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A survey to understand the doctors' perception of laboratory diagnostics

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ABSTRACT

Clinical laboratories play a crucial role in the healthcare system by assisting doctors in diagnosing and treating patients. In India, there are numerous diagnostic facilities available to doctors and patients, but chain laboratory facilities have demonstrated some advantages over traditional laboratory facilities. To gain insight into the perspective of doctors regarding chain diagnostic facilities, we conducted a survey that focused on Thyrocare, one of the oldest and most established chains in India. A total of 1038 doctors from various specialties and regions were surveyed through both online and offline channels, and the results indicated that almost all doctors (98%) considered laboratory testing to be important for diagnosis. Among these doctors, 83% were aware of Thyrocare. Additionally, 9 out of 10 doctors aware of Thyrocare stated that they would recommend Thyrocare to patients for pathology evaluations (91%), that the reports from Thyrocare were accurate and reliable (92%), and that their patients had a satisfactory experience with Thyrocare (93%). These survey findings indicate that Thyrocare has a strong market position and is highly regarded for delivering high-quality reliable test results.

Keywords: *Pathology, chain laboratory, diagnosis, testing, accuracy, reliability*

I. INTRODUCTION

Clinical laboratories are an integral part of healthcare systems, which provide a variety of procedures to support doctors with diagnosis, treatment, and management of patients.[1,2] Clinical laboratories can be broadly classified as public laboratories (government-owned) and private laboratories. Both laboratory types could either be standalone labs or hospital/institution-attached labs. When it comes to private standalone laboratories, these could be corporate or non-corporate labs. Corporate labs are chains that operate on a national scale and cater to samples from all over the country.[1,2]

Clinical laboratory routine health check-ups can be instrumental in preventing diseases by identifying modifiable risk factors and improving the quality of life of individuals.[3,4] Certain factors such as changing lifestyle, rising tobacco and alcohol consumption, unhealthy diets, and physical inactivity are increasingly making Indians susceptible to non-communicable diseases. Thus, the importance of undergoing routine health check-ups is widely acknowledged in modern times.[3-5] These health check-ups provide a detailed update on various health parameters to gauge the overall health status of an individual.[3,5]

Appropriate diagnosis has been described as a salient juncture between illness, patients, and doctors.[6] However, the diagnostic workup conducted at laboratories is complex and necessitates significant effort from patients. This effort includes tasks such as identifying appropriate laboratories, collecting test reports, taking necessary actions based on test results, scheduling doctor appointments, adhering to prescribed treatments, and undergoing regular follow-up tests.[6] Difficulties such as the high cost of testing across facilities barring tertiary healthcare centers and lack of easy access to diagnostic centers lead to delayed testing, switching healthcare providers, relying on self-testing and medication, or missing follow-up visits.[6,7] Additionally, studies report that the Indian diagnostic industry is largely composed of unorganized laboratories, ungoverned by stringent regulations with a lack of accreditation. This in turn produces data with questionable validity and accuracy.[8]

Optimum health system-level governance is prevalent in some corporate laboratory chains to enhance utilization and accessibility with good overall coordination at all levels.[2] These labs rely heavily on automation, reducing the manpower needed per test, but are resource-intensive with regard to the number and quality of consumables and infrastructure required.[2] Laboratory chains have a definite advantage over traditional laboratory testing practices.[2,9]

In traditional laboratory testing practices, due to a lack of patient-centric laboratory testing and insufficient use of technology by labs, patients have to spend a considerable amount of money and time to get laboratory tests done.[9] Additionally, only a few select states in India have well-funded mechanisms in place for efficient procurement and supply of diagnostics.[10] Notably, most of the laboratories do not implement adequate and timely quality control and quality assurance measures, thereby increasing the chances of diagnostic errors.[2,9] Considering these loopholes in the traditional diagnostic system, the challenges patients face while availing laboratory services in a fragmented health system, and the scarcity of data on doctors' perception of laboratory chains, we aimed to better understand the healthcare professionals' perspective on laboratory chains in India. To achieve this, we conducted a survey to capture doctors' opinions on laboratory chains in India that encourage regular affordable health check-ups to help improve the overall health of the individuals. To better understand the doctor's perception/awareness about the major diagnostics in India, we thought of focussing on India's one of the oldest and well-established truly pan-India diagnostic laboratory chain, Thyrocare.

