

Dataset of survey responses on Artificial Intelligence adoption in the healthcare sector of Bangladesh: Stakeholder perspectives from patients, providers, and administrators

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Short Report

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Abstract

Objective

The objective of this study was to explore the perceptions, awareness, and readiness of various healthcare stakeholders in Bangladesh regarding the adoption of Artificial Intelligence (AI) in healthcare. Specifically, the study aimed to examine the factors influencing AI adoption and to provide evidence that can support policy formulation and the effective implementation of AI-driven healthcare services in Bangladesh.

Result

The study found that stakeholders in Bangladesh's healthcare sector generally exhibit moderate to positive perceptions and readiness toward the adoption of Artificial Intelligence (AI). The findings indicate that factors such as technological awareness, personal innovativeness, and social media influence are positively associated with AI readiness and adoption. Moreover, the dataset demonstrated satisfactory reliability and validity, suggesting that respondents are receptive to AI-driven healthcare services and highlighting the potential for expanding AI applications in Bangladesh's healthcare system.

INTRODUCTION

Bangladesh's healthcare sector is currently at a critical juncture where artificial intelligence (AI) presents both significant opportunities and complex challenges. As a rapidly developing nation in South Asia, Bangladesh has increasingly recognized the role of AI in accelerating national development and digital transformation[1] [3]. Within the healthcare sector, AI offers transformative potential by addressing persistent challenges such as bureaucratic inefficiencies, limited resources, and unequal access to healthcare services [2]. This transformation is closely aligned with the country's broader Digital Bangladesh initiative, which has established a strong technological foundation for integrating AI into public service delivery. Despite this potential, existing research reveals substantial gaps in awareness and understanding of AI among healthcare professionals. A survey conducted among 399 respondents, including healthcare professionals and general citizens, found significant variation in AI awareness across demographic groups [1]. Similarly, only 39.26% of healthcare workers demonstrated adequate knowledge of AI, while 60.74% exhibited limited understanding. This knowledge gap is particularly pronounced among older professionals and those with limited exposure to digital technologies, highlighting the urgent need for targeted educational interventions to enhance AI literacy [4]

Despite limited knowledge, healthcare professionals in Bangladesh generally exhibit positive attitudes toward AI adoption. Approximately 73.06% of respondents hold favourable perceptions of AI integration, with more than half recognizing its potential to improve healthcare services[4]. However, these positive attitudes are accompanied by concerns regarding job displacement, data privacy, and algorithmic bias. Nearly 46.40% of healthcare workers expressed apprehension about the potential loss of employment due to automation, emphasizing the need for ethical and balanced AI implementation strategies [4].

Several key factors influence AI adoption in Bangladesh's healthcare sector. Social media exposure and technological awareness significantly enhance readiness for AI adoption[3]. Demographic characteristics, particularly age, also play an important role, with younger professionals demonstrating higher levels of

familiarity and acceptance [4]. Furthermore, educational background, professional roles (such as physicians and nurses), and exposure to AI through training, research, or conferences significantly improve adoption readiness [5].

Despite these enabling factors, multiple barriers hinder the widespread implementation of AI in healthcare. Infrastructure limitations remain a primary challenge, particularly in rural areas where internet connectivity and technological resources are insufficient [2]. Additionally, the lack of comprehensive legal and regulatory frameworks for data governance raises serious concerns about privacy and security[2]. The shortage of skilled AI professionals further constrains effective implementation, creating a significant capacity gap in the healthcare system.

Notwithstanding these challenges, Bangladesh has made notable progress in implementing AI-driven healthcare initiatives. AI-enabled platforms have provided services to over 600,000 pregnant women, while telehealth systems have reached more than 40 million individuals through integrated health and disaster-response services [2]. A scoping review identified 77 studies on AI applications in Bangladesh, with a significant proportion focusing on machine learning techniques, indicating growing research activity and technological advancement in the sector [6].

A broader review of global literature (2019–2025) highlights five major applications of AI in healthcare [7]. First, in medical imaging and diagnostics, AI algorithms analyze X-rays, MRIs, and CT scans with high accuracy, enabling early disease detection. Second, AI significantly contributes to drug discovery and development by accelerating compound identification and predicting drug efficacy, thereby reducing time and cost [8] Third, clinical decision support systems use predictive analytics to assist healthcare professionals in diagnosis and treatment planning [9], [10] Fourth, AI-integrated robotic systems enhance surgical precision and safety. Fifth, patient monitoring has been transformed through wearable devices and IoT technologies that enable real-time health tracking[11][12].

