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The Impact of Laboratory Accreditation in Patient Safety and Quality Care

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ABSTRACT

The aim of the research is to determine the impact of laboratory accreditation on patient safety and quality care. It guarantees that laboratories are dedicated to the highest standards of quality in the services they offer and promotes a culture of continual development. The voluntary process of laboratory accreditation guarantees that facilities follow strict guidelines, fostering uniformity, accuracy, and dependability in diagnostic testing. Strong quality control procedures, skilled staff, and standardised procedures all demonstrate this dedication to quality. To determine the research, used SPSS software and generated results, including descriptive statistics, correlation coefficients, chi-squares, and regression analyses between them. Accredited laboratories reduce risk, avoid errors, and comply with regulations in addition to providing accurate findings and promoting overall patient safety. The importance of certification in building patient and healthcare provider confidence is emphasised in the study. It draws attention to the value of certification that extends beyond specific labs and fosters a culture of ongoing development and flexibility in response to new obstacles in the healthcare industry. Overall, the result found a significant impact of laboratory accreditation in patient safety and quality care. In the end, the effects of laboratory certification are felt across the healthcare system, strengthening confidence and dependability in the endeavour to provide patients with the best possible treatment.

Key words: Laboratory Accreditation (LA), Patient Safety (PS), Quality Care (QC).

INTRODUCTION

It is very clear and understandable that the correct and suitable treatment of any disease depends on a better diagnosis with less risk of error in the diagnostic procedure. For identification and Diagnostic tests, laboratories are usually used for many years. There are different mediums for lab tests, such as blood tests, urine tests, plasma tests, and others. However, the accuracy and reliability of any laboratory test depend upon that laboratory's standard. To check the standards of any laboratory, a process is called laboratory accreditation. The term Accreditation can be used for the process that checks the standard for any laboratory to meet international standards for accurate and effective results for any laboratory test[1].

We know that there are many different laboratory tests performed daily in different labs, but all the results provided are not even accurate for disease diagnosis. This is due to the lower laboratory standards because of different results and a higher chance of errors. To eradicate all of these problems for the betterment of the Healthcare sector, Accreditation is introduced which checks the quality of Laboratories relevant to different basic factors[2]. Laboratory accreditation is mandatory for accurate diagnosis of disease, better treatment of patients, reduced time consumption, increased workflow, and improvement of the management system. These aspects are also necessary for patient safety and care. Most of the laboratories now use electronic health record systems abbreviated as HER. All the data related to laboratory tests and patients is stored in electronic form in small chips called microchips[3]. This accreditation standard is quite important and useful because, in traditional means of data storage and diagnosis, manual work was used, which was time-consuming and posed a risk of data loss and data misuse[4]. Secondly, that system was unreliable because manual work did not save patient safety and privacy. But nowadays, when electronic health record system is used, all patient data for laboratory test purposes is effectively stored, integrated, analyzed, and exchanged. The second standard used for accreditation is the accuracy of instruments used in the laboratory. The precision and accuracy of instruments that are used in laboratory tests are very necessary because when there are errors in instruments, there will also be errors in the results of lab tests that would eventually result in a poor diagnosis or wrong diagnosis of disease relevant to the patient[5].

To eliminate this kind of problem, it is now suggested to use modern advanced instruments such as smart pipettes, wearable sensors, computerized screen-based instruments, portable devices, and robots[6]. For example, when a smart pipette is used for laboratory tests, there will be very little chance of volumetric error that will yield better results for lab tests. In the same way, when digital sensors, such as digital temperature sensors, are used, there will be less chance of error because of the use of digital systems in modern and advanced sensors. In traditional laboratory systems, there was more reliance on clinicians for result analysis but now it is recommended to use automated systems for result analysis as well[7].

