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FUTURE PSYCHOLOGISTS' READINESS TO UTILIZE ARTIFICIAL INTELLIGENCE TECHNOLOGIES IN COUNSELING WORK

Abstract: this study examines future psychologists' attitudes toward artificial intelligence and their readiness to integrate digital technologies into professional practice. The research involved 86 third- and fourth-year psychology students from three Ukrainian universities and employed the Media and Technology Usage and Attitudes Scale, the AI Attitude Scale, and the Measure of Therapists' Attitudes Toward Technology in Psychotherapy. The results indicate generally positive but cautious attitudes toward AI, with high behavioral intention to use AI tools alongside persistent concerns about ethical risks and the preservation of the therapeutic relationship. Students strongly endorsed the psychoeducational value of technology, while perceiving its relevance to psychotherapy as limited, suggesting a preference for peripheral rather than central integration of AI in therapeutic work. Cluster analysis identified four distinct profiles of technological readiness, ranging from technology enthusiasts to cautious skeptics. The findings highlight the need for differentiated training approaches and clear ethical guidelines to support the responsible integration of AI into psychological practice in Ukraine.

Key words: artificial intelligence; mental health chatbots; students; future psychologists; future professionals; attitudes toward technology; psychotherapy.

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ГОТОВНІСТЬ МАЙБУТНІХ ПСИХОЛОГІВ ДО ВИКОРИСТАННЯ ТЕХНОЛОГІЙ ШТУЧНОГО ІНТЕЛЕКТУ В КОНСУЛЬТАТИВНІЙ ДІЯЛЬНОСТІ

Анотація: у статті досліджується ставлення майбутніх психологів до штучного інтелекту та їхня готовність інтегрувати цифрові технології у професійну практику. У дослідженні взяли участь 86 студентів 3–4 курсів спеціальності "Психологія" з трьох українських університетів. Для збору даних були застосовані шкала використання та ставлення до медіа і технологій, шкала ставлення до штучного інтелекту та шкала ставлення терапевтів до використання технологій у психотерапії.

Отримані результати свідчать про загалом позитивне, але обережне ставлення до штучного інтелекту, що поєднується з високою поведінковою готовністю використовувати ШІ-інструменти та водночас зі стійкими побоюваннями щодо етичних ризиків і збереження терапевтичних стосунків. Кластерний аналіз дозволив виокремити чотири різні профілі технологічної готовності — від технологічних ентузіастів до обережних скептиків. Результати підкреслюють необхідність диференційованих підходів до професійної підготовки та чітких етичних настанов для відповідальної інтеграції штучного інтелекту у психологічну практику в Україні.

Ключові слова: штучний інтелект; чат-боти; студенти; майбутні психологи; майбутні фахівці; ставлення до технологій; психотерапія.

Анастасія Книш

Розширена анотація для ознайомлення з цією темою:
"Готовність майбутніх психологів до використання технологій штучного інтелекту в консультативній діяльності"

Постановка проблеми у загальному вигляді *та її зв'язок з важливими науковими чи практичними завданнями. Повномасштабна війна в Україні призвела до різкого зростання психологічного дистресу, масового переміщення населення та зниження доступності послуг у сфері психічного здоров'я, створивши умови, за яких традиційні моделі психологічної допомоги стають недостатніми. За даними міжнародних організацій, мільйони українців нині перебувають у групі ризику розвитку психічних розладів, а значна частина населення повідомляє про погіршення психологічного стану з початку війни. У цьому контексті використання технологій штучного інтелекту (ШІ), зокрема ШІ-орієнтованих інструментів і чат-ботів із психічного здоров'я, дедалі частіше розглядається як потенційний додатковий ресурс для розширення доступу до психологічної підтримки. Водночас професійна інтеграція таких технологій порушує складні етичні, методологічні та ідентифікаційні питання для психологів. Це робить проблему готовності майбутніх психологів до використання штучного інтелекту особливо актуальною, оскільки саме вони відіграватимуть ключову роль у формуванні системи психічного здоров'я України у* повоєнний період. Усвідомлення їхнього ставлення до ШІ та цифрових технологій безпосередньо пов'язане з важливими науковими й практичними завданнями, зокрема модернізацією психологічної освіти, розробленням етичних стандартів і створенням стійких систем психологічної допомоги в умовах тривалої кризи.

