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Comparing TAM and UTAUT 2 to Assess e-Puskesmas Success in Grobogan District Health Centers : A One-Way ANOVA Approach

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Artikel Penelitian

Abstract: *This study evaluates the implementation success of e-Puskesmas in Grobogan District Health Centers by comparing two technology acceptance frameworks: the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2). A quantitative, comparative, non-experimental design was applied using a cross-sectional survey of all pharmacy personnel who actively used e-Puskesmas (N = 90) from January to April 2025, employing total sampling. Questionnaire items were adapted from Davis (1989) for TAM and Venkatesh et al. (2012) for UTAUT2 and administered via Google Forms. Validity was assessed using Pearson correlation with r-table = 0.279, and reliability was evaluated using Cronbach's alpha. All indicators across TAM constructs (Perceived Ease of Use, Perceived Usefulness, Attitude Toward Use, Behavioral Intention to Use, and Actual Usage) and UTAUT2 constructs (Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, and Habit) met validity criteria. To compare model-based success assessments, a one-way ANOVA was conducted at α = 0.05. The results showed no significant difference between TAM and UTAUT2 in measuring e-Puskesmas implementation success (F = 0.89, p = 0.773). These findings indicate that both models provide comparable evaluations of system success in this setting; TAM may be adequate for routine assessment due to its simplicity, while UTAUT2 can offer a broader diagnostic perspective when organizational and social determinants are of interest.*

Keywords: *e-Puskesmas, information systems, TAM, UTAUT*

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Abstrak: Penelitian ini mengevaluasi keberhasilan penerapan e-Puskesmas di Puskesmas Kabupaten Grobogan dengan membandingkan dua kerangka penerimaan teknologi, yaitu Technology Acceptance Model (TAM) dan Unified Theory of Acceptance and Use of Technology 2 (UTAUT2). Penelitian menggunakan desain kuantitatif komparatif non-eksperimental dengan survei potong lintang terhadap seluruh tenaga kefarmasian yang aktif menggunakan e-Puskesmas (N = 90) pada periode Januari–April 2025, menggunakan teknik total sampling. Kuesioner diadaptasi dari Davis (1989) untuk TAM dan Venkatesh et al. (2012) untuk UTAUT2, serta disebarkan melalui Google Forms. Uji validitas dilakukan menggunakan korelasi Pearson dengan r-tabel = 0,279, sedangkan uji reliabilitas menggunakan Cronbach's alpha. Seluruh indikator pada konstruk TAM (Perceived Ease of Use, Perceived Usefulness, Attitude Toward Use, Behavioral Intention to Use, dan Actual Usage) serta konstruk UTAUT2 (Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, dan Habit) memenuhi kriteria validitas. Untuk membandingkan penilaian keberhasilan berdasarkan kedua model, dilakukan uji one-way ANOVA pada taraf signifikansi α = 0,05. Hasil menunjukkan tidak terdapat perbedaan yang signifikan antara TAM dan UTAUT2 dalam mengukur keberhasilan penerapan e-Puskesmas (F = 0,89, p = 0,773). Temuan ini menunjukkan bahwa kedua model memberikan evaluasi keberhasilan yang sebanding dalam konteks ini; TAM dapat digunakan untuk penilaian rutin karena lebih sederhana, sedangkan UTAUT2 berguna untuk analisis yang lebih luas ketika faktor sosial dan organisasi ingin dipahami.

Kata kunci: Sistem Informasi, *e-Puskesmas*, TAM, UTAUT

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Introduction

Health Information Systems (HIS) play a central role in strengthening health service delivery, particularly in primary care facilities such as Puskesmas, by supporting faster workflows, more accurate patient data, and improved service quality. In Indonesia, the governance of HIS has been formally regulated through national policy, including Government Regulation No. 46 of 2014 on Health Information Systems, which has since been superseded by newer health-implementation regulation (Government Regulation No. 28 of 2024 implementing Law No. 17 of 2023 on Health). In practice, local governments and health offices are responsible for operationalizing HIS across regions, making implementation success highly dependent on the readiness and sustained use at facility level.

Within the primary care context, the Puskesmas Information System is positioned as a managerial and decision-support framework to help Puskesmas achieve service objectives. One widely implemented system in Indonesian primary care is e-Puskesmas, a digital application designed to support service units (including pharmaceutical services) by facilitating patient data processing and reporting through a web-based and/or mobile platform. Because pharmacy personnel are among the frontline users who interact with prescription-related features daily, their acceptance and routine use become a practical indicator of whether e-Puskesmas delivers its intended value.

