Journal of Statistics Applications & Probability
An International Journal

http://dx.doi.org/10.18576/jsap/160102

From Human Empathy to Digital Empathy: The Role of Ethical Digital Competence in Predicting Artificial Intelligence Readiness Among Psychological Counselors

Saleh Elayan Ahmad Daradkeh[1,*], *Rania Mohammad Mousa Alali*[2], *Anwar Faisal Hawari*[3], *Abeer Mohammad Al-Momani*[4], *Abdallah Yousef Hasan Abu Tarbush*[5], *Khaled Ghazi Tawfiq Albashtawi*[4], *Rawan Abdul Mahdi Al-Saliti*[1], *Burhan Mahmoud Hamadneh*[6], *and Abdelrahim Fathy Ismail*[7,*]

[1] Department of Psychological and Family Counseling, Faculty of Educational Sciences, Ajloun National University, Ajloun, Jordan
[2] Department of Psychological and Family Counseling, Yarmouk University, Irbid, Jordan
[3] Department of Psychological and Educational Counseling, Faculty of Educational Sciences, Yarmouk University, Irbid, Jordan
[4] Department of Counseling and Educational Psychology, Faculty of Educational Sciences, Yarmouk University, Irbid, Jordan
[5] Department of Nursing, University of Jordan Hospital, Amman, Jordan
[6] Department of Special Education, Faculty of Educational Sciences, Ajloun National University, Ajloun, Jordan
[7] Department of Curriculum and Instruction, College of Education, King Faisal University, Al Ahsa, Saudi Arabia

Received: 17 Sep. 2026, Revised: 10 Nov. 2026, Accepted: 19 Nov. 2026
Published online: 1 Jan. 2027

Abstract: Objective: The paper assesses the extent of ethical digital competence, digital empathic ability, and Artificial Intelligence (AI) Readiness among Jordanian psychologists. In addition, it compares results with sociocultural and professional characteristics and analyzes the predictive power of digital ethical competence, digital empathy, and sociocultural characteristics for AIR.
Methodology: This study used a predictive correlational, descriptive approach. Three scales were applied to 252 psychological counselors working across educational counseling and therapeutic institutions in Jordan to examine ethical digital competence, digital empathy, and AI readiness. Validity and reliability results showed the instruments were suitable for achieving the study's intended objectives.
Results: Levels of ethical digital competence, digital empathy, and AI readiness are high. Additionally, notable differences were found in ethical digital competence, digital empathy, and AI readiness by gender, educational qualification, and years of experience. Both digital empathy and ethical digital competence have the largest effects on AI readiness, along with gender, experience, and education level. These variables explained 63.8% of the variance in AI readiness. Thus, the findings suggest that AI readiness in counseling is not just a matter of technical preparedness. In fact, it is a multi-faceted professional, ethical, and human phenomenon—a mix of ethical digital competency, digital empathy, professional experience, and technical expertise.
Conclusion: The research suggests that preparation and training programs for psychological consultants are an essential part of this process, in which knowledge of AI is a component of such programs, along with digital ethical evaluation, the development of empathy in online environments, and the acquisition of certain technological skills. Therefore, AI use is improved, while person-to-person relationships and the counselor's responsibility remain crucial in the profession.

Keywords: Digital Empathy, Ethical Digital Competence, Artificial Intelligence Readiness, Digital Transformation, Psychological Counselors.

1 Introduction

Mental health services are rapidly changing because of a range of new developments in digital health technologies, particularly AI applications. They are also responsible for altering the way psychological counseling is provided. The approach spans various digital settings [25]. As a result, there are numerous applications, including remote psychological

* Corresponding author e-mail: afismail@kfu.edu.s

© 2027 NSP
Natural Sciences Publishing Cor.

counseling, various types of smartphone support, digital therapeutics, VR therapy, and AI tools, which appear to be quite effective in improving accessibility, speed, and quality of psychological assistance [18].

During this ongoing shift in the digital age, AI readiness has emerged as an important requirement for mental health practitioners. It refers to each practitioner's mental, psychological, and professional readiness to properly apply various AI tools and techniques in counseling [11,17]. The concept of AI readiness is not only about being technically savvy about how to use it, but it also emphasizes the ability to practice AI responsibly and wisely, knowing its limits and potential dangers associated with the use of artificial intelligence, so as not to break the client-counselor link and retain confidentiality [2,11].

According to [21], many mental health professionals view AI as predominantly positive in providing possibilities for assessment, diagnosis, counselling efficiency, and appropriate access to services. Nonetheless, concerns continue about data confidentiality, information safety, ethics, and the way in which AI can change the therapist-client relationship. The research also clarifies that, for the ethical use of these technologies, staff's special training is necessary, along with a clear system of moral and legal norms. Similarly, [24]. observe that mental health workers usually accept AI in assessment assistance and care improvement, despite continuous concerns related to data protection, ethics, and professional relationships. As a result, this highlights proper training for healthcare staff and the formulation of clear norms in the region.In the same way, [12]. discover that AI technologies offer significant opportunities for the creation of digital mental health services by enabling diagnostics, customizing treatment practices, and improving accessibility to the services, while posing new professional and ethical issues related to the protection of privacy, security of information, and ensuring the integrity of the counseling process in the digital [22]. The scope of a counselor's competence involves not only traditional skills but also ethical digital competence, showing empathy in online environments, and the ability to use AI tools responsibly and safely [11].Ethical digital competence is a fundamental condition for counselors' work in the digital space, which implies that they must be equipped with the necessary knowledge and competencies ([4,5,6,7,8,9,10,11,12]. Therefore, it must be utilized through technology, but there is also an ethical side, such as ensuring confidentiality and data protection, addressing security issues, and maintaining professional boundaries while working in a digital environment [8]. From this point, this ability is essential to establish trust when AI technology is used and to improve counselors' compliance with professional hygiene regulations. Other implications of digital competence include protecting clients' personal data, ensuring quality of service, and enhancing practitioners' responsible decision-making [31]. Despite the growing use of technology in the mental health field, existing studies are mainly about specialists' attitudes toward these technologies and related issues. In contrast, the professional and human aspects of psychologists' preparedness towards using AI technologies remain largely unknown. Moreover, ethical digital competence and digital empathy are not studied sufficiently in the profession. Therefore, this study aims to bridge this gap by investigating the role of ethical digital competence and digital empathy as predictors of AI preparedness in psychologists.