The literature further highlights substantial benefits of AI, including improvements in accuracy, efficiency, and cost-effectiveness [10], [13]. It is estimated that AI could impact approximately 15–20% of the global healthcare market[14]. However, several challenges persist, including data privacy concerns, regulatory issues, high implementation costs, ethical limitations, and integration difficulties with existing systems [15], [9]. Future research directions emphasize precision medicine, AI-powered virtual assistants, telemedicine expansion, and enhanced clinical decision support systems[16].

The successful integration of AI in Bangladesh's healthcare system depends on addressing existing structural and institutional challenges. Policymakers should develop robust regulatory frameworks to ensure data privacy and ethical AI use while promoting educational programs to enhance AI literacy among healthcare professionals and the general population [3]. Moreover, investment in infrastructure, capacity-building initiatives, and public-private partnerships will be essential to ensure inclusive and sustainable AI adoption. By systematically addressing these challenges, Bangladesh can effectively leverage AI to improve healthcare accessibility, efficiency, and overall service delivery.

DATA DESCRIPTION

The dataset linked to this document is accessible through Mendeley Data Repository [17]. The dataset is collected using an online survey across Bangladesh.

Dataset file – There are two csv files namely *Artificial Intelligence on Health Care (Original).csv* and *Artificial Intelligence on Health Care (Responses).csv* where the first one is the responses without any preprocessing whereas the latter one is the processed version of the data for analysis of the measurement model.

A structured questionnaire is constructed based on the existing research and tailored to the context of AI in healthcare. The questionnaire consists of three main parts. Firstly, it included demographic information such as gender, education level and categories of respondents. These characteristics are employed to comprehend participant's background and to examine the responses of various groups to AI in healthcare.

In the latter two parts, it focused on measuring the key constructs regarding how individuals perceive readiness for AI adoption. A five-point Likert scale, ranging from strong disagreement to strong agreement (1–5) of awareness is used to record responses to the various items utilized to test each construct and each one has three questions to collect response from the participants.

Likert-scale items responses (1–5) for 7 constructs: Perceived Susceptibility (PS1-PS3), Technological Awareness (TA1-TA3), Perceived Risk (PR1-PR3), Personal Innovativeness (PI1-PI3), Social Media Influence (SMI1-SMI3), Readiness of AI (RAI1-RAI-3) and Adaptation of AI (AAI1-AAI3).

Questionnaire reference file (*Questionnaire of AI on Healthcare Seeking Behaviour in BD.pdf*): The entire list of all the questionnaire items used in the study is contained in this file. The corresponding psychological as well as behavioural construct is used to organize the items. Along with additional questions that can be exploited to confirm item content, construct framework and scale format., the file also contains demographic questions.

EXPERIMENTAL DESIGN, MATERIALS AND METHODS

Research Design

The survey questionnaire used in this study was developed by the author specifically for the present research. An English-language version of the questionnaire is provided as Supplementary Material In this study, we have followed a quantitative research approach to explore how Artificial Intelligence (AI) is influencing the health-seeking behaviour in Bangladesh. To do this, a structured survey method has been selected to gather information from different groups of people who are directly or indirectly involved with the healthcare service. The purpose of using this approach is to collect measurable amount of data for statistical analysis to gain insight of the patterns, relations and overall trends regarding awareness, perception and readiness of AI in healthcare.

The work is articulated in such a way that it can capture both the readiness of individuals to accept AI based healthcare services and their intention to adopt such technologies in the future.

Participants and Data Collection Procedures

The survey data are collected using a standardized survey questionnaire distributed among different groups of people across Bangladesh. The participants were doctors, nurses, patients, technical assistants and

management bodies of healthcare system. This diversification ensures that we get the actual reflection of different perspectives who are involved in the healthcare ecosystem. We obtained a total of 515 valid responses without any missing values. These data were collected between January 2024 and April 2026 through online survey distribution using Google Forms and social media platforms.

The data are collected from the respondents willingly and it has been carried out for a specific period of time. After the completion of data collection, it was thoroughly examined and performed data cleaning procedures to get rid of the inconsistencies such as multiple answers from a single choice area. In order to assure the quality and reliability of the dataset necessary data preprocessing were performed.

Result Analysis

The work addressed several latent variables, each of which is measured by multiple observed indicators. The constructs under the Readiness of AI includes perceived susceptibility, technological awareness, perceived risk, personal innovativeness and social media influence. However, adaptation of AI is measured through readiness and actual intention to use AI-based healthcare services. Each construct is represented by three items making the measurement approach balanced and consistent. Usage of multiple indicators help to capture the underlying concept more accurately and thus reduces measurement error.

The demographic profile of the respondents provides a clear sense of the diversity and representation of the sample. A total of 515 responses were examined, as indicated in Table 1. In terms of gender distribution, 36.70% participants are female and 63.30% of the respondents are male. It indicates a moderate gender imbalance, although both groups are adequately represented to reflect significant findings.

