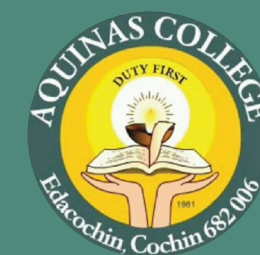


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Peer Reviewed Research Journal



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CONTENT

Science	Page No
1. Blockchain Technology & Cybersecurity Approaches Steffin Antony IP	1 - 11
2. Analysis of Mixed Valent Fe states in Multiferroic Bismuth Ferrite Synthesized using Low Temperature Chemical Route Blessy Mol Shaju and Sivaraj.K.S	12 - 17
3. Effect of iodine doping on the dielectric constant and conductivity of ac plasma polymerized pyrrole thin films Joseph John	18 - 23
4. The role of –M effect in the HIV-1 and HIV-2 protease inhibition of Amprenavir: Study using QTAIM and DFT based vibrational spectroscopy P S Sindhua, D E Nimmib, R G Abhilash Kumarc, Dhanesh Thomasc, S P Chandini Samd, S G Praveene, J Binoyc	24 - 40
Humanities	Page No
5. Vaikom Muhammed Basheer: An Ecocritical Perspective Dr. Lima Antony	41 - 46
6. The Recurrent Motifs of Masculinity and Misogyny in the Post-war Fictional works of Britain during the 1950s Dr. Anjana Sankar.S	47 - 56
7. Evolving Gayspaces in Bollywood Dr. Remya M. L	57 - 61
8. Postgenderism: Recasting Gender in Cyber Space Shima Antony	62 - 70
9. Vampires of the New World: Fanged Evil Spreading Through the Unknown Lands Beyond the Atlantic Tennyson Thomas	71 - 78
10. Trauma and Memory in Jose Saramago's Blindness Dr. Sheena Kaimal N	79 - 85

11. **Psychological Impact of Online Classes during the Covid 19 Pandemic and the Switching Back to Offline Classes - A Study conducted among the students of Aquinas College, Edakochi, Kerala, India**
Ms. Zeta Paul, Ms. Roshny Elizabeth 86 - 103

Commerce & Sports Page No

12. **An Analysis On Investors Awareness Towards Investing In Financial Assets With Special Reference To Salaried Class In Ernakulam District**
Remya M.J, Nikhil Norbert 104 - 114
13. **A Comparison of Food Behavior and Nutritional Facts of Physical Education and Non-Physical Education College Students**
Shaji Jose & Dr. Jackson Paul V 115 - 118

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Ms. Zeta Paul, Ms. Roshny Elizabeth 86 - 103
12. **Writing as Resistance: Reading Naga Women in Northeast Indian Anglophone Literature**
Dr. Rakhee Kalita Moral 104 - 110
13. **दक्षिण भारतीय हिंदी शोध की समस्याएँ**
डॉ. श्याम प्रसाद के.एन 111 - 120

Commerce & Sports

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14. **An Analysis on Investors Awareness Towards Investing in Financial Assets with Special Reference to Salaried Class in Ernakulam District**
Remya M.J, Nikhil Norbert 121 - 131
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Shaji Jose & Dr. Jackson Paul V 132 - 135

Blockchain Technology & Cybersecurity Approaches

Steffin Antony IP

Senior Analyst, Allianz Technology

ABSTRACT

Blockchain is a technology that is developed using a combination of various techniques such as mathematics, algorithms, cryptography, economic models, and so on. Blockchain is a public ledger of all cryptocurrency transactions that are digitized and decentralized. All the transactions of cryptocurrencies are stored in chronological order to help users in tracking the transactions without maintaining any central record of the transactions. Application prospects of blockchain are promising and have been delivering the result since its inception. Blockchain technology has evolved from initial cryptocurrency to new age smart contracts and has been implemented and applied in many fields. Although many studies have been carried out on the security and privacy issues of the blockchain, a systematic examination on the security of blockchain systems is still missing. In this chapter, we will try to demonstrate a systematic illustration on the security threats to blockchain and survey the corresponding real attacks by examining popular blockchain systems. This chapter will discuss the security and privacy of the blockchain along with their impact with regards to different trends and applications. The chapter is intended to discuss key security attacks and the enhancements that will help develop a better blockchain systems.

Key words: Blockchain technology, security issues, cyber-attacks, distributed techniques

About Blockchain

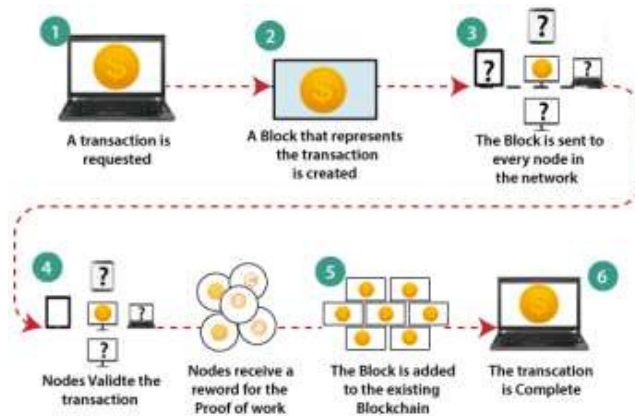
Blockchain technology is a distributed and decentralized ledger system that can record transactions between multiple computers. Blockchain started as the technology behind bitcoin, but has popularly grown into a promising mitigation technology for cybersecurity. Notably, human error remains to be the leading cause of data breaches. Blockchain fully automates data storage hence reducing the human element in these data storage systems. Blockchain can be utilized in any sector or industry. This is because any kind of digital asset or transaction can be inserted in blockchain, from any industry. The new technology is considered a

reliable cybersecurity protocol due to its capabilities of indicating any foul play and providing certainty in the integrity of transactions. Blockchain technology was designed to be transparent. Therefore, opposing the famous misconception, blockchain offers no privacy or confidentiality of any transactions made through it. When termed as secure, it is meant to describe the integrity of the transactions, not its privacy.

Blockchain technology explained

Think of a blockchain as a historical record of transactions. Each block is “chained” to the previous block in a sequence, and is immutably recorded across a peer-to-peer network. Cryptographic trust and assurance technology applies a unique identifier—or digital fingerprint—to each transaction. Trust, accountability, transparency, and security are forged into the chain. This enables many types of organizations and trading partners to access and share data, a phenomenon known as third-party, consensus-based trust. All participants maintain an encrypted record of every transaction within a decentralized, highly scalable, and resilient recording mechanism that cannot be repudiated. Blockchain does not require any additional overhead or intermediaries. Having a decentralized, single source of truth reduces the cost of executing trusted business interactions among parties that may not fully trust each other. In a permissioned blockchain, used by most enterprises, participants are authorized to participate in the network, and each participant maintains an encrypted record of every transaction.