Аналіз останніх досліджень та публікацій, *у яких започатковано розв'язання цієї проблеми, і на які спирається автор. Сучасні міжнародні та українські дослідження демонструють зростання інтересу до застосування штучного інтелекту в психології, психотерапії та освіті. У наукових працях підкреслюється потенціал ШІ для психоосвіти, моніторингу симптомів і підтримки між сесіями, водночас акцентується увага на етичних ризиках, зокрема питаннях конфіденційності даних, алгоритмічної упередженості та можливого послаблення терапевтичного альянсу. Дослідження ефективності ШІ-чат-ботів у сфері психічного здоров'я засвідчують обнадійливі результати щодо зменшення симптомів тривоги й депресії, а професійні організації, зокрема Американська психологічна асоціація, розробляють рекомендації щодо відповідального використання таких*

інструментів. В Україні науковці аналізували застосування ШІ в освітніх середовищах і в окремих контекстах психологічної підтримки, зокрема для військовослужбовців. Однак, попри зростання кількості досліджень, відсутні систематичні емпіричні роботи, присвячені готовності майбутніх психологів до інтеграції ШІ у професійну діяльність. Цей дефіцит є особливо значущим в умовах війни, коли потреба у масштабованій психологічній допомозі поєднується з підвищеною відповідальністю за етичні та професійні рішення.

Формулювання цілей статті *(постановка завдання). Метою статті є представлення результатів емпіричного дослідження, спрямованого на вивчення ставлення майбутніх психологів до штучного інтелекту та їхньої готовності інтегрувати цифрові технології у професійну психологічну практику.*

Виклад основного матеріалу дослідження *з повним обґрунтуванням отриманих наукових результатів. Дослідження проведено у форматі онлайн-опитування за участю 86 студентів 3–4 курсів спеціальності "Психологія" з трьох українських університетів. Для оцінювання ставлення до технологій і штучного інтелекту було застосовано шкалу використання та ставлення до медіа і технологій, шкалу ставлення до штучного інтелекту та шкалу ставлення терапевтів до використання технологій у психотерапії, перекладені українською мовою та перевірені на внутрішню узгодженість. Аналіз даних здійснювався за допомогою методів описової статистики та кластерного аналізу. Отримані результати свідчать, що майбутні психологи загалом демонструють позитивне, але обережне ставлення до ШІ, поєднане з високою*

поведінковою готовністю використовувати ШІ-інстру-менти у професійній діяльності. Респонденти активно користуються цифровими технологіями у повсякденному житті та водночас усвідомлюють потенційні ризики їх застосування. Найбільш показовим результатом стала суттєва різниця між високою оцінкою психоосвітньої цінності технологій і низькою оцінкою їхньої релевантності для психотерапії, що вказує на перевагу периферійної, а не центральної інтеграції штучного інтелекту у терапевтичний процес. Кластерний аналіз дозволив виокремити чотири профілі технологічної готовності — від технологічних ентузіастів до обережних скептиків, з проміжними типами, що відображають прагматичну вибірковість і помірну відкритість до впровадження ШІ.

Висновки з даного дослідження *та перспективи подальших розвідок у даному напрямку. Результати дослідження показують, що майбутні психологи в Україні є залученими до діджіталізації та загалом відкритими до використання штучного інтелекту, проте схильні зберігати пріоритет людської взаємодії в психотерапії. Штучний інтелект здебільшого розглядається як допоміжний інструмент психоосвіти та підтримки, а не як центральний елемент терапевтичної роботи. Отримані дані підкреслюють необхідність розроблення диференційованих освітніх підходів, спеціалізованих навчальних програм із етичного та критичного використання ШІ, а також чітких професійних настанов. В умовах воєнних і повоєнних викликів у сфері психічного здоров'я такі заходи є ключовими для відповідальної та ефективної інтеграції штучного інтелекту у психологічну практику в Україні.*

Problem setting. The ongoing war in Ukraine and resulting mass displacement have created an unprecedented mental health crisis requiring immediate and comprehensive intervention. As of October 2024, approximately 3.6 million people remain internally displaced within Ukraine, while over 15 million Ukrainians have reported

deterioration in their mental health since the start of the war [6]. Recent studies reveal alarming prevalence rates: among Ukrainian university students, PTSD prevalence reached 27 %, while among civilians it ranged from moderate to extremely high levels, with some populations showing rates as high as 76 % [7]. Nearly 10 million Ukrainians, including 1.4 million children, are estimated to be at risk of mental health conditions due to the war [14]. Although Ukraine has implemented national mental health programs such as "How Are You?" (Ти як?) [4], the scale of psychological trauma continues to escalate with increasing numbers of war-affected individuals, making the problem inexhaustible through traditional therapeutic approaches alone.

In this context, it becomes critically important to utilize all available resources for providing psychological support to the population. Artificial intelligence technologies, particularly mental health chatbots, have emerged as promising supplementary tools. Over the past three years, several AI-powered chatbots have demonstrated effectiveness in reducing symptoms of anxiety, depression, and stress [16]. Research indicates that platforms such as Woebot, Wysa, and Elomia have shown significant reductions in depression (48 % decrease) and anxiety (43 % decrease) symptoms [3; 5; 8], with randomized controlled trials demonstrating that Elomia users experienced greater symptom reduction compared to control groups using traditional self-help materials [13]. The American Psychological Association has recently released health advisories and guidelines addressing the use of AI chatbots in mental health care, while developing evaluation frameworks for practitioners considering integration of AI tools into their practice [2]. These developments indicate growing professional recognition of AI's potential role in mental health support, particularly as adjunctive tools for maintaining patient engagement between therapy sessions.