Table 1
Demographic Characteristics of the respondents

Characteristics of the respondents	Category	Frequency	Percentage
Gender	Male	326	63.30
	Female	189	36.70
Education Level	Honor's/BBA/BSC	241	46.80
	Master's/MA/MSC	172	33.40
	Others	55	10.68
	HSC	43	8.35
	SSC	4	0.78
Categories of Respondents	Patient	199	38.64
	Management Body	141	27.38
	Technical Assistant	108	20.97
	Doctor	40	7.77
	Nurse	27	5.24

This table also shows that the majority of respondents have higher level of educational backgrounds. Nearly half of the participants (46.80%) completed Honor's/BBA/BSC, followed by 33.40% holding Master's degrees. SSC, HSC and other categories accounts for a lower percentage. This implies that the study mostly represents the viewpoints of educated people, which is crucial when assessing awareness and perception of cutting-edge technologies like artificial intelligence. Patients form the largest group (38.64%) in terms of professional categories, subsequent to members of management bodies (27.38%) and technical assistant (20.97%). Nurses and physicians construct smaller percentages of the sample. This distribution ensures that both service providers and service recipients are included, giving us a thorough understanding of AI adoption in healthcare ecosystem. Figures 1 and 2 provides clearer picture of education level and professional categories of the respondents.

Table 2 presents the descriptive statistics of the dataset which provide an overview of each construct's central tendency and response distribution. The mean values of most items fall between 2.90 and 3.34, suggesting that respondent's opinions of AI in healthcare usually moderate or slightly positive. There are no extreme values for any of the constructs, indicating that opinions are not very polarized but rather fairly balanced. The standard deviation values which range from 1.21 to 1.36 show that the responses are reasonably distributed. This illustrates participant opinion variation which happens to be expected involving behavioural intention and perception. Although all skewness values are within the allowed range (-1 to + 1) supporting close normality. Skewness values are slightly negative that suggests a trend toward higher scale response. Additionally, kurtosis values are negative, indicating a distribution that are flatter. All things considered, these findings satisfy that the data meets the requirements for further analysis.

Table 2

Mean, Standard Deviation, Skewness, Std. error Skewness, Kurtosis, Std. error Kurtosis of the constructs

Colum Names	Items	Mean	Std. Dev	Skewness	SE Skew	Kurtosis	SE Kurtosis
Perceived Susceptibility (PS)	PS1	3.14	1.360	-0.326	0.108	-1.098	0.216
	PS2	3.33	1.328	-0.401	0.108	-1.002	0.216
	PS3	3.12	1.358	-0.299	0.108	-1.142	0.216
Technological Awareness (TA)	TA1	3.04	1.315	-0.202	0.108	-1.086	0.216
	TA2	2.90	1.347	-0.052	0.108	-1.157	0.216
	TA3	3.15	1.312	-0.333	0.108	-0.992	0.216
Perceived Risk (PR)	PR1	3.20	1.292	-0.291	0.108	-0.963	0.216
	PR2	3.26	1.334	-0.299	0.108	-1.064	0.216
	PR3	3.04	1.272	-0.124	0.108	-1.055	0.216
Personal Innovativeness (PI)	PI1	3.23	1.295	-0.406	0.108	-0.939	0.216
	PI2	3.22	1.309	-0.391	0.108	-0.962	0.216
	PI3	3.18	1.214	-0.369	0.108	-0.754	0.216
Social Media Influence (SMI)	SMI1	3.14	1.304	-0.334	0.108	-0.987	0.216
	SMI2	3.18	1.269	-0.347	0.108	-0.875	0.216
	SMI3	3.25	1.283	-0.392	0.108	-0.853	0.216
Readiness of Artificial Intelligence (RAI)	RAI1	3.13	1.360	-0.238	0.108	-1.159	0.216
	RAI2	3.19	1.358	-0.303	0.108	-1.074	0.216
	RAI3	3.34	1.318	-0.489	0.108	-0.844	0.216
Adaptation of Artificial Intelligence (AAI)	AAI1	3.29	1.332	-0.446	0.108	-0.932	0.216
	AAI2	3.25	1.295	-0.372	0.108	-0.904	0.216
	AAI3	3.27	1.340	-0.428	0.108	-0.951	0.216

Figure 3 presents the reliability and convergent validity of the measurement model using Cronbach's Alpha, Composite Reliability (CR) and Average Variance Extracted (AVE). From the figure, it can be seen that Cronbach's Alpha scores for all constructs are higher than the suggested threshold of 0.70 [18], demonstrating adequate internal consistency among the measurement items. This shows that each construct's items consistently measure the same underlying concept. The figure also shows CR and AVE scores which are estimated using correlation-based approximations of indicator loadings. CR scores for all the constructs are high, which show that the measurement mode has excellent internal consistency. Similarly, AVE scores are

greater than 0.50, suggesting that the indicators successfully capture the related latent variables and proving reasonable convergent validity [19].

The Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity are performed to make sure the dataset is appropriate for factor analysis as shown in Table 3. According to standard guidelines, the KMO rating of 0.952 is regarded as excellent. It implies that the variables have enough variance in common to support factor analysis and that the sample size is sufficient. Moreover, the correlation matrix, as confirmed by the significant result of Bartlett's Test of Sphericity ($\chi^2 = 5703.841$, $p < 0.001$). This gives the insight that the variables are sufficiently correlated to move forward with factor analysis.

Table 3
KMO and Bartlett's Test

Statistics		Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.952
Bartlett's Test of Sphericity	Approx. Chi-Square	5703.841
	df	210
	Sig.	0.000

Also to check the common method bias, Harman's one-factor test is performed and the results are presented in Table 4. From the table, we can see that the result of the first factor analysis is below the commonly accepted threshold of 50%. Therefore, it indicates that no single factor dominates the variance of the dataset.

Table 4
Harman's one-factor test

Factor	Initial			Extraction		
	Eigenvalues_Total	%_of_Variance	Cumulative_%	Total	%_of_Variance	Cumulative_%
1	9.781	46.486	46.486	9.781	46.576	46.576

The correlation matrix presented in Table 5 shows the relationships among the key constructs of the work. The result shows positive correlation with each other demonstrating an increase in one factor is usually linked to an increase in another. Among correlations PI exhibits a substantial link with AAI ($r = 0.715$) that suggests individuals who are more open to exploring new technologies are more likely to adopt AI-based healthcare services. Similarly, a relatively strong positive correlation is observed between AMI and AAI ($r = 0.710$). The value of RAI with AAI ($r = 0.709$) supports the idea that readiness is a crucial precursor to actual adoption. Other values with AAI depict that while they are important, their values may be indirect or mediated through other factors. Figure 4 provides a clearer visualization of the correlations among the constructs.

Table 5
Correlation matrix among different Constructs

PS	PS	TA	PR	PI	SMI	RAI	AAI
	1	0.540	0.520	0.638	0.596	0.545	0.649
TA	0.540	1	0.533	0.617	0.582	0.569	0.587
PR	0.520	0.533	1	0.575	0.535	0.521	0.493
PI	0.638	0.617	0.575	1	0.698	0.597	0.715
SMI	0.596	0.582	0.535	0.698	1	0.662	0.710
RAI	0.545	0.569	0.521	0.597	0.662	1	0.709
AAI	0.649	0.587	0.493	0.715	0.710	0.709	1

The factor loadings shown in Table 6 indicate how well each observed variables represents its corresponding latent constructs. Majority of the factor loadings are above 0.60 which implies that the measurement items are reliable and have strong convergent validity suggesting relationship between the items and their associated constructs.

Table 6
Loading Factors of the constructs

Constructs	Indicators	Factor
Perceived Susceptibility	PS1	0.663
	PS2	0.689
	PS3	0.513
Technological Awareness	TA1	0.595
	TA2	0.555
	TA3	0.677
Perceived Risk	PR1	0.549
	PR2	0.589
	PR3	0.570
Personal Innovativeness	PI1	0.646
	PI2	0.682
	PI3	0.774
Social Media Influence	SMI1	0.722
	SMI2	0.708
	SMI3	0.692
Readiness of Artificial Intelligence	RAI1	0.621
	RAI2	0.646
	RAI3	0.712
Adaptation of Artificial Intelligence	AAI1	0.780
	AAI2	0.730
	AAI3	0.716

Fornell-Larcker criterion [19] results are presented in Table 7. In this technique, the square root of the AVE for each construct is compared with its correlations with other constructs. The diagonal values (e.g. PS = 0.819, RAI = 0.835, AAI = 0.869 etc.) are all greater than the corresponding off-diagonal correlation values. This points to compared to other constructs, each construct shares more variance with its own indicators which ensure that the constructs are distinct from one another and that discriminant validity is successfully established using the Fornell-Larcker criterion.

Table 7
Discriminant validity (DV) through Fornell-Larcker criterion

PS	PS	TA	PR	PI	SMI	RAI	AAI
	0.819						
TA	0.540	0.820					
PR	0.520	0.533	0.827				
PI	0.638	0.617	0.575	0.836			
SMI	0.596	0.582	0.535	0.698	0.851		
RAI	0.545	0.569	0.521	0.597	0.662	0.835	
AAI	0.649	0.587	0.493	0.715	0.710	0.709	0.869

To further validate discriminant, The Heterotrait-Monotrait ratio (HTMT) is examined, as shown in Table 8. A majority of HTMT values below 0.85 indicate the constructs have excellent discriminant validity [20]. This reveals that each construct reflects a distinct facet of AI adoption behaviour and bolsters the measuring model's overall validity.

