity in a healthy lifestyle, as well as the harmful effects of inactivity, its role as a risk factor. In addition, the characteristics of the Covid-19 epidemic and its effects on people's lifestyles, health, and thinking had to be mapped, and we could not disregard the analysis of the economic processes caused by the pandemic. After that, the study was to examine what habits and how they changed during the pandemic. It reviewed how elements of health behaviour such as e.g. time spent in front of the screen, socializing, physical activity, etc. developed during the relevant period. We analysed whether the trends observed in the changes in all these indicators are the same in Hungary and in relation to foreign countries. Having analysed the information that could be extracted from the secondary databases, own survey involving sport consumers and general population was implemented. In addition to socio-demographic data, the questionnaire included a set of questions on sports habits, considering

elements of internationally accredited questionnaires, as well as questions focusing on lifestyle changes. Based on the above, my main research objective was to examine how health behaviour and sports habits have changed as a result of the Covid-19 pandemic in countries with varying levels of economic development. The objectives and related research questions are summarised in the below Table 1.

The main objectives of the research

1. To analyze how the epidemiological measures introduced after the onset of Covid-19 pandemic affected the health behavior of the population, how it developed during the epidemic period and then after the epidemic situation ended paying special attention to the changes in sports consumption habits.
2. To examine what habits and how they changed during the pandemic such as e.g. time spent in front of the screen, socializing, physical activity, etc. developed during the relevant period.

Table 1. Summary of aims and research questions:

	Question	Aim
1.	**Q1**: How has the Covid-19 epidemic affected physical activity in different countries?	**A1**: Examination of physical activity trends before, during, and after the Covid-19 epidemic.
2.	**Q2**: How has the Covid-19 epidemic affected sports consumption in different countries?	**A2**: Analysis of trends in sport consumption before, during, and after the Covid-19 epidemic.
3.	**Q3**: How did daily sitting time change before, during, and after the Covid-19 epidemic?	**A3**: Analysis of daily sitting time before, during, and after the Covid-19 epidemic.
4.	**Q4**: Did sports consumption among sports fans differ from the general population before, during and after the Covid-19 epidemic?	**A4**: Examination of trends in sports consumption before, during, and after the Covid-19 epidemic among sports fans compared to the general population.
5.	**Q5**: Was there a difference between the genders in sports consumption before, during, and after the Covid-19 epidemic?	**A5**: Analysis of trends in sports consumption by gender before, during, and after the Covid-19 epidemic.
6.	**Q6**: How has the Covid-19 epidemic affected screen time in different countries?	**A6**: Examining trends in screen time before, during, and after the Covid-19 epidemic.
7.	**Q7**: Is there a difference in physical activity, including leisure time activity, and sport consumption between the populations of the 3 countries?	**A7**: Comparison of the physical activity of the population, including leisure activities, and sport consumption over the 3 periods and the 3 countries.

Hypotheses

As a result of the literature review, the following hypotheses were formulated in relation to the above research aims and questions:

H1: There are changes and declines in Physical Activity and leisure-related activities during Covid-19 which increased after Covid-19 period.

H2: Changes and decline in sport consumption during Covid-19 compared to after Covid-19 and before Covid-19 periods.

H3: Variations and reduced daily sitting time at work during Covid-19 period but more sitting time at work before and after Covid-19.

H4: For sports fans, the change due to the Covid-19 epidemic would be more pronounced.

H5: There is no gender difference in sport consumption in either country.

H6: Increased daily screen time of individuals during Covid-19 in comparison with before and after Covid-19 periods.

H7: PA, leisure activities, sport consumption, and sitting time at work in the Covid-free periods, *i.e*. before Covid-19 and after Covid-19, would be greater in England as compared to Hungary and Nigeria, while *vice-versa* on screen time. Due to the prolonged Covid-19 measures witnessed in the UK during Covid-19 period, we expected both Hungary and Nigeria to have a better result than England. We also expected Hungary to have a much better results than Nigeria.