2 Methodology

2.1 Research Design

This research was conducted utilizing a predictive correlational design to study whether it can predict the ability of counselors to introduce AI in their practices based on the level of empathy (both human and digital) and the level of ethical digital competence. In fact, the study objective is to propose a model explaining the relations between different variables with respect to the whole process of digital transformation in counseling practice. The chosen method is appropriate for studying the relations between variables and measuring the strength of impact of each variable on the dependent variable.

2.2 Participants

The study sample consisted of 252 psychological counselors working in educational and therapeutic settings in Jordan. Participants were employed in public and private schools, universities and colleges, psychological and family counseling centers, and private psychological clinics and centers. Participants were selected using a random sampling technique. Data were collected electronically via Google Forms during 2026. Demographic information, including gender, age, educational qualification, and years of experience, was collected (see Table 1).

© 2027 NSP
Natural Sciences Publishing Cor.

Table 1: Frequencies and Percentages According to Study Variables

Variable	Categories	Frequency	Percentage (%)
Gender	Male	114	45.2
	Female	138	54.8
Years of Experience	Less than 5 years	108	42.9
	5 years or more	144	57.1
Educational Qualification	Bachelor's	164	65.1
	Master's	34	13.5
	Doctorate	54	21.4
	Total	252	100.0

2.3 Instruments

Instrument 1: Ethical Digital Competence Scale for Psychological Counselors

The Ethical Decision-Making Competence Scale (EDM-CS), developed by [20]. was utilized based on Rest's four-component model: moral judgment, moral sensitivity, moral motivation, and moral behavior. Scale development involved a literature review, focus groups, Delphi expert review, and psychometric validation using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The results show a four-component model with 25 items that explain 60.97% of the variance in proper metrics (CFI = .96, RMSEA = .052, SRMR = .045). Cronbach's alpha for the overall measure equals .90, while the reliability of the subscales equals .73 and .82 (Value: r = .47; $p < .001$).

A careful content and linguistic review were applied to preserve scientific meaning and, at the same time, fit into the local culture and organizational specifics to adopt the scale within the Jordanian context and counseling psychology. The initial draft contained 25 items, and after validity and reliability verification, all the items were retained. The response method was a five-point Likert scale ranging from 5=Always to 1=Never so that higher scores correspond to a higher level of competency in ethical decision-making.

2.3.1 Construct Validity: Ethical Digital Competence Scale

The pilot sample of 30 participants was drawn upon to calculate item-total correlations, item-domain correlations, inter-domain correlations, and domain-total correlations to establish construct validity. Item-total correlations ranged from 0.48 to 0.78, while item-domain correlations ranged from 0.39 to 0.96, as depicted in Table 2. All correlations were deemed satisfactory and statistically significant; thus, no items were discarded.

Table 2: Item-Total and Item-Domain Correlation Coefficients for the Ethical Digital Competence Scale

Item	Correlation with Domain	Correlation with Total	Item	Correlation with Domain	Correlation with Total	Item	Correlation with Domain	Correlation with Total
1	0.43*	0.50**	10	0.82**	0.69**	19	0.76**	0.67**
2	0.55**	0.55**	11	0.71**	0.68**	20	0.73**	0.76**
3	0.77**	0.54**	12	0.96**	0.78**	21	0.65**	0.55**
4	0.39*	0.68**	13	0.59**	0.58**	22	0.88**	0.73**
5	0.79**	0.51**	14	0.91**	0.70**	23	0.78**	0.50**
6	0.89**	0.72**	15	0.54**	0.48**	24	0.90**	0.76**
7	0.68**	0.76**	16	0.63**	0.61**	25	0.81**	0.64**
8	0.70**	0.58**	17	0.83**	0.64**			
9	0.77**	0.66**	18	0.87**	0.68**			

–$p < .05$, ** $p < .01$

As Table 3 shows correlations between inter-domains and the total of each domain, the calculated coefficients provide evidence of appropriate construct validity through statistical significance.

© 2027 NSP
Natural Sciences Publishing Cor.

Table 3: Inter-Domain and Domain-Total Correlation Coefficients for the Ethical Digital Competence Scale

Domain	Moral Judgment	Moral Sensitivity	Moral Motivation	Moral Behavior	Total Scale
Moral Judgment	1				
Moral Sensitivity	0.620**	1			
Moral Motivation	0.560**	0.633**	1		
Moral Behavior	0.440*	0.603**	0.815**	1	
Total Scale	0.839**	0.873**	0.846**	0.780**	1

–$p < .05$, ** $p < .01$

2.3.2 Reliability of the Ethical Digital Competence Scale

Reliability was measured using the test-retest method by applying the scale twice, two weeks apart, to 30 participants who were excluded from the main study. Pearson product-moment correlation coefficients between the two applications were calculated. Internal reliability was measured using Cronbach's alpha. The results are depicted in Table 4.

Table 4: Internal Consistency (Cronbach's Alpha) and Test-Retest Reliability Coefficients for the Ethical Digital Competence Scale

Domain	Test-Retest Reliability	Internal Consistency
Moral Judgment	0.86	0.82
Moral Sensitivity	0.85	0.75
Moral Motivation	0.81	0.77
Moral Behavior	0.83	0.80
Total Scale	0.92	0.89

Instrument 2: Digital Empathy Scale for Psychological Counselors (DES-PC)

The Digital Empathy Scale for Psychological Counselors was created on the basis of the Digital Communication Empathy Scale (DCES) by [7]. The scale has proved effective in terms of psychometric properties and preliminary evidence of construct validity. The initial scale consisted of 36 components, but psychological counseling practice items required evaluation and modification so that they fit the relationships in digital communication between a counselor and a client without changing the scientific character.

