Technology Adoption Model-Based Comparison of Clinical Trial Software:
A Case Study Using Jeeva and REDCap

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ABSTRACT

Clinical research management systems are mainly used by both pharmaceutical companies and biotechnology companies to manage the clinical trial process from start to finish. Due to the very nature and complexity of the clinical research process, having a system that is easy to use and understand as well as navigate will ensure that the whole process is streamlined, with very few bottlenecks and limitations. In this work, the authors examined the use of two different clinical research systems, JEEVA and REDCAP, with the aim of understanding users' intentions and behavior towards the use of both systems. The authors used the original technology adoption model (TAM) on the perceived usefulness, perceived ease of use, usage behavior (attitude towards using), intention to use, to determine the extent of the user's acceptance of the JEEVA and REDCAP technology tools. The authors' current data analysis of the survey was collected, and findings show that JEEVA fares well compared to REDCAP. The authors also share feedback from users on their perception of the usefulness of both systems and improvement areas.

KEYWORDS

Clinical Research, Clinical Trials, TAM, Technology Acceptance Model, Technology Adoption Model

1. INTRODUCTION

As with any new software, in addition to having usability and functionality features being user-friendly is very important (Choi et al., 2005). Any software that is not user-friendly leads to low software

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adoption rates and pushbacks. This can be a major issue, as it results in slow productivity, frustration, and in some instances sabotage by the users.

Clinical trials have inherent limitations that software like Jeeva and RedCap are deemed to lessen. For biopharma clinical trials, patient recruitment provides the biggest hurdle. The PhRMA report (2018) states that in most clinical trials, 97% of eligible patients choose not to enroll at all, and 25% report that the travel burden makes it impossible for them to enroll. Further, 85% of clinical trials experience patient drop-out, with an average dropout rate of 30%. To minimize the travel burden, clinical trial software offers a decentralized study design with remote screening for eligibility, consent between participants and staff, and real-time communication and data collection (Harsha & Brown, 2021).

Initiating and seeing a clinical trial to the end is such a complex process that each clinical trial requires multiple software tools and has its own unique protocols. The initial phase of Clinical trials is generally frustrating characterized by repetitive manual configurations, and software and tool training. According to a Pharma report (2018), the cost of developing just one therapy exceeds $2.5 billion lasting over 10-15 years. Organization, therefore, wanta well-researched software that can provide all the features including a range of web technology, and still reduce bottlenecks that affect most trials. JEEVA provides an integrated solution by ensuring that the user end site has a strong user interface.

The main purpose of this work is to compare both systems and based on the user survey/ questionnaire recommend ways to improve the user adaptability of JEEVA as a tool/software for clinical study and research, and as a tool for collecting data. With other clinical study solutions, one of the questions to ask is what makes JEEVA different from other software solutions. This paper will be extracting information from both previous and ongoing clinical trials, as well as conducting a comparative analysis of both Jeeva and REDCap sites. We will also use e-consent forms to send participant surveys to patients and utilize similar metrics and features in both sites to make the comparison. By responding to a series of questions based on perceived ease of use for both JEEVA and REDCap, the work centered on understanding how consumers will adapt to a new technology. We compare REDCAP features and interfaces with JEEVA in addition to analyzing various workflow processes in both sites. We'll utilize the TAM Model and surveys with a sample population that ask respondents a series of questions as our solutions. The study of these questions will reveal which system the consumers prefer between the two. We'll identify and analyze features in both systems that can be used to complete workflow processes. Furthermore, By comparing JEEVA and REDCap, we will determine what factors affect users' preference for one system over the other. With the current COVID-19 pandemic and the need for limited travel, we identify how JEEVA can be a solution for easier interaction and better user experience.

Research questions we seek to answer in this paper include (i) what is the ease of finding information and directive on the website?, (ii) what are the guidelines that can be added to JEEVA sites?, (iii) is there a step-by-step directive that can improve the availability of information for easy and effective use?, and (iv) how do users perceive the Jeeva system?

Participant surveys using e-consent forms are used to determine how users perceive and interact with the systems. The paper is organized as follows. Section 2 discusses the related works; Section 3 elaborates on the materials and methods employed in this paper. Section 4 discusses the result findings. Section 5 elaborates on the limitations of such a study and lastly, Section 6 draws the conclusion.

2. RELATED WORK

Clinical trial software is grounded in telemedicine tools and offers site-less trials that contribute to a reduction in trial costs, increased patient recruitment, and quality data (Harsha & Brown, 2021). This also has a direct impact on health outcomes. Clinical trials require a flexible tool that is easily accessible, offers a wide range of web-technology and security (Choi et al, 2005). Research that compares clinical trial software is very limited. Having an understanding in healthcare practices of technology and software are vital for software and providers to work jointly. Treasure-Jones et al.

(2019) mentioned three changes that were identified for small and medium-sized enterprises (SME): scaffolded contributions, active meetings, and scaled engagement. Most previous work primarily focuses on certain aspects of the clinical research and not the clinical systems that have been used. Understanding the joint work between software for clinical research will benefit is positive outcomes.

Blockchain has been a system known to experiment with using when it comes to clinical technology. Hajian et al. (2023) dug deep into seeing how blockchain may be reliable with patients' behavior. The authors utilized different modeling techniques to find results in their study. Analysis and structural equation modeling were used to observe that blockchain-based systems alleviate patient's concerns and worries about their personal health information (Hajian et al., 2023). With patient's being concerned with their personal health records, security plays a big role in these clinics systems that are being bought and utilized. Calisto et al. (2022), discuss medical imaging workflow in clinics and how they adopt intelligent agents. Few models were tested in the study to show the importance of security in this workflow. The authors tested with a confirmatory factor analysis and structural equation model. They resulted with an increase acknowledging that security, risk, and trust is a vital role when utilizing intelligent agents (Calisto et al., 2022).