Such AI-based tools could prove especially valuable in the Ukrainian context, where significant numbers of potential clients cannot maintain consistent contact with therapists due to being located in frontline areas or facing financial constraints. One in four Ukrainians report decreased access to medical services since February 2022, with 35 % postponing medical care due to financial challenge [15]. However, neither at the societal nor legislative level has the integration of such technologies into Ukrainian psychologists' professional practice been adequately considered. This gap underscores the importance of investigating future psychologists' readiness to utilize artificial intelligence technologies in their counseling work, particularly as these professionals will shape the mental health landscape in post-war Ukraine's recovery.

Recent research and publications analysis. The integration of artificial intelligence (AI) technologies into psychological practice and research has become an increasingly prominent area of scholarly attention. Recent literature demonstrates a growing body of evidence regarding AI applications across various domains of psychology, though significant gaps remain, particularly concerning psychologists' readiness to adopt these technologies. Recent studies have extensively documented the transformative potential of AI in psychology. Nazar M. provides a comprehensive analysis of AI's role in educational psychology, highlighting how AI technologies facilitate personalization of learning processes, adaptation of educational environments, and provision of real-time feedback [10]. The research emphasizes that AI integration enables automation of routine tasks, thereby allowing psychologists and educators to focus on more creative and interactive aspects of their work — a consideration particularly relevant in contexts of contemporary challenges such as wartime conditions.

Melnyk M., Malynoshevska A., and Androsovych K. conducted an extensive review of generative AI applications in psychology, identifying key areas including

psychodiagnostics, psychotherapy, and psychological research. Their work demonstrates that AI-powered tools can significantly enhance diagnostic accuracy, provide continuous therapeutic support, and facilitate analysis of large-scale behavioral datasets [9]. However, the authors also emphasize critical concerns regarding ethics, confidentiality, and the accuracy of AI-generated recommendations.

The application of AI chatbots in mental health support represents a particularly promising development. Zadorina O., Hromyk A., and Bondar S. examined the use of AI-powered chatbots in mobile applications for distance learning, demonstrating their effectiveness in improving communication and providing personalized support to students. Their findings indicate that chatbots can reduce cognitive load, provide timely information access, and facilitate independent learning, though challenges remain regarding response accuracy and the need for continuous algorithm updates [17].

Research by V. Reinska and D. Lopatina further explores the potential of AI-based mobile applications for psychological support of military personnel, highlighting the importance of virtual assistants capable of adapting to users' emotional states and providing anonymous, accessible support — critical features when access to qualified specialists is limited [12].

International research provides valuable insights into AI adoption patterns and concerns. A study examining AI chatbot usage across educational contexts [11] revealed that 68 % of teachers and 76 % of students in Ukraine have experience using AI services, with ChatGPT being the most recognized tool. This suggests growing familiarity with AI technologies among potential users of psychological services. However, M. Zhou et al. identified significant barriers to AI adoption in educational settings, including concerns about academic integrity, technological dependency, and insufficient

understanding of AI capabilities and limitations. Their research emphasizes that effective AI integration requires not only technological infrastructure but also comprehensive training and clear ethical guidelines [18].

Despite the growing international literature on AI in psychology, a significant gap exists regarding Ukrainian psychologists' readiness to adopt AI technologies in their professional practice. While Ukrainian researchers have examined AI applications in education [10] and specific intervention contexts [12; 17], systematic investigation of practicing psychologists' attitudes, competencies, and preparedness for AI integration remains limited. However, effective implementation of AI technologies requires not only technical infrastructure but also professional readiness. Zhou M. et al. emphasize that successful AI integration depends on users' understanding of AI capabilities, limitations, and ethical implications [18]. Without adequate preparation, psychologists may either reject potentially beneficial technologies or misuse them in ways that compromise client welfare.

Recent literature consistently emphasizes the importance of addressing ethical concerns in AI adoption. Melnyk M.et al. highlight issues including data confidentiality, algorithmic bias, transparency in AI decision-making, and the need for clear regulatory frameworks [9]. The American Psychological Association's guidelines stress that AI tools should complement rather than replace human professional judgment, and that psychologists must maintain responsibility for all aspects of service delivery even when using AI assistance [1; 2]. The development of professional competencies for AI use in psychology represents another critical consideration. The literature suggests that psychologists require training not only in technical aspects of AI tools but also in critical evaluation of AI outputs, recognition of algorithmic

limitations, and navigation of ethical dilemmas arising from AI use.