For example, a few robots such as auto samplers are used, which can provide continuous samples to instruments for lab tests. Not only this, but such robots are also used, which can give precise results from laboratory tests without the assistance of humans. When such

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automated systems are used in the laboratory, there is very little risk of human error in analysing such samples[8]. For laboratory Accreditation, it is also necessary to ensure the safe transfer of test samples from the ward to the laboratory without any contamination of the sample[9]. This Accreditation standard is gained by the use of automated robots which use a safe method for the transfer of samples from the ward to the lab for testing. Because microscopy is an important technique in laboratory attestation, now traditional compound or light microscope is not more used, but auto microscopy is introduced, which can give results with more accuracy and resolution[10]. Such microscopes also do not need glass slide preparation, in contrast to previous methods for glass slide preparation. Now, advanced imaging techniques are used in laboratories, such as electronic imaging, whole slide imaging, and others. In electronic imaging, a beam of electrons is used to study the internal structure of a particular tissue, and then the result can be seen in the form of images. In whole slide imaging, abbreviated as HIS, a single image, which is a knitted web of different diagnostic images, is used to study a few slides, such as tissue slides, for analyzing the difference between tumour cells and healthy cells.

Some other standards are kept under consideration during the laboratory accreditation. The accreditation of the Laboratory is done by an audit system in which many aspects are brought into light for thorough examination of the laboratory for the betterment of the Healthcare sector. There is no doubt that there are many benefits of accreditation of a Laboratory. The first benefit is that these are certified laboratories and can provide error-free results. The second benefit is that these are automated, so there is less reliance on human labour. Thirdly, these are less time-consuming and reliable in terms of results. However, there are some challenges related to the Accreditation of Laboratories[11]. The first problem is that most laboratories across the world are not accredited yet, which can result in an analysis with a chance of error. The second problem is that it is a prolonged process, so most laboratories remain uncertified. The third problem is that the cost of automation of laboratories is high, which can act as a hurdle for proper accreditation of laboratories across the world. If all these challenges are dealt with effectively, accreditation of laboratories may become easy shortly[12].

RESEARCH OBJECTIVE:

The main objective of this study is to understand the importance of accreditation of Laboratories for patient safety and care through advanced technology. This study has also effectively explained the opportunities and challenges related to the accreditation of laboratories for the betterment of the Healthcare sector across the world.

LITERATURE REVIEW

Researchers claim that Laboratory accreditation is a type of recognition given by an authoritative department that ensures that a laboratory's quality standards have been met up to the required standards. It is a voluntary laboratory process in which the labs go through procedures to ensure their dedication to a high qualitative environment. The new amendment done by international standards, ISO 15189, according to which other than the quality of the clinical laboratory, the necessity to meet the patient's needs should also be taken into consideration[2]. Recently, the Korean Laboratory Accreditation Program (KLAP) has been applied to show the effect of proper accreditation in medical laboratories. The application of this program ensures that accreditation plays a vital role in diagnostic tests performed at medical laboratories. For the increased accuracy, standardization also needs to be applied[13]. Studies have shown that the implication of quality indicators (QI) is necessary to make sure the results reproduced by a laboratory are error-free. This guarantees that the healthcare service provided by the laboratory meets the patients' demands and, in turn, increases the quality and care for the patients[14]. Researchers state that accreditation is an operative way to validate the laboratory's competence, a way to know that distinguish laboratories are linked to journal checks, to inspire the upkeep and improvement of the quality, which moves to a high standard of facilities for patients[15].