2. DESCRIPTION OF THE DATABASE AND THE APPLIED METHODS

The databases used for literature review are Google Scholar, Science Direct, Scopus, Web of Science, and PubMed. Other databases used for secondary data collection can be seen in Table 2.

Table 2. Databases used for secondary data collection

#	Subject	Databases
1.	The socio-economic characteristics of the countries surveyed	World Bank
2	Health indicators	WHO, World Life Expect
3.	Characteristics of physical activity of the population	WHO
4.	Economic indicators	World Bank, Statista
5.	Impact of Covid-19	EU commission, Worldbank, UNDP

Primary research

During the preparation of our self-edited questionnaire, I relied on the use of the questions already used in previous studies. In addition to collecting information, the primary research aimed to test the hypotheses formulated earlier.

The questionnaire

The questionnaire used was an IPAQ modified by Chopra et al. (2020) to analyze Physical Activity such as 30 minutes of aerobic activities in a week, leisure-related activity frequency, daily sitting and screen time. Whereby, sport consumption was tested using adapted scales developed by Aiken et al. (2018). The items included daily lives sport participation, thoughts about sport consumption, difficulties in stopping sport activities, the urge to engage

in the activity, the addiction to sport and the psychological aspect of sport consumption. The questionnaire initially contained a total number of 92 items from which 33 items were used for our analysis of the variables. Our independent variable which is Covid-19 was unidimensional and our dependent variables such as sport consumption were multi-dimensional followed by daily sitting time, screen time, leisure activities, *etc*.

In the questionnaire, as defined for IPAQ, physical activity refers to activities that take hard physical effort and last for at least 30 minutes. We consider sport fans those who are sport spectators and attend live sporting events in stadiums, arenas or get entertained in pubs.

The sample selection

The surveys took place between March 2023 to August 2023 in England, Hungary, and Nigeria, respectively. For the England survey, the data was collected across the cities of Manchester, Liverpool, London, and Cambridge. For the Hungarian survey, the data collection was conducted in Debrecen which is the second largest city in Hungary after Budapest while in Nigeria it was conducted in Kano state the second largest city in Nigeria after Lagos in terms of population and the largest in the northern part of Nigeria.

The questionnaires from all three surveys were physically distributed in a printed copy and the respondents were aided with writing materials for self-completion. The anonymity of the respondents was protected and participating in the survey was voluntary.

For both Nigerian and Hungarian survey, 150 questionnaires were distributed where most of the questionnaires were returned completed, some returned invalid, and some returned empty. For the English survey, 100 questionnaires were distributed among the participants.

Data preparation, data analysis

The completed questionnaires were coded using EvaSys software (VSL Inc., Hungary; http://www.vsl.hu) and then subjected to reliability testing to ensure its repeatability and internal consistency. To check the hypotheses, a non-parametric Wilcoxon signed rank test for matched or paired data was conducted to analyze our p-values ($p < 0.05$ was considered significant), and mean ranks, as well as descriptive analysis using statistical package for social science SPSS software version 23 (SPSS Inc., Chicago, IL, USA). The entire research process is illustrated in the Figure 1.