Highlighting previously unsolved parts of the general problem, to which this article is devoted. The reviewed literature demonstrates active and expanding research on AI applications in psychology, with substantial evidence supporting the potential benefits of AI-augmented diagnostic, therapeutic, and research practices. International studies provide valuable frameworks for understanding AI adoption patterns, efficacy of AI-based interventions, and critical ethical considerations. However, a notable gap exists in Ukrainian research regarding psychologists' readiness to adopt AI technologies. While Ukrainian scholars have contributed important insights into specific AI applications, systematic examination of practicing psychologists' preparedness, attitudes, and training needs remains absent. This gap is particularly significant given the unprecedented demand for psychological services in Ukraine and the potential of AI technologies to expand access to care.

Addressing this gap requires comprehensive investigation of Ukrainian psychologists' current knowledge, attitudes, and practices regarding AI, as well as identification of barriers to adoption and development of targeted professional development initiatives. Such research is essential for ensuring that AI integration in Ukrainian psychology proceeds in a manner that is ethically sound, professionally competent, and responsive to the unique needs of the population.

Paper objective. The aim of the article is to present the results of a study aimed at examining future psychologists' attitudes toward the use of artificial intelligence in professional practice.

The research objectives are:

1. To investigate psychologists' attitudes toward the use of technologies in professional practice.

2. To examine readiness to use Artificial Intelligence.

3. To explore readiness to use technologies in psychotherapy.

4. To identify types of future psychologists based on their attitudes toward artificial intelligence and the use of technologies in future professional practice.

Paper main body. The study was conducted using an online survey form and involved psychology students enrolled at the National Technical University "Kharkiv Polytechnic Institute", Lviv Polytechnic National University, and Taras Shevchenko National University of Kyiv. A total of 86 respondents participated in the study, all of whom were 3rd- and 4th-year students majoring in Psychology. The average age of respondents was 20.8 years. Among the respondents were 55 women and 31 men.

The study employed the following instruments: Media and Technology Usage and Attitudes Scale (MTUAS), AI Attitude Scale (AIAS–4), and Measure of Therapists' Attitudes Toward Technology in Psychotherapy (MTPS), which were translated into Ukrainian and verified for internal consistency using Cronbach's alpha. Data processing utilized descriptive statistics methods as well as multivariate statistical methods — specifically, cluster analysis.

The validity of the results was ensured by: the use of contemporary diagnostic tools and the application of psychometric procedures that demonstrated the feasibility of using these instruments for the study sample.

Internal consistency reliability was assessed using Cronbach's alpha coefficient, which measures the extent to which scale items are interrelated. Alpha values were calculated for the total scales and all subscales across three validated instruments. Following established guidelines, reliability coefficients were interpreted as: $\alpha < 0.60$ (unacceptable), $\alpha = 0.60$–0.69 (questionable), $\alpha = 0.70$–0.79 (acceptable), $\alpha = 0.80$–0.89 (good), and $\alpha \geq 0.90$ (excellent).

Table 1.

Internal Consistency Reliability Coefficients for Research Instruments

Instrument	Scale/Subscale	Items	α	M	SD	Reliability
AIAS–4	Total Scale	4	0.971	6.92	1.2	Excellent
MTPS	Potential to Augment	4	0.963	3.64	0.71	Excellent
	Psychoeducational Value	4	0.947	4.34	0.53	Excellent
	Perceived Risks	4	0.928	2.73	0.54	Excellent
	Perceived Relevance	4	0.952	2.01	0.67	Excellent
MTUAS	Total Scale	32	0.945	3.56	0.67	Excellent
	Smartphone Usage	4	0.919	3.72	0.44	Excellent
	General Media Usage	3	0.878	4.03	0.41	Good
	Online Friendships	3	0.897	3.49	0.48	Good
	Social Media Usage	3	0.899	3.85	0.41	Good
	Email Usage	2	0.786	3.67	0.38	Acceptable
	Attitudes Toward Media	3	0.9	3.62	0.43	Excellent
	Attitudes Toward Social Networking	3	0.894	3.72	0.45	Good
	Negative Attitudes	4	0.9	2.51	0.51	Good
	Attitudes Toward Multitasking	3	0.893	3.32	0.45	Good
	Positive Attitudes	4	0.93	3.91	0.43	Excellent

All three instruments demonstrated strong psychometric properties. The AIAS–4 showed excellent internal consistency ($\alpha = 0.971$), with the mean score of 6.92 (SD = 1.20) indicating moderately positive AI attitudes among future psychologists. The MTPS exhibited excellent reliability across all four subscales ($\alpha = 0.928$ to 0.963): Potential to Augment (M = 3.64, SD = 0.71), Psychoeducational Value (M = 4.34, SD = 0.53), Perceived Risks (M = 2.73, SD = 0.54), and Perceived Relevance (M = 2.01, SD = 0.67), replicating findings from the original validation study. Students showed strongest endorsement of technology's educational value while expressing skepticism about its necessity in therapy.

