

Satisfaction with the Dental Services Market in the Context of Phygital Behavior—the Difference in Public and Commercial Health Care (The Example of Poland)

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Abstract—The study examines patient satisfaction with public and private dental services in Poland, emphasizing the role of phygital behaviors that combine analog and digital experiences. Quantitative research was conducted using a CAWI survey on a nationwide sample, complemented by focus group interviews with representatives of four generational cohorts. The findings indicate that patients highly value staff qualifications, courtesy, and modern medical equipment, with significantly higher satisfaction levels in private dentistry. Publicly funded services are primarily appreciated for being free of charge but are criticized for long waiting times and limited availability. Across generations, consumers increasingly use digital tools such as e-prescriptions, online reviews, and price comparisons, highlighting the importance of integrating technological solutions into healthcare. The results suggest that the future of dentistry lies in expanding phygital tools and AI applications to improve accessibility, efficiency, and patient experience. Limitations include methodological constraints of online surveys and non-representative qualitative sampling. Further research should focus on the impact of phygital solutions specifically in healthcare markets.

Keywords—consumer behavior, satisfaction, phygital, dentistry, health care, Poland

I. INTRODUCTION

Healthcare is a unique sector of the Polish economy. Until recently, it was excluded from the economy as a non-productive sector. Insufficient public health care resources in Poland result in limitations in terms of scope and time in access to healthcare services, and consequently, the use of privately financed services instead of those provided by the Polish National Health Fund (Przybyłka, 2011; Wicka, 2021; PIU, 2018; Kozera, 2022). At the same time, discussions continue in both academic and professional circles as to whether the health of residents should be considered a public good or a private (personal) good (Bartkowiak 2014, Korporowicz 2011). The authors also argue that in this context, one can speak of both public goods (public health, referring to the health of the population) and private goods – the health of individual individuals (Przybylska 2018). However, these categories often overlap and influence each other. One of the most commercial branches of health care is dentistry, which in most systems is either excluded from public health care or functions within it only in a residual form (Fellows *et al.*, 2022; Brennan *et al.*, 2008).

Interestingly, oral health is a concern not only in developing countries but also in developed countries. This is a significant problem, even though the WHO recognizes dental care as an important component of global health (Hugo

et al., 2021).

This is even though the level of today's dentistry is extremely high and technological development can cope with many, often complex, diseases (Seif *et al.*, 2024).

From a government's perspective, the choice between citizens' access to public or private dentistry is not easy. On the one hand, the United States boasts a remarkably developed dental market. However, access to it is determined by free-market financial opportunities. On the other hand, free dentistry in the UK, under the NHS, is criticized for insufficient funding, long waiting lists, and, consequently, a lack of access to dentists for a significant portion of the population (Watt *et al.*, 2024).

Today's consumer, whom we call a patient in healthcare (Ganczar & Szewczak 2017), is rarely present in just one distinct space—analogue (physical) or digital. This is due to significant changes in the environment, particularly the technological and social environment, and the integration of the physical and virtual worlds (Del Vecchio, Secundo & Garzoni 2023). This suggests the emergence of the phygital consumer (Maciejewski & Wróblewski 2025).

The aim of this study is to identify factors that drive customer/patient satisfaction in public and private dentistry, within the context of phygital behaviors, combining analogue and digital behaviors.

II. MATERIALS AND METHODS

To achieve the objectives, primary sources, both quantitative and qualitative, were used. The analyzed data were collected in two separate research projects in which the author participated. First, the primary research was conducted using a survey method. The chosen research technique was the CAWI (Computer-Assisted Web Interview) online survey, which is currently the most frequently used research technique in quantitative research in the social sciences due to its relatively low cost and short data collection time. However, it may be associated with a higher risk of errors (Kucharska *et al.*, 2024). This method is not free from drawbacks and limitations, such as the lack of researcher control over respondents, and consequently, a higher risk of providing inaccurate answers. However, it allows for the acquisition of a relatively large amount of data (provided appropriate standards for high-quality research are maintained). Respondents' sense of anonymity also increases, and consequently, survey return rates increase (Kaczmarczyk 2018; Kucharska *et al.*, 2024). Due to the research subject matter, the research project was submitted for review by the Human Subject Research Ethics Committee at the University