Obtaining and consistently providing trust to patients in the healthcare realm is an important task that clinic staff should be obtaining. An article written about the trust, personalization, loss of privacy, and anthropomorphism discussed how AI-based services in the healthcare is a tool to be used in delivering effective healthcare service (Liu and Tao, 2022). Going further into AI (artificial intelligence), this smart tool is used in different specialties in healthcare. Calisto et al. (2022) developed a paper on the specialty of breast screening with an AI versus just the clinician alone. The authors observed how clinicians really worked and reacted with the AI assistance. It was found that there was a positive impact with the AI and decreased time-to-diagnose time by three minutes of seeing each patient (Calisto et al., 2022). Focusing in medical imaging, AI based assistance, and breast screening; preventing errors in this specialty is the reason to entrust in these systems and software. Calisto et al. (2021), study on improving the workflow and alleviating errors for diagnosing Breast Cancer. Main focuses were on how to integrate AI techniques with Breast Screening to accomplish any type of diagnosis. The authors resulted with a positive outcome of acceptance with AI techniques from the radiologist (Calisto et al., 2021). "A fundamental step in medical diagnosis for patient follow-up relied on the ability of radiologist to perform a trusty diagnostic from acquired images" (Calisto et al., 2017). Providing quality work with different systems allows providers to satisfy patient trust.

Meyer et al. (2021) reviewed nine software packages for the design of platform trials. They grouped them into standalone software, packages for R and Stata, and an online trial simulator. The authors found that there is a plethora of open software available for clinical trials, but only a handful are aimed at simulating platform trials (Meyer et al., 2021). A similar review focusing on current software for adaptive clinical trial designs was conducted with the aim to demonstrate user-friendly software (Grayling & Wheeler, 2019). Nourani et al. (2019) also reviewed the technical features of clinical trial data management systems with the SQL Server and MySQL databases. Their findings demonstrated that most systems were not flexible and extensible. Jeeva is embedded with MySQL support.

In clinical trials, the quality of data is attributed to the systems in place. Tai et al. (2000) compared three software Clintrial, Oracle Clinical, and Macro for their technical features for monitoring and processing quality data. Regular monitoring of trial progress in the early stages is crucial for accurate reporting of the results. Similarly, Treweek et al. (2010) also evaluated the ability of the SARMA software to support trial recruitment. Other previous work performed a heuristic evaluation to assess three clinical trial systems usability: BioDBx versions 4 and 5, and Velos eResearch. Although they did not use the TAM model in comparing the three software, the "ease-of-use" aspect was more valued than functionality in the decision process (Choi et al, 2005).

Recent years have seen a surge in web technology and an increasing interest in evaluating their efficiency security and impact. Open-source products are becoming more feasible despite the notion that they have limited support and are not user-friendly. Kodapanakkal et al. (2020) note that people

place potential violations more than someone's own self-interest. Which may show that companies are now comparing both commercial and open-source software. With companies comparing the different softwares, targeted audience are to be considered. Self-service technologies (SSTs) are a demand in the healthcare market and shown the awareness of SSTs were important for any type of adoption (Immonen & Koivuniemi, 2018). Elsner et al. (2003) sort to develop a scorecard for decision support with parameters of clinical trial like user needs and IT resources that model the TAM model. Similarly, the "where you to for software" websites compare various clinical trial software based on authenticated reviews and gives them ratings. REDCap has been compared to over ten similar software with castorCD and Openclinica top-rated as Redcap alternatives. Redcap has a rating of 4.3/5 (Where you go for software, 2021). To our knowledge, there has been no comparison between Jeeva and Redcap.

The TAM Model has become a widely used model to investigate users' intent to adopt and use new Information Technology products and services (Selah & Selah, 2020). TAM model was found to be a good predictive model in determining healthcare professionals' intention in a home telemonitoring in a clinical trial (Gagnon,2012). In addition, Orruno et al. (2011) also assessed factors that affect the intention of physicians to use teledermatology. However, Research is again very limited on how the TAM model can be used in the adaptation of clinical trials/research software.

This paper specifically evaluates how JEEVA and REDCap software are best suited for clinical trial use. Clinical trial software is a fundamental pillar for the effective implementation and streamlining of the clinical trial process. They can enhance patient engagement and create a more robust data collection process in clinical trials. REDCap is a common software among clinical trials (where you go for software.2021) thus is vital to assess how it compares with new JEEVA software.

3. MATERIALS AND METHODS

Our proposed approach is to use the technology adoption model (TAM) to determine how users will adopt the JEEVA software as a tool for Clinical Research and Clinical Study. For each of the four constructs of the original TAM model, we will be making use of survey questionnaires to determine how users respond to the system. The four TAM constructs that will be analyzed are:

- Perceived usefulness - how will the current system boost performance
- Perceived ease of use - how easy is it for the user/admin to use the system
- Usage behavior - opinions towards new technology, say something favorable about new technology
- Intention to use - ties in with perceived usefulness and perceived ease of use

For each of the constructs, we will develop and create a survey that will be used for both the Administrator and End User. Each construct will have a series of survey questions to help us develop our TAM model and perform some statistical analysis to assess and analyze how the system will be implemented and the best approach for the adoption of the system.

Since JEEVA is new to the marketplace, having a model such as TAM will be of vital importance as it will also allow the company to determine the best approach to implementation and gain market share in a competitive environment.

3.1 Technology Adoption Model (TAM)

The TAM model was proposed and developed by Davis to predict or elucidate the factors affecting the use of Information Technology (IT). The four tenants of the TAM models (see Figure 1) include perceived usefulness, perceived ease of use (subjectively perceived by users), usage behavior, and intention to use. The easier the use of IT the more accepted the IT (Weng et al, 2018, p. 2).

The TAM posits that our beliefs about ease and usefulness affect our attitude toward using, which in turn affects our intention and actual use (Sauro, J. 2019). One of the questions on the survey that

the participants had to answer was "if they will want to use the Jeeva and REDCap systems provided they have access to it". This will allow us to determine the participants' preferences, either Jeeva or REDCap. The key factors the participants will consider in determining their choice of system is how useful and easy the website is to them which is based on the features and applications of the system. The result of this analysis is discussed in later sections of this paper and in the appendix.

According to Selah, Selah & Selah (2020), the TAM Model has become a widely used model to investigate users' intent to adopt and use new Information Technology products and services (p. 2). Selah et al (2020) further state that although the TAM model is essential to measure perceived ease of use and perceived usefulness, advancement in Technology has made the ease of using a system quite simple and straightforward. Furthermore, other factors come into play when a user uses Information Technology such as; social influence, motivation, benefits, and reliability (Selah et al, 2020).