Table 8
Heterotrait-Monotrait ratio

PS	PS	TA	PR	PI	SMI	RAI	AAI
TA	0.718						
PR	0.684	0.701					
PI	0.831	0.804	0.742				
SMI	0.764	0.746	0.678	0.878			
RAI	0.710	0.741	0.673	0.764	0.833		
AAI	0.818	0.739	0.614	0.883	0.862	0.877	

All of these calculations are performed in Windows 10 with python 3.8.15 using NumPy 1.23.5, SciPy 1.10.1, Pandas 2.0.3, Matplotlib 3.7.2 and Jupyter Notebook 7.3.3.

LIMITATIONS

The study has several limitations that should be acknowledged. Time constraints limited the depth and breadth of data collection, which may have restricted the ability to capture long-term trends and evolving perceptions regarding AI adoption in healthcare. In addition, access to medical professionals—particularly doctors and senior healthcare providers—was challenging due to their busy schedules and limited availability, which may have reduced the diversity and depth of provider perspectives. Furthermore, the sample size of 515 respondents, while useful for preliminary analysis, may not be fully sufficient to represent the entire healthcare

sector of Bangladesh, Finally, the research focuses primarily on perceptions rather than actual implementation outcomes of AI in healthcare, which limits the assessment of its real-world effectiveness.

DECLARATIONS

ETHICS STATEMENT

All participants in the study titled were provided with clear and detailed information regarding the purpose, nature, and procedures of the survey. Informed consent was obtained from all respondents prior to their participation. Participants were assured that their personal information would remain strictly confidential and that all collected data would be used solely for academic and research purposes. No personally identifiable information was collected or retained in the published dataset. Anonymity of respondents was maintained throughout the data collection, storage, and analysis process.

Participation in the survey was entirely voluntary. Respondents had the full right to refuse participation or withdraw from the study at any stage without any penalty or consequence. The survey was conducted with the necessary approval from Research approval committee of the Department of Public Administration, Begum Rokeya University. Reference No is: **BRUR/PAD/RAC/2026/10**.

Consent for publication

Not Applicable

Credit AUTHOR STATEMENT

Md. Hasan Tarek : Conceptualization, Writing (Original draft preparation, Reviewing and Editing), Data analysis, Mohammad Rakibul Islam Bhuiyan: Data Collection, Investigation. Supervision, Editing, Saiful Islam: Background, Data collection, Methodology

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DECLARATION OF COMPETING INTERESTS

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Funding Declaration

This research didn't receive any funding.

Declaration of Data Availability

The dataset analyzed in this study is publicly available in Mendeley Data at <https://data.mendeley.com/datasets/znbr8wmkbs/2>. The data are available without restriction and can be accessed by interested researchers for verification and further analysis.