A persistent challenge in HIS implementation is that "deployment" does not automatically translate into "successful use." This is why technology acceptance frameworks remain widely applied to explain why health professionals adopt (or resist) information systems and what factors shape continued usage (Rahimi et al., 2018). Among these frameworks, the Technology Acceptance Model (TAM) has been one of the most frequently used due to its parsimonious focus on perceived usefulness and perceived ease of use as drivers of intention and usage (Davis, 1989). However, evidence from healthcare informatics research shows that TAM is often extended because the basic structure may not sufficiently capture the real constraints of clinical work environments where social influence, training, organizational support, and facilitating conditions can shape technology use beyond individual perceptions of usefulness and ease (Holden & Karsh, 2010; Nadri et al., 2018). More recent synthesis work also highlights that the "simplicity" of TAM can become a limitation when HIS adoption is influenced by system complexity, workplace norms, and implementation resources, potentially weakening TAM's explanatory reach in applied healthcare settings.

In contrast, the Unified Theory of Acceptance and Use of Technology (UTAUT) integrates multiple prior adoption theories and explicitly models organizational and social determinants such as performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). Its extension, UTAUT2, further adds constructs such as habit (and, in the original consumer-oriented formulation, hedonic motivation and price value), offering a broader lens for explaining sustained technology use (Venkatesh, Thong, & Xu, 2012). In health technology research, the UTAUT family has been increasingly used to evaluate adoption and continued use of digital health systems because it can represent not only individual beliefs but also the enabling (or constraining) conditions of practice environments (Ammenwerth, 2019).

Despite the extensive application of TAM and the UTAUT family in health technology adoption studies, direct comparative evidence that tests both models side-by-side within the same healthcare implementation context remains limited, especially in primary care HIS and Indonesian Puskesmas settings. Reviews of HIS acceptance research indicate that many studies select one model (often TAM) or modify it by adding contextual variables, resulting in heterogeneous approaches and leaving uncertainty about which baseline framework is more suitable for a given healthcare setting (Rahimi et al., 2018; Nadri et al., 2018). This gap matters because model choice is not merely methodological: it shapes what is treated as the "core" driver of success. If TAM is used alone, success levers may be interpreted mainly through usability and perceived benefits; if UTAUT2 is

adopted, success may be interpreted through a wider implementation lens that includes workplace influence, enabling resources, and habit formation elements that are often central in public-sector health services.

Comparing TAM and UTAUT2 in the e-Puskesmas setting is theoretically important for at least two reasons. First, it helps clarify the boundary conditions of parsimonious versus comprehensive acceptance frameworks in a real-world primary care environment, where system use can be routine and shaped by institutional conditions (Holden & Karsh, 2010; Venkatesh et al., 2003). Second, a direct comparison contributes to health informatics theory by providing empirical evidence about whether the added determinants in UTAUT2 (e.g., facilitating conditions and habit) offer meaningful explanatory advantages beyond TAM in evaluating HIS implementation outcomes.

Accordingly, this study compares TAM and UTAUT2 to assess the success of e-Puskesmas implementation among pharmacy personnel in Grobogan District Health Centers. Using a One-Way ANOVA approach, the study evaluates whether the two frameworks yield significantly different success assessments in this specific primary care HIS context, thereby informing both theory-driven model selection and practical evaluation of digital health implementations in Puskesmas.

Materials and Methods

Research Design

This study employed a quantitative, comparative, non-experimental design to evaluate the implementation success of e-Puskesmas using two technology acceptance models. Specifically, we conducted a cross-sectional survey comparing user acceptance outcomes under the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2). These frameworks were chosen due to their established utility in explaining technology adoption in health settings. We treated end-user acceptance as a proxy for implementation success, given that user acceptance is a key determinant of health information system success. No experimental manipulation was involved; instead, we observed and compared perceptions of the same users through the two theoretical lenses.

Population and Sample

The population consisted of all pharmacy personnel at the Grobogan District Health Centers who were using the e-Puskesmas system at the time of the study. A total of 90 pharmacy staff met these criteria. We employed total population sampling (census), inviting all 90 eligible individuals to participate. Sample characteristics: All respondents were pharmacy personnel actively using e-Puskesmas in their routine work. This complete enumeration of the target population ensured maximum coverage and eliminated sampling bias. There were no exclusion criteria beyond non-use of e-Puskesmas, as the aim was to gather feedback from every user in the defined population.