The modified version was tested for content and construct validity and reliability, which led to discarding certain items according to the criteria used, and so the final scale contained 22 items. The answers were obtained using a five-point Likert scale, ranging from ”Always” (5) to ”Never” (1), the larger the score, the higher the level of digital empathy.

2.3.3 Construct Validity: Digital Empathy Scale

The scale was applied to a pilot group of 30 participants; item-total correlations were between 0.47 and 0.83. Item-domain correlations had values between 0.46 and 0.95. As seen in Table 5, all correlation levels obtained were acceptable and statistically significant; therefore, no items were removed from the study.

Table 5: Item-Total and Item-Domain Correlation Coefficients for the Digital Empathy Scale

Item	Correlation with Domain	Correlation with Total	Item	Correlation with Domain	Correlation with Total	Item	Correlation with Domain	Correlation with Total
1	0.76**	0.56**	9	0.93**	0.77**	17	0.71**	0.47**
2	0.89**	0.49**	10	0.71**	0.52**	18	0.75**	0.63**
3	0.91**	0.56**	11	0.50**	0.64**	19	0.81**	0.60**
4	0.95**	0.51**	12	0.93**	0.83**	20	0.46*	0.67**
5	0.82**	0.64**	13	0.56**	0.49**	21	0.51**	0.77**
6	0.87**	0.68**	14	0.58**	0.51**	22	0.65**	0.52**
7	0.81**	0.75**	15	0.68**	0.64**			

© 2027 NSP
Natural Sciences Publishing Cor.

Table 5: (continued)

Item	Correlation with Domain	Correlation with Total	Item	Correlation with Domain	Correlation with Total	Item	Correlation with Domain	Correlation with Total
8	0.88**	0.67**	16	0.57**	0.67**			

–$p < .05$, ** $p < .01$

Table 6 shows the results of inter-domain and domain-total relationships among the constructs. They are, according to the reported values, good and statistically significant, indicating construct validity of the measures.

Table 6: Inter-Domain and Domain-Total Correlation Coefficients for the Digital Empathy Scale

Domain	Accuracy of Digital Emotion Perception	Digital Emotion Matching	Adoption of Digital Perspective	Digital Empathy	Total Scale
Accuracy of Digital Emotion Perception	1				
Digital Emotion Matching	0.449**	1			
Adoption of Digital Perspective	0.478**	0.499**	1		
Digital Empathy	0.495**	0.754**	0.645**	1	
Total Scale	0.666**	0.866**	0.642**	0.829**	1

–$p < .05$, ** $p < .01$

2.3.4 Reliability of the Digital Empathy Scale

Reliability coefficients are reported in Table 7. The results show that the internal consistency of the Digital Empathy Scale is very good. It varies from 0.70 to 0.84, and test-retest reliability varies from 0.82 to 0.90.

Table 7: Internal Consistency (Cronbach's Alpha) and Test-Retest Reliability Coefficients for the Digital Empathy Scale

Domain	Test-Retest Reliability	Internal Consistency
Accuracy of Digital Emotion Perception	0.85	0.82
Digital Emotion Matching	0.89	0.70
Adoption of Digital Perspective	0.82	0.71
Digital Empathy	0.84	0.80
Total Scale	0.90	0.84

2.3.5 Instrument 3: AI Readiness Scale for Psychological Counselors

The scale known as the AI Readiness Scale was developed by [5].It proved to have good psychometric properties, as measured by Cronbach's alpha above .87. Factor loadings were between .72 and .93, and there were good indices for model fit in CFA. In the process of adapting psychological counseling, it was necessary to reformulate items and, instead of an educational context, there had to be professional situations that reflect the AI's use by counselors.

The first version included 24 items, but subsequent validity and reliability analyses removed items based on specific criteria. According to which, 19 items were retained for the study. Therefore, responses were obtained on a 5-point Likert scale, with 5 meaning "Always" and 1 meaning "Never"; the higher the score, the greater the respondent's AI readiness.

© 2027 NSP
Natural Sciences Publishing Cor.

2.3.6 Construct Validity: AI Readiness Scale

Using a pilot sample of 30 participants, item-total correlations ranged from 0.47 to 0.88, and item-domain correlations from 0.38 to 0.91, as shown in Table 8. All correlations were acceptable and statistically significant; therefore, no items were deleted.

Table 8: Item-Total and Item-Domain Correlation Coefficients for the AI Readiness Scale

Item	Correlation with Domain	Correlation with Total	Item	Correlation with Domain	Correlation with Total	Item	Correlation with Domain	Correlation with Total
1	0.73**	0.55**	8	0.65**	0.54**	15	0.71**	0.55**
2	0.72**	0.67**	9	0.70**	0.68**	16	0.65**	0.57**
3	0.70**	0.51**	10	0.91**	0.88**	17	0.74**	0.61**
4	0.75**	0.53**	11	0.63**	0.75**	18	0.71**	0.51**
5	0.38*	0.49**	12	0.56**	0.51**	19	0.89**	0.85**
6	0.84**	0.70**	13	0.44*	0.47**			
7	0.78**	0.74**	14	0.42*	0.51**			

–$p < .05$, ** $p < .01$

Table 9 presents inter-domain and domain-total correlations, with all coefficients being acceptable and statistically significant, indicating adequate construct validity.