of Economics in Katowice. On May 16, 2024, the Committee assessed that the proposed study complies with the University of Economics in Katowice Code of Ethics in (Opinion no. 6/05/2024). Based on a critical analysis of the relevant literature, a proprietary survey questionnaire was developed. This tool consists of closed-ended, cafeteria-style questions using 7- and 5-point scales. The measurement reliability of the scales used was determined using Cronbach's alpha (from 0.849 to 0.923) and McDonald's Omega (from 0.847 to 0.923), which allows us to consider the scales reliable because, as researchers indicate, scales can be considered reliable when the indicated values exceed the level of 0.7 (Aron, Aron & Coups, 2013). It was decided to verify both indicators because the scientific literature still lacks a clear definition of which indicator is the most appropriate (Ciżkowicz, 2018; Kalkbrenner 2024; Graham, 2006; Revelle & Zinbarg, 2009). This study was conducted between July 10–15, 2024, by the Ariadna National Research Panel using quota sampling based on gender and generational group membership. Respondents came from an online panel with over 300,000 registered adult residents of Poland. Participation in the study was open to individuals who declared having used dental services at least once in the last two years. This sample was random (Rószkiewicz, Mazurek-Łopacińska, Sagan 2021). The sample size was determined to ensure that the maximum measurement error at a 95% confidence level and a fraction size of 0.5 was no more than 3%—the acceptable error rate in social research. Respondents from each group were eliminated from the study if the projected quotas were met. A link inviting them to participate was sent to 15,368 adult and registered Panel members. 3,595 (23.39% of invited) respondents responded, and 1,095 (7.13% of invited) completed the study. Due to the shortcomings of the research technique used and the limited ability of respondents to control their questionnaire completion, attention was also paid to the time spent by respondents completing the questionnaire. Testing the tool revealed that it was impossible to read the entire questionnaire and complete it reliably in less than 5.5 minutes. The shortest time the study took was 6 minutes. For this reason, no units were removed. Data analyses were conducted using the IBM SPSS Statistics 28.

The study was conducted in compliance with the Personal Data Protection Act and the ICC/ESOMAR Code of Ethics (Ariadna 2024). The survey was anonymous, and the questions were formulated so as not to allow for the identification of individual respondents. IBM SPSS Statistics 28 was used to statistically analyze the results. Characteristics of the study sample are presented in Tables 1 and 2.

Table 1. Characteristics of the research sample by age and gender (in %, N=1095)

Specification	Age				
	18–28	29–43	44–59	60 +	SUM
Females	12.4	12.5	12.3	12.3	49.6
Males	11.7	13.8	12.5	12.4	50.4
SUM	24.1	26.3	24.8	24.7	100.0

Source: Own study.

Table 2. Characteristics of the research sample by place of residence and level of education of respondents (in %, N=1095)

Specification		%
Living place	Village	19.1
	Small town (up to 20.000)	11.1
	Medium-sized city (20.001–99.999)	24.5
	Big city (100.000–500.000)	24.7
	Very big city (500.000+)	20.6
Education level	Basic	1.6
	Vocational	6.1
	Secondary	40.2
	Higher	52.1
Subjective assessment of one's own financial situation	Very bad	1.5
	Bad	5.9
	Average	58.3
	Good	28.5
	Very good	5.8
Household size	1 person	14.9
	2 people	38.2
	3 people	21.9
	4 people	17.0
	5 people or more	8.0

Source: Own study.

The qualitative study, which serves as a complementary approach in this work, was conducted using the Focused Group Interview (FGI) technique. This technique allows the researcher greater control over the study while simultaneously enabling more in-depth data on various social phenomena. This technique is also valued as a complement to other research methods and techniques within the framework of method translation (Bojlén & Lunde 1995; Rabiee 2004). The study was conducted from November 5 to 13, 2024, on eight groups of eight participants, representing four main generational groups (Z, Y, X, and Baby Boomers), taking into account gender. This study was part of the research project entitled “Phygital consumer: the consumer at the intersection of the physical and digital worlds,” carried out at the Department of Market and Consumption at University of Economics in Katowice between 2024 and 2026 and financed by the Ministry of Science and Higher Education under the “Regional Excellence Initiative” program. “UEKAT Scientific, Research, and Educational Excellence Program” (grant number: 6_1_GZ_2024). The research scenario would take into account consumer attitudes toward phygital solutions in trade and services, including healthcare services, much more broadly. This study also received a positive opinion from the Human Subject Research Ethics Committee at the University of Economics in Katowice (opinion number: 008/09/2024).