Any company or group of companies that needs a secure, real-time, shareable record of transactions can benefit from this unique technology. There is no single location where everything is stored, leading to better security and availability, with no central point of vulnerability.



To learn more about blockchain, its underlying technology, and use cases, here are some important definitions.

- **Decentralized trust:** The key reason that organizations use blockchain technology, instead of other data stores, is to provide a guarantee of data integrity without relying on a central authority. This is called decentralized trust through reliable data.
- **Blockchain blocks:** The name blockchain comes from the fact that the data is stored in blocks, and each block is connected to the previous block, making up a chainlike structure. With blockchain technology, you can only add (append) new blocks to a blockchain. You can't modify or delete any block after it gets added to the blockchain.
- **Consensus algorithms:** Algorithms that enforce the rules within a blockchain system. Once the participating parties set up rules for the blockchain, the consensus algorithm ensures that those rules are followed.
- **Blockchain nodes:** Blockchain blocks of data are stored on nodes—the storage units that keep the data in sync or up to date. Any node can quickly determine if any block has changed since it was added. When a new, full node joins the blockchain network, it downloads a copy of all the blocks currently on the chain. After the new node synchronizes with the

other nodes and has the latest blockchain version, it can receive any new blocks, just like other nodes.

There are two main types of blockchain nodes:

- Full nodes store a complete copy of the blockchain.
- Lightweight nodes only store the most recent blocks, and can request older blocks when users need them.

Types of blockchain networks

- **Public blockchain:** A public, or permission-less, blockchain network is one where anyone can participate without restrictions. Most types of cryptocurrencies run on a public blockchain that is governed by rules or consensus algorithms.
- **Permissioned or private blockchain:** A private, or permissioned, blockchain allows organizations to set controls on who can access blockchain data. Only users who are granted permissions can access specific sets of data. Oracle Blockchain Platform is a permissioned blockchain.
- **Federated or consortium blockchain:** A blockchain network where the consensus process (mining process) is closely controlled by a preselected set of nodes or by a preselected number of stakeholders.

New cybersecurity approaches

Cybersecurity spending has increased exponentially in the past decade, with no signs of slowing. Worldwide, organizations plan to allocate more than \$1 trillion between 2017 and 2021 to protect themselves from online threats, according to one industry report. Despite that staggering investment, criminal hackers are still exploiting both publicly known and unknown vulnerabilities, and intercepting device, application, and network communications. CB Insights calculated that about 6 billion confidential files were stolen between 2017 and 2018. Other industry research shows that the number and cost of cyberattacks have increased.

These sophisticated assaults often outwit traditional security methods, including authentication, key management, cryptography, and privacy challenges. With a

large percentage of employees working from home due to the coronavirus pandemic, vulnerabilities are growing in new ways. So, instead of building more powerful tools, many businesses are rethinking the systems that created these vulnerabilities in the first place.

Blockchain offers a different path toward greater security, one that is less traveled and not nearly as hospitable to cybercriminals. This approach reduces vulnerabilities, provides strong encryption, and more effectively verifies data ownership and integrity. It can even eliminate the need for some passwords, which are frequently described as the weakest link in cybersecurity.

The principal advantage of blockchain is its use of a distributed ledger. A dispersed public key infrastructure model reduces many risks associated with centrally stored data by eliminating the most obvious targets. Transactions are recorded across every node in the network, making it difficult for attackers to steal, compromise, or tamper with data, unless a vulnerability exists at the platform level. Another traditional weakness is eliminated through blockchain's collaborative consensus algorithm. It can watch for malicious actions, anomalies, and false positives without the need for a central authority. One pair of eyes can be fooled, but not all of them. That strengthens authentication and secures data communications and record management. Although blockchain contains many nontraditional features, it does take advantage of one of the most important cybersecurity tools: encryption. The distributed ledger can utilize public key infrastructure to secure communication, authenticate devices, validate configuration changes, and discover confidential devices in an internet of things (IoT) ecosystem. Through encryption and digital signatures, a blockchain system can shield connected thermostats, smart doorbells, security cameras, and other vulnerable edge devices. A recent Palo Alto Networks report said that 98% of IoT device traffic was unencrypted and described it as "low-hanging fruit for attackers. Also, this technology can be a weapon against distributed denial-of-service (DDoS) attacks. A blockchain-based domain name system (DNS) — the protocol for directing internet traffic — can remove the single point that allows these attacks to succeed. In 2016, a large portion of the internet went down because of a DDoS attack on the servers of one DNS host.

Blockchain use Cases for Cybersecurity

Although not unbreakable, blockchain has evolved to become one of the most foolproof forms of transacting in the digital network realm. As designed and intended, the technology has been credited for its information integrity assurance. If well-utilized, many sectors can benefit from it. With the potential of being practical to many utilizations, blockchain can be implemented into many uses. One of the best uses would be utilizing its integrity assurance for building cybersecurity solutions for many other technologies. Below are some use cases of future beneficial use of blockchain to strengthen cybersecurity:

1. Securing Private Messaging:

With the internet shrinking the world into a global village, more and more people are joining social media. The number of social media platforms is also on the rise. More social apps are being launched with each dawn as conversational commerce gains popularity. Huge amounts of metadata are collected during these interactions. Most social media platform users protect the services and their data with weak, unreliable passwords. Most messaging companies are warming up to blockchain for securing user data as a superior option to the end-to-end encryption which they currently use. Blockchain can be used to create a standard security protocol. For enabling cross-messenger communication capabilities, blockchain can be used to form a unified API framework. In the recent past, numerous attacks have been executed against social platforms like Twitter and Facebook. These attacks resulted in data breaches with millions of accounts being breached and user information landing into the wrong hands. Blockchain technologies, if well implemented in these messaging systems, may prevent such future cyberattacks.

2. (IoT) Security:

Hackers have increasingly used edge devices, such as thermostats and routers, to gain access to overall systems. With the current obsession for Artificial Intelligence (AI), it has become easier for hackers to access overall systems like home automation through edge devices like 'smart' switches. In most cases, a large number of these IoT devices have sketchy security features. In this case, blockchain can be used to secure such overall

systems or devices by decentralizing their administration. The approach will give the capabilities of the device to make security decisions on their own. Not depending on the central admin or authority makes the edge devices more secure by detecting and acting on suspicious commands from unknown networks. Normally, hackers penetrate the central administration of a device and automatically gain full control of the devices and systems. By decentralizing such device authority systems, blockchain ensures such attacks are harder to execute (if even possible).