Table 9: Inter-Domain and Domain-Total Correlation Coefficients for the AI readiness Scale

Domain	Technological Self-Efficacy	AI-Supported Counseling Interaction	AI Ethical Awareness	AI readiness
Technological Self-Efficacy	1			
AI-Supported Counseling Interaction	0.672**	1		
AI Ethical Awareness	0.629**	0.596**	1	
AI readiness	0.861**	0.913**	0.820**	1

–$p < .05$, ** $p < .01$

2.3.7 Reliability of the AI Readiness Scale

Reliability coefficients shown in Table 10 suggest high reliability, with internal consistency ranging from 0.72 to 0.86 and test-retest reliability ranging from 0.82 to 0.91.

Table 10: Internal Consistency (Cronbach's Alpha) and Test-Retest Reliability Coefficients for the AI Readiness Scale

Domain	Test-Retest Reliability	Internal Consistency
Technological Self-Efficacy	0.85	0.72
AI-Supported Counseling Interaction	0.89	0.77
AI Ethical Awareness	0.82	0.80
AI readiness	0.91	0.86

3 Results

Research Question 1: To what extent are psychological counselors able to use ethical competence, digital empathy, and AI readiness?

Means and standard deviations of all variables were computed in order to answer this question.

© 2027 NSP
Natural Sciences Publishing Cor.

3.1 Ethical Digital Competence

Table 11 presents the means and standard deviations for ethical digital competence, which was rated highly (M = 4.32, SD = 0.41).

Table 11: Means and Standard Deviations for Ethical Digital Competence Domains

Rank	No.	Domain	Mean	SD	Level
1	4	Moral Behavior	4.65	0.49	High
2	2	Moral Sensitivity	4.45	0.50	High
3	3	Moral Motivation	4.36	0.53	High
4	1	Moral Judgment	4.01	0.61	High
		Total Scale	4.32	0.41	High

3.2 Digital Empathy

According to Table 12, the overall digital empathy level is high (M = 4.07, SD = 0.55), with various domains having means between 3.88 and 4.35.

Table 12: Means and Standard Deviations for Digital Empathy Domains

Rank	No.	Domain	Mean	SD	Level
1	3	Adoption of Digital Perspective	4.35	0.50	High
2	4	Digital Empathy	4.12	0.70	High
3	2	Digital Emotion Matching	3.95	0.92	High
4	1	Accuracy of Digital Emotion Perception	3.88	0.86	High
		Total Scale	4.07	0.55	High

3.3 AI readiness

As shown in Table 13, AI readiness is quite high overall (M = 4.11, SD = 0.43) and ranges from 4.04 to 4.14 by domain.

Table 13: Means and Standard Deviations for AI Readiness Domains

Rank	No.	Domain	Mean	SD	Level
1	2	AI-Supported Counseling Interaction	4.14	0.41	High
2	3	AI Ethical Awareness	4.12	0.79	High
3	1	Technological Self-Efficacy	4.04	0.49	High
		Total Scale	4.11	0.43	High

The second research question: Are ethical digital competence, digital empathy, and AI readiness statistically significantly affected by gender, educational attainment, and years of experience (α = 0.05)?

3.4 Ethical Digital Competence

Table 14 presents means and standard deviations for ethical digital competence across demographic variables.

Table 14: Means and Standard Deviations for Ethical Digital Competence by Demographic Variables

Variable	Category	Mean	SD	N
Gender	Male	4.41	.316	114

© 2027 NSP
Natural Sciences Publishing Cor.

Table 14: (continued)

Variable	Category	Mean	SD	N
	Female	4.25	.462	138
Educational Qualification	Bachelor's	4.32	.458	164
	Master's	4.56	.411	34
	Doctorate	4.18	.304	54
Years of Experience	Less than 5 years	4.32	.478	108
	5 years or more	4.32	.351	144

Analysis of variance (Table 15) revealed statistically significant differences for gender (F = 28.408, p $<$ .001, η^2 = .103), favoring males; educational qualification (F = 13.217, p $<$ .001, η^2 = .097); and years of experience (F = 12.542, p $<$ .001, η^2 = .048), favoring those with 5 or more years. Effect sizes indicated medium effects for gender and educational qualification, and a small effect for years of experience.

Table 15: Analysis of Variance for Ethical Digital Competence

Source	SS	df	MS	F	p	η^2
Gender	4.032	1	4.032	28.408	.000	.103
Educational Qualification	3.752	2	1.876	13.217	.000	.097
Years of Experience	1.780	1	1.780	12.542	.000	.048
Error	35.060	247	.142			
Total	42.066	251				

Post-hoc comparisons using Scheffé's test (Table 16) indicated significant differences between Master's degree holders and both Bachelor's and Doctorate holders, favoring Master's degree holders.

Table 16: Scheffé Post-Hoc Comparisons for Ethical Digital Competence by Educational Qualification

Qualification	Mean	Bachelor's	Master's	Doctorate
Bachelor's	4.32			
Master's	4.56	-.24*		
Doctorate	4.18	.13	.38*	

–$p < .05$

3.5 Digital Empathy

Table 17 presents means and standard deviations for digital empathy across demographic variables.

Table 17: Means and Standard Deviations for Digital Empathy by Demographic Variables

Variable	Category	Mean	SD	N
Gender	Male	4.26	.599	114
	Female	3.91	.456	138
Educational Qualification	Bachelor's	3.86	.531	164
	Master's	4.18	.417	34
	Doctorate	4.62	.368	54
Years of Experience	Less than 5 years	4.05	.455	108
	5 years or more	4.09	.618	144

Analysis of variance (Table 18) revealed statistically significant differences for gender (F = 9.530, p = .002, η^2 = .037), favoring males; educational qualification (F = 43.558, p $<$ .001, η^2 = .261); and years of experience (F = 36.897, p $<$ .001, η^2 = .130), favoring those with 5 or more years. Effect sizes indicated a large effect for educational qualification, a medium effect for years of experience, and a small effect for gender.

© 2027 NSP
Natural Sciences Publishing Cor.