Thyrocare is an Indian multinational diagnostics chain and has emerged as a leading player in the healthcare sector with its comprehensive range of diagnostic tests and packages. Initially limited to thyroid testing, Thyrocare offers more than 700 tests and profiles today.

II. METHODS

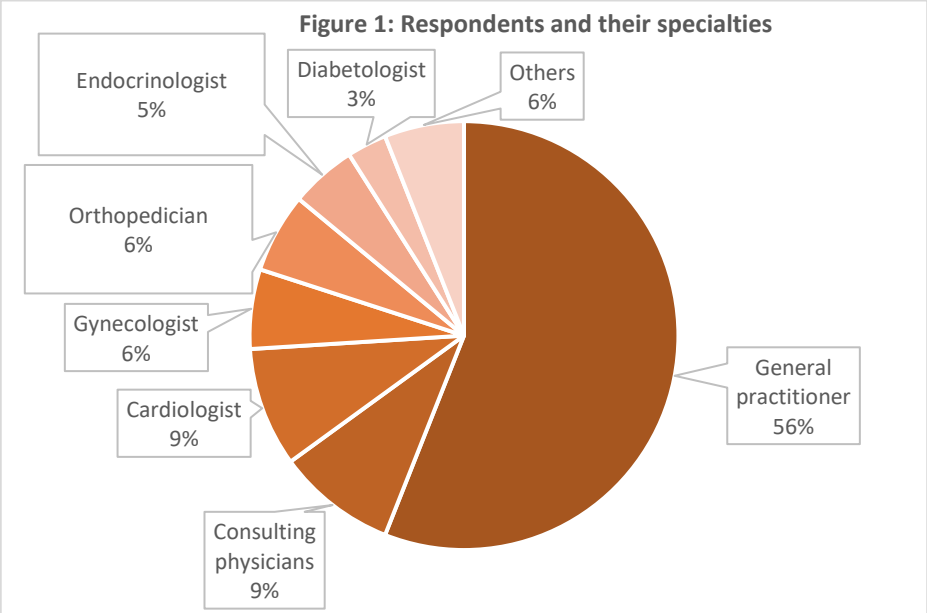
In order to access the current status of diagnostic chain laboratories in the medical community and identify areas of improvement in laboratory testing practices, Thyrocare appointed Medicca Press Limited to conduct a survey independently. Medicca Press Limited engaged Medisage E-Learning Private Limited, a market research organization, to digitally execute and analyze the survey. Medisage is one of the largest healthcare professional networks in India with almost 4,00,000 verified doctors across all major specialties registered on their platform. The doctors on the platform could participate in the study at their convenience from any device with an internet connection. Offline surveys were also conducted for a few doctors. A total of 1038 doctors with different specialties from various states in India were surveyed. Of these, 40% were offline in which doctors were telephonically contacted and questions were asked in the same flow as the questionnaire, and the remaining 60% took the survey via an omnichannel approach (email campaigns, website, and application).

The detailed survey questionnaire is given in Appendix 1.

III. RESULTS

Primary Analysis

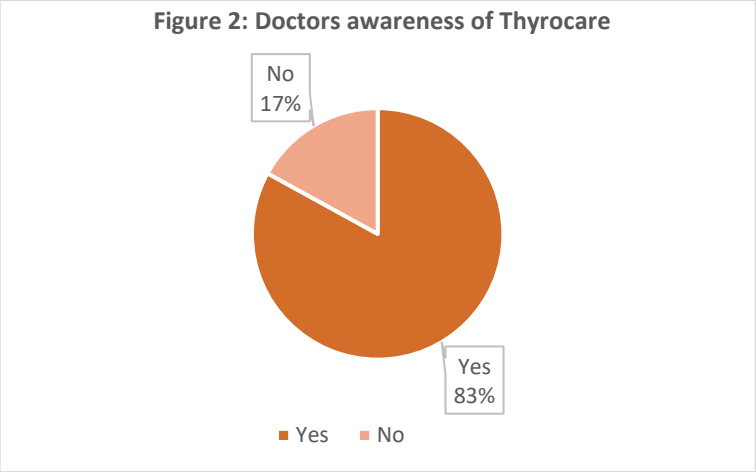
A total of 1038 doctors from different specialties participated in the survey from all over India. The majority of the respondents were general practitioners (56%), with some consulting physicians (9%), cardiologists (9%), gynecologists (6%), and orthopedicians (6%) (Figure 1). Most of these doctors were from Maharashtra (29%) and Uttar Pradesh (15%).