3. Securing DNS and DDoS

A Distributed Denial of Service (DDoS) attack occurs when users of a target resource, such as a network resource, server, or website, are denied access or service to the target resource. These attacks shut down or slow down the resource systems. On the other hand, an intact Domain Name System (DNS) is very centralized, making it a perfect target for hackers who infiltrate the connection between the IP address and the name of a website. This attack renders a website inaccessible, cashable, and even redirectable to other scam websites. Fortunately, blockchain can be used to diminish such kinds of attacks by decentralizing the DNS entries. By applying decentralized solutions, blockchain would have removed the vulnerable single points exploited by hackers.

4. Decentralizing Medium Storage:

Business data hacks and theft are becoming a primary evident cause of concern to organizations. Most companies still use the centralized form of the storage medium. To access the entire data stored in these systems, a hacker simply exploits but a single vulnerable point. Such an attack leaves sensitive and confidential data, such as business financial records, in the possession of a criminal. By using blockchain, sensitive data may be protected by ensuring a decentralized form of data storage. This mitigation method would make it harder and even impossible for hackers to penetrate data storage systems. Many storage service companies are assessing ways blockchain can protect data from hackers. Apollo Currency Team is a good example of an organization that has already embraced the blockchain technology in their systems (The Apollo Data Cloud).

5. The Provenance of Computer Software:

Blockchain can be used to ensure the integrity of software downloads to prevent foreign intrusion. Just as the MD5 hashes are utilized, blockchain can be applied to verify activities, such as firmware updates, installers, and patches, to prevent the entry of malicious software in computers. In the MD5 scenario, new software identity is compared to hashes available on the vendor websites. This method is not completely foolproof as the hashes available on the provider's platform may already be compromised. However, in the case of blockchain technology, the hashes are permanently recorded in the blockchain. The information recorded in the technology is not mutable or changeable; hence blockchain may be more efficient in verifying the integrity of software by comparing it to the hashes against the ones on the blockchain.

6. Verification of Cyber-Physical Infrastructures:

Data tampering, systems misconfiguration together with component failure have marred the integrity of information generated from cyber-physical systems. However, the capabilities of blockchain technology in information integrity and verification may be utilized to authenticate the status of any cyber-physical infrastructures. Information generated on the infrastructure's components through blockchain can be more assuring to the complete chain of custody.

7. Protecting Data Transmission:

Blockchain can be used in the future to prevent unauthorized access to data while in transit. By utilizing the complete encryption feature of the technology, data transmission can be secured to prevent malicious actors from accessing it, be it an individual or an organization. This approach would lead to a general increase in the confidence and integrity of data transmitted through blockchain. Hackers with malicious intent tap into data amid transit to either alter it or completely delete its existence. This leaves a huge gap in inefficient communication channels, such as emails.

8. Diminish Human Safety Adversity caused by Cyber-attacks:

Thanks to innovative technological advancements, we have recently seen the roll-out of unmanned military equipment and public transportation. These automated vehicles and weapons are possible thanks to the Internet that facilitates the transfer of data from the sensors to the remote-control

databases. However, hackers have been on the job to break and gain access to networks, such as Car Area Network (CAN). When tapped into, these networks offer complete control access to vital automotive functions to the hackers. Such occurrences would have a direct impact on the safety of humans. But through data verification conducted on blockchain for any data that goes in and through such systems, many adversities would be prevented.

Blockchain challenges

Organizations from multinational corporations to governments are clamoring to adopt blockchain-based cybersecurity, viewing it as the next big thing. But it's not as simple as updating an existing toolkit. This intertwining of blockchain and cybersecurity is still an evolving approach. Not all research ideas on digital identities, decentralized storage, securing edge devices, and smart contracts align with business needs. Without careful consideration, implementation can become impractical or even impossible. Here are some hurdles that organizations may encounter when considering blockchain as part of their cybersecurity strategy.

Technology risks

Blockchain offers several benefits, such as efficiency, optimization, reduced costs, and improved security. However, the technology also introduces new risks into systems when not carefully managed. These risks include:

- **Improper key management and access control:**
Unlike with traditional means, end users are completely responsible for managing their digital assets. Private keys are mapped with user ownership, so unauthorized access or theft of cryptographic keys may lead to a total and irreversible loss.
- **Unintended forks and chain split attacks:**
During the smart contracts upgrade process, there is a chance that some nodes may not support the changes made during the consensus phase. That can lead to a new chain splitting from the old and introduce blockchain-specific risks, such as replay, double spend, and 51% attacks. In those cases, unauthorized parties could block, reverse, or repeat transactions.

- **Inadequate encryption scheme selection and insecure operations:**
Transmitting or storing sensitive data using cryptographic algorithms isn't enough to protect against man-in-the-middle attacks. A number of factors could make blockchain vulnerable to this type of intrusion, including inadequate encryption, weak or incorrect keys, key management errors, incorrect cryptographic implementation, or improper verification of digital signatures or certificates.
- **Application programming interface (API) integration:**
Third parties are required for API integration, whether it's a private or public blockchain. That leads to trust issues and unintentional leakage of sensitive data.

Conclusion

No matter how it is utilized, the key component of blockchain technology is its ability to decentralize. This feature removes the single target point that can be compromised. As a result, it becomes utterly impossible to infiltrate systems or sites whose access control, data storage, and network traffic are no longer in a single location. Therefore, blockchain may be one of the most efficient mitigation strategies for cyber threats in the coming days. Nevertheless, blockchain, just as with any other new technologies, faces many startup challenges as it undergoes the painful process of growth.

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Analysis of Mixed Valent Fe states in Multiferroic Bismuth Ferrite Synthesized using Low Temperature Chemical Route

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ABSTRACT

BiFeO₃ samples were synthesized using soft chemistry procedures. The phase purity was confirmed using X-ray Diffraction and surface morphology was observed using Scanning electron microscopy. The compositional analysis was carried out employing X-ray Photoelectron Spectroscopy (XPS).

Keywords: multiferroics, composition, grain formation, binding energy

INTRODUCTION

Multiferroic materials are potential materials in material science which can be effectively functionalized due to their exciting characteristics. This makes them one of the hot materials which are extensively researched due to their novel multifunctional properties. Multiferroic materials possess two or all three of the ferroic properties: ferroelectricity, ferromagnetism and ferroelasticity in the same phase. In particular the focus is on the multiferroic magnetoelectric materials in which the ferromagnetism can be switched by applying electric field and ferroelectricity by applying. Bismuth Ferrite is one of the well-known multiferroic perovskite, widely investigated now a days because of their simultaneous coexistence of ferroelectric and anti-ferromagnetic order parameters in perovskite structure, which are useful for applications in non-linear optics, thin film capacitors, photo-electrochemical cells, non-volatile memories etc. [1, 2].