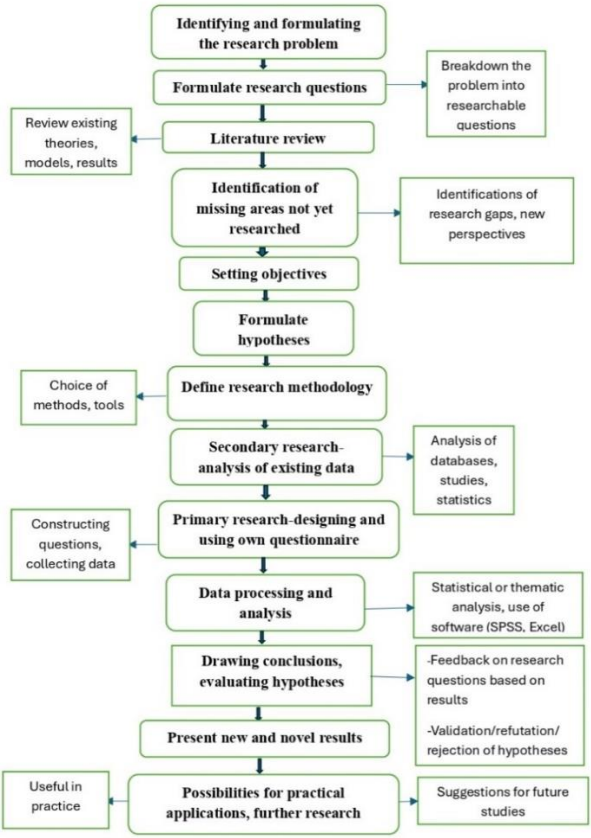

Figure 1. The research process

3. MAIN FINDINGS OF THE DISSERTATION

Our findings in the secondary area revealed some aspects like demographics of the countries involved such as general population which is key to national planning. Nigeria's population is higher than those of England/UK and Hungary and we also identified the age structure of the population highlighting both Hungary and UK as having significant percentage of elderly people 65 years above while Nigeria has a diverse age structure. The section also highlighted prevalence of some chronic diseases which are common in all the three countries such as diabetes and hypertension as well as obesity rates. For both Hungary and UK, the characteristics of inactive people are adolescents with the highest percentage and in Nigeria it was adults aged 70 and above as per the result. Checking the economic indicators, UK had the highest GDP and GDP per capita followed by Hungary and then Nigeria. But it is important to note that the GDP per capita of Nigeria is so low considering its huge population and this place the living standards of many Nigerians at a lower level. The sport sector is as important as many other sectors as it generates incomes. In the UK, sport sectors make a significant contribution to the nation's revenue and employment generation but same is not yet the case in Hungary and Nigeria, although both have great potential.

In the primary part of the research, we hypothesized significant changes or decline in vigorous intensity Physical Activity (**H1**) during Covid-19 (DuCov) while an increase after Covid-19 (AfCov) period. The study in England identified the differences between DuCov & BeCov period and supported our hypothesis indicating a decline DuCov compared to before Covid-19 (BeCov). However, our findings did not show an increase in

Physical Activity AfCov period as most British people pledged. While the Hungarian survey did not show any significant differences between DuCov & BeCov period, an increased Physical Activity AfCov period was found. The Nigerian survey however did not show any significant changes in physical activity between these three periods.

Our findings for leisure-related activities in the Hungarian survey supported our hypotheses (**H1**) and signified changes among the periods BeCov, DuCov, and AfCov with the expected decline in leisure-related activities DuCov compared to the other periods. Similarly, the Nigerian survey demonstrated an increase in leisure activities AfCov period in comparison to DuCov.

We adapted the six constructs from Aiken et al. (2018) to evaluate sport consumption such as; thinking about sport all the time, life centers around sport consumption, difficulty to stop watching, reading, or talking about sport, urge to consume sport, cannot live without sport, and completely taken with sport consumption. In Hungary, we predicted (**H2**) less sport consumption DuCov having the above constructs in mind as compared to AfCov and BeCov periods. The results supported all six on either of the one or two periods' combinations. Similarly, the Nigerian survey on sport consumption showed that it was smaller DuCov than BeCov and AfCov.

We also predicted (**H3**) a decrease in sitting time at work DuCov and an increase afterward and anticipated that it was more than BeCov. The Nigerian study proved our hypothesis as it has shown a significant decrease in sitting time as the Covid-19 period and lockdown set in.

Our hypothesis on increased screen time (**H6**) DuCov compared to BeCov and AfCov periods was also validated as surveys from all three countries

supported our prediction. Due to prolonged sitting at home, people were left with limited options but to spend more time in front of screens of televisions, mobile phones, social media, and videogames to reduce the burden of staying isolated.