Table 18: Analysis of Variance for Digital Empathy

Source	SS	df	MS	F	p	η^2
Gender	1.779	1	1.779	9.530	.002	.037
Educational Qualification	16.265	2	8.132	43.558	.000	.261
Years of Experience	6.889	1	6.889	36.897	.000	.130
Error	46.115	247	.187			
Total	76.840	251				

Post-hoc comparisons (Table 19) indicated significant differences between Bachelor's and both Master's and Doctorate holders, favoring Master's and Doctorate holders. Significant differences were also found between Master's and Doctorate, favoring Doctorate.

Table 19: Scheffé Post-Hoc Comparisons for Digital Empathy by Educational Qualification

Qualification	Mean	Bachelor's	Master's	Doctorate
Bachelor's	3.86			
Master's	4.18	-.32*		
Doctorate	4.62	-.76*	-.44*	

–$p < .05$

3.6 AI readiness

Table 20 presents means and standard deviations for AI readiness across demographic variables.

Table 20: Means and Standard Deviations for AI readiness by Demographic Variables

Variable	Category	Mean	SD	N
Gender	Male	4.32	.283	114
	Female	3.93	.454	138
Educational Qualification	Bachelor's	4.02	.488	164
	Master's	4.26	.277	34
	Doctorate	4.27	.282	54
Years of Experience	Less than 5 years	4.11	.418	108
	5 years or more	4.12	.441	144

According to an analysis of variance (see Table 21), there were significant findings concerning gender (F = 148.188, $p < .001$, $\eta^2 = .375$) in favor of males, and years of experience (F = 105.087, $p < .001$, $\eta^2 = 0.298$) in favor of those with more than 5 years of experience. However, no significant difference was found in education (F = 0.583, p = 0.559, $\eta^2 = 0.005$).

Table 21: Analysis of Variance for AI readiness

Source	SS	df	MS	F	p	η^2
Gender	15.625	1	15.625	148.188	.000	.375
Educational Qualification	.123	2	.061	0.583	.559	.005
Years of Experience	11.081	1	11.081	105.087	.000	.298
Error	26.044	247	.105			
Total	46.528	251				

Research Question 3: What is the contribution of ethical competence, digital empathy, and demographic variables (i.e., gender, education level, years of experience) in predicting AI readiness?

Multiple regression analysis was conducted using the stepwise method to investigate the contribution of ethical competence, digital empathy, and demographic variables to AI readiness.

© 2027 NSP
Natural Sciences Publishing Cor.

Table 22: Stepwise Multiple Regression Analysis for AI readiness

Predictor Variable	R	R^2	ΔR^2	B	F	t	p
Digital Empathy Scale	.606	.367	.367	.405	144.883	10.233	.000
Ethical Digital Competence Scale	.674	.454	.087	.139	103.360	3.097	.000
Gender	.710	.504	.050	-.679	84.021	-11.172	.000
Years of Experience	.776	.602	.098	.396	93.510	7.418	.000
Educational Qualification	.799	.638	.036	.160	86.835	4.952	.000

3.7 Dependent Variable: AI Readiness Scale

According to Table 22, the five predictors taken together accounted for 63.8% of the variance in AI readiness. The strongest predictor is digital empathy, which is responsible for 36.7% of the total variance on its own, followed by ethical digital ability (8.7%), experience (9.8%), gender (5.0%), and education (3.6%). All contributed variance significantly differed as well ($\alpha = .05$).

The regression coefficients revealed that people with higher empathy (B = .415) and higher ethical digital competency would be associated with AI readiness. A negative coefficient for gender (B = -.678; with gender coded as male=1, female=2) shows that men exhibit a larger level of AI readiness than women. The positive values for experience (B = .388; with experience being coded as less than 5 years=1, and 5 years or more=2) and education level (B = .159; with the education level being coded as Bachelor's=1, Master's=2, and Ph.D.=3) indicate that those who have a higher level of experience and education are more ready for AI. All values were significant at ($\alpha = .05$).

3.8 Appendix Tables

Table 23: Item-Level Means and Standard Deviations for Ethical Digital Competence Scale

Item	Mean	SD	Item	Mean	SD	Item	Mean	SD	Item	Mean	SD	Item	Mean	SD
1	4.23	0.72	6	4.07	1.08	11	4.35	0.86	16	4.62	0.67	21	4.31	0.71
2	4.11	0.64	7	4.06	0.66	12	4.47	0.70	17	4.65	0.77	22	4.81	0.50
3	3.87	1.04	8	3.98	0.98	13	4.27	0.68	18	4.39	0.86	23	4.50	0.75
4	3.88	0.91	9	4.28	0.78	14	4.54	0.59	19	4.26	0.74	24	4.70	0.63
5	3.83	1.25	10	4.45	0.61	15	4.61	0.73	20	4.20	0.55	25	4.60	0.58

Table 24: Item-Level Means and Standard Deviations for Digital Empathy Scale

Item	Mean	SD	Item	Mean	SD	Item	Mean	SD	Item	Mean	SD	Item	Mean	SD
1	4.29	0.77	6	3.67	1.37	11	4.27	0.61	16	4.30	0.84	21	4.38	0.84
2	3.61	0.94	7	3.47	1.41	12	3.90	1.18	17	4.46	0.65	22	3.68	1.55
3	3.61	1.19	8	4.25	1.16	13	4.50	0.63	18	4.23	1.15			
4	3.91	0.97	9	3.94	1.27	14	4.13	1.13	19	3.96	1.41			
5	4.17	0.97	10	3.88	1.10	15	4.47	0.72	20	4.44	0.81			

Table 25: Item-Level Means and Standard Deviations for AI Readiness Scale

Item	Mean	SD	Item	Mean	SD	Item	Mean	SD	Item	Mean	SD
1	4.25	0.95	6	3.81	0.59	11	3.93	0.63	16	4.52	0.67
2	3.89	0.94	7	3.96	0.57	12	3.89	0.85	17	4.50	0.87
3	3.87	0.69	8	3.94	0.79	13	4.10	0.61	18	3.79	1.44
4	4.22	0.79	9	4.01	0.87	14	4.54	0.61	19	4.06	0.71
5	4.23	0.54	10	3.89	0.58	15	4.63	0.62			

© 2027 NSP
Natural Sciences Publishing Cor.

