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THE USE OF ARTIFICIAL INTELLIGENCE BY ACADEMIC TEACHERS IN POLAND

ABSTRACT

Objectives: *The study examines the attitudes of Polish academic teachers toward the use of artificial intelligence in teaching and research, with particular emphasis on their experiences, perceived benefits and concerns.*

Material and methods: *The research was based on a quantitative survey conducted in the first half of 2025 using an online questionnaire distributed to public and private universities in Poland. A total of 560 academic teachers participated in the study. The survey explored the scope of AI use in teaching and research, self-assessed competences, perceived advantages and risks, willingness to participate in training, and opinions on institutional regulations concerning AI.*

Results: *Most respondents declared experience with AI in teaching rather than research, with younger academics being more likely to use such tools. AI was mainly used for creating teaching materials, searching literature, translating texts, editing content, and preparing tests. Respondents identified time savings, reduced language barriers, and support for creativity as the main benefits of AI. Non-users most often pointed to lack of need, distrust of generated content and ethical concerns. Most respondents had not participated in formal AI training, although expressed willingness to attend such courses.*

Conclusions: *The findings suggest that AI is becoming an increasingly important element of academic work in Poland, particularly as a tool supporting repetitive and time-consuming tasks. However, its broader implementation remains limited by insufficient competences, ethical concerns, legal uncertainties, and distrust of AI-generated content.*

KEYWORDS: *higher education, teaching and research, artificial intelligence, academic teachers, AI adoption barriers*

INTRODUCTION

The emergence and rapid development of artificial intelligence (AI) have already changed almost every area of social life. Higher education has not been exempt from this development either (Popenici & Kerr, 2017; Butson & Spronken-Smith, 2024, p. 563). This change goes beyond technological modernization – it represents a fundamental shift in how the educational process is understood (Pal, 2023, p. 3). In a world dominated by AI, key competences are related not only to possessing knowledge but also to the ability to acquire and use it independently, critically, and ethically. Therefore, the ability to efficiently and accurately acquire information from the vast resources available in the digital space is becoming more valuable than the possession of information

itself (Goldie, 2016, p. 1066). The introduction of AI into education is not only a technological advance but also a fundamental change in how the learning process is understood (Fowler, 2023, p. 131).

Research indicates a growing use of AI in higher education. A literature review conducted by Castillo-Martinez et al. (2024), covering 85 articles published between 2020 and 2024, identified both benefits associated with the use of AI, such as time savings and improved work efficiency, and challenges, including ethical concerns, the risk of plagiarism, and a lack of transparency. These findings indicate that AI is becoming an increasingly important component of academic practice, bringing both new opportunities and emerging challenges.

Polish research on the use of AI by academic teachers remains relatively limited and fragmented.

To date, studies have focused primarily on the use of individual tools, particularly ChatGPT (Chmielewska et al., 2024; Strzelecki et al., 2024), involved samples drawn from specific regions (Siguencia, 2025; Jankowska-Ambroziak et al., 2026), or examined academic teachers as one of several groups of respondents (Patkowski & Zieliński, 2024). In the broader context of this study, AI can be understood as a set of technologies capable of performing tasks that typically require human intelligence, such as reasoning, problem-solving, learning, decision-making, and language comprehension (OECD, 2024). Its use in academic work creates new opportunities while also requiring the development of digital competencies, critical approaches, and ethical awareness.

In this context, it is important to examine how artificial intelligence tools are used by academic teachers in Poland. The study focused on three main areas: the use of AI in teaching and research, differences in AI use according to selected characteristics of respondents, and the barriers and needs associated with the use of AI in the academic environment. The aim of the study was to determine the extent and ways in which academic teachers use AI tools and to identify their experiences, concerns, expectations, and needs related to the use of these technologies.

RESEARCH METHODOLOGY

The study involved 560 academic teachers. Data were collected in April and May 2025 using an electronic survey questionnaire. The questionnaire link was distributed to 50 randomly selected higher education institutions, both public and private, sampled from institutional lists published on the websites of the Ministry of Science and Higher Education, where it was subsequently distributed to the dean's offices of individual faculties, with a request to distribute it among their academic staff. Participation in the study was voluntary and anonymous. Due to the indirect method of questionnaire distribution, it was not possible to determine the number of individuals who actually received the invitation to participate and, consequently, to calculate the response rate. The sample was self-selected, and 99,5% of the respondents were affiliated with public higher education institutions. This sample structure limits the generalizability of the findings to the private higher education sector and the possibility of comparing public and private institutions.