III. RESULTS AND DISCUSSION

Questions regarding attitudes were included in a proprietary survey questionnaire. They utilized a 7-point Likert scale, with respondents assessing their experiences with public and private dental care in terms of patient care, medical equipment, accessibility, pricing, sanitary conditions, and quality of medical services. For these questions, a score of 1 indicated strong dissatisfaction, while a score of 7 indicated strong satisfaction with the specified element. The survey results in this area are presented in Table 3 (commercial services) and Table 4 (services financed by Polish National Health Fund). The number of respondents depends on the number of individuals who declared they used the type of service being assessed.

Table 3. Satisfaction rating with individual elements of commercially financed dental services (in %, N=824)

<i>Specification</i>	1	2	3	4	5	6	7	<i>X</i>
Dentist Qualifications	1.5	1.7	4.1	16.3	30.2	28.7	17.6	5.28
Staff Courtesy and Patient Service	1.3	2.1	7.1	14.6	27.0	26.8	21.2	5.29
Medical Equipment/ Office Facilities	0.9	2.1	5.8	16.9	31.5	27.4	15.4	5.20
Available Appointment Dates	11.3	10.9	16.5	17.5	19.3	15.4	8.8	4.04
Range of Available Services	4.3	5.6	10.1	19.1	27.0	22.9	11.1	4.72
Locations	2.6	2.1	7.3	17.8	27.6	26.6	16.1	5.10
Prices/ Free of charge	5.4	4.3	7.7	24.0	20.6	22.3	15.8	4.80
Quality of Medical Services	1.3	2.6	6.6	18.2	31.7	25.7	13.9	5.09
Cleanliness/ Sanitation	0.9	1.9	3.4	12.4	29.1	29.6	22.7	5.46
Overall Rating	1.5	3.4	6.9	18.6	32.8	25.1	11.8	5.00

Source: Own study.

Table 4. Satisfaction rating with individual elements of dental services financed by the National Health Fund (in %, N=467)

<i>Specification</i>	1	2	3	4	5	6	7	<i>X</i>
Dentist Qualifications	0.1	0.4	1.3	7.5	20.6	42.6	27.4	5.86
Staff Courtesy and Patient Service	0.0	0.0	1.3	6.8	17.4	37.4	37.1	6.02
Medical Equipment/ Office Facilities	0.0	0.5	0.7	7.5	19.8	40.9	30.6	5.92
Available Appointment Dates	1.5	2.4	9.5	13.7	30.0	28.6	14.3	5.12
Range of Available Services	0.4	0.7	1.1	7.9	22.7	40.5	26.7	5.80
Locations	0.2	1.0	2.7	11.9	23.7	37.3	23.3	5.63
Prices	12.4	13.7	20.9	19.5	17.5	11.0	5.0	3.69
Quality of Medical Services	0.4	0.5	1.2	7.8	22.1	43.2	24.9	5.80
Cleanliness/ Sanitation	0.0	0.2	1.5	5.6	16.0	36.5	40.2	6.08
Overall Rating	0.4	0.6	1.8	8.7	25.7	42.1	20.6	5.68

Source: Own study.

Patients/consumers of dental services are generally satisfied with the qualifications of medical staff, the courtesy of staff, the level of patient care, the location, sanitary conditions, and the quality of services offered. Satisfaction levels are significantly higher for commercial (so-called private) services. For those financed by the public payer (NFZ), only the price, or rather the fact that these services were actually free of charge, received higher ratings. Interestingly, the highest ratings were rarely given in this category, despite the lack of direct payment for these services (their costs are indirectly covered by public health insurance contributions).

For services financed by the NFZ, the lowest rating was the availability of appointments, which meant long waits for a dentist. Interestingly, the same was true for commercial services, except for the lowest ratings for prices. However, this availability was significantly higher than for free services. Respondents also noted a significant difference in the level of customer service and the range of available services, which results from the scope of public health insurance in the field of dentistry (Sucheck, 2024).

Polish consumers, as patients, are reluctant to use dental services financed by the National Health Fund. This is reported by less than 43% of those who use dental treatment at all. The primary barriers include long wait times for appointments and limited treatment options. As many as 75% of those who report using dental services do so at their own expense, indicating, however, that price is the biggest barrier to purchasing these services. Some consumers use both commercial and publicly funded services, which, given the widespread availability of health insurance (and the need to pay contributions), the cost of private services, and the limitations of public health care, seems to be a rational

approach from both an economic and social perspective.