The MTUAS total scale demonstrated excellent reliability ($\alpha = 0.945$), with individual subscales ranging from acceptable to excellent ($\alpha = 0.786$ to 0.930), consistent with original validation. Usage subscales showed good to excellent reliability: Smartphone Usage ($\alpha = 0.919$, M = 3.72), General Media Usage ($\alpha = 0.878$, M = 4.03), Social Media Usage ($\alpha = 0.899$, M = 3.85), Online Friendships ($\alpha = 0.897$, M = 3.49), and Email Usage ($\alpha = 0.786$, M = 3.67). Attitude subscales similarly demonstrated strong reliability, with Positive Attitudes ($\alpha = 0.930$, M = 3.91) and Negative Attitudes ($\alpha = .900$, M = 2.51) indicating generally favorable orientations toward technology among future psychologists.

Future psychologists demonstrated moderately positive attitudes toward AI (M = 6.92, SD = 1.13 on a 1–10 scale), with two-thirds of participants (67.4 %, n = 58) falling in the moderate positive range (5.0—7.5) and nearly one-third (31.4 %, n = 27) expressing highly positive attitudes (≥ 7.5). Only one participant (1.2 %) showed low positive attitudes, indicating near-universal acceptance of AI's potential value. This distribution pattern suggests cautious optimism rather than enthusiastic embrace — students recognize AI's potential while maintaining critical distance. Item-level analysis revealed meaningful variation: "Intention to Use AI in Future" achieved the highest mean (M = 7.30, SD = 0.93), indicating behavioral readiness that exceeds attitudinal endorsement. Beliefs about AI's capacity to "Improve Work" (M = 7.08, SD = 1.23) surpassed expectations for general life improvement (M = 6.65, SD = 1.25), suggesting domain-specific optimism about professional applications. The relatively lower score for "AI is Positive for Humanity" (M = 6.65, SD = 1.25) may reflect broader

ethical concerns about AI's societal implications, consistent with public discourse about algorithmic bias, automation anxiety, and loss of human agency.

Several factors may explain these patterns. First, professional pragmatism appears salient — students distinguish between AI's instrumental utility in psychological practice and broader philosophical questions about AI's role in society. This differentiation suggests sophisticated thinking about technology adoption as context-dependent rather than universally beneficial or harmful. Second, as digital natives who have witnessed rapid technological change throughout their lifetimes, these students may view AI integration as inevitable regardless of perfect attitudinal alignment, leading to high behavioral intentions despite moderate enthusiasm. Third, Ukrainian psychology education's emphasis on evidence-based practice may cultivate measured optimism pending empirical validation of AI applications. Finally, the ongoing war context may heighten awareness of technology's dual potential — both as a force multiplier for delivering mental health services to traumatized populations and as a source of ethical concerns about surveillance, autonomy, and human dignity. Gender differences emerged, with males showing significantly higher AI attitudes (M = 7.48, SD = 1.00) compared to females (M = 6.65, SD = 1.09), potentially reflecting established gender disparities in technology confidence and STEM affinity documented in prior research.

Response patterns on the MTPS reveal a nuanced attitude profile characterized by strong acceptance of technology as an educational adjunct (Psychoeducational Value: M = 4.34, SD = 0.53) coupled with marked skepticism about its centrality to therapeutic practice (Perceived Relevance: M = 2.01, SD = 0.67). This 2.33–point differential represents the largest gap between subscales and constitutes the study's most striking finding. Students moderately endorsed technology's Potential to Augment therapeutic outcomes (M = 3.64, SD = 0.71) while expressing measured concern about Perceived Risks (M = 2.73, SD = 0.54), suggesting balanced appraisal rather than uncritical enthusiasm or technophobic rejection. The pattern indicates students envision a "peripheral integration" model where technology supplements but does not fundamentally transform the therapeutic encounter.

Multiple interpretative frameworks illuminate these findings. The dominant endorsement of Psychoeducational Value likely reflects technology's alignment with established therapeutic practices (bibliotherapy, homework assignments, psychoeducational materials), which pose minimal threat to the core therapeutic relationship. Students appear comfortable with technology when it extends traditional methods rather than replacing them. Conversely, low Perceived Relevance scores may represent professional identity protection — future therapists resist characterizing technology as "necessary" for effective practice, possibly viewing such claims as devaluing their developing clinical expertise and the primacy of human connection in healing. This resistance may intensify during training when students are establishing foundational competencies and professional self-concepts. The training stage itself likely influences attitudes; students focused on mastering evidence-based protocols, therapeutic presence, and clinical judgment may view technology integration as premature, preferring to establish core skills before layering technological augmentation. Moderate Perceived Risks scores indicate awareness of potential drawbacks — privacy violations, therapeutic alliance disruption, over-reliance on algorithms — without catastrophizing these concerns. Finally, Ukrainian psychotherapy's cultural emphasis on relational depth and humanistic values may create tension with technology integration that students are actively negotiating, leading to cautious rather than enthusiastic adoption.