Others: Dentists, Pediatricians, General surgeons, Pulmonologists, Ophthalmologists, Homeopathic doctors, Urologists, ENT doctors, RMO, Ayurvedic doctors, Cardiac surgeons, Anesthesiologists, MBBS, Sexologists, Physiotherapists, Pathologists, Intensivists, Internal medicine doctors, Dermatologists, Environmental Health Science, Nephrologists, Neurologists, Oncologists, and Occupational Health Physicians.

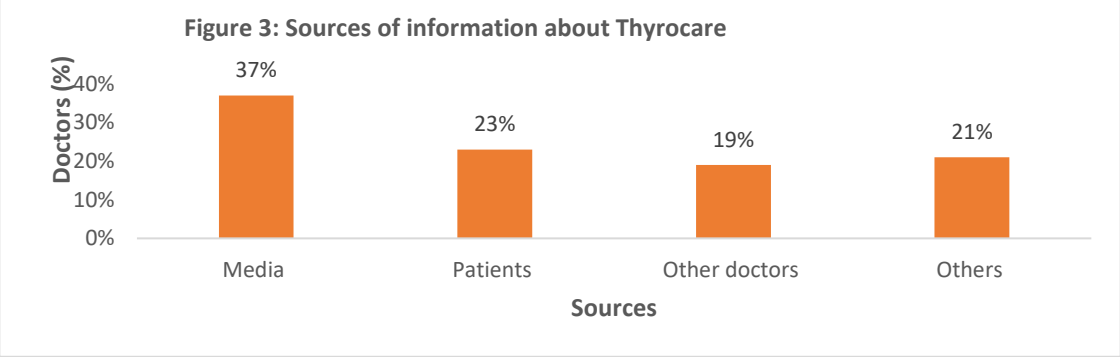
DOCTORS' VIEWS ON LABORATORY INVESTIGATIONS

Consistent with the widespread notion that laboratory investigations play a pivotal role in patient management, a significant majority of the doctors surveyed (98%) consider laboratory investigations as an aid to their diagnostic procedure. Moreover, a considerable percentage of doctors (83%) were found to be aware of Thyrocare (Figure 2).