The largest age groups were respondents aged 45-54 (35,4%) and 35-44 (34,5%). Teachers aged 55-64 accounted for 15,2% of the study participants and the least represented age groups were those aged 25-34 (11,6%) and 65 and over (3,4%). In terms of gender, 54,8% of the study group were women, while 44,7% were men. The remaining respondents chose not to disclose their gender. In terms of academic degree or title held, the largest group consisted of respondents holding a doctoral degree (57,7%) and a habilitated doctoral degree (21,3%). The title of professor was declared by 7,1% of respondents, while 13,9% were masters. Respondents varied in terms of length of employment in higher education: the three largest groups were teachers working for 11 to 15 years (18,2%), 6 to 10 years (16,8%) and 21 to 25 years (16,6%). The other groups were slightly less numerous in this respect: 13,7% of respondents declared 16 to 20 years of service, 13,6% – 1 to 5 years, 11,1% – over 30 years, and 10,0% – 26 to 30 years.

INSTRUMENTS AND PROCEDURES

The questionnaire consisted of 15 substantive questions and a set of demographic questions and was administered electronically using Google Forms. For the purposes of the study, respondents were not provided with a single predefined definition of artificial intelligence; instead, the questions referred to their own understanding and experiences of using AI in academic work.

To obtain more detailed information about their use of AI, respondents were also given the opportunity to indicate the specific tools they used. The tools mentioned included ChatGPT, Copilot, Gemini, Claude, Perplexity, DeepSeek, Scopus AI, and Elicit. The collected data were analyzed using SPSS software. The chi-square test was used to examine the relationships between the variables. The null hypothesis of no association was rejected at the significance level of $\alpha = 0,05$ ($p \leq 0,05$), while values of $0,05 < p \leq 0,10$ were interpreted as indicating a marginally significant relationship. In cases where a statistically significant association was identified, Cramér's V coefficient was calculated to assess the strength of the effect, according to the following criteria: $V = 0-0,10$ – very weak association; $0,11-0,20$ – weak; $0,21-0,49$ – moderate; $V \geq 0,50$ – strong.

DATA ANALYSIS

The analysis showed statistically significant associations between respondents' age and field of science and their use of artificial intelligence in both teaching and scientific work. Gender was significantly associated with AI use in teaching, but not in scientific work. Tables 1–3 present the detailed results.

AI use differed significantly across age groups, with lower levels of use reported by older respondents. A statistically significant difference was also observed between women and men with regard to the use of AI in teaching.

Table 1. *Percentage distribution of survey responses by age group and chi-square test results*

	25-34 (n=65)	35-44 (n=193)	45-54 (n=198)	55-64 (n=85)	65+ (n=19)
The use of artificial intelligence in teaching					
Yes	76,9%	69,4%	62,6%	54,1%	47,4%
No	23,1%	30,6%	37,4%	45,9%	52,6%
chi-square 13,199					
df = 4					
p-value 0,01					
Cramér's V 0,15					
The use of artificial intelligence in scientific work					
Yes	56,9%	59,1%	46,0%	44,7%	42,1%
No	43,1%	40,9%	54,0%	55,3%	57,9%
chi-square 9,864					
df = 4					
p-value 0,04					
Cramér's V 0,13					

Source: based on the results of own research, N=560.

Table 2. *Percentage distribution of survey responses by gender and chi-square test results*

	Female (n=307)	Male (n=250)	Prefer not to disclose (n=3)
The use of artificial intelligence in teaching			
Yes	70,0%	58,4%	66,7%
No	30,0%	41,6%	33,3%
chi-square 8,181			
df = 2			
p-value 0,02			
Cramér's V 0,12			
The use of artificial intelligence in scientific work			
Yes	50,8%	52,0%	66,7%
No	49,2%	48,0%	33,3%
chi-square 0,358			
df = 2			
p-value 0,84			
Cramér's V -			

Source: based on the results of own research, N=560.

The field of science was significantly associated with AI use in both teaching and scientific work.