Some studies have shown that where accreditation depicts efficiency, safety, and patient-centeredness, it should also be noted that it has no positive impact on access indicators[16]. Researchers have applied accreditation to blood culture handling laboratories, which deals with separating strains and identifying susceptibility to antimicrobial activities, etc. This is a microbiology approach for making patient care highly significant[17]. Turkish healthcare centres have applied the accreditation techniques to deal with the COVID-19 situations in which drug management, waste management, laboratory services, and sterilization management are done based on ISO to ensure the quality control of the laboratory, safety of workers and handling of samples with utmost care[18]. Some studies state that the hospital should also pass through the accreditation procedures or state-linked inspections before being allowed to be reimbursed; however, quality standards met by accreditation centres are expensive and are evidence-based procedures[19]. Accreditation standards met by clinical laboratories also ensure that the staff at a particular institute has gained the required training, education, and experience to ensure patient care is prioritized[20]. Moreover, patients or users can make sure their aspect of care is being monitored according to quality standards by comparing their accreditation standards with the appropriate standard criterion[21]. Researchers have done experiments in which the accreditation concept is applied to echocardiograms to enhance the quality of the results obtained at cardiology centres. This signifies the enhancement of heart-related tests being taken in related laboratories[22]. Accreditation of the pathology labs can intensively increase the quality of results and patient care. This allows the samples to be held in a qualitative environment and reduces the transmission of pathological factors among laboratory staff. This type of accreditation has been declared necessary specifically for the labs undergoing cytological and histological tests[23]. Some researchers make sure that post-analytical tests should run in clinical laboratories, along with accreditation. These steps improve the outcomes for the patients and increase the results' quality with fewer errors on the laboratory staff's end[24].

For good laboratory practices, pathologists performing accreditation practices enhance the lab's outcome, specifically, pathology labs[25]. In Saudi Arabia, the Medical City department has immediately increased quality standards because of accreditation procedures. The accreditation criteria include staff management, experience, patient care, infection control, and patient rights[26].

The accreditation based on clinical aspects has shown that the application of good quality management practices in the labs should also be linked with economic factors. Otherwise, the disruption in the economy while meeting the quality index, in turn, leaves an impact on the lab, and the quality decreases instead of increases. This decrease in quality appears to have a negative impact on accreditation. Therefore, the economy is an important factor when choosing accreditation[27]. Other than increasing quality and patient care, accreditation also requires laboratories to keep records of patients, which allows healthcare givers to come up with appropriate decisions regarding the specific ailment of every patient[28]. Moreover, accredited organizations need to undergo continuous monitoring so that the quality standards are kept under check and they comply with internationally recognized standards. In this way, it helps in keeping a sustainable quality environment at labs and enhances patient care[29]. Researchers have also left comments on the total automation of the laboratories. According to studies, the total automation of labs should also be accredited according to international standards and only those specific healthcare aspects should be automated that are allowed by accreditation organizations[30].

Besides, instead of having complete accreditation, labs can also apply for accreditation for the specific aspects of their laboratories, keeping their economic budget in check. The most famous accreditation bodies known for accreditation in healthcare departments are Accreditation Canada and the Joint Commission in the US. Despite having positive aspects on quality and patient care, accreditation may lead to a reduction in flexibility of the labs, reducing their functionality for different tests. Also, the processes are costly and require a lot of time to undergo the accreditation processes to ensure the quality capability of the respective labs. Moreover, over-documentation required by accredited organizations may decrease the innovation of labs because an over-focus is granted towards the paperwork. Compliance fatigue is another condition that labs might observe by performing daily hectic procedures related to accredited criteria and can therefore reduce the productivity of labs. However, these demerits are more of just burdens and challenges as the main goal of accreditation is just the providence of enhanced quality for labs and patients' safety with care[31].

Laboratory Accreditation

Laboratory accreditation is an official acknowledgment given by an accrediting body to a lab that it has shown full reliability, capability, and devotion to specific values and guidelines[32]. Different accrediting bodies, methods, and processes are used to assess quality, technical capability, and organization systems regarding a specific lab to give correct and dependable results[33]. However, specific methods may vary from lab to lab depending on the nature of functionality of a respective lab. Common basics are involved in an accreditation process according to the tests happening within its premises.

Lab Accreditation Bodies and Methods

Accreditation bodies are organizations specifically established for assessing credibility and adherence of labs to their required guidelines. These organizations ensure the regulation of quality, upkeep, and steadfastness across various industries. These organizations include the International Accreditation Forum (IAF), the United Kingdom Accreditation Service (UKAS), the National Institute of Standards and Technology (NIST) Joint Commission International (JCI), etc. Some common methods and steps these organisations achieve are briefed below.