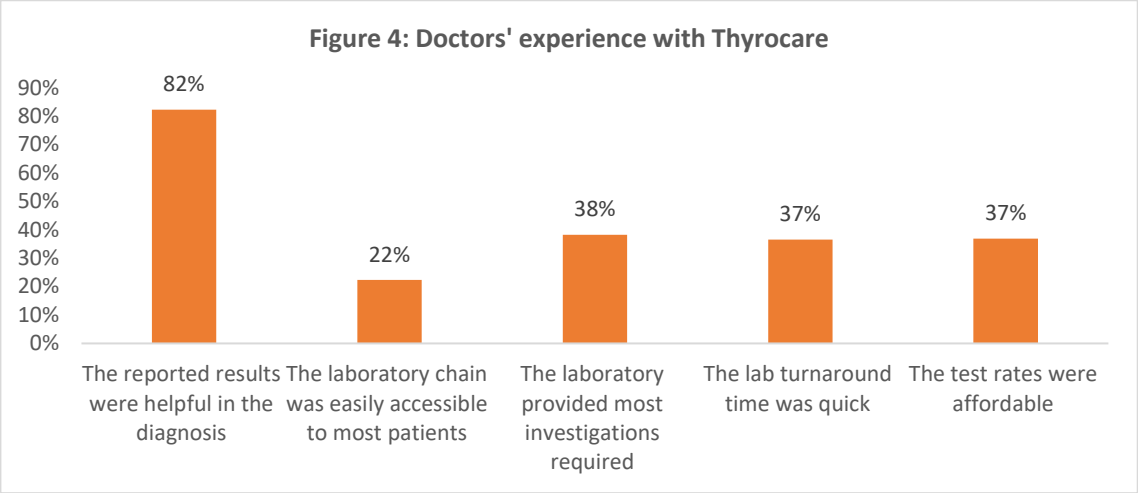
DOCTORS' EXPERIENCE WITH THYROCARE

The survey analysis revealed that a significant proportion of doctors were informed about Thyrocare through various channels, such as media (37%), patients (23%), and other doctors (19%) (Figure 3).

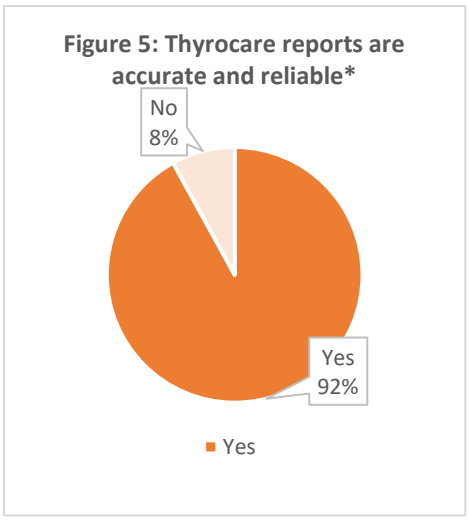


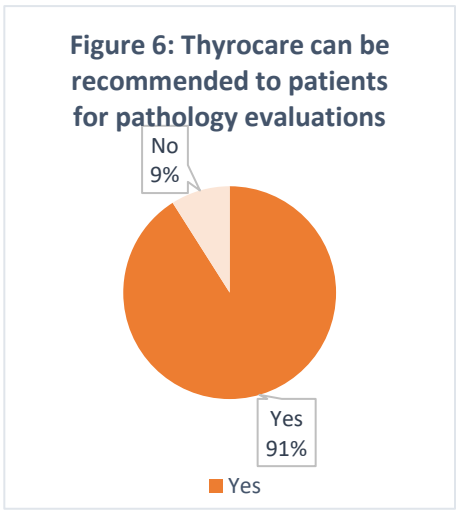
Others: Lab personnel, medical representatives, local area labs

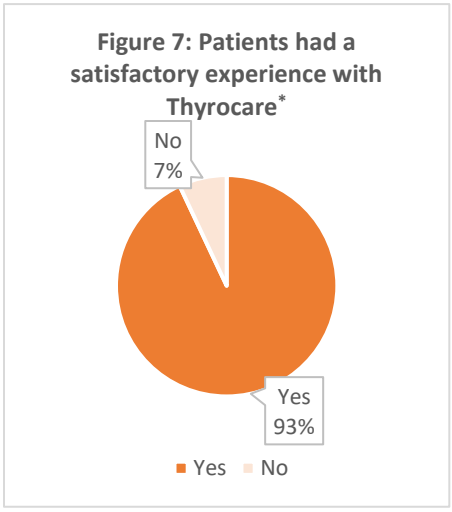
The majority of doctors surveyed had a good overall experience with Thyrocare. A substantial number of doctors felt that the reported results aided them with diagnosis (82.31%). Furthermore, a considerable percentage of doctors reported that the laboratory provided almost all the investigations required (38.27%), the test rates were affordable for their patients (36.88%), the laboratory turnaround time was quick (36.53%) and it was easily accessible to most patients (22.31%) (Figure 4)



As shown in Figure 5, a total of 9 out of 10 doctors (92%) believed that Thyrocare reports were accurate and reliable. Additionally, a significant proportion of doctors, (91%) were of the opinion that Thyrocare could be recommended for pathological evaluations to their patients (Figure 6) and 93% responded that their patients had a satisfactory experience with the laboratory (Figure 7). Notable, of those who were not previously aware of Thyrocare, a substantial majority (74%) revealed that they would consider recommending the laboratory to patients for future diagnostic purposes.