We attempted to check the sports fans' addiction to sport consumption DuCov period and hypothesized (**H4**) a decline in these activities as compared to the other two periods. It appears that the sport fans in Nigeria think more about sport consumption AfCov than DuCov and, similarly, the urge of the fans in England to consume sport was stronger AfCov period than DuCov. However, Hungarian sport fans showed more sensitivity to the situation as all constructs related to sport consumption such as life centers around sport consumption, thinking about sport, difficulty to stop watching/reading/or talking/ about sport, urge to consume sport, I cannot live without sport, and completely taken with sport consumption all received maximum attention and results have shown significant differences supporting our hypotheses (**H4**).

When we compared the countries to identify which has more (or less) PA engagements, leisure activities, sport consumption, daily sitting time at work, and screen time BeCov, DuCov, and AfCov period, our hypothesis (**H7**) was supported because we found that for the vigorous intensity aerobic PA the respondents in England engaged more than those in Hungary BeCov period. The same was found for leisure-related activities before Covid-19 comparing England with both Hungary and Nigeria. The daily sitting time at work BeCov also supported our hypothesis (**H7**) with England being the highest. This could be attributed to the productivity level of the UK economy and the labor demands compared to both Hungary and Nigeria.

Another finding comparing Hungary and Nigeria revealed that the Hungarians had more sitting time at work DuCov than the Nigerians. We also thought that the enthusiasm of the British people towards sport consumption would validate our expectations, however, the findings on sport consumption as both Nigerians and Hungarians believe that they are completely taken with sport consumption more than the people in England.

Consistent with our preliminary expectation (**H6**), time spent in front of a screen - which includes watching TV, texting on a mobile phone, playing a video game, and communicating with friends via social media - differed significantly between DuCov and AfCov in all three countries, regardless of gender, namely the former was significantly more than the latter. However, for England women, vigorous exercise under DuCov significantly exceeded that of AfCov. A similar finding cannot be drawn for England men and Nigerian women and men. On the other hand, when comparing the three periods, there was no change in overall sports consumption in either the England-based or Nigerian study for either men or women (**H5**). In contrast, significant differences in overall sport consumption were observed in the Hungarian sample.

To conclude, there was a decline in Physical Activity DuCov period compared to BeCov in England. In Hungary, no significant difference in PA in the BeCov period compared to DuCov but an increase in PA was found AfCov. No significant changes in PA were detected in the Nigerian survey when comparing all three periods. There was also a decline in leisure-related activities DuCov in Hungary compared to the other periods but there was an increase AfCov in the Nigerian survey compared to DuCov.

From the above, it can be concluded that **our first hypothesis (H1**) was only confirmed for England, only partially confirmed for Hungary and had to be rejected for Nigeria.

Table 3. Evaluation of Hypothesis 1

#	Hypothesis	Verification
H1	There are changes and declines in Physical Activity and leisure-related activities during Covid-19 which increased after Covid-19 period.	It was only confirmed for England.

It is also concluded that sport consumption was found to be reduced during the DuCov period in our Hungarian survey. Similarly, in the Nigerian study, a reduction in sport consumption was observed during DuCov compared to both BeCov and AfCov periods.

This led me to conclude that **our second hypothesis (H2)** was confirmed for Hungary and Nigeria, and had to be rejected for England, where there was no change.

Table 4. Evaluation of Hypothesis 2

#	Hypothesis	Verification
H2	Changes and decline in sport consumption during Covid-19 compared to after Covid-19 and before Covid-19 periods.	It was only confirmed for Hungary and Nigeria.

In the DuCov period, all countries showed a decreasing tendency in sitting time at work and a significant increase in screen time.
Daily sitting time at work was highest in England during the BeCov period. A comparison between Hungary and Nigeria showed that Hungarian participants had more sitting time at work during DuCov than their Nigerian counterparts.