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Figures

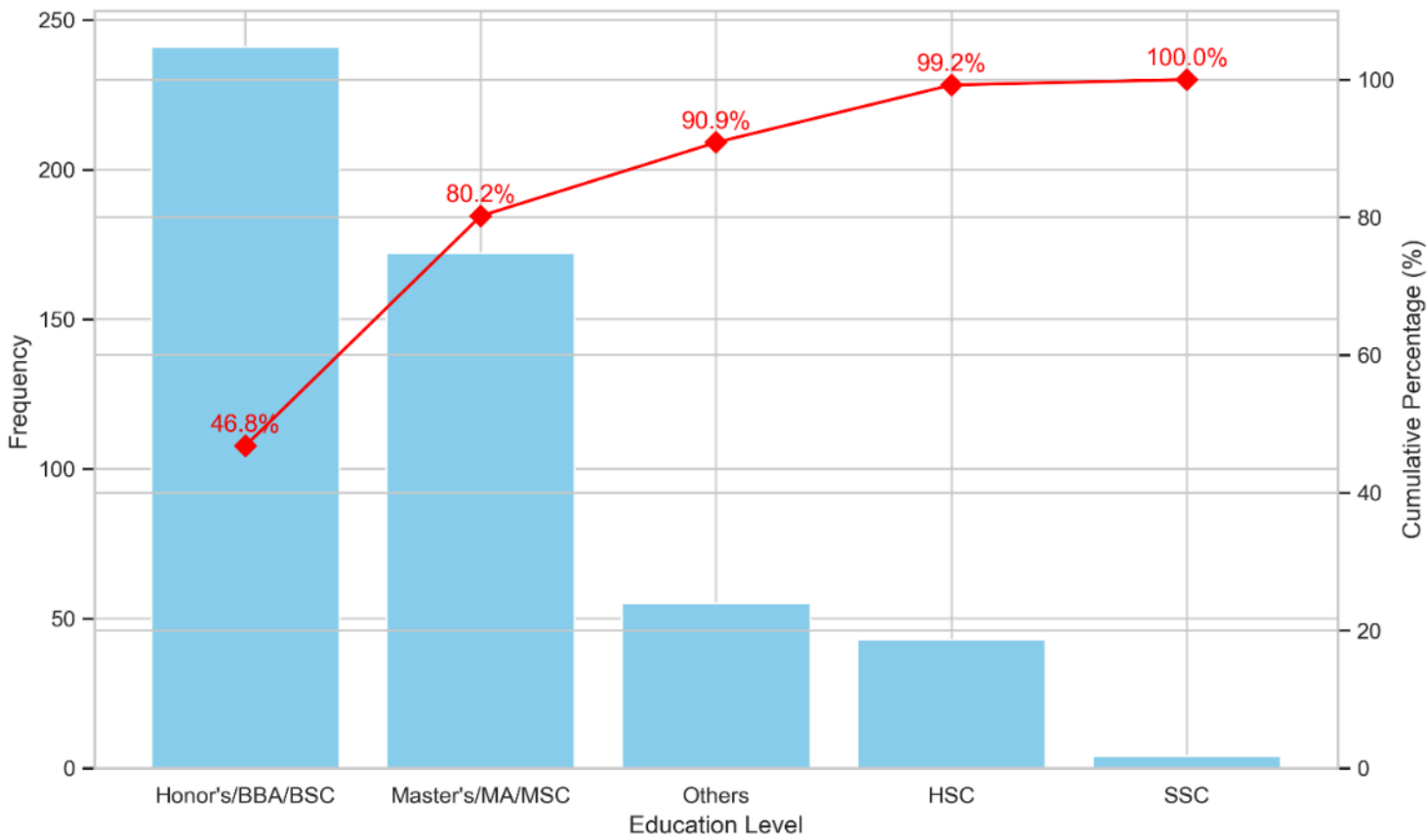


Figure 1

Pareto chart of Education Level

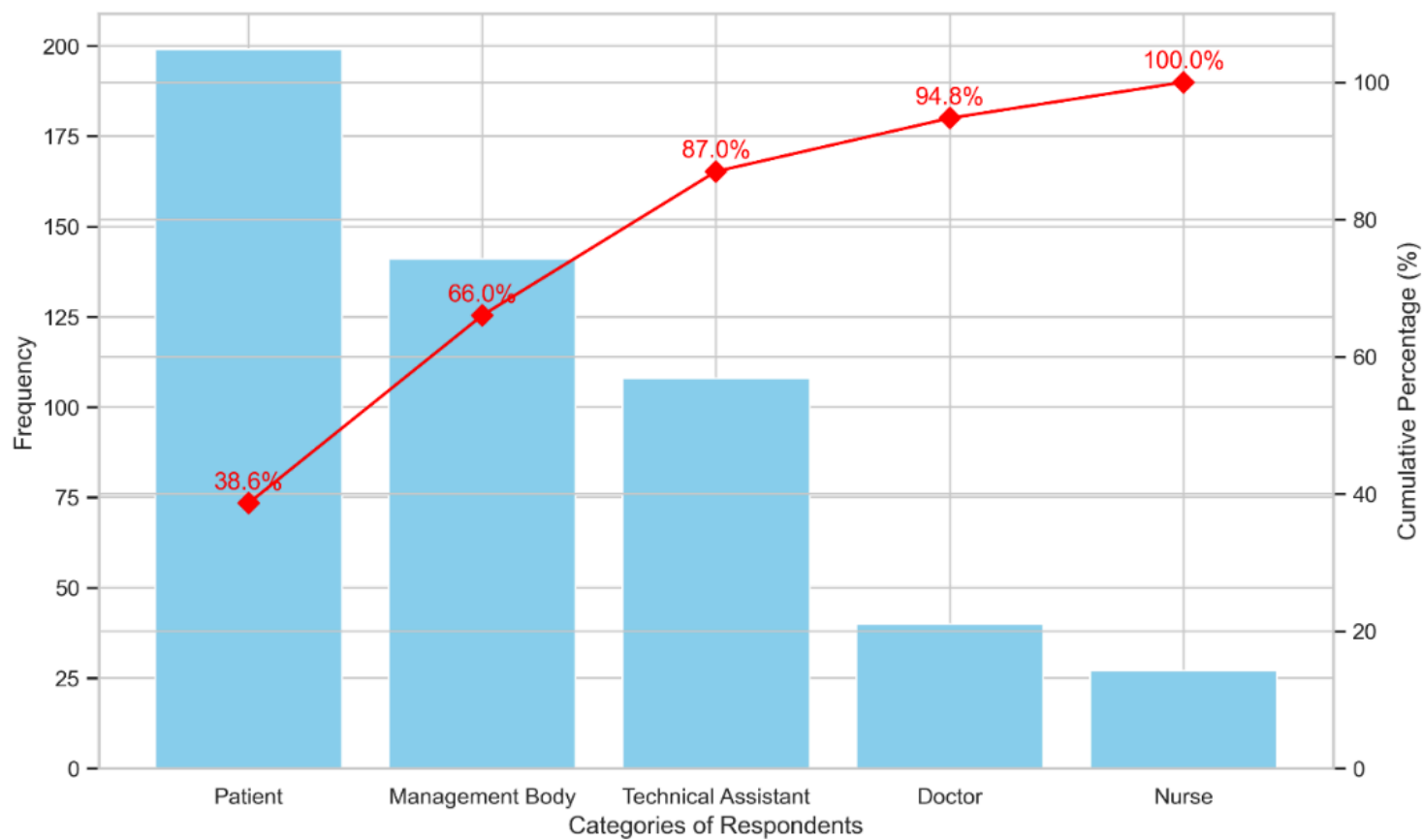