**Out of a total of 864 participants*
1 participant responded 'Maybe' to the question and was excluded from the analysis

**Out of a total of 862 participants*
3 participants responded 'Maybe' to the question and was excluded from the analysis

SECONDARY ANALYSIS

The secondary analysis brought forth the following specialty-based and regional variations in doctors' awareness and Thyrocare recommendations.

SPECIALTY-WISE FINDINGS

According to secondary analysis, the vast majority of doctors across various specialties (>90%) considered laboratory investigations as a valuable tool in supporting their diagnosis. The majority of the endocrinologists (92%), cardiologists (91%), and gynecologists (90%) reported being aware of Thyrocare. Furthermore, a high percentage of doctors (nearly 90%) from almost all the specialties stated that they would recommend Thyrocare for pathological examinations. Moreover, nearly 9 out of 10 doctors across specialties deemed Thyrocare reports to be accurate and reliable. Furthermore, most of the gynecologists (97%), orthopedicians (93%), diabetologists (92%), and cardiologists (90%) responded that their patients were satisfied with the service provided by Thyrocare (Table 1).

Table 1: Specialty-wise experience with Thyrocare

Parameters	**General practitioners**	**Consulting physicians**	**Cardiologists**	**Gynecologists**	**Orthopedicians**	**Endocrinologists**	**Diabetologists**	**Others**
Laboratory investigations support the diagnosis	98%	99%	98%	99%	98%	98%	100%	97%*
Awareness of Thyrocare	81%	87%	91%	90%	74%	92%	87%	85%*
Thyrocare recommendation for pathological evaluations	91%	91%	93%	95%	93%	82%	92%**	
Thyrocare reports are accurate and reliable	93%	91%	89%	95%	91%	87%	93%**	
Patients are satisfied following Thyrocare investigations	94%	90%	90%	97%	93%	84%	92%	96%^

**Out of a total of 66 participants from other specialties*
Other specialties: Pediatrician, Dermatologist, Dentist, ENT, Family Physician, General Surgeon, Cardiac surgeon, Physiotherapist, General Physician (Non-MBBS), Ophthalmologist, Anesthesiologist, Nephrologist, Oncologist, Neurologist, Sexologist, Pulmonologist, Urologist, and General Physicians (Ayurvedic, Homeopathic, Occupational Health Physician, Intensivist and Medical officer).

***Out of a total of 83 participants from other specialties*
Other specialties: Diabetologists + specialties mentioned above

^Out of a total of 56 participants from other specialties
Other specialties: Same as the first category

Among doctors who were unaware of Thyrocare, more than half of the participants across various specialties responded that they would consider the laboratory for future diagnostic purposes, including orthopedicians (67%), consulting physicians (67%), cardiologists (63%), and gynecologists (57%). A considerably higher proportion of general practitioners (79%) also thought of considering the laboratory for diagnostic investigations in the future.

REGION-WISE FINDINGS

In this study, it was found that all the participants (100%) from Delhi, Maharashtra, and Telangana considered laboratory investigations essential to their diagnosis. The participants from Telangana (92%) and Karnataka (90%) showed the highest percentage of doctors that were aware of Thyrocare. It was also observed that a significant proportion of doctors from Maharashtra (87%), Bihar (85%), and Delhi (84%) were aware of Thyrocare. However, the level of Thyrocare awareness was comparatively lower in other regions such as Andhra Pradesh (78%), Uttar Pradesh (75%), and Gujarat (74%) (Table 2).