Qualitative studies were more general and focused on the behavior of the phygital consumer in commerce and services. However, respondents also pointed to the use of phygital tools in healthcare. Representatives of virtually all generations cited the convenience and willingness to use e-prescriptions and e-sick leave, which have become standard in Poland: "very convenient," "checking results in an app," "most prescriptions are now only available by phone," and "I don't use paper prescriptions."

Among the most frequently used options is verifying the experiences of other consumers, i.e., checking online reviews. Younger generations are also more likely than older generations to be reviewers and post these reviews themselves. The risk of excessive monitoring due to electronic medical records and the risk of data theft were also highlighted.

Focus group participants also emphasized that they use digital tools to compare prices of goods and services, including in healthcare. This suggests that this factor is extremely important to them, and in some cases may be decisive in their choice. Respondents from different generations emphasized that they are still waiting for a system that allows for integrated patient care, especially in the case of public healthcare, which could consequently minimize queues and ensure satisfaction with these services.

IV. CONCLUSION, LIMITATIONS, FURTHER RESEARCH DIRECTIONS

Consumers/patients are generally satisfied with individual elements of dental services. They particularly rate the qualifications of the staff and the availability of modern medical equipment. Satisfaction with prices is low,

suggesting that these services are expensive and, for some, unaffordable. A possible solution in this situation may be the use of public dentistry. However, the results of the primary study indicate that in this case, satisfaction in every category is significantly lower than in commercial/patient-paid dentistry.

Polish government decision-makers should consider this identified gap. While dental services may be considered unnecessary from a population health perspective, oral health also impacts other conditions, which is costly to the state budget. Particular emphasis should be placed on preventative measures, which are significantly less costly and often neglected by Polish residents.

It seems that the future of dentistry, and indeed other areas of healthcare, lies in the use of new technologies and phygital tools. E-prescriptions and e-referrals already enjoy significant patient trust, and the development of AI may soon enable a reduction in healthcare costs and, consequently, greater access to healthcare services.

The primary quantitative study, although conducted on a large, nationwide sample using quota sampling, has certain limitations, primarily resulting from the research technique and the use of electronic means of communication. There is a certain overrepresentation of people with secondary and higher education compared to those with primary and vocational education. On the other hand, the study only included individuals who reported using dental services, suggesting a certain level of health awareness, which may also be related to the higher level of education of the study population. A qualitative study cannot be considered representative due to the small sample size. Further qualitative research would be worthwhile, focusing solely on phygital tools in the healthcare market, including dental services. Such findings could also be useful for businesses operating in this market.

CONFLICT OF INTEREST

The author declares no conflict of interest.