4 Discussion

4.1 Discussion of Research Question 1

The outcomes indicated fairly high levels of ethical digital competence, digital empathy, and AI readiness amongst the counselors regarding the psychological area. In ethical digital competence, moral behavior came first (4.65). Moral judgment was lower (4.01), but still high. This result can be understood as counselors are committed to their professional integrity rather than the actual analysis of ethical dilemmas they face in real life. This perspective aligns with the latest discussions on mental disorder treatment and the challenges related to the use of AI technologies, which cause issues with privacy, accountability, transparency, and bias, and thus necessitates advancing ethical judgment abilities for professionals.The rate of digital empathy was recorded as significant (4.07). The index of using the digital perspective was estimated to be the highest (4.35); however, the assessment of the accuracy of the person's perception of digital emotions was the lowest (3.88). This difference can suggest that cognitive empathy processes are easier to use than to interpret emotions in a digital environment, especially because such non-verbal signs can be missing or reduced. This is aligned with [23], who pointed out the significance of empathic accuracy and the therapeutic alliance in the channeled help-rendering process, and is in line with the opinion of [30], who claim that even though there are a lot of issues in measuring empathy and the quality of the therapeutic process in a digital environment, therapeutic alliances can still emerge in the process of digital therapy.In terms of AI preparedness, overall stats were high, indicating that AI-enabled counseling interaction came out first (4.14), followed by AI ethical awareness (4.12), and then technological self-efficacy (4.04), to a lesser degree. Therefore, it seems that preparedness is not limited to being able to technically accept AI but implies the readiness to put this technology to use and to take into account the ethical aspects of AI at the same time. One may conclude that this finding aligns with the work of [23]; on the one hand, they point to the promising options that AI-generated answers may provide in terms of empathy and intervention strategies. On the other hand, they emphasize that it is necessary to involve human practitioners.

These results show that ethical digital competence forms the foundation of the profession, digital empathy contributes the human element, and AI readiness represents the more technical or technological aspect of contemporary counseling practice. At the same time, the results indicate that there may be quite good readiness for change but suggest more coaching and improved training in digital ethical decision-making, emotion reading skills, and technological self-efficacy. In this way, responsible AI use can be ensured without forgetting human behavior and relationships in psychological work.

4.2 Discussion of Research Question 2

The results indicate disparities in ethical digital competence, digital empathy, and AI readiness due to demographics and participants' professional background. They imply that the factors that impact formatting professionals' digital competence do not act the same way across all groups. For instance, ethical digital competence appears tightly bound to academic qualifications and work experience; digital empathy seems more dependent on educational background and training; and AI readiness is connected to practice and experience. In light of these results, counselor education programs should not only focus on increasing academic qualifications but also provide ongoing training in ethical situations, give opportunities to develop empathy skills in the digital environment, and provide practical experience using AI in ethics. Hence, in this way, there may be a transition from a general digital competency model to a more comprehensive model that includes not only ethical digital competence and digital empathy but also AI competence. When assessed according to ethical digital competence, males, master's degree holders, and participants with significant experience scored higher. The influence of educational qualification and experience proves that ethical digital competence is not simply known. Ethical digital competence implies the ability to analyze ethical problems and apply ethical principles in real-life situations, not only theoretically. [29] confirms this approach by demonstrating that learning based on ethical dilemmas and analysis of professional cases contributes to stronger ethical knowledge. [28] pointed out that ethical decisions by counselors are affected by various factors, including personal experiences, communication with other counselors, working together with colleagues, and making referrals, supporting the idea that experienced counselors can show a higher level of ethical competence in the digital domain. On the other hand, professional experience can be seen as a source of practical ethical cases that form ethical sensitivity and practical decision-making skills. As for gender differences, it is important to be very careful in interpreting the observed differences. Gender cannot be treated as a primary cause of the observed differences. Gender may show changes in the experience level in training conditions and the peculiarities of counseling practice; hence, these patterns should be verified. Further studies are needed to clarify these points, especially with the help of more diverse samples and longitudinal studies.

The most significant predictor of digital empathy is educational background. It had a very high effect size ($\eta^2 = .261$), with educational level progressively increasing from a bachelor's to a doctorate. This result can be justified by the fact

© 2027 NSP
Natural Sciences Publishing Cor.

that higher education provides better training (i.e., skills, experience, and knowledge) in handling difficult situations and developing skills of perspective-taking and emotion recognition in business communication. Recent research indicates that empathy in counseling can be developed through training. In particular, [16]. showed that training enhanced empathy among inexperienced counselors due to a program enhanced by artificial intelligence and natural language processing. [26] showed that structured e-training can help develop empathy among trainees taking the counseling course. This result is meaningful when thinking of digital empathy [14]. state that online counseling concerns the issue of empathy in terms of cognition, emotions, and relationships but, at the same time, faces a lack of some non-verbal signals and digital distance as well. Higher digital empathy among those with higher education is explained not by the real significance of their degrees but mainly by cumulative training experience and the ability to encounter more complicated counseling cases, including e-communication situations.