BiFeO₃ (BFO) is one of the few multiferroics that has Curie and Neel temperature above room temperature. The ferroelectric properties appear in BiFeO₃ below ferroelectric Curie temperature $T_C = 1100\text{K}$ whereas the antiferromagnetic ordering together with weak ferromagnetic moment appear below the Neel temperature $T_N = 643\text{K}$. It is the only material that is both magnetic and a strong ferroelectric showing multiferroic property at room temperature. Magnetoelectric

coupling is realized at room temperature and such coupling is strongly enhanced by proper doping [3,4].

Bulk bismuth ferrite can be described as a rhombohedrally distorted ferroelectric perovskite with the space group R3c. BFO magnetic structure showed that each Fe³⁺ spin is surrounded by six antiparallel spins on the nearest Fe neighbours that is, a G-type antiferromagnet. As bulk BiFeO₃ is a room-temperature ferroelectric, it has a spontaneous electric polarization directed along one of the [111] directions of the perovskite structure [5,6]

MATERIALS AND METHODS

All the reagents were of analytical grade and used without further purification. Synthesis was carried out by soft chemical route using bismuth nitrate, ferric nitrate, nitric acid and tartaric acid as source materials. In a typical experimental procedure 0.1 M of Bi(NO₃)₃ · 5H₂O and 0.1 M of Fe(NO₃)₃ · 9H₂O were prepared separately in 100 ml deionized water. Nitric acid was added to both solutions until it became saturated. These solutions were mixed together. 1 M of tartaric acid solution was added drop wise until a yellow precipitate is formed. The reaction mixture was stirred using a magnetic stirrer. Then the solution was heated at a temperature of about 100⁰C to 120⁰C for 3 hours till the residue was completely burned. A brownish red sol was obtained. The structural phase formation is confirmed using Rigaku D-Max X-Ray Diffractometer and morphology was analyzed using scanning electron microscopy. Compositional analysis was carried out by using X-ray Photoelectron Spectroscopy. Dielectric measurements were performed to get an insight into the conduction mechanism using a homemade dielectric cell and an LCR meter HP 4285A automated using virtual automation package LabVIEW.

RESULTS AND DISCUSSIONS

Structural Characterization

The phase formation is confirmed from the X-Ray Diffraction pattern obtained using Rigaku D-Max Cu K α X-Ray Diffractometer. . The perovskite structure is clearly visible from the peaks and the graphs obtained were compared using the ICDD file (Figure 1a). Synthesis using tartaric acid yielded phase pure BiFeO₃ (BFO-T) with minute impurity peaks. This clearly indicates

that low temperature preparation of BiFeO_3 is well assisted by tartaric acid. The particle size of the samples calculated using Debye Scherer equation was found to be of the order of 15nm. Scanning Electron Microscopy images display grain formation with clear grain boundaries (Figure 1b).

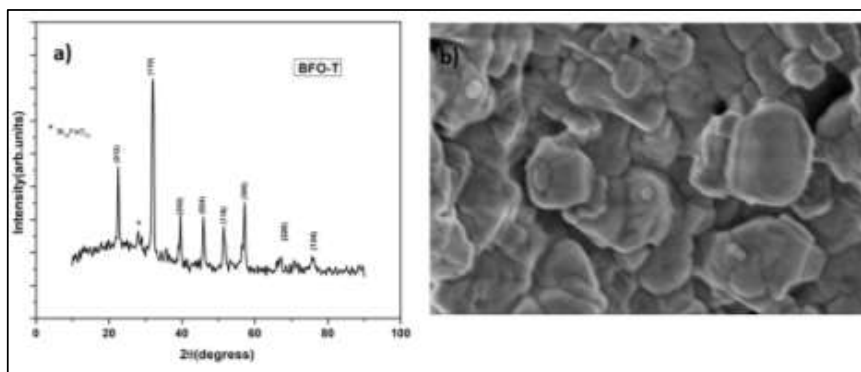


Figure 1: a) X-Ray Diffractogram and b) Scanning Electron Micrograph of BFO-T

Compositional Analysis using X-ray Photoelectron Spectroscopy

The X-ray Photoelectron Spectroscopy survey scan of BFO-T is as shown in figure 2. The spectrum displays characteristic photoelectron lines of Bi, Fe, O and C. A slow scan of the peaks corresponding to Bi4f, Fe2p and O1s is carried out for detailed investigation.

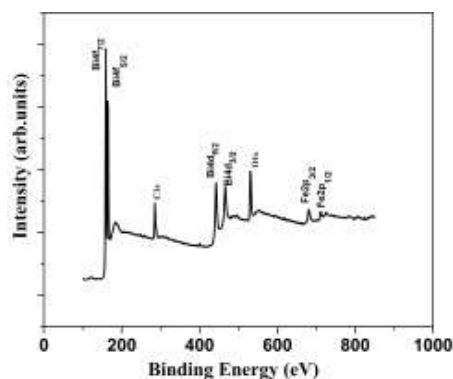


Figure 2: X-ray Photoelectron Spectroscopy Survey scan of BFO-T

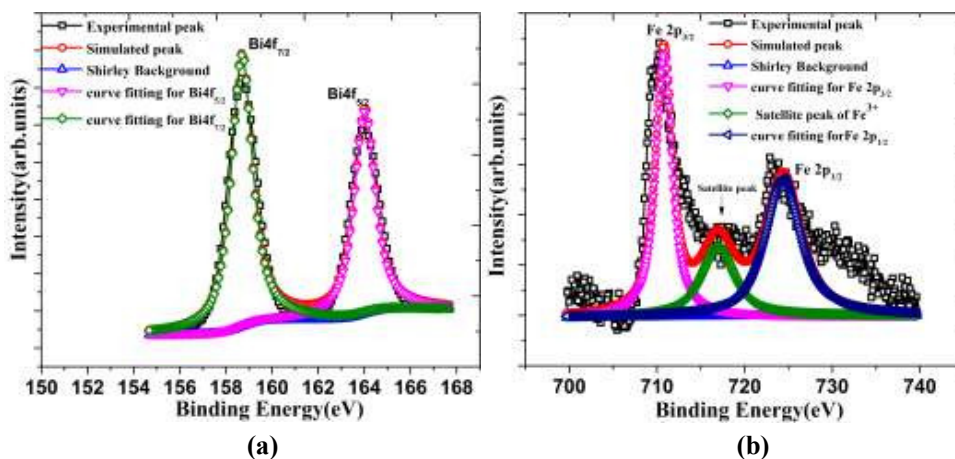


Figure 3: X-ray Photoelectron Spectra of BFO-T corresponding to a) Bi4f and b) Fe2p