Usage patterns revealed high

engagement across domains, with General Media Usage (M = 4.03, SD = 0.41) exceeding all other subscales, followed by Social Media Usage (M = 3.85, SD = 0.41), Smartphone Usage (M = 3.72, SD = 0.44), and Email Usage (M = 3.67, SD = 0.38). Notably, Online Friendships received the lowest usage score (M = 3.49, SD = 0.48), suggesting students maintain boundaries around relationship formation despite extensive platform engagement. Attitude subscales showed predominantly positive orientations (M = 3.91, SD = 0.43) with substantially lower Negative Attitudes (M = 2.51, SD = 0.51), creating a 1.40-point favorable asymmetry. Moderate Attitudes Toward Multitasking (M = 3.32, SD = 0.45) suggest awareness of divided attention's costs despite its prevalence in digital environments.

These patterns admit several explanations. High General Media Usage likely reflects students' dual role as consumers staying informed about psychological science and cultural trends, and as future professionals who must understand clients' media environments. Elevated Social Media Usage may represent professional development activities — following research communities, psychology organizations, thought leaders — rather than purely social engagement, distinguishing these psychology students from general populations. The lower Online Friendships score suggests quality-over-quantity relationship priorities; students use technology to maintain existing connections but resist forming new relationships through digital-only channels, possibly reflecting training in attachment theory and relationship depth. Moderate Email Usage may indicate generational preferences for synchronous communication (messaging apps) while recognizing email's continued professional necessity, creating bifurcated communication ecologies for personal versus professional domains.

The strong positive-to-negative attitude asymmetry likely reflects digital native status — students raised with ubiquitous technology naturally view it favorably while maintaining critical perspective on specific drawbacks, avoiding both uncritical enthusiasm and moral panic. Moderate multitasking attitudes may demonstrate metacognitive awareness cultivated through psychology training, enabling students to recognize attention's limitations while acknowledging multitasking's practical necessity in modern life. High usage coupled with predominantly positive attitudes represents behavioral-attitudinal consistency that minimizes cognitive dissonance about extensive technology engagement. However, social desirability bias may operate — psychology students trained to recognize psychological phenomena might provide responses that acknowledge technology's benefits while downplaying addiction, distraction, or problematic use patterns.

K-means cluster analysis was conducted to identify distinct profiles of future psychologists based on their attitudes toward artificial intelligence and technology integration in professional practice. Analysis utilized nine key variables spanning AI attitudes (AIAS–4), attitudes toward technology in psychotherapy (MTPS), and technology usage patterns (MTUAS). Clustering indices indicated optimal solution with four distinct clusters, yielding a Silhouette coefficient of 0.701, Calinski-Harabasz index of 488.22, and Davies-Bouldin index of 0.415, indicating good cluster separation and cohesion. The four-cluster solution was selected based on both statistical criteria and theoretical interpretability, revealing meaningful typological distinctions in technological readiness among psychology students.

K-means clustering was applied to standardized scores across nine variables: AIAS–4 Total Score, MTPS subscales (Potential to Augment, Psychoeducational Value, Perceived Risks, Perceived Relevance), and MTUAS subscales (Smartphone Usage, Social Media Usage,

Positive Attitudes, Negative Attitudes). Variables were standardized (M = 0, SD = 1) prior to clustering to ensure equal weighting. Multiple cluster solutions (k = 2 to 7) were evaluated using silhouette coefficient (optimal > 0.50), Calinski-Harabasz index (higher values indicate better separation), and Davies-Bouldin index (lower values indicate better clustering). The four-cluster solution demonstrated superior performance across indices and provided theoretically meaningful distinctions.

Table 2.

Descriptive Statistics for Four-Cluster Solution

Variable	Cluster 1		Cluster 2		Cluster 3		Cluster 4	
	M	SD	M	SD	M	SD	M	SD
Sample Size (n)	22	-	24	-	19	-	21	-
AIAS–4 Total Score	7.26	0.12	8.32	0.33	5.33	0.24	6.40	0.19
MTPS: Potential to Augment	3.78	0.09	4.58	0.16	2.72	0.11	3.25	0.25
MTPS: Psychoeducational Value	4.56	0.11	5.00	0.00	3.62	0.13	4.01	0.05
MTPS: Perceived Risks	2.75	0.00	2.02	0.19	3.50	0.08	2.82	0.12
MTPS: Perceived Relevance	2.00	0.00	1.17	0.24	3.00	0.08	2.11	0.15
MTUAS: Smartphone Usage	3.85	0.05	4.27	0.16	3.11	0.11	3.52	0.08
MTUAS: Social Media Usage	3.95	0.06	4.37	0.16	3.31	0.11	3.64	0.09
MTUAS: Positive Attitudes	4.04	0.06	4.45	0.14	3.33	0.09	3.68	0.08
MTUAS: Negative Attitudes	2.45	0.05	1.84	0.23	3.19	0.11	2.70	0.08