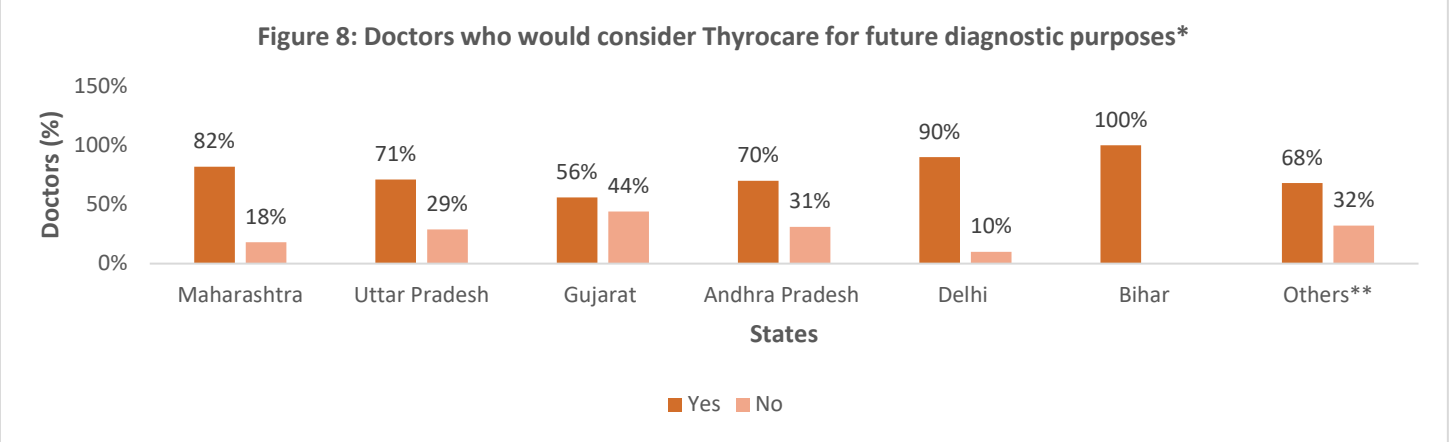
Similarly, a significant number of doctors from Telangana (96%), Delhi (96%), Bihar (92%), Maharashtra (91%), and Uttar Pradesh (90%) thought of recommending Thyrocare to their patients for pathological examinations. Moreover, nearly 9 out of 10 doctors across Indian states found Thyrocare investigations to be accurate and reliable. Maximum participants from Bihar (98%), Delhi (94%), Uttar Pradesh (93%), and Telangana (93%) also confirmed patient satisfaction with Thyrocare's reports (Table 2). These findings demonstrate the trust and confidence that doctors and patients have in Thyrocare's services.

Table 2: State-wise experience with Thyrocare

Parameters	Maharashtra	Uttar Pradesh	Gujarat	Delhi	Bihar	Andhra Pradesh	Karnataka	Telangana	Others
Laboratory investigations support the diagnosis	100%	95%	96%	100%	97%	97%	98%	100%	99%*
Awareness of Thyrocare	87%	75%	74%	84%	85%	78%	90%	92%	91%*
Thyrocare recommendation for pathological evaluations	91%	90%	88%	96%	92%	87%	87%	96%	95%**
Thyrocare reports are accurate and reliable	91%	94%	92%	94%	92%	84%	89%	96%	94%**
Patients are satisfied following Thyrocare investigations	92%	93%	92%	94%	98%	87%	91%	93%	95%**

**Out of a total of 172 participants from other states*
***Out of a total of 156 participants aware of Thyrocare from other states*
Other states: Tamil Nadu, West Bengal, Madhya Pradesh, Odisha, Kerala, Rajasthan, Haryana, Uttarakhand, Chhattisgarh, Jharkhand, Jammu & Kashmir, Himachal Pradesh, Punjab, Goa, Puducherry, Chandigarh, and Assam

Of the doctors who were unaware of Thyrocare, all of them from Bihar (100%), and majority of them from Delhi (90%), Maharashtra (82%), Uttar Pradesh (71%), and Andhra Pradesh (70%) responded that they could consider the laboratory for future diagnostic purposes (Figure 8).



**Out of a total of 148 participants unaware of Thyrocare*
***Other states (25 participants): Karnataka, Tamil Nadu, Telangana, Jammu & Kashmir, Odisha, Madhya Pradesh, Himachal Pradesh, Uttarakhand, Rajasthan, and Kerala*