Figure 3.a shows the detailed X-ray Photoelectron Spectra of Bi4f which contains a doublet where the peak positions of Bi4f_{7/2} and Bi4f_{5/2} are respectively assigned to binding energies at 158.7 eV and 164.1 eV with a spin orbit splitting of 5.4 eV which is in good agreement with already reported values. The presence of oxygen vacancies and the presence of mixed valence states of Fe can be evaluated by analyzing the detailed spectrum of Fe2p states (Figure 3.b). The peak positions of Fe2p_{3/2} and Fe2p_{1/2} are assigned with binding energies at 710 eV and 724 eV similar to the ones reported earlier in literature. The sintering process leads to the formation of oxygen vacancy which creates mixed valence states of Fe (Fe²⁺ and Fe³⁺). These states have the same energy values in the spectrum and hence cannot be resolved from the XPS analysis. Corresponding to each oxidation state a satellite peak is also present in the spectrum above the principal peak having a specific energy value. The satellite peak observed at 8eV above the principal peak corresponds to Fe³⁺ while that observed at around 5eV above the principal peak corresponds to Fe²⁺. Hence as observed from the spectrum analysis in figure 3.b, the satellite peak at 117.7 eV is assigned to that of Fe³⁺, thus confirming its major contribution.

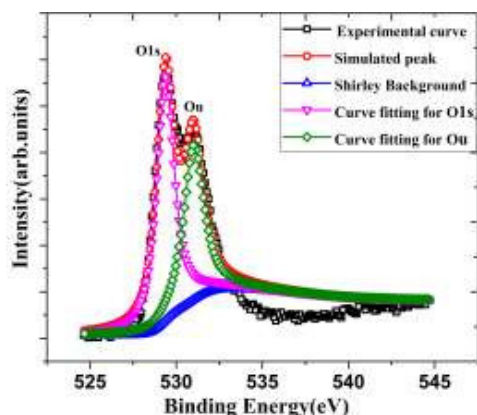


Figure 4: X-ray Photoelectron Spectra of tar1:1 corresponding to O1s

Even though the presence of Fe^{2+} is less, its formation is a byproduct of the synthesis procedure. The presence of oxygen vacancies aids this formation which again is confirmed by analyzing the spectrum of O1s (Figure 4). The peak observed at lower binding energy corresponds to the oxygen in the bulk while that assigned at higher binding energy corresponds to the oxygen vacancies. Its intensity is comparatively less than that of the bulk counterpart.

CONCLUSION

The challenge in synthesizing phase pure Bismuth Ferrite employing economical and feasible laboratory condition was addressed in this investigation. A low temperature chemical route aided by chelating agent was employed for the preparation. Trial and error procedures concluded the use of tartaric acid as the apt chelating agent for the procedure. The phase purity was confirmed using XRD and the SEM images confirmed fine grain formation. The presence of both Fe^{2+} and Fe^{3+} was confirmed by employing X-ray Photoelectron Spectroscopy. These mixed valent states can act as potential mediators for enhancing multiferroic characteristics of Bismuth Ferrite. The role of oxygen vacancies in creating this mixed valency is also analyzed.

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Effect of iodine doping on the dielectric constant and conductivity of ac plasma polymerized pyrrole thin films

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ABSTRACT

Polypyrrole thin films have been prepared by ac plasma polymerization. The insitu doping of these films with iodine vapor is also carried out. Dielectric constant, dielectric loss and ac conductivity of these films were investigated in the frequency range from 100 Hz to 1MHz and in the temperature range from 300 to 373 K. It is found that the dielectric constant of the pristine films shows a higher magnitude when compared to the iodine doped ones and in both cases it decreases as the frequency increases. Dielectric loss decrease with increase of frequency and vice versa in the case of both pristine and doped films. This type of behaviour was found to be in good agreement with Austin–Mott model for hopping conduction. Annealing of polypyrrole thin films in high vacuum at 373K for 1 hr was found to reduce the dielectric loss. These films exhibit low dielectric constant values, which are stable over a wide range of frequencies and are suitable candidates for low k applications.

Key words: plasma polymers, polypyrrole, ac conductivity, dielectric constant.

1. INTRODUCTION

Plasma polymerization is a technique for producing polymer-like-organic materials in the form of thin films with the aid of a plasma discharge. Insoluble, pinhole-free and cross-linked thin polymeric films have been prepared from a large number of organic monomers, without any catalyst. By this method, the formation of polymers under the influence of plasma, yields materials that are vastly different from conventional polymers. Owing to their formations by a fragmental polymerization process in contrast to the molecular polymerization process used to synthesize conventional polymers, these materials show no crystallinity and are highly branched [1]. Plasma polymerized organic films are in general dielectric materials with insulating properties. An increasing number of applications are found for these films in a wide variety of fields. Among these applications, they are

used as solar mirror protective coatings [2], antireflection coatings, thin film capacitor materials, humidity sensors, and so on. The plasma-polymerized thin films have been found to be useful as thin film insulators and capacitors in integrated microelectronics [3]. These films are subjected to different types of treatments such as iodine doping, annealing in different conditions, to enhance the conductivity and to make semi conducting and even conducting materials [4]. We report here the preparation of polypyrrole (PPy) thin films by ac plasma polymerization technique and the investigation carried out on the dielectric properties and ac conductivity of these films at different frequencies and temperatures and the results are presented.

2. MATERIAL AND METHODS

2.1. Preparation and characterization of the thin films

PPy thin films were prepared by ac plasma polymerization technique [5]. The set up consists of two stainless steel electrodes, of diameters 0.23 m and placed 0.04 m apart. Ultrasonically cleaned glass substrates (2.2mm thick), precoated with aluminum (99.99% pure) at a thickness of 100 nm were placed on the lower electrode for the polymer thin film deposition. The glow discharge chamber was evacuated using a rotary pump at a pressure of 0.1 Torr. Plasma discharge was obtained in the chamber by applying a low frequency (50 Hz) and a high ac voltage of 1000 V between the electrodes with current in the range 70 mA. Monomer was injected into the glass chamber between the electrodes by means of a glass sprayer and the flow rate is carefully controlled using a needle valve. The plasma current density in the chamber was estimated as 0.105 A/m^2 . for the iodine doped films the glow discharge was carried out under iodine vapor, inserted to the plasma chamber with out affecting the vacuum inside the chamber . The thin films prepared in the iodine atmosphere (dPPy) were heated at 340 K for about an hour in vacuum for expelling the part of the iodine, which was not incorporated in the polymer matrix.