The authors proposed a new model for the adoption of Technology which is mainly based on needs and motivation, focusing on Maslow's Hierarchy of Needs. Alsharida, Hammood, & Al-Emran (2021) detailed the use of the TAM model and machine learning (m-learning). The authors found that over the years the use of the TAM model for m-learning has improved (p. 158). Figure 1.

Below are the survey questions that have been developed and used for the comparison of the two software. These survey questions (developed for both Jeeva and Redcap) have been adapted based on the TAM model as introduced and discussed above.

3.3 Survey Questions

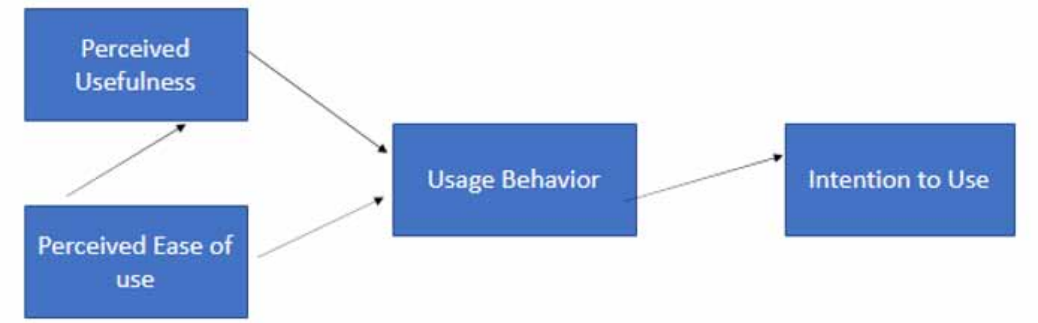
3.3.1 Perceived Usefulness

Q1. Using Jeeva will make it easier to perform a clinical study
Q2. Using Jeeva will allow users to respond more quicker
Q3. Using Jeeva will allow for faster responses in obtaining participant consent
Q4. Using Jeeva will ensure those who are not qualified to participate in the clinical study are eliminated

3.3.2 Perceived Ease of Use

Q5. My interaction with the system is clear
Q6. My interaction with the system is understandable
Q7. The use of system is flexible and easy to use
Q8. Navigating the menus is easy to follow and concise

Figure 1. The technology acceptance model



3.3.3 Usage Behavior (Attitude towards using)

Q9. I have the knowledge, skills, and capabilities to use the system
Q10. Using the system allows me some advantage over other systems used
Q11. I would use the system if it is free to use
Q12. I can access the system on different browsers (internet)
Q13. I think it is a trend to use multimedia material in class.

3.3.4 Intention to Use

Q14. I tend to use the system to start a clinical research project
Q15. Using the will allow me to create a database of clinical research data
Q16. Using the system will allow me to create surveys and forms in a timely manner
Q17. I intend to use the system to create reports from the data collected
Q18. I intend to use the system for quality control

3.4 Sampling Technique

Samples are taken from the population, and it is based on the number of units that is a representation of the populations of users using the JEEVA and REDCap to conduct clinical trials. The sample in this research will assist in drawing conclusions.

3.5 Analysis Technique

Data analysis achieves the main objective which is to provide insight into the data collected. In this case, we want to be able to understand and predict with some accuracy the various constructs as provided by the TAM Model.

3.6 Variable Measurement

The methodology applied in this research was solely based on the sampling technique by collecting responses from questionnaire surveys collected by the sampling population. The questionnaire mainly contained questions relating to the TAM model and determining the users' willingness to adopt new technology.

3.7 Proposed Methodology

The methodology used will be mostly analysis and collection of survey data from a sample population. We created a user manual that provides a guide to navigating both Jeeva and Redcap systems. Included in the User Manual are the five workflow processes we created in both Jeeva and Redcap. These were simply five different tasks that our participants can perform in Jeeva and replicate in REDCap with the directions in the usual manual.

An example of a workflow process in both systems is "Adding participants to a study". Figures 2 and 3 below show how the task "adding participants to a study" is displayed on the website. The goal of the workflow process was to have participants complete the tasks in both systems and then take a survey based on their interaction with the two systems.

The sample size for this work was 33 participants as a reflection of the population size.

Data collected from the survey will determine how the end users perceive the systems and this will allow us a better comparison of both the JEEVA and REDCAP Clinical software. Survey analysis will focus on the main questions to determine areas of improvement, especially for the JEEVA Software, which is what this research paper will mainly focus on. Comparison analysis of these two

Figure 2. Jeeva System - Adding a participant to a study

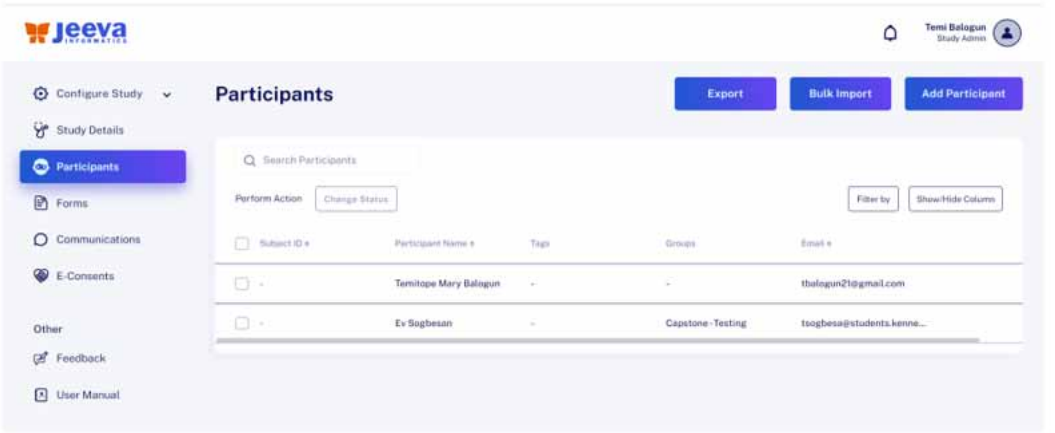
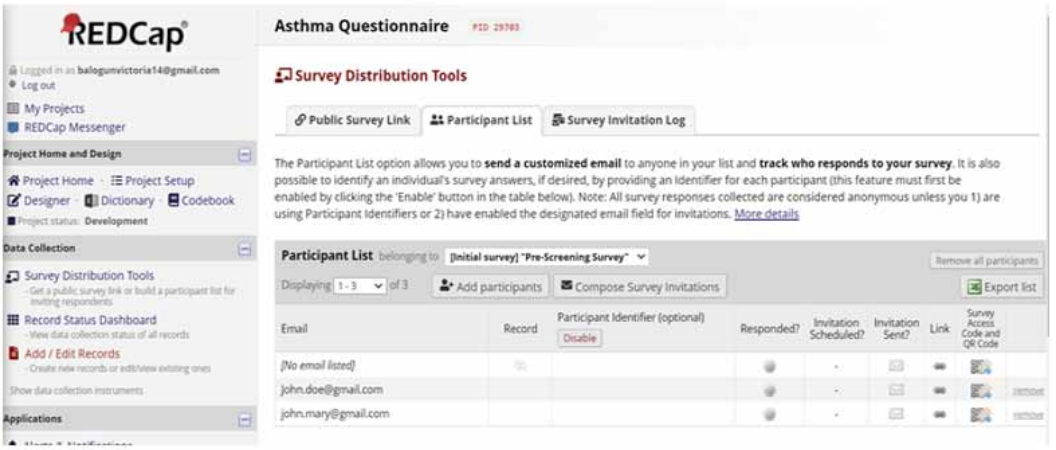