Regarding readiness for AI, the findings revealed quite a contradiction of sorts, except for the fact that there were huge differences with respect to gender and number of years of work experience; education had an influencing role. The effect sizes were considerably larger for gender and experience, while they were practically negligible for education. Therefore, practical experience and exposure to technology explain readiness for AI more than formal educational attainment. In the context of Jordan, [27] provided clear evidence for this assumption, with a positive relationship between professional identity and AI readiness among medical professionals proving to be a factor with respect to some differences identified. [13]. also found that exposure to AI before the study, either through education or experience, seems to be associated with AI readiness among Jordanian medical students. However, the inconsistency arises from the fact that in [13] study, gender influence was not found; however, in this study, the gender differences turned out to be significant. The explanation can lie in the fact that our study focuses on professionals, while [13] study is about students. Thus, it seems that professional aspects come into play when one actually works in one's profession. Recently, some studies suggested similar conclusions. For example, [9].showed that prior training in AI technology and computer literacy are the dominant predictors of a person's readiness for the use of AI technologies, while AI anxiety may act as a real barrier. A study conducted by [10].also demonstrated that AI readiness is multifaceted. This means that a person's knowledge, skills, attitudes, and ethical aspects are to be considered in what concerns AI readiness. Thus, the results of this survey on education level seem reasonable, as having an advanced degree does not automatically guarantee that one is experienced in AI technologies and uses them in practice.

4.3 Discussion of Research Question 3

The findings suggest that digital empathy, ethical digital skills, gender, years of experience, and educational level together predicted AI readiness in psychological counselors, accounting for 63.8% variance in the outcome. This result suggests that AI readiness is not solely about technical capacity but goes beyond that into factors that concern human aspects, moral dimensions, and professional roles, which corresponds to the modern opinion about the process of using AI in mental health treatment. According to [3].ethical knowledge is not the only factor contributing to the fact that the specialists working in the field of mental health are inclined to use AI. At the same time, [31] pointed out that the key foundations of responsible AI use are based on ethical practice, practitioners' competence, supervision arrangements, and clients' welfare. The most important factor was digital empathy, which explained 36.7% of the total variance independently, indicating that AI is not simply a useful technology due to its technical characteristics. Rather, it shows that counselors need to gain skills to recognize others' needs and emotions in a digital environment without losing the essence of the counselor-client relationship. This point is consistent with the ideas of [14,15]. According to them, empathy and therapeutic alliance were discussed, and human relationships matter even if AI is involved in psychotherapy. Nevertheless, very few studies directly identify the relationship between digital empathy and AI readiness. However, although the findings are not entirely direct, they still represent an important empirical insight from the study.

The second factor the study identified is ethical digital competency, accounting for an additional 8.7% of the explained variance. This finding indicates that being ready does not only mean having the technology but also possessing knowledge in privacy and confidentiality, being able to obtain informed consent, and watching for algorithmic biases and reliability of the outputs. This result matches [3]. findings and underlines the importance of ethical competence and professional accountability for AI acceptance in mental health, confirmed by [31]. Additionally, the data from the APA also confirm the finding; they show more and more psychologists being concerned about data privacy, bias, and correctness of AI outputs, thus highlighting the ethical dimension as a fundamental part of readiness[1,2]. Three distinct demographic variables (gender, years of experience, and educational level) also provide insights into employees' readiness towards new technology, but the implications can be interpreted with some reservations. In other words, these results may suggest that demographic and professional factors influence people's exposure to technology and digital tools; however, it is worth noting that this correlation cannot be considered a direct relationship. At the same time, more research should also be conducted regarding the relationship between years of working experience and readiness because some research shows

© 2027 NSP
Natural Sciences Publishing Cor.

that the amount of AI use tends to be higher among certain groups of employees with only limited years of experience [19]. Moreover, results on gender also point out that other factors, such as experience with digital tools or training opportunities, could mediate this relationship. In general, the obtained results tend to support the idea of treating the notion of AI readiness in multidimensional terms, which means treating it as a professional ethical phenomenon related to a person rather than just technical skills. Moreover, the fact that digital empathy, as a component of ethical digital competence, is responsible for most of the variance proves that when training psychological counselors for the age of AI, it is possible to combine AI literacy with ethics and digital empathy training and the development of professional judgment. The research indicates that psychological counselors should be provided with training that includes all the elements of AI literacy (understanding the capabilities and limitations of AI), ethical digital competency (being aware of the ethical considerations while performing digital practices), digital empathy (being able to feel for others in a virtual environment), and professional judgment (having an educated opinion and instinct on how to handle a professional situation involving AI) in one integrated form of preparation.

5 Conclusion

The results reveal that digital professional competence appears multidimensional. It combines ethical digital competence, digital empathy, and readiness to use AI technology. Although all three variables are high, predictive analysis indicated that digital empathy combined with ethical digital competence are the most significant predictors of readiness. Gender, experience, and educational background played an important role, and all contributed to the variance in readiness by 63.8%. This suggests that AI readiness is not purely technical but also includes ethical understanding, skills in managing online communication with people, and work experience. Thus, the authors recommend that psychologist counselors are prepared for AI use in the workplace through training that integrates various elements such as AI literacy, ethical digital competence, digital empathy, and professional judgment.

Limitations

The findings are tremendously useful; however, they have limitations worth mentioning. The research followed a cross-sectional descriptive predictive correlational design, limiting its ability to assess causality. Accordingly, the predictive relationships identified should be interpreted as statistical associations rather than evidence of causation. Data collection relied on electronic self-report questionnaires, so the results may be vulnerable to response and social desirability bias. These self-report measures may also be subject to inaccuracies in participants' self-assessments. The sample comprised only 252 psychologists working in Jordan, which limited its applicability to cultural and professional practices. In addition, the novelty of certain concepts, such as digital empathy and AI readiness, implies that additional testing for larger samples and factorial and longitudinal studies is needed. Additionally, it can be noted that the studied aspects were almost never addressed in related literature, such as previous training related to AI, the extent to which AI was actually used, and AI literacy of the participants. Therefore, future research should involve more diverse respondents and be conducted within a longitudinal framework, at the same time applying a cross-cultural approach and developing measurable markers for AI use to make the results more reliable.