For the dielectric measurements sandwich structure configuration of the form Al-polypyrrole-Al with an effective area of $2.5 \times 10^{-5} \text{ m}^2$ were used. The lower and upper aluminum electrodes were deposited on to the glass substrate and on the sample using vacuum thermal evaporation unit at a pressure of 10^{-5} Torr. The Al electrode thickness was about 100nm. The dielectric measurements were carried out by using an HP 4192A LCR Meter in a dynamic vacuum of 10^{-2} torr by suitably

placing the samples in a home made conductivity cell. This value is incorporated in the calculation of the conduction mechanism of the thin films. Thickness of the samples was measured by a Dektach 6 M stylus profilometer

3. RESULTS AND DISCUSSION

PPy thin films were prepared by ac plasma polymerization. The optical and electrical properties of these films were reported recently. The dielectric studies were carried out on the pure and the iodine doped sample of polypyrrole. The films were pinhole free, having a good adhesion to the glass and to the metal electrodes. The films were iodine doped insitu by admitting iodine vapour into the polymerization chamber along with the polymerization. By controlling the monomer flow rate and time of deposition, polymer films in the thickness range 1500 Å to 3500 Å. were obtained on ultrasonically cleaned glass slides.

3.1 Frequency dependence of dielectric permittivity at different temperatures

The frequency and temperature variation of dielectric constant have been analyzed on a typical film of thickness 2500 Å at eight different temperatures. Figure 1 illustrates the variation of dielectric constant with frequency at different temperatures for the typical PPy thin film. The variation of dielectric constant with frequency for dPPY sample is shown in the figure 1. b.

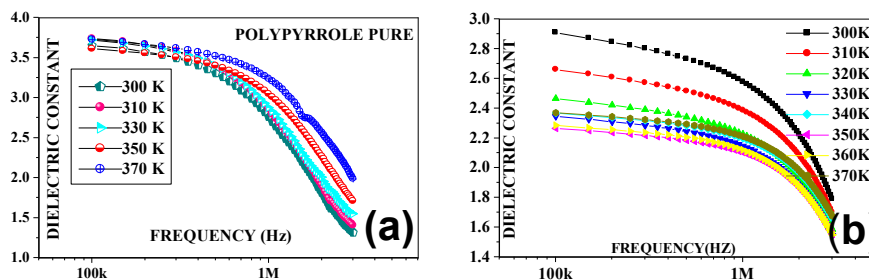


Figure 1 .Dielectric constant vs Frequency for different temperatures for **a.** pristine, **b.** Iodine doped

It is observed that there is an increase in dielectric constant with decrease in frequency for both cases. Dielectric constant increases towards the low frequency region as the temperature is increased. The dielectric behavior of a polymer sample

under the influence of an electric field can be explained on the basis of its microscopic behavior. which can be attributed to polarization phenomenon of charged species. The increase in dielectric constant with a decrease in frequency and an increase in temperature can be attributed to interfacial polarization effects and this was explained by Maxwell and Wagner in terms of a two-layer dielectric model [6]. Interfacial polarization is the consequence of space charge accumulation at the structural interfaces of the homogeneous dielectric material. Charge carriers migrating under the influence of an applied electric field, through the several phases of the dielectric produce varying charge accumulation at the interfaces. These charges may be impeded in their motion by trapping at impurity centers or at the interfaces or because they cannot be freely discharged or replaced at an electrode. The resulting space charge produces distortions of the microscopic field, which appears as a polarization to the external observer.

3.2. Dependence of dielectric constant on temperature at different frequencies

The effect of temperature in the range (303-373K) on dielectric constant at four different frequencies (100 KHz, 1 MHz, 2 MHz, 3 MHz) is shown in the figure 2.a for pure polypyrrole thin films in its pure and in figure 2. b in its doped form

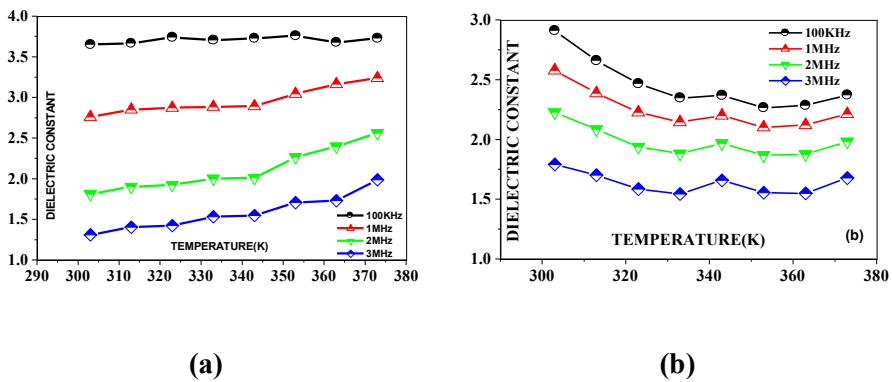


Figure 2. Variation of ϵ_r for different frequencies as a fn of temperature **a.** Pure **b.** doped

At all frequencies, dielectric constant increases with an increase in temperature. At low temperature the increment is found to be small. However at high temperatures, there is an appreciable increase in dielectric constant with

temperature. This may be due to an increased accumulation of space charges and the increased effects of interfacial polarization with an increase of temperature. Figures 2.b shows the temperature variation of dielectric constant at different fixed frequencies for dPPy thin films. Over wide ranges of temperatures and frequencies, the variation of dielectric constant is small. This may be because of the increase in film current of the dppy caused by the ionic motion of carriers with an increase of temperature.

3.3. A.C. conductivity

A.C. conductivity of PPy and dPPy samples are measured in the frequency range of 100 KHz to 3 MHz and in the temperature range of 303 K to 373 K. The ac conductivity values of the thin films are calculated from the loss tangent, $\tan \delta$ values. The variation of a.c conductivity with frequency at different temperatures of the samples are given in figure 3.