Figure 3. REDCap - Adding Participants



sites and its metrics will be crucial in being able to determine user experience, ease of adoption, and user preference of the two systems.

The questions for the survey are based on the four constructs per the original TAM model. The questions in the survey used a 5-point Likert scale, ranging from “Strongly Agree” to “Strongly Disagree”.

The following are followed for collecting our data.

- Collect and analyze data in JEEVA
- Collect and analyze data in REDCap
- Conduct participant surveys
- Observational study using patient’s data and information
- Compare metrics in JEEVA and REDCap

3.8 Phases of Study

Phase 1: Problem Statement - The work focused on understating how the users will adapt to new technology by answering a series of questions based on perceived ease of use for both JEEVA and REDCap.

Phase 2: Proposed Solution - Our solutions will be the use of the TAM Model and surveys based on a sample population, answering a series of questions. The analysis of these questions will determine the users' preferences for both systems.

Phase 3: Development -Survey questionnaires will be developed based on the TAM Model and results of the survey will be analyzed.

Phase 4: Evaluation - Evaluation of the adoption of the new system/technology will be based on the outcome of the sample population and their responses to the questions asked in the survey.

Phase 5: Results – Analysis based on the data collected in the survey and results of the questionnaire.

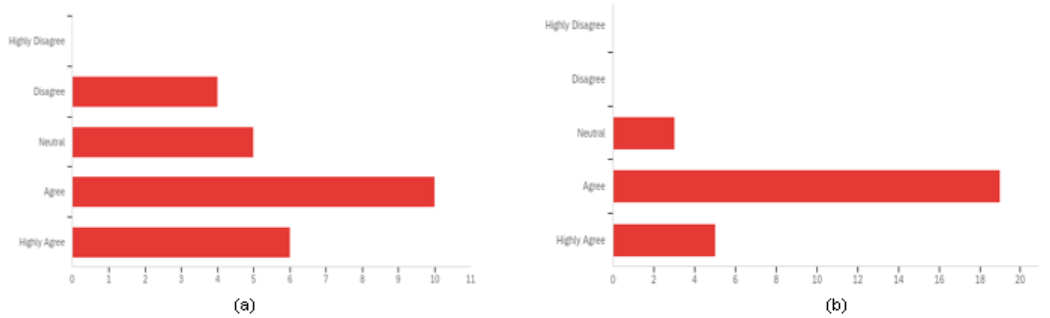
4. RESULTS

4.1 Perceived ease of use

Table 1. Perceived ease of use between REDCap and JEEVA

Field	Software	Minimum	Maximum	Mean	Std. Deviation	Variance	Count
Using REDCap/JEEVA would make it easier for me to run clinical trials.	REDCap JEEVA	2.00 3.00	5.00 5.00	3.72 4.07	1.00 0.54	1.00 0.29	25 27
Learning to use REDCap/ JEEVA is easy.	REDCap JEEVA	1.00 2.00	5.00 5.00	3.36 3.96	1.13 0.88	1.27 0.78	25 27
Finding what I want REDCap/JEEVA to do is easy.	REDCap JEEVA	1.00 2.00	5.00 5.00	3.40 3.78	1.26 0.87	1.60 0.77	25 27

Figure 4. (a) REDCap (b) JEEVA



4.2 Intention to use

Given the choice to use one of the systems, most users would rather use JEEVA for their Clinical Research.

Table 2. Analysis of Intention to use between REDcap and JEEVA

Field	Software	Minimum	Maximum	Mean	Std Deviation	Variance	Count
Assuming I had access to REDCap/ JEEVA, I intend to use it.	REDCap JEEVA	1.00 3.00	5.00 5.00	3.54 3.96	1.12 0.69	1.25 0.48	26 27
Given that I had access to REDCap/ JEEVA, I predict that I would use it.	REDCap JEEVA	1.00 2.00	5.00 5.00	3.36 3.70	1.13 0.76	1.27 0.58	25 27

4.3 Perceived usefulness

It is fundamental that an ideal software ought to accelerate the timeline and reduce the travel burden. 72% of the participants think using JEEVA software will save them time for clinical study while 55% of the participants think REDCap software will save them time in running a clinical study.

Further, 54% of users agreed that using JEEVA will improve their productivity, compared to 28% of REDCap (Table 3). Most Respondents found that using JEEVA will improve their performance in running clinical trials. Improvement of performance will invariably result in improvement of productivity, which would also ensure that the whole process is better streamlined and reducing complexities that come with clinical trials. It also means that users will be more open and adaptable to the JEEVA technology.

4.4 Usage behavior

About 62% of the participants think becoming skillful in JEEVA is easy while about 45% of participants think becoming skillful in REDCap is easy. Overall, users think it is easier to use JEEVA systems than the REDCap due to the JEEVA system not being as complex as REDCap. The summary of our survey analysis is listed in Table 4.