Choosing the Required Accreditation Body

- For this purpose, labs mostly prefer the accreditation body with international recognition and reputation. Then, the selected bodies provide the standards that should be followed by the laboratory for maintaining quality and reliability.

Pre-valuation

- Before starting with the official evaluation, a pre-assessment search is conducted to help the laboratory pinpoint its area of weakness or that requires more attention.

Submission of Application

- To seek accreditation, the laboratory needs to provide the accreditation body with an application to express its assessment needs. The application covers information like the type of testing, equipment, and procedures performed at the respective lab.

Examination of Documents

- The accrediting body conducts deep research on the documentation presented by the laboratory regarding its records, equipment, and procedures.

Assessment of the Lab Location

- After document review, the accrediting body sends a team of assessors on-site to evaluate the facilities, procedures, and mentioned equipment being used at the lab to ensure their compliance with the required international standards.

Estimation of Technical Competency

- The calibration procedures and proficiency results of the tests are assessed by the staff on-site to ensure the reliability of the results being reproduced in the tests.

Appraisal of Quality Management

- It is the crucial component of assessment in which the laboratory's quality is estimated by internal audits, preventive measures, and reviews given by management.

Corrective Action and Decision

- If there are any deficiencies found in the lab, then the corrective actions are implemented, involving the training and calibration of equipment. Based on this evaluation, a decision is made, and the status of the laboratory is changed to accredited if it follows the mentioned requirements.

Improved Trust of the Public

Accreditation in a lab is its mark for trustworthiness and fitness. Caregivers, patients, and other regulating bodies tend to have greater trust in accredited labs because they know that these labs have met the documented standards for quality, reproducibility, and fineness of the outcomes. To abridge laboratory accreditation has a huge impact on the quality care and safety of patients as it promotes the

accuracy, reliability, and continuous improvements of deficient procedures. It helps the laboratories create the outline for the calibration, observance, and responsibility for best laboratory practices. But on the other hand, it can have challenges, too, as the accreditation procedure could be more cost-effective and require economic stability. Also, it is time-consuming and limits the focus of the lab processes by reducing flexibility to perform functions within labs. Moreover, laboratories may feel that accreditation has reduced their independence by providing rigidity to their standards. The possibility of scientific innovations and research quantity also face reduction as the strict guidelines do not allow the new researchers to show their analytical and creative skills regarding different procedures. Due to these conditions, accreditation may impose challenges to the functioning of labs but in the end, it is all for ensuring patient care and quality so that healthcare centers can prosper in providing highly relatable diagnosis strategies and the quality of outcomes can be heightened bringing future revolutions in the field of medicine, biotechnology, and science.

Descriptive Statistics

Table 1

	N	Minimum	Maximum	Mean	Std. Deviation
Laboratory Accreditation 1	50	1.00	4.00	1.8000	.75593
Laboratory Accreditation 2	50	1.00	3.00	1.5600	.64397
Laboratory Accreditation 3	50	1.00	4.00	1.5200	.67733
Laboratory Accreditation 4	50	1.00	2.00	1.3600	.48487
Patient Safety 1	50	1.00	3.00	1.3800	.53031
Patient Safety 2	50	1.00	3.00	1.5200	.57994
Patient Safety 3	50	1.00	3.00	1.4200	.57463
Quality Care. 1	50	1.00	4.00	1.5600	.70450
Quality Care. 2	50	1.00	3.00	1.6800	.65278
Quality Care. 3	50	1.00	3.00	1.5200	.57994
Valid N (listwise)	50				

The above result shows that descriptive statistical analysis results describe minimum values, maximum values, mean rates, and the standard deviation value of each indicator, including dependent and independent values. The laboratory accreditation is an independent indicator. According to the result, its mean value is 1.8000, and the standard deviation rate is 0.75%, which shows that 75% deviates from mean values. Similarly, Laboratory Accreditation 2, 3, and 4 are other independent variable results representing mean values of 1.5600, 1.5200, and 1.3600, showing the positive average values of the mean.