Figure 3.b show the dependence of a.c conductivity on frequency at different temperatures for dPPY. The a.c conductivity increases with increase in frequency and decreases with the increase of temperature. A.C. conductivity measurements provide information about the interior of the insulator, which is the region of low conductivity

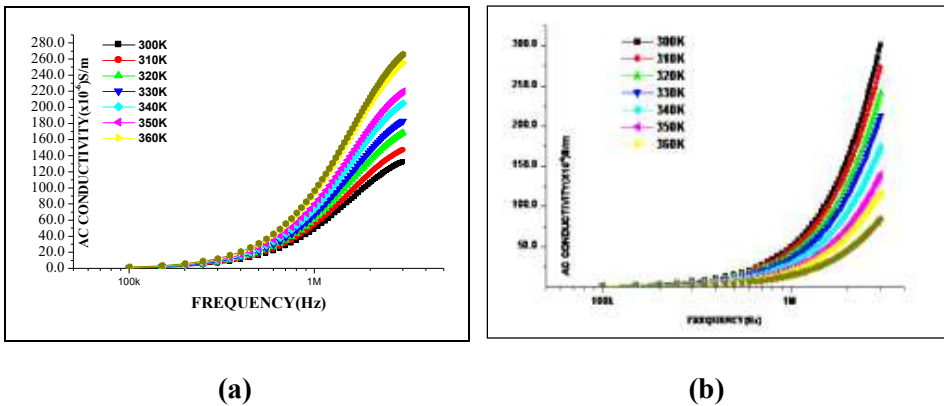


Figure 3. a.c. conductivity as a function of frequency at different temperatures a. Pure b. doped

CONCLUSIONS

AC plasma polymerization technique is employed for the deposition of plasma polymers of pyrrole. The dielectric behavior of polypyrrole doped with iodine has been studied for different frequencies and for various temperatures. Doping changes the dielectric properties of these films. Polypyrrole has a low dielectric constant as well as good thermal stability and low dielectric loss. This is interesting from the viewpoint of many technological applications are concerned and scope exists to carry out further studies with various other dopants. The investigations carried out to study the electrical properties shows that there is an increase in the electrical conductivity upon doping with iodine

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The role of –M effect in the HIV-1 and HIV-2 protease inhibition of Amprenavir: Study using QTAIM and DFT based vibrational spectroscopy

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ABSTRACT

The study of HIV 1 and HIV 2 protease inhibition of amprenavir is of immense therapeutic interest owing to its application in the design of drugs for the treatment of AIDS. Since the inhibition is dependent on the molecular structural features, the structural and spectral studies have been carried out using FT-IR and FT-Raman spectroscopy, aided by DFT computed geometry and vibrational spectra. The –M effect induced by the sulphonamide group and the consequent electron flow through APS (aminophenylsulphonamide) ring has been explored using geometric parameters. The charge redistribution in the ring and the changes in bond strength arising due to this electron flow have been investigated using NBO results and QTAIM based vibrational analysis. The relative strength of resonance of oxygen and nitrogen lone pair with the carbonyl group due to ‘competing have been exploited using relative change in bond length and IR stretching frequencies. The role of π -anion interaction, favored by the electron deficiency of APS ring due to –M effect and the cooperativity of bonding has been examined using ESP mapping, quadrupole moment and the polarizability perpendicular to the ring. The stable binding pose of amprenavir in the binding site of HIV1 and HIV 2 and amprenavir-residue interaction, obtained from docking, have been confirmed respectively using RMSD and simulation interaction diagram, procured from molecular dynamics simulation.

1. INTRODUCTION

Amprenavir((3S)-oxolan-3-ylN-[(2S,3R)-3-hydroxy-4-[N (2methylpropyl) (4aminobenzene) sulfonamido]-1-phenylbutan-2-yl]carbamate), an antiretroviral protease inhibitor, has been emerged as the promising therapeutic agent recently[1], and has been used in the prevention of human immune deficiency virus (HIV) infection [2]. Amprenavir binds to the protease active site and inhibits the activity of the enzyme which prevents cleavage of the viral polyproteins resulting in the formation of immature non-infectious viral particles[3]. Owing to the ever growing medicinal importance, amprenavir has been subjected to the detailed studies on the various aspects of drug action such as drug design for the treatment of AIDS[4], nanoparticle mediated therapeutic drug delivery[5], off-target drug binding [6]and the drug resistant mechanism[7].

Since the drug action of compounds is dependent on the molecular structural features, the structural studies aided by spectroscopic methods can provide molecular features responsible for drug action[8]. The molecular dynamics and free energy studies of amprenavir and its derivatives complexed with HIV1 protease have been conducted to explore V82F/I84V double mutation [9].The molecular level binding mechanism of amprenavir with HIV1 and HIV2 has not been explored and can be effectively studied using DFT, QTAIM based molecular vibrational analysis and molecular docking simulation that can reveal structure-activity correlation of the drug-HIV binding.

The present work aims to investigate the –M effect acting on the (4-Aminophenyl sulfonyl) APS group of amprenavir, based on the DFT computed geometry, vibrational modes and topological analysis of electron density, along with the competing resonance in carbamatemoiety.The depletion of electron density consequent to the electron transport in APS ring, analysed based on ESP mapping and quadrupole moment tensor, has been used to explore π - cation/anion binding mechanism responsible for amprenavir-HIV1/HIV2complex formation.

2. EXPERIMENTAL

The compound Amprenavir was purchased from Sigma-Aldrich and the FT-Raman spectrum (Fig.3) was obtained on a Horiba JobinYvon FT- Raman spectrometer. The compound, taken as such, has been subjected to Ar laser excitation, with wavelength 632 nm and measurement on solid sample has been carried out in the

region 4000–400 cm^{-1} , with resolution 2 cm^{-1} . The FT-IR spectrum (Fig.2) of compound was recorded using Shimadzu FTIR 8400s spectrophotometer in the range of 4000–400 cm^{-1} , with samples in KBr pellets, with spectral resolution 2 cm^{-1} .

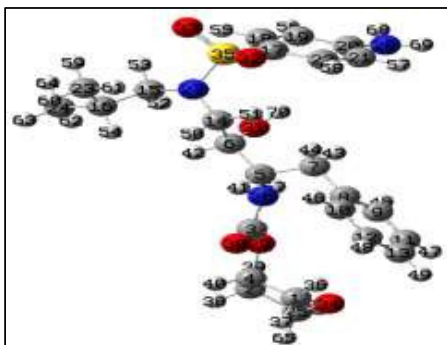


Fig. 1. The optimized molecular structure of Amprenavir calculated using DFT at the B3LYP/6-311++G(d,p) level.

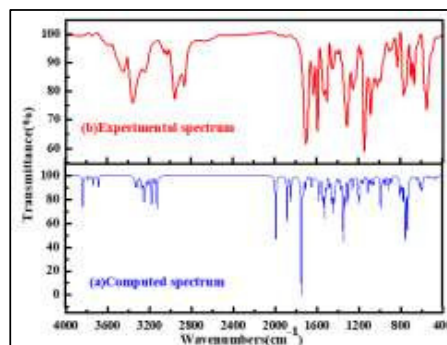


Fig.2. IR Spectrum of Amprenavir (a) experimental spectrum, (b) computed spectrum with scaled wavenumbers.