Table 3. *Percentage distribution of survey responses by represented field of science and chi-square test results*

	Agricultural (n=22)	Medical and health (n=80)	Exact sciences and natural sciences (n=105)	Social (n=140)	Humanities (n=135)	Art (n=11)	Engineering and technical (n=66)
The use of artificial intelligence in teaching							
Yes	63,6%	48,7%	61,9%	68,8%	71,1%	18,2%	75,8%
No	36,4%	51,3%	38,1%	31,2%	28,9%	81,8%	24,2%
chi-square 26,74							
df = 6							
p-value < 0,001							
Cramér's V 0,22							
The use of artificial intelligence in scientific work							
Yes	45,5%	30,0%	63,8%	56,7%	45,2%	18,2%	66,7%
No	54,5%	70,0%	36,2%	43,3%	54,8%	81,8%	33,3%
chi-square 36,164							
df = 6							
p-value < 0,001							
Cramér's V 0,25							

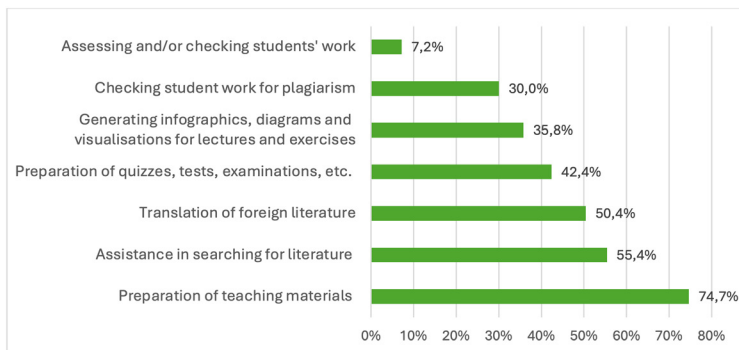
Source: based on the results of own research, N=559 (one respondent did not indicate their field of science and was therefore excluded from this analysis).

RESULTS AND DISCUSSION

The majority of the surveyed teachers declared that they had experience with using AI tools in their teaching work – 64,8% of respondents answered in the affirmative. AI use was most frequently reported by lecturers aged 25–34, while lower percentages were observed in older age groups; however, AI use was reported across all age groups. A similar pattern was observed for the use of artificial intelligence in scientific work. In the older age groups, less than half of respondents reported using AI in their scientific work. Overall, AI was used more frequently in teaching (64,8%) than in scientific work (51,4%).

Respondents were then asked to indicate the areas of teaching and research in which they use AI. The responses relating to the areas of teaching work are presented in Figure 1.

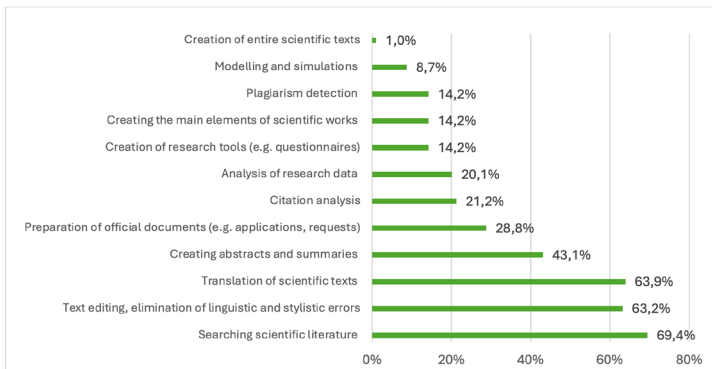
Figure 1. *Areas of AI use in teaching among AI users (multiple choice answers)*



Source: based on the results of own research, N=363.

Practical and organisational purposes were the most common. AI was used primarily for creating teaching materials, searching for literature, translating foreign texts, and preparing quizzes, tests, and examinations for students. These tasks, which are often time-consuming and repetitive, are readily entrusted to artificial intelligence, which is particularly important in view of the growing administrative burden on academic staff. Lecturers used AI much less frequently in the context of assessing and/or checking students' work. This may be due to ethical and substantive concerns about the reliability of such support. This may change as platforms designed to streamline assessment through automated answer grouping and grading become more widely available.

The next question concerned academic teachers' research activities and their use of AI in this area. The results are presented in Figure 2.

Figure 2. *Areas of AI use in scientific work among AI users (multiple choice answers)*

Source: based on the results of own research, N=288.