5. LIMITATIONS

Although we were able to gather a sample population of between 20-30 participants to navigate and use the system, a wider population size would have been ideal. Also, our sample population was taken

Table 3. Analysis of perceived usefulness between REDCap and JEEVA

Field	Software	Minimum	Maximum	Mean	Std. Deviation	Variance	Count
I think using REDCap/ JEEVA will save me time in running clinical trials.	REDCap JEEVA	2.00 3.00	5.00 5.00	3.56 4.11	1.02 0.63	1.05 0.40	25 27
Using REDCap/ JEEVA would improve my performance in running clinical trials.	REDCap JEEVA	2.00 3.00	5.00 5.00	3.69 3.78	1.03 0.68	1.06 0.47	26 27
Using REDCap/JEEVA would increase my productivity in running clinical trials	REDCap JEEVA	2.00 3.00	5.00 5.00	3.69 4.07	1.07 0.54	1.14 0.29	26 27
Using REDCap/JEEVA would enhance my effectiveness in running clinical trials.	REDCap JEEVA	2.00 3.00	5.00 5.00	3.85 4.07	0.95 0.66	0.90 0.44	26 27

Figure 5. (a) REDcap (b) JEEVA

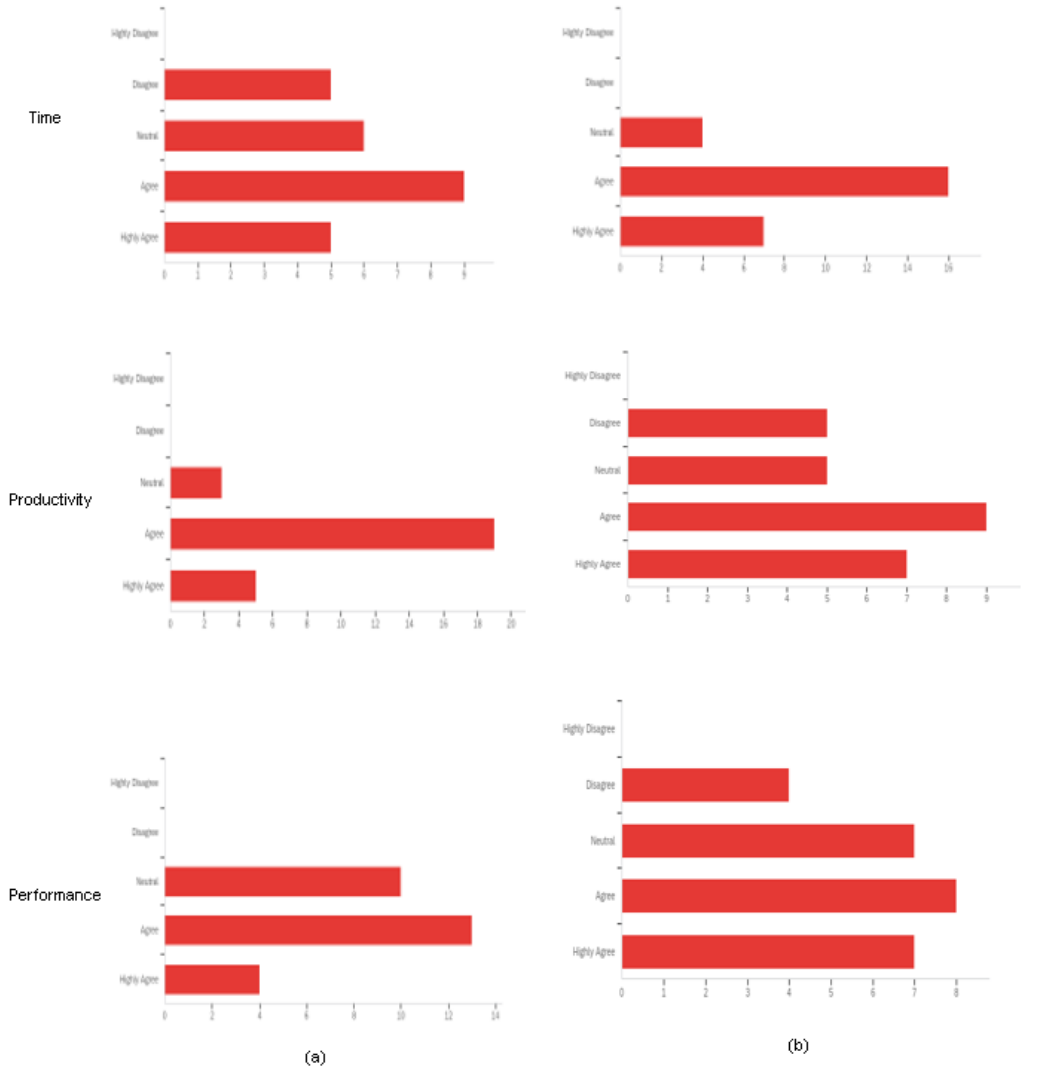
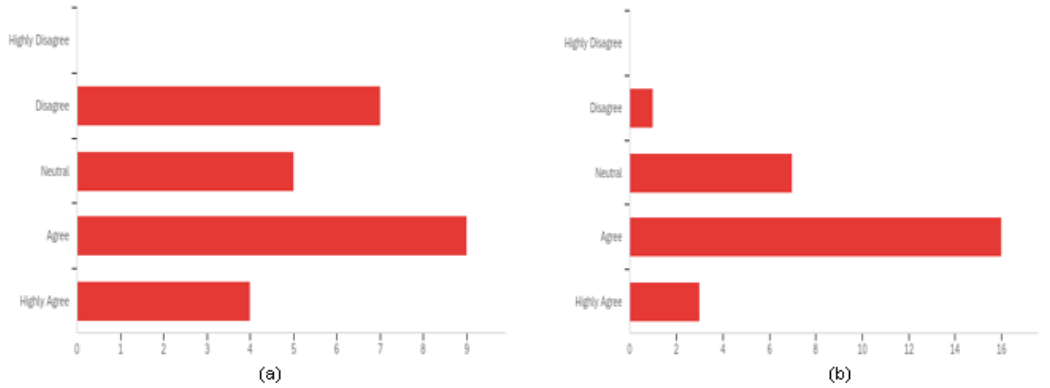