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REFERENCES

- Ariadna. 2024. **Ogólnopolski Panel Badawczy Ariadna**, Available: www.panelariadna.pl
- Aron, A., Aron, E. N., Coups, E. 2013. *Statistics for Psychology*. Pearson Education Ltd., London.
- Bartkowiak, L. 2014. Czy zdrowie jest dobrem wspólnym?. *Medyczna Wokanda*. 6: 175–183.
- Bojlén, N. S., Lunde, I. M. 1995. Focus group interview as a qualitative research method. *Ugeskrift for Laeger*. 157(23): 3315–3318. PMID: 7631438.
- Brennan, D. S., Luzzi, L., Robert-Thomson, K. F. 2008. Dental service patterns among private and public adult patients in Australia. *BMC Health Services Research*. 8(1), <https://doi.org/10.1186/1472-6963-8-1>
- Ciżkowicz, B. 2018. Omega McDonalda jako alternatywa dla alfa Cronbacha w szacowaniu rzetelności testu. *Polskie Forum Psychologiczne*. 23(2): 311–329. DOI: 10.14656/PFP20180206
- Del Vecchio P., Secundo, G., Garzoni, A. 2023. Phygital technologies and environments for breakthrough innovation in customers’ and citizens’ journey. A critical literature review and future agenda. *Technological Forecasting and Social Change*, 189: 122342, <https://doi.org/10.1016/j.techfore.2023.122342>.
- Fellows, J. L., Atchison, K. A., Chaffin, J., Chávez, E. M., Tinanoff, N. 2022. Oral health in America: Implications for dental practice. *The Journal of the American Dental Association*, 153(7): 601–609, <https://doi.org/10.1016/j.adaj.2022.04.002>.
- Ganczar, M. & Szewczak, M. 2017. Pacjent jako konsument usług zdrowotnych—wybrane aspekty prawne. *Przegląd Prawa i Orzecznictwa*. 3(6): 88–100.
- Graham, J. 2006. Congeneric and (essentially) tau-equivalent estimates of score reliability what they are and how to use them. *Educational and Psychological Measurement*. 66(6): 930–944, DOI: 10.1177/0013164406288165
- Hugo, F. N., Kassebaum, N. J., Marcenés, W., Bernabé, E. 2021. Role of dentistry in global health: Challenges and research priorities. *Journal of Dental Research*, 100(7): 681–685, <https://doi.org/10.1177/0022034521992011>
- Kaczmarczyk, S. 2018. Zalety i wady metod zbierania danych przez Internet w badaniach marketingowych. *Zeszyty Naukowe Politechniki Śląskiej. Seria: Organizacja i Zarządzanie*. 129: 187–200.
- Kalkbrenner, M. T. 2024. Choosing between Cronbach’s coefficient Alpha, McDonald’s coefficient omega, and coefficient H: Confidence intervals and the advantages and drawbacks of interpretive guidelines. *Measurement and Evaluation in Counseling and Development*. 57(2): 93–105, <https://doi.org/10.1080/07481756.2023.2283637>
- Korporowicz, V. 2011. Zdrowie jako kategoria społeczno-ekonomiczna. *Gospodarka Narodowa*. 7–8(239–240): 71–87.
- Kozera, J., Kozera, M. 2022. Studnia bez dna. Jak marnotrawimy wydatki na zdrowie. *Menedżer Zdrowia*, December 9–10.
- Kucharska, B., Maciejewski, G., Malinowska, M., Suchecki, K. 2024. **COVID-19 pandemic as a catalyst for change. Consumer’s Perspective**. Logos Verlag. Berlin.
- Maciejewski, G., & Wróblewski, Ł. 2025. A typology of consumers based on their phygital behaviors. *Sustainability*, 17(14), 6363. <https://doi.org/10.3390/su17146363>
- PIU. (2018). **Finansowanie opieki zdrowotnej pracowników. Jak zadbać o zdrowie kluczowej dla rozwoju grupy społecznej?** Warszawa: Polska Izba Ubezpieczeń.
- Przybylska, K. 2018. Globalne dobra publiczne. [In:] **Zawodność rynku w teorii i praktyce**. Warsaw: 83–102.
- Przybyłka, A. 2011. **Systemy ochrony zdrowia**. Katowice: Uniwersytet Ekonomiczny w Katowicach.
- Rabiee, F. 2004. Focus-group interview and data analysis. *Proceedings of the Nutrition Society*. 63(4): 655–660. DOI:10.1079/PNS2004399
- Revelle, W., Zinbarg, R. 2009. Coefficients alpha, beta, omega and the glb: Comments on Sijtsma. *Psychometrika*. 74: 145, DOI: 10.1007/s11336-008-9102-z
- Rószkiewicz, M., Mazurek-Lopacińska K., Sagan A. (Ed.) 2021. **Dobór próby we współczesnych badaniach marketingowych**, Uniwersytet Szczeciński, Szczecin.
- Seif A., Jarry Ch. R., Chauvel, A. M. 2024. The new ‘Golden Age’ of dentistry: A highly desirable profession with unprecedented global opportunities in industry settings. *Journal of the California Dental Association*. 52(1): 2324979, <https://doi.org/10.1080/19424396.2024.2324979>
- Suchecki, K. 2024. Dental services financed from public funds in the context of sustainable development: current status and challenges in Poland.

Humanities and Social Sciences Research Journal, 31(2): 143–155.

Watt, R. G., Stennett, M., Redican, C., Vernazza, Ch. 2024. Urgent need for transformative change in NHS dentistry. *The Lancet*. 403(10432): 1115–1117.

Wicka, A. 2021. Wydatki gospodarstw domowych na ubezpieczenia związane z życiem i zdrowiem. *Studenckie Prace Prawnicze, Administratywistyczne i Ekonomiczne*, 35: 305–317.

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