Figure 2

Pareto chart of Categories of Respondents

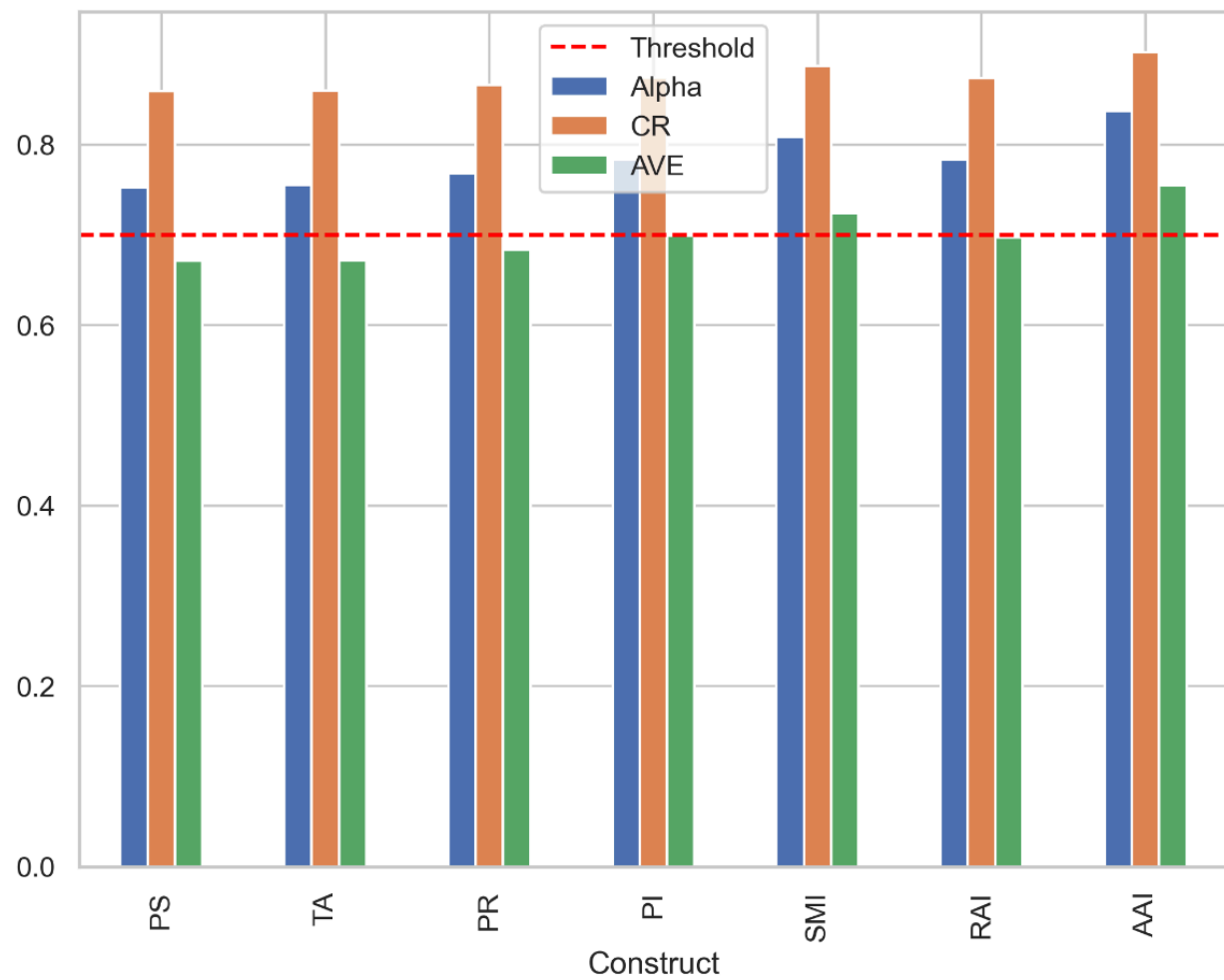


Figure 3

Reliability Measures (Cronbach's alpha, Composite Reliability, AVE)