The first cluster was called Balanced Pragmatists (n = 22, 25.6 %). Balanced Pragmatists demonstrated moderately positive AI attitudes (M = 7.26, SD = 0.12) positioned between skepticism and enthusiasm. This cluster exhibited near-ceiling endorsement of technology's psychoeducational value (M = 4.56, SD = 0.11), indicating strong acceptance of technology as an educational adjunct. However, they maintained moderate views on technology's potential to augment therapeutic outcomes (M = 3.78, SD = 0.09) and showed characteristic skepticism about technology's necessity in practice (Perceived Relevance: M = 2.00, SD = 0.00), demonstrating remarkable homogeneity on this dimension. Perceived Risks scores were moderate (M = 2.75, SD = 0.00), suggesting measured concern without alarmism. Technology usage patterns were above average (Smartphone: M = 3.85, Social Media: M = 3.95), with predominantly positive attitudes (M = 4.04, SD = 0.06) and low negative attitudes (M = 2.45, SD = 0.05).

Balanced Pragmatists represent the modal future psychologist — digitally fluent, professionally cautious, and strategically selective about technology integration. They exemplify "peripheral integration" philosophy, viewing technology as valuable for client education and administrative functions while protecting the therapeutic relationship as fundamentally human. The zero variance on Perceived Relevance suggests normative consensus that technology enhances but does not define effective practice. This cluster likely benefits from balanced exposure to both traditional therapeutic training and contemporary digital tools, enabling informed selectivity rather than wholesale adoption or rejection. Their moderate AI attitudes coupled with high technology usage suggests comfort with technology in daily life while maintaining professional boundaries in therapeutic contexts. Gender distribution is nearly equal (54.5 % female, 45.5 % male), and mean age is 20.73 years, representing typical psychology students.

The second cluster was called Technology Enthusiasts (n = 24, 27.9 %). Technology Enthusiasts emerged as the most technologically oriented cluster, displaying highly positive AI attitudes (M = 8.32, SD = 0.33) — significantly exceeding other clusters and approaching the scale maximum.

This group showed maximal endorsement of technology's psychoeducational value (M = 5.00, SD = 0.00), representing ceiling effects and unanimous agreement. Critically, they scored highest on Potential to Augment (M = 4.58, SD = 0.16), indicating strong beliefs that technology can enhance therapeutic outcomes. They demonstrated the lowest Perceived Risks (M = 2.02, SD = 0.19) and Perceived Relevance scores (M = 1.17, SD = 0.24), the latter suggesting they view technology not as necessary but as extraordinarily valuable. Technology usage was highest across all clusters (Smartphone: M = 4.27, Social Media: M = 4.37), with strongly positive attitudes (M = 4.45, SD = 0.14) and lowest negative attitudes (M = 1.84, SD = 0.23).

Technology Enthusiasts represent digital natives fully embracing technology across life domains. Their profile suggests early adopter personalities — comfortable with innovation, optimistic about technological solutions, and minimally concerned about potential drawbacks. The ceiling effect on psychoeducational value and near-ceiling AI attitudes indicate these individuals may actively seek technology-enhanced experiences and professional opportunities. Low perceived risks coupled with high usage suggests either genuine comfort with technology's implications or possible underestimation of privacy, security, and ethical concerns. This cluster's low Perceived Relevance scores paradoxically suggest they view technology as optional rather than necessary — possibly because they integrate it so seamlessly that it doesn't feel like an additional requirement but rather a natural extension of practice. Gender distribution remains balanced (54.2 % female, 45.8 % male), and this cluster skews slightly younger (M = 20.17 years), consistent with greater technological fluency among recent cohorts.

The third cluster was called Cautious Skeptics (n = 19, 22.1 %). Cautious Skeptics exhibited the most reserved attitudes toward technology integration, with the lowest AI attitudes across clusters (M = 5.33, SD = 0.24) — still positive but markedly below other groups. This cluster showed lowest scores on both Potential to Augment (M = 2.72, SD = 0.11) and Psychoeducational Value (M = 3.62, SD = 0.13), indicating skepticism about technology's therapeutic utility even in educational applications. Crucially, they demonstrated highest Perceived Risks (M = 3.50, SD = 0.08) and Perceived Relevance (M = 3.00, SD = 0.08), suggesting they view technology as both potentially problematic and unfortunately necessary – a conflicted stance reflecting ambivalence. Technology usage was lowest across clusters (Smartphone: M = 3.11, Social Media: M = 3.31), with substantially lower positive attitudes (M = 3.33, SD = 0.09) and highest negative attitudes (M = 3.19, SD = 0.11).