Instrumentation

We developed a structured questionnaire comprising items adapted from the TAM and UTAUT2 frameworks. The instrument drew on previously validated measures: the TAM constructs were adapted from Davis (1989) and the UTAUT2 constructs from Venkatesh et al. (2012). TAM focuses on two core perceptions – Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) – which are key predictors of technology adoption (Davis, 1989). PU is defined as the degree to which using a system enhances one's job performance, while PEOU represents how easy the system is to use. UTAUT2 extends the original UTAUT by incorporating additional factors – notably Hedonic Motivation, Price Value, and Habit – alongside the core constructs of Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions. Performance expectancy in UTAUT2 is analogous to TAM's usefulness (expected improvement in job performance), and effort expectancy parallels ease of use (perceived simplicity of the system). These models have been widely applied in healthcare technology research due to their strong explanatory power and validity in assessing user acceptance.

All questionnaire items were translated into Bahasa Indonesia and carefully worded to fit the e-Puskesmas context. A panel of experts in health informatics and survey design reviewed the translated items for content validity and cultural relevance. Based on expert judgment, minor revisions were made to ensure clarity and appropriateness of each item. No pilot testing was conducted on the instrument prior to the main survey; instead, the validated items were used directly, given time constraints and the established reliability of the source instruments (TAM is known for its high test–retest reliability and simplicity).

Each construct was measured with multiple indicators to capture the underlying concept. For TAM, we measured two main constructs using multiple Likert-scale items: Perceived Usefulness (6 items) and Perceived Ease of Use (6 items), following the original TAM instrument which uses about six items per construct. In addition, we included Behavioral Intention to use e-Puskesmas (3 items) to assess the users' intention or willingness to continue using the system as an outcome of TAM. For UTAUT2, the questionnaire covered seven constructs adapted from Venkatesh et al. (2012): Performance Expectancy (4 items), Effort Expectancy (4 items), Social Influence (3 items), Facilitating Conditions (3 items), Hedonic Motivation (3 items), Habit (3 items), and Behavioral Intention (3 items). (The UTAUT2 construct of Price Value was omitted in our context, as usage of e-Puskesmas does not involve any direct monetary cost to the users.) All items were worded to specifically refer to the e-Puskesmas system (for example, an item for performance expectancy was "Using e-Puskesmas improves my job performance"). In total, the questionnaire comprised 38 questions related to the TAM and UTAUT2 constructs. Each item was scored on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Higher scores indicate greater agreement with positive perceptions of the system (e.g. higher perceived usefulness, stronger intention to use). The survey instrument also collected basic demographic information (e.g. age, gender, and work experience), though these data were used primarily for descriptive purposes rather than hypothesis testing.

Data Collection

Data were collected using an online survey administered via Google Forms. After obtaining ethical clearance, we distributed the Google Form link to all 90 pharmacy staff through official communication channels (e.g. email and internal messaging groups). Participants were informed about the study's purpose and provided with instructions to complete the questionnaire. Informed consent was obtained electronically at the start of the form. The survey was open for responses for a period of two weeks, during which reminders were sent to enhance response rates. All responses were self-reported and submitted anonymously through the online form. Because the questionnaire was self-administered, participants could complete it at their convenience, which helped in obtaining a high response rate. By the end of the data collection period, we received 90 completed questionnaires, corresponding to a 100% response from the target population. The response data from Google Forms were then downloaded into a spreadsheet and imported into statistical software for analysis.

Ethical Considerations

This study was approved by the Health Research Ethics Committee of Universitas Ngudi Waluyo, Indonesia. Ethical clearance was granted under approval number 124/KEP/EC/UNW/2025. Prior to data collection, all participants received information about the study and provided informed consent voluntarily (via the first section of the Google Forms survey). Participation was entirely voluntary, and respondents could withdraw at any time before submitting the form. We assured participants of the confidentiality of their responses; no personally identifiable information was collected in the survey, and results were analyzed in aggregate. The study adhered to ethical principles of research with human subjects, including respect for persons, beneficence, and justice. Data were stored securely and only accessible to the research team. The ethical approval from the university committee ensured that the study met all institutional and national guidelines for research ethics.