Table 4. Analysis of usage behavior

Field	Software	Minimum	Maximum	Mean	Std. Deviation	Variance	Count
Becoming skillful at using REDCap/JEEVA is easy.	REDCap JEEVA	2.00 2.00	5.00 5.00	3.40 3.78	1.06 0.68	1.12 0.47	25 27
My interaction with REDCap/ JEEVA is clear and understandable.	REDCap JEEVA	1.00 2.00	5.00 5.00	3.65 3.74	1.17 0.75	1.38 0.56	26 27

from a class, assuming we had more time, then we would have preferred if the sample population included those who would actually be using the systems for Clinical Trials, example would have been a physician's office who would have more experience with the end use of the system. The sample size was restricted to a certain niche in the population and is not very reflective of the end user. Another

Figure 6. (a) REDCap (b) JEEVA



improvement that could have been made to the survey is a more granular approach by taking the age groups of those who were sampled. In today's technological work, the younger generation will either find the use of both systems easy or more complicated. For future research, it is recommended that the sample size and the questionnaire be changed to be more reflective of the actual population of those within the Healthcare field or those who would be using the system.

Another limitation was time constraints, participants were given 1-2 weeks to navigate and use the systems, from some feedback received from the initial survey, and participants wished they had more time to go through the user manual and workflow. From experience, the lack of readily available resources within JEEVA was a huge constraint to the users.

REDCap has a free trial that lasts just one week, this was not enough time to thoroughly go through the system and understand the details and intricacies of the system. To fully understand and use the system, a longer free trial period would have been required. Given the limited time free trials, users would have had to create multiple accounts to fully grasp the full capabilities of the system. REDCap is not a tool for workflow. Even while emails, scheduling, surveys, and reports are somewhat automated, many of these tasks still require user intervention. REDCap does not stop the capture of out-of-range data. It sends warnings when values are outside of the acceptable range, but these can be ignored. REDCap offers data quality reports, but any clinical investigator using it should be ready to assist the development of additional tools for quality control and error repair REDCap can be abused, just like ANY software system. If user wish to create a form or data entry module that is entirely uneditable.

6. CONCLUSION

The major goal of this research was to compare the two systems and, using technology adoption model, to enhance JEEVA's user adaptability as a tool/software for clinical study and research as well as a tool for data collection. What sets JEEVA apart from other software solutions in the context of clinical investigation is one of the questions to consider. The research focused on how to use the TAM model to determine if the end-user will adopt a technology system. From the Survey results. JEEVA, although a relatively new Clinical Research system, was easier to use and navigate by the average end user than the more established REDCap. Users found the REDCap system very complicated and not too easy to use.

The workflow for REDCap was not very easy to navigate and, in some instances, users found it difficult to find the menus and hard understanding of what needed to be done. Though JEEVA as a new tool requires some more development, based on the respondent's overall satisfaction levels, this

was a much easier tool to use and as a result, accepting the toll as an end user was very high. The results of this survey and the TAM model can be further used to determine which areas of the JEEVA software need improvement. However, Clinicians must believe in and accept these Jeeva methods for their deployment to be successful. The current study investigates how security, risk, and trust affect people's willingness to embrace Jeeva. We empirically tested the proposed research paradigm, demonstrating that user acceptability is strongly influenced by trust.

Additionally, the developer can add additional constructs to the TAM model and not focus solely on the original four constructs, such as other likely factors that would affect the users' adoption of the technology. Factors such as socio-economic factors, behavioral factors, cultural factors, motivation, and habits can influence the adoption of new technology.

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APPENDIX – SURVEY RESULTS

JEEVA

Table 5. Q2 - Using Jeeva would improve my performance in running clinical trials

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Using Jeeva would improve my performance in running clinical trials.	3.00	5.00	3.79	0.64	0.41	33

#	Answer	%	Count
1	Highly Disagree	0.00%	0
2	Disagree	0.00%	0
3	Neutral	33.33%	11
4	Agree	54.55%	18
5	Highly Agree	12.12%	4
	Total	100%	33

Table 6. Q3 - Using Jeeva would increase my productivity in running clinical trials

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Using Jeeva would increase my productivity in running clinical trials.	2.00	5.00	3.97	0.63	0.39	33

#	Answer	%	Count
1	Highly Disagree	0.00%	0
2	Disagree	3.03%	1
3	Neutral	12.12%	4
4	Agree	69.70%	23
5	Highly Agree	15.15%	5
	Total	100%	33

Table 7. Q4 - Using Jeeva would enhance my effectiveness in running clinical trials

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Using Jeeva would enhance my effectiveness in running clinical trials.	3.00	5.00	4.03	0.67	0.45	33

#	Answer	%	Count
1	Highly Disagree	0.00%	0
2	Disagree	0.00%	0
3	Neutral	21.21%	7
4	Agree	54.55%	18
5	Highly Agree	24.24%	8
	Total	100%	33

Table 8. Q5 - Using Jeeva would make it easier for me to run clinical trials

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Using Jeeva would make it easier for me to run clinical trials.	3.00	5.00	4.06	0.49	0.24	33

#	Answer	%	Count
1	Highly Disagree	0.00%	0
2	Disagree	0.00%	0
3	Neutral	9.09%	3
4	Agree	75.76%	25
5	Highly Agree	15.15%	5
	Total	100%	33

Table 9. Q7 - I think using Jeeva will save me time in running clinical trials

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	I think using Jeeva will save me time in running clinical trials.	2.00	5.00	4.03	0.72	0.51	33

#	Answer	%	Count
1	Highly Disagree	0.00%	0
2	Disagree	3.03%	1
3	Neutral	15.15%	5
4	Agree	57.58%	19
5	Highly Agree	24.24%	8
	Total	100%	33

Table 10. Q8 - Learning to use Jeeva is easy

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Learning to use Jeeva is easy.	2.00	5.00	3.97	0.83	0.70	33

#	Answer	%	Count
1	Highly Disagree	0.00%	0
2	Disagree	6.06%	2
3	Neutral	18.18%	6
4	Agree	48.48%	16
5	Highly Agree	27.27%	9
	Total	100%	33

Table 11. Q9 - Finding what I want Jeeva to do is easy

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Finding what I want Jeeva to do is easy.	2.00	5.00	3.76	0.82	0.67	33