As in the previous question, respondents could indicate several areas of scientific activity in which they use AI tools. The most frequently indicated area was searching for scientific literature. Respondents also used AI for language and editorial tasks, such as text translation, stylistic improvement, and creating abstracts and summaries. AI was less frequently used for activities directly related to the research process, such as research data analysis, the creation of research tools, or modelling and simulations. Overall, the findings indicate that AI was used primarily for supportive and relatively routine tasks.

Most respondents used free versions of available AI tools (66,7%). Regarding self-assessed AI skills, 36,8% of respondents rated their skills as average and 27,7% as good. Poor skills were reported by 16,8% of respondents, very poor skills by 8,9%, and very good skills by 9,8%.

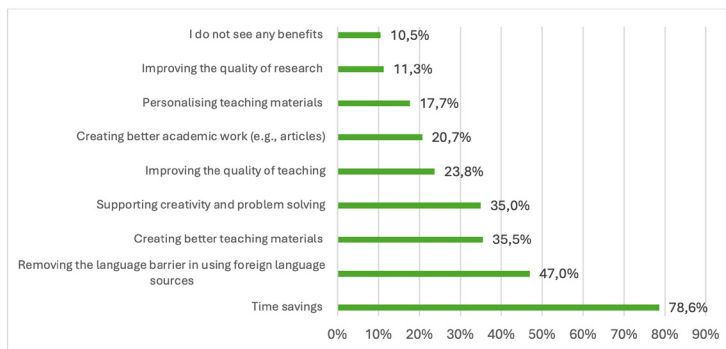
Respondents were also asked about their participation in organised forms of professional development related to AI use. Two-thirds of respondents (66,6%) had no such experience. At the same time, as many as 70,4% expressed a willingness to participate in courses on the use of artificial intelligence in teaching, and 69,5% declared an interest in such training for scientific work (both percentages are the sum of the answers *rather yes* and *definitely yes* – see Table 4).

Table 4. Respondents' answers regarding their willingness to participate in training courses on the use of AI (%)

	Definitely yes	Rather yes	No opinion	Rather no	Definitely no
Would you like to participate in training courses on the use of artificial intelligence (AI) in teaching?	32,9	37,5	11,8	11,4	6,4
Would you like to participate in training courses on the use of artificial intelligence (AI) in scientific work?	34,1	35,4	12,5	11,6	6,4

Source: based on the results of own research, N=560.

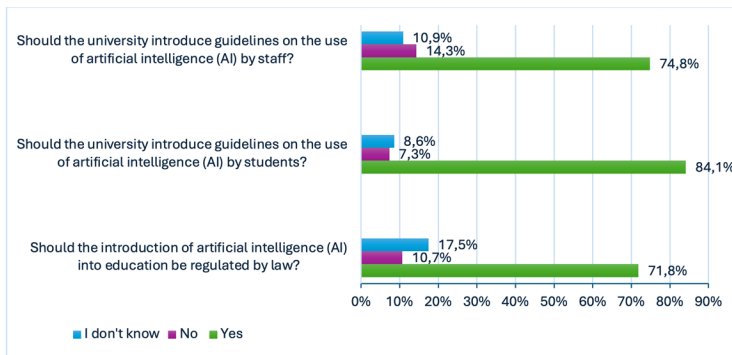
Respondents were asked to indicate the benefits they believe result from the use of AI in teaching and research. The question allowed multiple responses and included a semi-open response option. The distribution of responses is presented in Figure 3.

Figure 3. Benefits of artificial intelligence in teaching and research, according to respondents

Source: based on the results of own research, N=560.

Given the growing use of AI in teaching and learning, respondents were also asked about rules governing its use by university staff and students. Figure 4 presents the results of a survey of academic teachers' opinions on these issues.

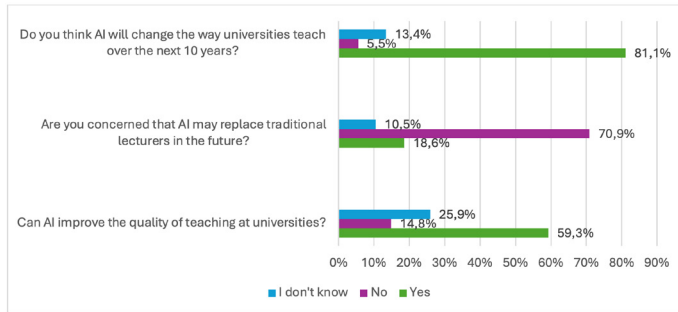
Figure 4. *Opinions of academic teachers on guidelines and legal regulations concerning artificial intelligence at universities*



Source: based on the results of own research, N=560.