Screen time - which includes watching TV, texting on mobile phones, playing video games and communicating with friends via social media - differed significantly between the DuCov and AfCov periods in all three countries, regardless of gender; specifically, screen time was significantly higher during DuCov than during AfCov.
In view of the trends observed, I consider the **third hypothesis (H3)** and the **sixth hypothesis (H6)** to be confirmed.

Table 5. Evaluation of Hypotheses 3 and 6

#	Hypothesis	Verification
H3	Variations and reduced daily sitting time at work during Covid-19 period but more sitting time at work before and after Covid-19.	It was confirmed.
H6	Increased daily screen time of individuals during Covid-19 in comparison with before and after Covid-19 periods.	It was confirmed.

Nigerian sports fans reported that they thought more about sports consumption during the AfCov period than during the DuCov period. Similarly, among sports fans in England, the urge to consume sport was stronger in the AfCov period than in the DuCov period. Hungarian sports fans showed greater sensitivity, with all constructs of sports consumption showing significant differences.

It can be concluded that **our fourth hypothesis (H4) can be considered confirmed.**

Table 6. Evaluation of Hypothesis 4

#	Hypothesis	Verification
H4	For sports fans, the change due to the Covid-19 epidemic would be more pronounced.	It was confirmed.

Sport consumption in the Nigerian and England populations did not change over the study periods. No gender differences were observed. In Hungary, sport consumption decreased significantly during the DuCov period. No significant gender differences were found. A decrease and then an increase were observed for both genders.

Thus our **fifth hypothesis (H5) can be considered confirmed.**

Table 7. Evaluation of Hypothesis 5

#	Hypothesis	Verification
H5	There is no gender difference in sport consumption in either country.	It was confirmed.

In terms of PA engagements and leisure-related activities, sport consumption the respondents in England engaged more than their Hungarian and Nigerian counterparts BeCov. Respondents in England were also concluded to have more sitting time at work Becov than both Hungary and Nigeria, but Hungary had more than Nigeria DuCov.

Given the results obtained, **I consider** the **seventh hypothesis (H7) to be confirmed.**

Table 8. Evaluation of Hypothesis 7

#	Hypothesis	Verification
H7	PA, leisure activities, sport consumption, and sitting time at work in the Covid-free periods, *i.e*. before Covid-19 and after Covid-19, would be greater in England as compared to Hungary and Nigeria, while *vice-versa* on screen time. Due to the prolonged Covid-19 measures witnessed in the UK during Covid-19 period, we expected both Hungary and Nigeria to have a better result than England. We also expected Hungary to have a much better results than Nigeria.	It was confirmed.

4. NOVEL AND INNOVATIVE RESULTS OF THE DISSERTATION

The Covid-19 pandemic has had a significant impact on sports consumption and physical activity. This study provides comprehensive analysis from multiple perspectives and reveals the following new and significant findings that contribute to understanding the long-term effects of the pandemic and provide deeper insights into lifestyle changes.

1. Cross-continental and multi-country comparison

The study examined the health behaviors and sports consumption of the populations of three countries with different levels of economic development - Hungary, the United Kingdom, and Nigeria - simultaneously, in three different periods (before Covid - BeCov, during Covid - DuCov, and after Covid - AfCov). No such triple comparison has been made before. The research is particularly groundbreaking in the case of Nigeria, as this type of study has not been conducted there before. The study thus contributes to reducing the literature gap in this area on the African continent and may provide a basis for further research.

2. International comparison of sports consumption in three periods

The research analyzed sports consumption not only during the pandemic, but also in the periods before and after it, revealing differences between local and global trends. Our results show that sports consumption decreased significantly in Hungary and Nigeria during the Covid-19 epidemic, while there was no significant change in England. This offers a new perspective on understanding the resilience of sports consumption and the adaptability of different economic environments.

3. Assessment of changes in physical activity in three different periods

The research highlighted that physical activity decreased in England during Covid-19 period and did not return to previous levels, while in Hungary the pandemic did not cause a significant decline. In fact, an increase was observed after Covid-19. In Nigeria, physical activity remained stable in all three periods, confirming the resilience of local communities and sports infrastructure.