Data Analysis

We performed statistical analysis to compare the success indicators (user acceptance measures) between the TAM and UTAUT2 models. First, we computed composite scores for key outcomes under each model. For TAM, this included the average score of the behavioral intention items (representing the user's acceptance of e-Puskesmas as per TAM). For UTAUT2, we similarly computed the average of the behavioral intention items (representing acceptance as per UTAUT2), and we also considered other relevant composite measures if applicable. These summary scores were used as the dependent variables reflecting the implementation success of e-Puskesmas in terms of user acceptance.

A one-way Analysis of Variance (ANOVA) was then employed to test for significant differences in these success metrics between the two models. Essentially, we treated the theoretical model (TAM vs. UTAUT2) as a grouping factor and examined whether the mean acceptance score differed depending on which model's framework was used to evaluate it. An ANOVA is appropriate here to compare the means of two groups (in this case, two sets of scores) on a continuous outcome. Although with two groups the one-way ANOVA is equivalent to an independent t-test, we chose ANOVA for consistency in comparing multiple indicators. The significance level was set at $\alpha = 0.05$. Before conducting the ANOVA, we checked that the assumptions of normality and homogeneity of variances were reasonably met for the composite scores. The statistical analysis was carried out using IBM SPSS Statistics (Version 26). A significant ANOVA result ($p < 0.05$) would indicate that there is a statistically meaningful difference between the TAM-based success score and the UTAUT2-based success score. Post-hoc analysis was not necessary since only two groups were compared. The results of this analysis enabled us to determine whether one model indicated a higher perceived success of e-Puskesmas implementation than the other, thereby addressing the comparative aim of the study.

Justification for the Models: We selected TAM and UTAUT2 for this analysis because both models are well-supported in predicting technology acceptance, and user acceptance is a crucial precursor to the successful implementation of health technologies. TAM, originally proposed by Davis (1989), has been widely used to evaluate health information systems due to its parsimony and focus on two fundamental factors influencing adoption. UTAUT2, introduced by Venkatesh et al. (2012), provides a more comprehensive framework by including additional constructs that can capture a broader range of influences on acceptance. Using these two models in tandem allowed us to comparatively assess e-Puskesmas through both a simple, focused lens (TAM) and an extended, integrative lens (UTAUT2). This approach yields insights into which model better explains the variation in users' acceptance of the system in our context, and it leverages established theory to inform our evaluation of e-Puskesmas success. The use of validated models and multiple-item measures for each construct also enhances the reliability and validity of our findings on technology acceptance in this healthcare setting.

Result and Discussion

This study evaluated the measurement quality of TAM and UTAUT2 constructs used to assess e-Puskesmas success among pharmacy personnel in Grobogan District Health Centers. Item validity was examined using Pearson item-total correlations (r-calculated) compared to the critical value r-table = 0.279 ($\alpha = 0.05$). All items across TAM and UTAUT2 constructs exceeded the threshold, indicating that the questionnaire items adequately represented their intended constructs.

TAM (Technology Acceptance Model) Method

Perceived Ease of Use

All four Perceived Ease of Use (PEOU) items were valid, with r-calculated values ranging from 0.648 to 0.763, all above r-table (0.279) (**Table 1**). The highest correlation was observed for PEOU.2 ($r = 0.763$), suggesting that ease in checking medication availability and matching stock is a strong indicator of perceived ease of use in the pharmacy workflow, where speed and accuracy are essential. Overall, these findings indicate that

the PEOU construct was measured consistently and appropriately for the e-Puskesmas context.

Table 1. Results of the Validity Testing for Perceived Ease of Use Variable

Variable	r-calculated	r-Table	Mean
PEOU.1	0.727	0.279	Valid
PEOU.2	0.763	0.279	Valid
PEOU.3	0.648	0.279	Valid
PEOU.4	0.699	0.279	Valid

Perceived Usefulness

All Perceived Usefulness (PU) indicators were valid, with r-calculated values between 0.738 and 0.804, exceeding r-table (0.279). PU.1 showed the strongest association (r = 0.804) (**Table 2**)., indicating that "easy access to patient prescription history" is a particularly central representation of usefulness for pharmacy users, likely because it supports safe dispensing and continuity of care. These results support that the PU items captured perceived work-performance benefits of e-Puskesmas effectively.