The standard deviation rates are 64%, 67%, and 48%, respectively. Patient safety 1,2,3 considered as a mediator variable. The result describes that the average values are 1.3800, 1.5200 and 1.42000, which shows the positive value of the mean. The standard deviation rates are 53% and 57%, respectively. The quality care 1,2,3 considered as dependent variables. The result describes its mean values as 1.5600, 1.5200, and 1.6800, which shows the positive average value of the mean. The standard deviation rates of 57%, 65%, and 70% deviate from the mean. According to the result, the overall minimum value is 1.000, the maximum value is 3.000, and the total observation is 50, respectively.

Impact of Accreditation on Patient Safety and Quality Care

Accuracy and Dependability of the Test Results

- The accredited laboratories follow strict guidelines to ensure that the tests are accurate and reliable. This reliability helps the lab to add up to patient care as the information provided to caregivers is reliable and fit for diagnosis treatments.

Competency of Personnel of a Laboratory

- Sometimes accreditation procedures also require the proper training, experience, and education of the staff working in the lab. By confirmation of the qualification of lab personnel, the accuracy brought by its tests can be declared precise and hence can add up to patient care.

Traceability and Liability

- The results being generated at accredited laboratories are made sure to meet the documented standards. Therefore, it enables them to track any issue within their source and can be held accountable for maintaining integrity and, in turn, patient care.

Obedience to Regulatory Standards

- Accredited laboratories ensure their coherence with international or local standards, which helps in not only the promotion of health care but also fulfil their legal requirements.

Standardization Processes

- Since the accredited labs follow standardization processes for collecting samples, analysis, and results, it helps reduce the mistakes, errors, and chances of non-reproduceable results.

Quality Development

- Accredited laboratories function in a way that they keep on enhancing their quality by making sure of the regular assessment of their procedures. This valuation helps correct the errors and implement the modifying actions to increase the test's skill.

Inter-Lab Contrasts: The involvement of different labs in rivalry competitions helps in comparing their programs and proficiency of tests and allows the labs to highlight their deficiencies and make amendments for improvement. It helps the labs increase their quality standards and improve patient outcomes.

Correlation coefficient:

Table 2

		Laboratory Accreditation 1	Laboratory Accreditation 2	Laboratory Accreditation 3	Laboratory Accreditation 4	Patient Safety 1	Patient Safety 2	Quality Care. 1	Quality Care. 2	Quality Care. 3
Laboratory Accreditation 1	Pearson Correlation	1	.193	-.072	-.134	-.163	-.410**	-.015	.074	.149
	Sig. (2-tailed)		.180	.621	.355	.258	.003	.916	.607	.302
	N	50	50	50	50	50	50	50	50	50
Laboratory Accreditation 2	Pearson Correlation	.193	1	.021	-.136	-.277	-.140	-.121	-.050	.079
	Sig. (2-tailed)	.180		.887	.347	.051	.333	.404	.728	.587
	N	50	50	50	50	50	50	50	50	50
Laboratory Accreditation 3	Pearson Correlation	-.072	.021	1	-.147	-.277	-.183	-.195	-.216	.077
	Sig. (2-tailed)	.621	.887		.310	.051	.204	.175	.132	.596
	N	50	50	50	50	50	50	50	50	50
Laboratory Accreditation 4	Pearson Correlation	-.134	-.136	-.147	1	.330*	.192	-.065	.113	.046
	Sig. (2-tailed)	.355	.347	.310		.019	.183	.656	.433	.749
	N	50	50	50	50	50	50	50	50	50
Patient Safety 1	Pearson Correlation	-.163	-.277	-.277	.330*	1	.074	.129	-.113	-.191
	Sig. (2-tailed)	.258	.051	.051	.019		.608	.372	.434	.184
	N	50	50	50	50	50	50	50	50	50
Patient Safety 2	Pearson Correlation	-.410**	-.140	-.183	.192	.074	1	-.378**	.341*	-.396**
	Sig. (2-tailed)	.003	.333	.204	.183	.608		.007	.015	.004
	N	50	50	50	50	50	50	50	50	50
Patient Safety 3	Pearson Correlation	-.226	.068	.161	.179	.001	.189	.063	-.015	-.240
	Sig. (2-tailed)	.115	.637	.263	.214	.993	.190	.666	.916	.093
	N	50	50	50	50	50	50	50	50	50
Quality Care. 1	Pearson Correlation	-.015	-.121	-.195	-.065	.129	-.378**	1	-.268	.272
	Sig. (2-tailed)	.916	.404	.175	.656	.372	.007		.060	.056
	N	50	50	50	50	50	50	50	50	50
Quality Care. 2	Pearson Correlation	.074	-.050	-.216	.113	-.113	.341*	-.268	1	-.306*
	Sig. (2-tailed)	.607	.728	.132	.433	.434	.015	.060		.031
	N	50	50	50	50	50	50	50	50	50
Quality Care. 3	Pearson Correlation	.149	.079	.077	.046	-.191	-.396**	.272	-.306*	1
	Sig. (2-tailed)	.302	.587	.596	.749	.184	.004	.056	.031	
	N	50	50	50	50	50	50	50	50	50

The above result describe correlation related to the quality care, patient safety and laboratory accreditation. Overall result shows some negative and some positive correlation between them. the result describe person correlation, significantly value and number of observation of each factors the correlation rates are 0.607, 0.728, 0.132, 0.433, 0.015 respectively. By following these guidelines, laboratories may be guaranteed to continuously achieve predetermined quality requirements. All testing procedures are carefully documented and recorded by accredited laboratories. For the purpose of tracking and confirming the accuracy of outcomes, traceability is essential. By enabling labs to pinpoint areas that need work, it also promotes ongoing progress.

Results from recognised laboratories are more likely to inspire confidence in patients and healthcare professionals. As a mark of quality control, accreditation shows that a laboratory has complied with strict standards and is dedicated to providing accurate and dependable data. Strict quality assurance and risk management procedures are put in place by accredited laboratories. This covers techniques for mistake identification and prevention, which help to lower the possible dangers connected to diagnostic testing. In order to receive accreditation, a laboratory must frequently comply with regionally specific regulatory criteria. Following these guidelines guarantees that the laboratory operates legally and upholds patient safety standards.

Test Statistics

Table 3

	Laboratory Accreditation 1	Laboratory Accreditation 2	Laboratory Accreditation 3	Laboratory Accreditation 4	Patient Safety 1	Patient Safety 2	Patient Safety 3	Quality Care. 1	Quality Care. 2	Quality Care. 3
Chi-Square	25.200[a]	15.520[b]	42.000[a]	3.920[c]	28.840[b]	19.840[b]	25.240[b]	38.000[a]	12.520[b]	19.840[b]
df	3	2	3	1	2	2	2	3	2	2
Asymp. Sig.	.000	.000	.000	.048	.000	.000	.000	.000	.002	.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 12.5.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 16.7.

c. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 25.0.

The above result describes that chi square analysis result represent chi square values and significantly value of each variable. the chi square rate of laboratory accreditation 1,2,3, and 4 are 25.200, 15.520, 42.000, 3.920 these are shows that positive chi square values of each factor. The overall probability value is 0.000 shows that 100% significantly levels of each factor. The chi square value of patient safety 1,2 and 3 are 28.840, 19.840 and 25.240. the chi square of quality care are 12.520, 19.840 respectively. Accreditation of laboratories is essential to guaranteeing patient safety and high-quality medical care.