#	Answer	%	Count
1	Highly Disagree	0.00%	0
2	Disagree	6.06%	2
3	Neutral	30.30%	10
4	Agree	45.45%	15
5	Highly Agree	18.18%	6
	Total	100%	33

Table 12. Q10 - Becoming skillful at using Jeeva is easy

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Becoming skillful at using Jeeva is easy.	2.00	5.00	3.85	0.70	0.49	33

#	Answer	%	Count
1	Highly Disagree	0.00%	0
2	Disagree	3.03%	1
3	Neutral	24.24%	8
4	Agree	57.58%	19
5	Highly Agree	15.15%	5
	Total	100%	33

Table 13. Q11 - Please add any comment related to Jeeva

Please add any comment related to Jeeva.
I never received an access link to log in to Jeeva. I did read along with the directions for Jeeva. Jeeva appeared to be more intuitive and user-friendly in comparison to RedCap.
Need to add more features
The API for Jeeva does not enhance its utilitarian value. Sparse was the design choice, but that choice makes developing with the tool less intuitive for the clinician or user.
I enjoyed using Jeeva because it was very straightforward. The layout of the page was very clear making it very easy to choose and change between tabs.
JEEVA is a great tool but the fact that there are no user manual makes the whole user experience difficult. It is easy to use but still requires sometime in figuring out where things are.
Everything was similar until the e-consent portion because I had nothing to upload.
Jeeva was interesting to learn
It was an easy software to use. Navigating with Jeeva was very easy
They optimize patient-focused clinical research.
Was not able to correctly bulk import to continue with the demo
Very user friendly and clear!
The authentication method is secure but annoying, there also that man options on the consent form and survey.

Table 14. Q16 - My interaction with Jeeva is clear and understandable

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	My interaction with Jeeva is clear and understandable.	2.00	5.00	3.76	0.74	0.55	33

#	Answer	%	Count
1	Highly Disagree	0.00%	0
2	Disagree	6.06%	2
3	Neutral	24.24%	8
4	Agree	57.58%	19
5	Highly Agree	12.12%	4
	Total	100%	33

Table 15. Q17 - Using Jeeva to run clinical trial is flexible and easy

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Using Jeeva to run clinical trial is flexible and easy.	3.00	5.00	3.79	0.59	0.35	33

#	Answer	%	Count
1	Highly Disagree	0.00%	0
2	Disagree	0.00%	0
3	Neutral	30.30%	10
4	Agree	60.61%	20
5	Highly Agree	9.09%	3
	Total	100%	33

Table 16. Q18 - Assuming I had access to Jeeva, I intend to use it

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Assuming I had access to Jeeva, I intend to use it.	2.00	5.00	3.79	0.77	0.59	33

#	Answer	%	Count
1	Highly Disagree	0.00%	0
2	Disagree	3.03%	1
3	Neutral	33.33%	11
4	Agree	45.45%	15
5	Highly Agree	18.18%	6
	Total	100%	33

Table 17. Q19 - Given that I had access to Jeeva, I predict that I would use it

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Given that I had access to Jeeva, I predict that I would use it.	2.00	5.00	3.64	0.77	0.60	33

#	Answer	%	Count
1	Highly Disagree	0.00%	0
2	Disagree	6.06%	2
3	Neutral	36.36%	12
4	Agree	45.45%	15
5	Highly Agree	12.12%	4
	Total	100%	33

Table 18. Q28 - Please provide estimated time took to complete various steps in Jeeva

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Step 1 (Logging to Jeeva)	1.00	5.00	1.36	0.95	0.90	33
2	Step 2 (Configure Study - roles, permission)	1.00	3.00	1.81	0.74	0.54	31
3	Step 3 (Study Details - content management, sites, onboarding)	1.00	5.00	2.23	0.87	0.76	31
4	Step 4 (Adding Participants)	1.00	3.00	1.65	0.78	0.62	31
5	Step 5 (Creating forms and E-consent)	1.00	4.00	1.97	0.93	0.87	31

#	Question	Less than 15 minutes		Between 15 and 30 minutes		Between 30 and 45 minutes		Between 45 and 60 minutes		More than one hour		Total
1	Step 1 (Logging to Jeeva)	84.85%	28	3.03%	1	6.06%	2	3.03%	1	3.03%	1	33
2	Step 2 (Configure Study - roles, permission)	38.71%	12	41.94%	13	19.35%	6	0.00%	0	0.00%	0	31
3	Step 3 (Study Details - content management, sites, onboarding)	16.13%	5	54.84%	17	22.58%	7	3.23%	1	3.23%	1	31
4	Step 4 (Adding Participants)	54.84%	17	25.81%	8	19.35%	6	0.00%	0	0.00%	0	31
5	Step 5 (Creating forms and E-consent)	38.71%	12	32.26%	10	22.58%	7	6.45%	2	0.00%	0	31

REDCAP Results

Table 19. Q2 - Using Redcap would improve my performance in running clinical trials

#	Field	Minimum	Maximum	Mean	Std. Deviation	Variance	Count
1	Using Redcap would improve my performance in running clinical trials.	2.00	5.00	3.75	1.03	1.06	32

#	Answer	%	Count
1	Highly Disagree	0.00%	0
2	Disagree	15.63%	5
3	Neutral	21.88%	7
4	Agree	34.38%	11
5	Highly Agree	28.13%	9
	Total	100%	32

Table 20. Q3 - Using Redcap would increase my productivity in running clinical trials

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Using Redcap would increase my productivity in running clinical trials.	2.00	5.00	3.75	1.06	1.13	32

#	Answer	%	Count
1	Highly Disagree	0.00%	0
2	Disagree	18.75%	6
3	Neutral	15.63%	5
4	Agree	37.50%	12
5	Highly Agree	28.13%	9
	Total	100%	32

Table 21. Q4 - Using Redcap would enhance my effectiveness in running clinical trials

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Using Redcap would enhance my effectiveness in running clinical trials.	2.00	5.00	3.84	0.94	0.88	32

#	Answer	%	Count
1	Highly Disagree	0.00%	0
2	Disagree	12.50%	4
3	Neutral	15.63%	5
4	Agree	46.88%	15
5	Highly Agree	25.00%	8
	Total	100%	32

Table 22. Q5 - Using Redcap would make it easier for me to run clinical trials

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Using Redcap would make it easier for me to run clinical trials.	2.00	5.00	3.71	0.99	0.98	31