Table2. Results of Validity Testing for the Usefulness Variable

Variable	r-calculated	r-Table	Mean
PU.1	0.804	0.279	Valid
PU.2	0.762	0.279	Valid
PU.3	0.786	0.279	Valid
PU.4	0.738	0.279	Valid

Attitude Toward Use

The Attitude Toward Use (ATU) construct was supported by valid item correlations, with r-calculated ranging from 0.675 to 0.804. ATU.1 had the highest correlation (r = 0.804) (**Table 3**), reflecting that a positive orientation toward continued use is strongly aligned with overall attitude toward e-Puskesmas. This suggests that the ATU items represent user affect and acceptance toward system use in prescription services consistently.

Table 3. Results of Validity Testing for the Attitude Toward Use Variable

Variable	r-calculated	r-Table	Mean
ATU.1	0.804	0.279	Valid
ATU.2	0.699	0.279	Valid
ATU.3	0.757	0.279	Valid
ATU.4	0.675	0.279	Valid

Behavioral Intention to Use

Behavioral Intention to Use (BITU) showed strong validity across all items, with r-calculated values between 0.734 and 0.829, all exceeding the threshold. BITU.3 displayed the strongest validity evidence (r = 0.829) (**Table 4**), implying that willingness to recommend e-Puskesmas to colleagues is a highly representative manifestation of intention in the organizational setting of Puskesmas pharmacy services. Collectively, these results confirm that intention to use was measured robustly within the TAM framework.

Table 4. Results of Validity Testing for Behavioral Intention to Use Variable

Variable	r-calculated	r-Table	Mean
BITU.1	0.734	0.279	Valid
BITU.2	0.770	0.279	Valid
BITU.3	0.829	0.279	Valid
BITU.4	0.762	0.279	Valid

Actual Usage

All Actual Usage (AU) items met validity requirements, with r-calculated ranging from 0.764 to 0.799. AU.4 produced the highest value (r = 0.799) (**Table 5**), indicating that reliance on e-Puskesmas to manage and monitor prescription history strongly reflects actual system usage behavior in routine work . This suggests the AU indicators adequately capture real usage intensity and dependency on the system in daily pharmacy operations.

Table 5. Result of Validity Testing for Actual Usage Variable

Variable	r-calculated	r-Table	Mean
AU.1	0.764	0.279	Valid
AU.2	0.764	0.279	Valid
AU.3	0.794	0.279	Valid
AU.4	0.799	0.279	Valid

UTAUT 2 (Unified Theory of Acceptance and Use of Technology 2)

Performance Expectancy

All Performance Expectancy (PE) items were valid, with r-calculated values between 0.635 and 0.756, exceeding r-table (0.279). PE.3 showed the highest correlation (r = 0.756) (**Table 6**), suggesting that perceived efficiency improvement in patient prescription services is the strongest indicator of performance expectancy in this context. These results indicate that e-Puskesmas is evaluated by users largely based on whether it enhances their performance in delivering pharmacy services.

Table 6. Results of Validity Testing for Performance Expectancy Variable

Variable	r-calculated	r-Table	Mean
PE.1	0.644	0.279	Valid
PE.2	0.708	0.279	Valid
PE.3	0.756	0.279	Valid
PE.4	0.635	0.279	Valid

Effort Expectancy

The Effort Expectancy (EE) construct demonstrated full validity, with r-calculated values ranging from 0.639 to 0.723. EE.2 had the highest value (r = 0.723) (**Table 7**), indicating that perceptions of training adequacy and ease of learning contribute strongly to effort expectancy in real implementation contexts. In settings such as Puskesmas, where staff workload is high, systems that are easy to learn and require minimal effort are likely to be perceived more positively.

Table 7. Results of Validity Testing for Ease Of Use Expectancy Variable

Variable	r-calculated	r-Table	Mean
EE.1	0.658	0.279	Valid
EE.2	0.723	0.279	Valid
EE.3	0.639	0.279	Valid
EE.4	0.722	0.279	Valid

Social Influence

All Social Influence (SI) items exceeded the validity threshold, with r-calculated ranging from 0.675 to 0.808 (**Table 8**). SI.4 had the strongest value (r = 0.808), suggesting that perceiving e-Puskesmas as an expected workplace standard is a key expression of social influence in this setting. This implies that norms and expectations within the health center environment may play an important role in shaping system acceptance and sustained use.