IV. DISCUSSION

The importance of efficient support services for doctors including the clinical laboratory systems, cannot be overstated.[11] Nearly 83% of doctors participating in the current study felt that the test reports helped them with diagnosis. The Indian laboratory industry is constantly maturing and with a range of laboratory types and delivery formats emerging in recent years. Several factors have been instrumental to the progress of the diagnostic industry, including an increase in chronic health conditions and non-communicable diseases, an aging population, a shift towards preventative healthcare, an inclination towards evidence-based treatment, rising income levels, insurance coverage, and overall awareness due to media reach and internet penetration.[9] In the current survey, media was the most common source of information about Thyrocare among doctors. Given that laboratory results heavily influence medical decisions, it is crucial that doctors have confidence in the accuracy and reliability of test results.[11,12] As doctors are vital stakeholders of laboratory services, determining their perception of various features of laboratory testing can help improve the quality of care.[12]

According to NATHEALTH, diagnostic chains have been instrumental in transforming the diagnostic landscape in India, by implementing processes to overcome challenges in a complex healthcare delivery system, and primarily by adapting a patient-centric approach.[9]

While studies have been conducted in other countries to determine the doctors' and patients' satisfaction with laboratory services [12,13], they are limited in the Indian context. The current study was an attempt to bridge this literature gap and evaluate the doctors' perception of laboratory chains, with a focus on Thyrocare, one of the oldest and well-established truly pan-India diagnostic services in India.

Studies indicate that in developing countries, resource shortages, and the lack of proper management systems, quality assurance programs, equipment, and trained staff lead to poor quality laboratory services. Laboratory chains typically invest in advanced technology, IT infrastructure, automation, and training resources to reduce diagnostic errors and deliver high-quality results with improved efficiency.[14] As per WHO, laboratory quality is defined as the accuracy, reliability, and timeliness of results.[15] The current survey revealed that 9 out of 10 doctors from most of the specialties reported Thyrocare lab investigations to be accurate and reliable.

In addition to accuracy and reliability, WHO recognizes patient satisfaction as a relevant indicator of laboratory service quality. Patients who are satisfied with laboratory services are more likely to comply with the treatment plan and medical advice and proactively participate in their care with a higher willingness to pay for services. Conversely, patients who are dissatisfied with medical services tend to have worse health outcomes, miss appointments and follow-up visits, and exhibit low compliance with their treatment plan.[16] In the current study, the majority of the doctors (93%) revealed that their patients had a satisfactory experience with Thyrocare, which endorses the authenticity of the laboratory chain.

In addition to doctors' perception of the quality of results and patient satisfaction, the scope of the testing menu, turnaround time, and cost of tests are some other chief aspects to be considered for laboratory quality assessments.[12,17] A comprehensive assessment of these aspects can help ensure that patients receive high-quality care and optimal outcomes. According to a report by the NATHEALTH laboratory chains in India are taking steps to make modern diagnostics more accessible to patients.[9] The current survey results indicate that a considerable number of doctors agreed to Thyrocare providing most of the tests at affordable prices (38.57% and 36.5%) with a quick turnaround time (36.53%), and it was easily accessible to patients (22.31%).

The overall satisfactory experience of doctors and patients with Thyrocare could be attributed to the unique functioning of laboratory chains. These have played an active role in shaping up the new hub and spoke delivery models industry. Focus on quality, affordability, patient-centricity, broader test menu, better sample handling, and logistics are some of the key differentiators of laboratory chains, and these are readily accessible even to the most remote regions of the country. In the case of lab chains, sample collection is usually done at the patient's home, clinic, or hospital, followed by transfer to a collection center for processing and analysis at a centralized laboratory. The results obtained are then shared electronically with the doctors and patients.[9]

The survey provided a fair sense of doctors' perception of Thyrocare and helped identify potential areas of improvement. Targeted marketing with outreach strategies and advertising campaigns in regions with comparatively limited awareness could gradually help the medical community and patients trust Thyrocare for their diagnostic and testing needs, across regions and specialties.

V. CONCLUSION

In India, laboratory testing is generally viewed by doctors as a supplementary tool to aid in the diagnostic process and deliver quality care to patients. Chain laboratories (Thyrocare) have become increasingly popular among both doctors and patients as a reliable option for diagnostic and testing services. Our survey indicated that most doctors across specialties were familiar with Thyrocare, and patients reported positive experiences with their testing services. This suggests that Thyrocare has established a strong market position and is well-regarded for delivering accurate, reliable, and high-quality test results.

VI. ACKNOWLEDGEMENT

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