Ethical Considerations

After clarifying the study objectives, the instruments were provided electronically to the psychological counselors. We ensured they provided informed consent prior to participation. Participation was completely voluntary, and participants were informed of the right to refuse to answer at the outset of their involvement. Confidentiality was also assured; no identification of the participants was released, and the data were used for scientific purposes only. In addition, the data are presented in aggregate to ensure that the participants are not identifiable. Moreover, the necessary steps were taken to ensure that the electronic data do not fall into unauthorized hands. The study complied with ethical standards set by the Research Ethics Committee.

Acknowledgments: This work was supported by the Deanship of Scientific Research, Vice Presidency for Graduate Studies and Scientific Research, King Faisal University, Saudi Arabia (Proposal Number: KFU264965).

Conflicts of Interest Statement

The authors certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment,

© 2027 NSP
Natural Sciences Publishing Cor.

consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

References

[1] American Psychological Association. (2023). APA guidelines for the use of technology in psychological practice. APA. https://www.apa.org/pubs/reports/practitioner/2025

[2] American Psychological Association. (2025). Psychologists' perspectives on artificial intelligence in practice. APA.

[3] Cecil, J., et al. (2025). Ethical knowledge and AI adoption intentions among mental health practitioners. Journal of Mental Health Technology. https://doi.org/10.1186/s12913-025-12715-8

[4] Čekić, A. (2025). Digital empathy as an extension of human empathy in digital environments. Digital Psychology Review. https://doi.org/10.47604/ijp.3320

[5] Chiu, T. K. F., et al. (2025). Teacher AI competence self-efficacy scale: Development and validation. Educational Technology Research and Development. https://doi.org/10.1007/s10639-024-13094-z

[6] Chung, S., et al. (2024). Digital and ethical competencies in non-face-to-face counseling. Counseling Psychology Quarterly.

[7] Collins, R., et al. (2024). Digital communication empathy scale: Preliminary validation. Journal of Technology in Counseling.

[8] Collins, R., et al. (2026). Ethical dimensions of digital competence in mental health. Professional Psychology: Research and Practice.

[9] El Arab, R., et al. (2025). Factors influencing AI readiness and adoption in healthcare. Journal of Healthcare Informatics. https://doi.org/10.3389/fdgth.2025.1666005

[10] El-Banna, M., et al. (2025). AI readiness as a multidimensional construct in healthcare. BMC Medical Informatics and Decision Making. https://doi.org/10.3389/fmed.2025.1681784

[11] Gazquez-Garcia, L., et al. (2025). Artificial intelligence readiness in mental health practice. Frontiers in Digital Health. https://doi.org/10.2196/58161

[12] Gutierrez, M., et al. (2024). AI technologies in digital mental health services. Annual Review of Clinical Psychology. https://doi.org/10.3389/fpsyt.2024.1356773

[13] Hamad, S., et al. (2024). AI readiness among Jordanian medical students. Medical Education Online. https://doi.org/10.1177/23821205241281648

[14] Hudon, A., et al. (2025). Empathy and therapeutic alliance in AI-supported psychological care. Psychotherapy Research.

[15] Joy, P., et al. (2026). Human relationships in AI-supported care. Clinical Psychology Review. https://doi.org/10.1016/j.ajp.2025.104816

[16] Luo, X., et al. (2025). Machine learning and natural language processing for empathy training in counseling. Journal of Counseling Psychology.

[17] Luxton, D. D. (2024). Artificial intelligence in behavioral and mental health care. Academic Press.

[18] McDonald, M., & Schweinsberg, A. (2025). Digital mental health applications. Journal of Medical Internet Research. https://doi.org/10.3389/fcomp.2025.1524024

[19] Page, J., et al. (2025). AI use among early-career mental health professionals. Professional Psychology. https://www.apa.org/monitor/2025/11-12/ai-use-early-career-psychologists

[20] Pai, M., & Hwu, Y. (2025). Ethical decision-making competence scale for mental health professionals. Journal of Professional Psychology. https://doi.org/10.1177/09697330241235300

[21] Pazer, H. (2024). Mental health professionals' perspectives on AI. Journal of Behavioral Health. https://doi.org/10.30880/jts.2024.16.02.007

[22] Pulat, L., & Barutçu-Yıldırım, A. (2021). Challenges in digital counseling. Turkish Journal of Psychology. https://izlik.org/JA64ZW74YG

[23] Reese, R., et al. (2016). Empathic accuracy and therapeutic alliance in technology-mediated therapy. Journal of Counseling Psychology.

[24] Rogan, S., et al. (2024). Mental health workers' acceptance of AI in psychological services. Journal of Mental Health.

[25] Sheperis, D., et al. (2025). Digital transformation of mental health services. Journal of Counseling and Development. https://doi.org/10.70013/s5xqzgg6

[26] Stokesberry, J. (2026). Structured e-training for empathy development in counseling. Counselor Education and Supervision. https://doi.org/10.1080/21501378.2026.2654385

[27] Ta'an, A., et al. (2025). Professional identity and AI readiness among Jordanian health professionals. Journal of Health Professions. https://doi.org/10.1371/journal.pone.0322794

[28] Tsega, K. (2024). Ethical decision-making resources among counselors. Journal of Counseling Ethics. https://doi.org/10.1002/pits.23265

[29] Uçar, H. (2025). Dilemma-based learning and professional ethical competence. Journal of Professional Ethics. https://doi.org/10.1080/03069885.2025.2518483

[30] van Lotringen, C., et al. (2021). Therapeutic alliance in digital psychotherapy. Journal of Medical Internet Research. https://doi.org/10.3389/fdgth.2021.689750

© 2027 NSP
Natural Sciences Publishing Cor.

[31] Xiong, M., et al. (2026). Ethical practice and practitioner competence in AI use. Journal of Clinical Psychology. https://doi.org/10.1002/jcad.70044

[32] Yonatan-Leus, N., & Brukner, T. (2025). AI-generated responses in counseling: Promises and limitations. Journal of Clinical Psychology. https://doi.org/10.1002/capr.12832

© 2027 NSP
Natural Sciences Publishing Cor.