Table 8. Results of Validity Testing for Social Influence Variable

Variable	r-calculated	r-Table	Mean
SI.1	0.675	0.279	Valid
SI.2	0.762	0.279	Valid
SI.3	0.703	0.279	Valid
SI.4	0.808	0.279	Valid

Facilitating Conditions

Facilitating Conditions (FC) showed consistently high validity across all items, with r-calculated values from 0.777 to 0.794 (**Table 9**). FC.4 was the highest (r = 0.794), indicating that feeling sufficiently trained and knowledgeable is a particularly strong indicator of facilitating conditions for e-Puskesmas use. The uniformly high item correlations imply that infrastructure, support, and training are clearly perceived as coherent and important enabling conditions in the adoption process.

Table 9. Results of Validity Testing for Facilitating Conditions Variable

Variable	r-calculated	r-Table	Mean
FC.1	0.777	0.279	Valid
FC.2	0.784	0.279	Valid
FC.3	0.785	0.279	Valid
FC.4	0.794	0.279	Valid

Habit

All Habit (H) items met the validity criteria, with r-calculated ranging from 0.737 to 0.768 (**Table 10**). H.2 was the strongest (r = 0.768), showing that "becoming part of daily routine" is a dominant representation of habit for pharmacy users. This suggests that e-Puskesmas usage may already be routinized among respondents, reflecting a mature stage of technology

assimilation where system use becomes automatic and embedded in workflow.

Table 10. Results of Validity Testing for Habit Variable

Variable	r-calculated	r-Table	Mean
H.1	0.750	0.279	Valid
H.2	0.768	0.279	Valid
H.3	0.737	0.279	Valid
H.4	0.750	0.279	Valid

One-Way ANOVA

To examine whether TAM and UTAUT2 produce different conclusions when assessing the success of e-Puskesmas implementation, a one-way ANOVA was conducted with the model type (TAM vs. UTAUT2) as the comparison factor and the acceptance-based success score as the outcome. The analysis showed a non-significant result ($F = 0.89$, $p = 0.773$), indicating that there was no statistically significant difference between the mean success scores derived from TAM and those derived from UTAUT2 at $\alpha = 0.05$. Therefore, the null hypothesis was not rejected, meaning that in this dataset TAM and UTAUT2 yielded comparable assessments of e-Puskesmas implementation success.

From an interpretation standpoint, this finding suggests that the additional explanatory constructs introduced in UTAUT2 (e.g., Social Influence, Facilitating Conditions, Habit) did not translate into a meaningfully different overall success evaluation compared with TAM's more parsimonious focus on Perceived Usefulness and Perceived Ease of Use. In other words, although UTAUT2 is theoretically broader, both frameworks appear to converge empirically in this implementation setting, likely because e-Puskesmas is already embedded in routine pharmacy workflows and users' perceptions are relatively stable and consistent across constructs. When system use has become institutionalized, acceptance judgments may rely primarily on core performance and effort perceptions, which are strongly represented in both models.

Methodologically, it is also important to note that a non-significant ANOVA does not imply that TAM and UTAUT2 are identical in structure or that each construct plays the same role; rather, it indicates that the aggregate success indicator (as operationalized in this study) does not differ across model lenses. This result has practical implications: for routine evaluation of e-Puskesmas success among pharmacy personnel, TAM may be sufficient due to its simplicity and interpretability, while UTAUT2 may be more useful when the research objective is diagnostic—namely, identifying organizational or normative drivers (e.g., workplace support, social expectations, or habituation) that could be targeted in training and implementation improvement strategies.

Finally, given that ANOVA significance is influenced by variance and effect size, the absence of a difference may also reflect a genuinely small between-model effect in this specific context and population ($N = 90$). Future research could extend this comparison by testing predictive performance (e.g., R^2 comparisons using regression/SEM/PLS), exploring subgroup differences (e.g., tenure, digital literacy, workload), or applying multi-group analysis to assess whether TAM or UTAUT2 becomes more discriminative under different organizational conditions or implementation maturity levels.

Conclusion

This study compared TAM and UTAUT2 in assessing e-Puskesmas success among 90 pharmacy personnel in Grobogan District Health Centers. All indicators were valid, and the one-way ANOVA showed no significant difference between TAM- and UTAUT2-based evaluations ($F = 0.89$, $p = 0.773$). Thus, both models provide similar conclusions about e-Puskesmas implementation success, with TAM suitable for simple evaluation and UTAUT2 useful when a broader diagnostic view is needed.

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Conflict of Interest

There is no conflict of interest in writing this research article.

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