The vast majority of respondents consider it reasonable to introduce guidelines on the use of AI by employees and students. A slightly lower level of support was observed for general legal regulation of AI in education. This finding is consistent with international recommendations emphasizing the need for clear institutional rules for the ethical and pedagogically appropriate use of generative AI in education (Holmes & Miao, 2023, pp. 18–23). This is particularly relevant in the context of the EU AI Act, which classifies selected educational applications of AI as high-risk systems (European Parliament & Council of the European Union, 2024). The relatively high level of support for institutional guidelines observed in the present study is therefore consistent with the growing emphasis on clear ethical and legal frameworks for AI use in education.

The surveyed teachers also recognised the potential impact of AI on teaching methods – 81,1% of them agree with the statement that artificial intelligence will change the model of education within 10 years. More than half believe that modern technologies will improve teaching. At the same time, 70,9% do not believe that these changes will be significant enough to replace them in their work (Figure 5). This finding is consistent with Hutson et al. (2022, p. 3960), who emphasise that AI can augment rather than replace the work of educators and teachers.

Figure 5. *Respondents' opinions on the future of artificial intelligence in education*

Source: based on the results of own research, N=560.

The final issue concerned the reasons why respondents did not use AI tools in teaching, providing a more complete picture of barriers to AI adoption. Overall, 35,2% of respondents did not use AI in their teaching. Among these respondents, 62,9% reported that they did not need such tools (Figure 6). Almost half of the respondents also indicated a lack of trust in AI-generated content. Other reported reasons included ethical concerns, the risk of inaccurate data, and low content quality. The most frequently reported barriers to the use of AI in teaching were a lack of perceived need and concerns about the reliability and quality of AI-generated content.

Figure 6. *Factors influencing the decision not to use artificial intelligence in teaching among AI non-users (multiple choice answers)*

Source: based on the results of own research, N=197.

A similar pattern was observed for research activities. (Figure 7). The most frequently reported reasons were a lack of perceived need and trust in AI-generated content, followed by ethical concerns and the risk of obtaining inaccurate or erroneous data. These findings highlight the importance of reliability, accountability, and ethical considerations in the use of AI for academic research, consistent with findings from other studies (McGrath et al., 2023, p. 6).

Figure 7. *Factors influencing the decision not to use artificial intelligence in scientific work among AI non-users*



Source: based on the results of own research, N=273.

Identifying barriers to AI adoption in academic practice is important for understanding the factors that hinder its wider use and for identifying measures that may support effective implementation (Mah & Groß, 2024, p. 12). Technological developments have made AI tools increasingly relevant to professional practice (Abdelaal & Al Sawi, 2024, p. 6). The ability to use such tools is becoming an increasingly important competence in both the workplace and education. Research shows that more than half (51%) of business sector representatives believed that teachers and lecturers should place greater value on the ability to use AI in generating work by pupils and students. In the same study, this view was shared by 25% of secondary school teachers and 35% of academic teachers (Patkowski & Zieliński, 2024, p. 60).

CONCLUSIONS

The present study provides insight into the current role of artificial intelligence in the work of academic teachers in Poland. The findings show that AI is already a relatively common element of academic work, with AI being used more frequently in teaching (64,8%) than in scientific work (51,4%). Overall, AI is used primarily as a tool supporting academic work.

The Polish results broadly correspond to patterns reported in other national contexts. Research among German higher education faculty has similarly identified perceived benefits of AI alongside concerns about AI literacy, ethics and the need for professional development (Mah & Groß, 2024, pp 12-13). Research conducted among Spanish teachers also found positive attitudes towards AI, while actual use was concentrated mainly on content creation, lesson preparation and information retrieval (Galindo-Domínguez et al., 2024). Thus, the Polish findings appear consistent with an international pattern in which academics recognise the practical value of AI but predominantly employ it for supportive tasks, while using it less frequently for activities directly related to student assessment or the research process. Furthermore, the systematic review and meta-analysis of faculty use of generative AI in higher education confirmed that educators across different countries predominantly employ AI as a supportive tool for teaching and administrative tasks rather than as a substitute for human academic judgment (Baggia et al., 2026). The review also identified concerns related to academic integrity, reliability of AI-generated content, and insufficient AI competencies among educators, all of which are strongly reflected in the Polish findings. Across these studies, a consistent picture emerges: educators recognize the potential of AI to improve efficiency and support educational processes, yet its wider adoption continues to depend on the development of AI literacy, institutional guidance, and access to high-quality professional training. At the same time, differences in national samples, institutional contexts, research instruments and periods of data collection mean that these findings should be understood as a comparison of broad patterns rather than as directly equivalent prevalence estimates.