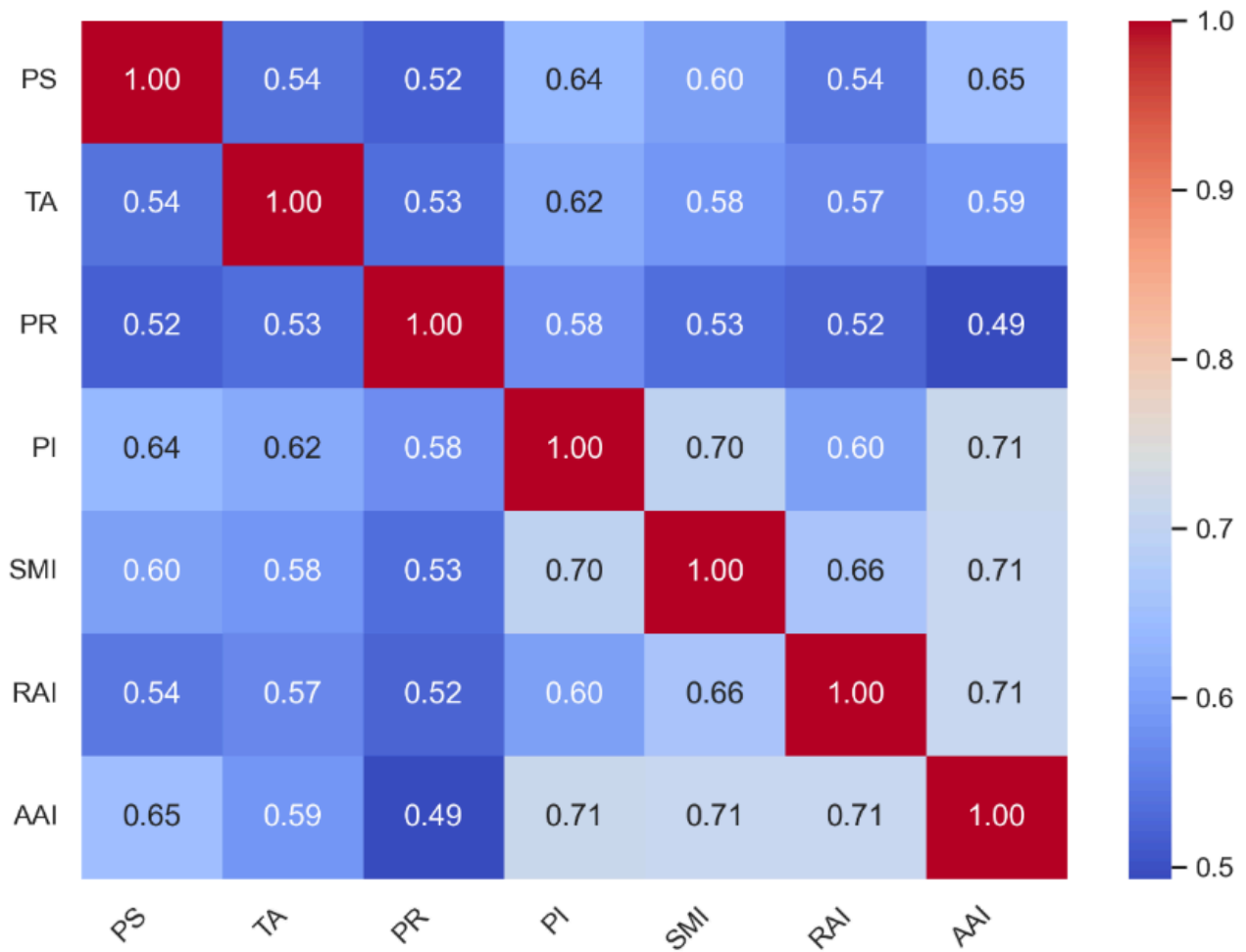


Figure 4

Correlation matrix Heatmap among different Constructs

Supplementary Files

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