Cautious Skeptics represent individuals deeply concerned about technology's impact on therapeutic practice and human connection. Their profile suggests values prioritizing relational depth, humanistic principles, and preservation of traditional therapeutic approaches. The combination of high perceived risks and high perceived relevance creates psychological tension — they recognize technology's increasing presence while viewing it as threatening to core therapeutic values. Lower overall technology usage indicates behavioral consistency with attitudes, suggesting genuine preference for face-to-face interaction and analog communication. This cluster's high negative attitudes may reflect experiences with technology's downsides — distraction, superficiality, privacy violations — leading to protective stance. Gender distribution shows highest female representation (89.5 %), potentially reflecting documented gender differences in technology skepticism and relational orientation. This cluster is oldest (M = 22.11 years), possibly indicating greater exposure to pre-digital therapeutic traditions or more developed professional identities resistant to technological disruption.

The fourth cluster was called

Moderate Adopters (n = 21, 24.4 %). Moderate Adopters occupied the middle ground across most dimensions, with moderate AI attitudes (M = 6.40, SD = 0.19) and balanced MTPS profiles. They showed moderate Potential to Augment scores (M = 3.25, SD = 0.25), above-average Psychoeducational Value (M = 4.01, SD = 0.05), moderate Perceived Risks (M = 2.82, SD = 0.12), and low but variable Perceived Relevance (M = 2.11, SD = 0.15). Technology usage was moderate (Smartphone: M = 3.52, Social Media: M = 3.64), with moderate positive attitudes (M = 3.68, SD = 0.08) and moderate negative attitudes (M = 2.70, SD = 0.08). This cluster demonstrated the least extreme profile, representing centrist positioning on technology attitudes and behaviors.

Moderate Adopters represent individuals still forming attitudes toward professional technology integration. Their moderate scores across dimensions suggest openness to persuasion from either direction — they could evolve toward enthusiastic adoption or cautious skepticism depending on training experiences, mentorship, and exposure to successful (or failed) implementations. The moderate variability in their scores (notably higher SDs than other clusters on several measures) indicates heterogeneity within this cluster — these individuals share moderate positioning but may hold different underlying reasons for their stance. Some may be genuinely ambivalent, weighing pros and cons carefully; others may lack sufficient exposure to form strong opinions; still others may be strategically moderate, awaiting more evidence before committing. Gender distribution shows predominantly female representation (76.2 %) with mean age of 20.90 years, representing typical demographics for psychology training programs.

Conclusions of the research. The findings of this study align with its aim of examining future psychologists' attitudes toward artificial intelligence in professional practice and indicate a generally favorable, yet cautious, orientation toward technological integration. Overall, participants demonstrated high everyday engagement with digital media and predominantly positive views of technology, while maintaining a critical awareness of its potential drawbacks. Attitudes toward AI were moderately positive, and behavioral intention to use AI in future professional work exceeded broader beliefs about AI's general benefit for humanity, suggesting a pragmatic stance: students are ready to apply AI as an instrumental tool, but remain sensitive to wider ethical and societal concerns. Gender differences were observed, with male students reporting more positive attitudes toward AI.

A particularly notable result concerns technology use in psychotherapy. Respondents strongly endorsed technology's psychoeducational value, but rated its relevance to psychotherapy as low, reflecting a "peripheral integration" model in which digital tools are accepted mainly for education, between-session support, and structured assignments rather than as a central component of the therapeutic process. Perceived risks were moderate, indicating balanced concern about issues such as confidentiality, overreliance on algorithms, and potential disruption of the therapeutic alliance.

Cluster analysis further revealed four distinct profiles of technological readiness, ranging from highly enthusiastic adopters to cautious skeptics, with two intermediate groups reflecting pragmatic selectivity and moderate openness. These typologies underscore that readiness for AI integration is not uniform and should be addressed through differentiated educational and methodological support. Taken together, the results suggest that future psychologists in Ukraine are digitally engaged and broadly open to AI-assisted practice, but tend to preserve the primacy of human therapeutic interaction, positioning AI primarily as an adjunct resource. This has important implications for the development of training curricula and professional guidelines that can support

ethically responsible implementation of AI tools in the context of Ukraine's heightened mental health needs during and after the war.

Further research should expand the sample across regions and include practicing psychologists in order to assess professional and generational differences more comprehensively. Longitudinal designs are warranted to examine how attitudes evolve with clinical experience, supervision, and exposure to real-world AI tools. It is also important to identify predictors of readiness and resistance, including digital competence, professional identity, ethical sensitivity, and war-related contextual factors. Finally, applied studies should evaluate targeted training modules and develop context-specific recommendations for safe implementation, clarifying which clinical tasks can be appropriately supported by AI and which should remain exclusively within professional human responsibility.

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