4. Examining the subjective experience of sports consumption

The study analyzed not only objective sports activities but also the subjective significance of sports consumption ("my life revolves around sports"). In Hungary, the subjective importance of sports declined during and then strengthened again after the Covid-19 pandemic. No change was detected in England and Nigeria, which points to cultural differences and different sports consumption habits.

5. Differences between sports fans and the general population

The study separately analyzed the sports consumption habits of sports fans compared to the general population. The results showed that in England and Nigeria, the desire for sports among sports fans increased significantly after the pandemic, while in Hungary, there was a significant increase in all dimensions of sports consumption. This approach provided a new perspective on understanding the emotional and social background of sports consumption.

6. Daily sitting time and screen time by country and period

One of the key indicators of physical inactivity, daily sitting time, showed different patterns across countries, namely, it decreased in Nigeria during the Covid-19 epidemic, but there was no significant change in Hungary and England. At the same time, screen time increased significantly in all countries during Covid-19, then declined in the post-pandemic period. Time series analysis of these indicators provided a unique international comparison.

7. No gender differences in sports consumption

According to the results of the study, there were no significant differences between men and women in sports consumption in any of the countries surveyed during the three periods. This differs from the findings of several previous studies, which found that women's sports consumption declined more significantly during the pandemic. Our results suggest that the gender distribution of sports consumption remained stable in the countries surveyed during the periods examined.

8. Inclusion of Nigeria as an under-researched region

The research is groundbreaking in Nigeria, as no quantitative study of this kind has been conducted on the effects of Covid-19, especially not in an international comparison. Based on our findings, physical activity in Nigeria has remained stable, with a moderate decline in sports consumption, which contrasts with the more dynamic changes observed in Hungary and England.

5. THEORETICAL / PRACTICAL APPLICABILITY OF THE RESULTS

Based on the foregoing, it can be practically understood that there is a need to increase the infrastructure for sports facilities in residential areas in Hungary and Nigeria. In England and Hungary, healthy lifestyle education should be communicated more strongly than at present through government campaigns, starting with children. Corporate social responsibility needs to be further strengthened in all three countries, but it is particularly important to extend it to the area of support for recreational sport. In Nigeria, healthy lifestyle campaign programs should be designed, and policies be made to ensure that all citizens regardless of economic status and education are aware of the basic physical health information needed to keep themselves healthy. Additionally, sport consumption related output and contribution to the UK economy as per our findings runs in billions of pounds and hundreds of thousands of employment it generated, comparing England with both Hungary and Nigeria in this aspect, a clear gap shows because the latter are not near comparable to England in this milestone success that would continue to flourish for decades to come due to the growing popularity of sport and huge investment made. Therefore, it is rather rational to both Hungary and Nigeria to make huge investment commitments in sport by attracting foreign direct investment and making favorable investment policies in their sport industry to ensure its profitability in terms of contribution to GDP, revenue generation, creation of employment, and enhancement of sport tourism. By so doing, the two countries especially Nigeria with its teeming young population and problem of unemployment and underemployment would help

in diversifying its economy and provide additional employment opportunities to its citizens.

Future studies could use more psychology-inclined constructs to objectively and precisely widen the understanding. Also, since our study focused on finding differences in PA engagements between the three periods, a future study may opt to check how adequate PA engagement was carried out by the participants especially with our findings of weight gain across all countries. The future study should also pay attention to understanding how low sport consumption due to Covid-19 crisis affected individuals' economic status and small businesses that their survival depends on how sport is consumed. It also should expand the study especially in the Hungarian and Nigerian population to target wider and random people to get a clear picture of the phenomenon.