#	Answer	%	Count
1	Highly Disagree	0.00%	0
2	Disagree	16.13%	5
3	Neutral	19.35%	6
4	Agree	41.94%	13
5	Highly Agree	22.58%	7
	Total	100%	31

Table 23. Q7 - I think using Redcap will save me time in running clinical trials

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	I think using Redcap will save me time in running clinical trials.	2.00	5.00	3.58	0.98	0.95	31

#	Answer	%	Count
1	Highly Disagree	0.00%	0
2	Disagree	16.13%	5
3	Neutral	29.03%	9
4	Agree	35.48%	11
5	Highly Agree	19.35%	6
	Total	100%	31

Table 24. Q8 - Learning to use Redcap is easy

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Learning to use Redcap is easy.	1.00	5.00	3.39	1.13	1.27	31

#	Answer	%	Count
1	Highly Disagree	3.23%	1
2	Disagree	25.81%	8
3	Neutral	16.13%	5
4	Agree	38.71%	12
5	Highly Agree	16.13%	5
	Total	100%	31

Table 25. Q9 - Finding what I want Redcap to do is easy

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Finding what I want Redcap to do is easy.	1.00	5.00	3.45	1.27	1.60	31

#	Answer	%	Count
1	Highly Disagree	6.45%	2
2	Disagree	22.58%	7
3	Neutral	16.13%	5
4	Agree	29.03%	9
5	Highly Agree	25.81%	8
	Total	100%	31

Table 26. Q10 - Becoming skillful at using Redcap is easy

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Becoming skillful at using Redcap is easy.	2.00	5.00	3.32	1.00	0.99	31

#	Answer	%	Count
1	Highly Disagree	0.00%	0
2	Disagree	25.81%	8
3	Neutral	29.03%	9
4	Agree	32.26%	10
5	Highly Agree	12.90%	4
	Total	100%	31

Table 27. Q11 - Please add any comment related to REDCap

Please add any comment related to REDCap.
A lot of great features accessible to users. Need to reduce amount of information on the page to simplify and easier to understand.
RedCap seemed very basic and cumbersome. It was confusing to follow the directions at times. Maybe RedCap had been updated in comparison to the directions.
I would prefer Jeeva over Recap. Recap was a lot harder to comprehend and navigate. The layout of the page was so confusing, and the font was very narrow making it harder to find what I need to do.
Redcap was much more intuitive to use than Jeeva. The instructions for each component were readily available and often in video format. Predesigned choices available made the prospect of designing everything from scratch less daunting (unlike the sparse Jeeva interface). The value and functionality of the Redcap application was evident in the API.
REDCAP is an already established tool and it has many resources that allows the end user to navigate the system. Though some areas require more time than others the availability of resources proves very helpful.
It is a great user-friendly software for clinical trials
RedCap is more confusing to use than Jeeva.
The design for me may be counterintuitive. I would also prefer it was simpler than over-complicated. But overall, it is a good software!
Its main mission is to accelerate clinical research
Unable to click on survey distribution tools to work on the rest of the manual demo
Says Jeeva but for Redcap it was difficult to find things and not all the options were available to me. I prefer other platforms.

Table 28. Q16 - My interaction with Redcap is clear and understandable

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	My interaction with Redcap is clear and understandable.	1.00	5.00	3.63	1.14	1.30	32

#	Answer	%	Count
1	Highly Disagree	3.13%	1
2	Disagree	18.75%	6
3	Neutral	15.63%	5
4	Agree	37.50%	12
5	Highly Agree	25.00%	8
	Total	100%	32

Table 29. Q17 - Using Redcap to run clinical trial is flexible and easy

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Using Redcap to run clinical trial is flexible and easy.	2.00	5.00	3.47	1.02	1.05	30

#	Answer	%	Count
1	Highly Disagree	0.00%	0
2	Disagree	23.33%	7
3	Neutral	23.33%	7
4	Agree	36.67%	11
5	Highly Agree	16.67%	5
	Total	100%	30

Table 30. Q18 - Assuming I had access to Redcap, I intend to use it

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Assuming I had access to Redcap, I intend to use it.	1.00	5.00	3.56	1.06	1.12	32

#	Answer	%	Count
1	Highly Disagree	3.13%	1
2	Disagree	12.50%	4
3	Neutral	31.25%	10
4	Agree	31.25%	10
5	Highly Agree	21.88%	7
	Total	100%	32

Table 31. Q19 - Given that I had access to Redcap, I predict that I would use it

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Given that I had access to Redcap, I predict that I would use it.	1.00	5.00	3.39	1.10	1.20	31

#	Answer	%	Count
1	Highly Disagree	3.23%	1
2	Disagree	22.58%	7
3	Neutral	22.58%	7
4	Agree	35.48%	11
5	Highly Agree	16.13%	5
	Total	100%	31

Table 32. Q28 - Please provide estimated time took to complete various steps in Redcap

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Step 1 (Logging to Redcap)	1.00	4.00	1.16	0.62	0.38	32
2	Step 2 (Creating project, user permission, roles)	1.00	4.00	2.00	0.94	0.88	32
3	Step 3 (Creating participant survey)	1.00	4.00	2.28	0.91	0.83	32
4	Step 4 (Adding participant)	1.00	4.00	2.03	1.07	1.16	32
5	Step 5 (Sending survey invitations)	1.00	4.00	2.09	1.13	1.27	32

#	Question	Less than 15 minutes		Between 15 and 30 minutes		Between 30 and 45 minutes		Between 45 and 60 minutes		More than one hour		Total
1	Step 1 (Logging to Redcap)	93.75%	30	0.00%	0	3.13%	1	3.13%	1	0.00%	0	32
2	Step 2 (Creating project, user permission, roles)	34.38%	11	40.63%	13	15.63%	5	9.38%	3	0.00%	0	32
3	Step 3 (Creating participant survey)	21.88%	7	37.50%	12	31.25%	10	9.38%	3	0.00%	0	32
4	Step 4 (Adding participant)	43.75%	14	21.88%	7	21.88%	7	12.50%	4	0.00%	0	32
5	Step 5 (Sending survey invitations)	43.75%	14	18.75%	6	21.88%	7	15.63%	5	0.00%	0	32

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