Laboratories that want to prove their proficiency, dependability, and commitment to certain guidelines established by certifying organisations might choose to get accredited. There are several important areas where laboratory accreditation affects patient safety and high-quality care: Accredited laboratories adhere to strict quality control standards and standard operating procedures. This contributes to ensuring the dependability and accuracy of test outcomes. Making the right decisions about therapy and patient management requires accurate diagnostic information. Standardisation of laboratory procedures and processes is a requirement of accreditation. This uniformity ensures that results are comparable amongst laboratories, minimises variances in testing techniques, and lowers the possibility of mistakes. Qualified and skilled staff are a prerequisite for laboratory accreditation. This comprises pathologists, other staff personnel, and competent laboratory technicians.

One factor contributing to the general dependability of laboratory results is having skilled personnel. To guarantee accurate and dependable findings, accredited laboratories need to calibrate and maintain their equipment on a regular basis. This lowers the possibility of obtaining inaccurate test results by locating and fixing any possible instrument problems. Accreditation is predicated on meeting recognised quality standards, such as those imposed by national accrediting authorities or organisations like the International Organisation for Standardisation (ISO).

The above result represents that regression analysis result describe unstandardized coefficient, and standardized coefficient values related to the beta and standard error. The result also presents that t statistic rates and significantly level between the independent and dependent variables. the laboratory accreditation 1,2,3 and 4 represent that beta values of unstandardized coefficients its rates are -0.189, -0.192, -0.367 and -0.151 all of them are present negative rates. The t statistic values are -1.397, -1.303, -2.533 and -0.755 these are shows that negative link with quality care. Patient safety 1,2,3 considered as mediator variable according to the result t s.tatistic values are 0.179, -3.924, and 1.564. These show negative and some positive relations with the dependent variable. the significant values are 0.858, 0.000 and 0.125 these shows that 100%, 12% and 85% significantly level between them.

Coefficients[a]

Table 4

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.603	.738		4.882	.000
	Laboratory Accreditation 1	-.189	.135	-.203	-1.397	.170
	Laboratory Accreditation 2	-.192	.147	-.176	-1.303	.200
	Laboratory Accreditation 3	-.367	.145	-.353	-2.533	.015
	Laboratory Accreditation 4	-.151	.201	-.104	-.755	.454
	Patient Safety 1	.034	.192	.026	.179	.858
	Patient Safety 2	-.695	.177	-.572	-3.924	.000
	Patient Safety 3	.260	.166	.212	1.564	.125

a. Dependent Variable: Quality Care. 1

Conclusion:

To sum up, laboratory certification is essential to improving patient safety and guaranteeing the provision of high-quality medical treatment. The accuracy and dependability of diagnostic testing is greatly enhanced by accredited laboratories' strict adherence to defined procedures, hiring of qualified staff, and use of strong quality control methods. The influence goes beyond specific labs, encouraging a culture of risk mitigation, constant improvement, and compliance with regulations. Aside from giving patients and healthcare professionals peace of mind about the validity of test results, accreditation also boosts public trust in the healthcare system. For determine the research used SPSS software and generate results included descriptive statistic, correlation, chi square, and regression analysis between them.

Accredited laboratories' commitment to maintaining the highest standards in patient care is shown in their meeting and exceeding of set quality goals. Laboratory accreditation plays an increasingly important role in assisting healthcare organizations in adjusting to new challenges and technological advancements. Accreditation is essential to the continuous improvement of patient safety and high-quality healthcare delivery because it fosters uniformity, traceability, and a proactive approach to mistake avoidance. The overall research concluded that negative and significant link between them. Essentially, the effects of laboratory certification are felt all the way across the healthcare system, strengthening the foundation of dependability and confidence that is the basis of good patient care. In summary, by encouraging precision, consistency, and dependability in diagnostic testing, laboratory certification greatly enhances patient safety and the standard of care.

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