6. LIST OF PUBLICATIONS RELATED TO THE DISSERTATION

Articles:

1. **Adamu, U. G**., Balatoni, I.: The Covid-19 epidemic and Sports Consumption: Evidence from England, Hungary, and Nigeria. *Physical Culture and Sports*. Epub ahead of print, 1-15, 2025. Q1, IF.: 1.2
2. Balatoni, I., **Adamu, U. G**.: Impact of inflation on sports consumption: A study on fitness facilities. *Tér, Gazdaság, Ember*. 11 (4), 61-74, 2023.
3. Balatoni, I., Szépné Varga, H., Kiss, T., **Adamu, U. G**., Szulc, A. M., Csernoch, L.: The Importance of Physical Activity in Preventing Fatigue and Burnout in Healthcare Workers. *Healthcare*. 11 (13), 1915, 2023.
   Q2; IF.: 2.4
4. **Adamu, U. G.**., Balatoni, I.: The Effect of Covid-19 on Health Behavior and Physical Activity in Youth - A Review. *Selye e-studies*. 14 (1), 4-23, 2023.
5. **Adamu, U. G**., Balatoni, I.: The effect of Covid-19 epidemic on the industry of a Sub-Saharan Country: a perspective on sports industry in Nigeria. *Metszetek*. 11 (1), 32-48, 2022.

Conference presentations:

1. **Adamu, U. G.,** Balatoni, I. (2025). Sport Consumption & lifestyle related activities. XII. Interdisciplinarity in Regional Studies - Economy - Society - Management": International Scientific Conference: Abstract Book, (2025) p. 20. Debrecen, Hungary 2025.05.30.

2. **Adamu, U. G.**., Balatoni, I.: (2023). Covid-19 pandemic and the changes in physical activity of adolescents. Transitioning sport - Transitioning European Societies: EASS2023 Budapest Conference: Book of Abstracts Bp: EASS, p. 64. (2023) Budapest, Hungary 2023.05.30. - 2023.06.02.
3. **Adamu, U. G.**., Balatoni, I.: (2022). The sports industry in Nigeria during the Covid-19 pandemic. ESA Research Network 28 - Society and sport: Midterm Conference: Sport and social responsibility: science and practice in times of crisis : book of abstracts. (CHERD), p. 51. (2022). Debrecen, Hungary 2022.10.21. - 2022.10.22.
4. **Adamu**, **U. G** (2025). Covid-19 epidemic and lifestyle-related changes & sleep quality, stress, anxiety. International Scientific Days PhD Conference Book of Abstract. Faculty of Economics and Business, Doctoral School of Management and Business, University of Debrecen. Debrecen, 2025.02.11-12..

List of other publications

Articles:

1. **Adamu,** U. G., Bambale, A. J.: The Effect of Brand Name on Consumer Purchase Intention in Kano Metropolis: A Conceptual Model. *International Journal of Management and Commerce Innovations*. 4 (1), 58-63, 2016.

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Doctoral School: Doctoral School of Management and Business
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List of publications related to the dissertation

Articles, studies (5)

1. **Adamu, U. G.**, Balatoni, I.: The Covid-19 epidemic and Sports Consumption: Evidence from England, Hungary, and Nigeria.
   Physical Culture and Sport, Studies and Research. 108 (1), 56-70, 2025. ISSN: 1899-4849.
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3. **Adamu, U. G.**, Balatoni, I.: The Effect of Covid-19 on Health Behavior and Physical Activity in Youth: a review.
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   IF: 2.4
5. **Adamu, U. G.**, Balatoni, I.: The effect of Covid-19 epidemic on the industry of a Sub-Saharan Country: a perspective on sports industry in Nigeria.
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List of other publications

Articles, studies (1)

6. **Adamu, U. G.**, Bambale, A. J.: The Effect of Brand Name on Consumer Purchase Intention in Kano Metropolis: A Conceptual Model.
International Journal of Management and Commerce Innovations. 4 (1), 58-63, 2016. EISSN: 2348-7585.

Conference presentations (4)

7. **Adamu, U. G.**: Covid-19 epidemic and lifestyle-related changes & sleep quality, stress, anxiety.
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