The findings point to several directions for future research. First, longitudinal studies are needed to determine whether the current pattern of predominantly

supportive AI use develops towards greater integration into teaching and research. Second, future research should examine how AI literacy and actual competencies, rather than self-assessed skills alone, influence the quality and effectiveness of AI-supported academic work. Third, comparative studies across disciplines and types of higher education institutions could provide a more detailed explanation of the differences identified in the present study. Further research should also investigate how academics verify AI-generated information, how they perceive responsibility for errors produced with AI assistance, and how institutional guidelines influence their practices. Finally, qualitative studies involving interviews or observations could complement survey data by explaining why some academics adopt AI readily while others refrain from using it despite having access to the same technologies.

The findings indicate that the implementation of AI should not be understood merely as the introduction of another technological tool into existing educational practices. The integration of AI into education requires consideration of broader pedagogical and institutional changes (Pedro et al., 2019, p. 18). The implementation of AI may face challenges related to insufficient skills, user resistance, legal uncertainty, and ethical and data protection concerns (Henadirage & Gunarathne, 2025, pp. 250-253). At the same time, AI offers new opportunities for teaching, personalisation and support for academic work. Its effective use requires appropriate implementation strategies that address skills gaps, take existing regulations into account, and embed AI use within an appropriate ethical framework (Nguyen et al., 2024, p. 8). The implementation process may also be shaped by factors not addressed in this study, including institutional leadership, organisational culture, and financial constraints (Hutson, 2025). Overall, the findings suggest that the future role of AI in higher education will depend not only on access to technological tools, but also on the development of academic competencies, institutional policies, professional support, and ethical frameworks that enable their responsible and effective use.

LIMITATIONS

Several limitations of the study should be acknowledged. The voluntary nature of participation introduces the possibility of self-selection bias, as respondents independently decided whether to complete the survey after receiving the link. Those who participated may have differed from non-participants, for example in their interest in or experience with AI. Therefore, the findings should not be considered fully representative of all academic teachers in Poland.

Although invitations containing the survey link were also sent to non-public higher education institutions, practically no responses were obtained from this sector. As a result, the sample was overwhelmingly composed of academics employed at public universities (99,5%), which substantially limits the extent to which the findings can be generalized to the private higher education sector.

The study relied exclusively on respondents' self-reported declarations concerning their use of AI, perceived skills, benefits, concerns and barriers. The reported practices were not verified through behavioural measures, observation of actual AI use, analysis of digital activity, or psychological tests. The results should therefore be understood as reflecting participants' reported experiences and perceptions rather than independently verified patterns of behaviour.

The study employed a cross-sectional, single-timepoint design. This is particularly relevant given the rapidly changing nature of artificial intelligence technologies, their availability and the ways in which they are incorporated into academic work. The results provide a snapshot of AI use among Polish academic teachers during the period of data collection, but they cannot establish how these practices, attitudes or competencies may change over time.

Caution is required when interpreting comparisons between individual fields of science because some disciplinary subgroups were relatively small. Although statistically significant differences were identified, the size of particular subgroups limits the stability and generalisability of these comparisons.

Finally, the self-administered questionnaire may have been subject to social-desirability bias, which could have influenced the reporting of practices perceived as ethically sensitive. Although anonymity may have reduced this effect, it cannot be completely excluded.

ETHICS STATEMENT

The study was conducted in accordance with the principles of voluntary and anonymous participation in survey research. The questionnaire did not collect information that directly identified the respondents. The study did not involve any intervention or manipulation of participants.

INFORMED CONSENT

Participation in the study was voluntary and anonymous. Respondents received information about the purpose and subject of the study before completing the questionnaire. By voluntarily completing and submitting the questionnaire, participants consented to participate in the study and to the use of their responses for research purposes.

FUNDING

This research received no external funding.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest related to this research.

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