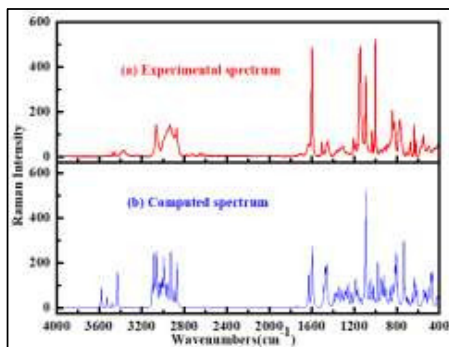


Fig.3. Raman spectrum of Amprenavir (a) experimental spectrum (b) computed spectrum with scaled wavenumbers

3. COMPUTATIONAL DETAILS

The molecular geometry optimizations using density functional theoretical (DFT) method (Fig.1) was carried out using the Gaussian'09 software package [10], employing B3LYP exchange correlation functional, with the standard 6-3

11++G(d,p) basis sets [11]. This is followed by the molecular vibrational spectral simulation using 6-31G(d) basis set and the band positions have been scaled, using standard scaling factor of 0.961 [12]. The vibrational wavenumbers, IR intensities, Raman intensities, eigen vector distribution of vibrational modes and Potential Energy Distribution (PED) [13] were used for the detailed vibrational spectral analysis. Raman intensities (I_i) has been derived from the intensity theory of Raman scattering [14].

To study the biological activity of the compound, the binding of the present compound Amprenavir with HIV-1 and HIV-2 has been investigated, using Autodock 4.2 program [15]. The 3D crystal structure of HIV-1 (pdb id: 1odw) and HIV-2 (pdb id: 3s45) obtained from the protein data bank [16] has been used in docking studies. The protein was prepared for docking by removing the waters and co-factors and the ligand was prepared for docking by minimizing its energy using DFT at B3LYP/6-311++G(d,p) level of theory. The docked ligand has been found to form a stable complex and amongst the docked conformations, one which bound with highest binding energy at the active site was analyzed for detailed interactions.

The MD simulations were carried out for HIV1-amprenavir and HIV2-amprenavir complexes, which are minimum energy conformers generated using molecular docking. The dynamics simulation were performed on Desmond software [17,18,19], by using OPLS_2005 force field [20]. The complex was centered in a cubic TIP3P water box [21], and the periodic boundary conditions were applied to the system, followed by the addition of counter ions Na^+ or Cl^- , making a charge neutral system in 0.15M NaCl solution. The 1200ps MD simulation was run in an isothermal-isobaric ensemble, having pressure 1.01325 bar and temperature 300K, with a time step of 1.2ps.

4. RESULTS AND DISCUSSION

4.1 -M effect in APS group

The electron withdrawing effect attributed by sulfonamide on delocalized π electron ring system, which is found to generate canonical structures (Fig 4), leading to negative mesomeric (-M) effect and the electronic nature of molecular fragment can be correlated to the structural evidences. The molecular geometrical consequence of this electronic transport is to cause the elongation of S=O and S-N

bonds, whereas C-S bond has been shortened. The evidence for the changes in bonding parameters can be observed by analyzing DFT computed optimized geometry and the elongation of S=O and S-N bonds is obvious from the computed values of 1.465 Å and 1.682 Å respectively, which are longer than the corresponding reported values, 1.43 Å and 1.61 Å [22,23]. The bondlength shortening or strengthening of C-S bond is obvious from the DFT computed value of 1.79 Å, compared to the standard C-S bondlength of 1.82 Å [24]. The origin of –M effect or the electron shift towards oxygen in S=O bond is further enhanced by the electron donating character of N27 making both S35 and N27 partially positive, thereby justifying the elongation of S-N bond.

The aftereffect of –M effect through the ring is the electron deficiency at ortho and para position which is perceptible from the more positive values of NBO charges at C18, C20 and C22 respectively equal to -0.191, 0.188 and -0.238 (fig5). Another possible electron transport through the ring is found to originate from the electron donation of amino group attached to the ring and this positive inductive effect (+I) is expected to create electron deficiency at meta position making C18 and C22 more positive and to shorten CN bond to 1.385 Å, from its normal value of 1.47 Å [25].

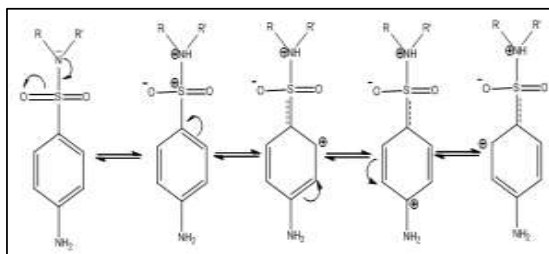


Fig 4: -M effect in ABS group structure



Fig 5: Amprenavir NBO charge struct

4.2 Topological Analysis of Electron Density

4.2.1 Theoretical Background

To assess the strength of mesomeric effect, aromaticity should be quantitatively described, using delocalization index (DI), in the frame work of quantum theory of atoms in molecule (QTAIM) [26]. The electron delocalization in benzene, has been reported to be greater for para related carbon atom (Para DI) than meta related one

(Meta DI) and hence, para-delocalization index (PDI), defined as the average of Para DI in six membered ring (6-MRS), is used as a measure of local aromaticity [27].

$$PDI = \sum_{i=1}^3 \delta\left(\frac{i, i+3}{3}\right)$$

$$\delta(A, B) = -2 \int \int_{A, B} \Gamma_{xe}(\vec{r}_1, \vec{r}_2) d\vec{r}_1 d\vec{r}_2$$

where,

This represents the integration of the exchange correlation density between atomic basins A and B and gives the quantitative measure of the number of electron pairs delocalized between atomic basins. The above equation can be rewritten in terms of overlap between molecular orbitals k and l within the basin of atom A by $\delta_{kl}(A)$,

$$\delta(A, B) = 4 \sum_{k,l}^{N/2} S_{kl}(A) S_{kl}(B)$$

The summation runs over (N/2) occupied molecular orbitals of atoms having closed shell interaction with the neighbours. The wave function obtained from Kohn-Sham molecular orbital is used as input for performing the topological analysis of electron density $\rho(\vec{r})$.

The orbital points which are zeroes of gradient of scalar field $\nabla\rho(\vec{r})$ has been grouped into four classes (3,-3), (3,-1), (3,+1) and (3,+3), where the elements of the above ordered pairs (r, s), are rank (r) and signature (s). To characterize the critical point, Hessian of the well-defined scalar field $\rho(r)$ is defined as 3X3 matrix, whose elements are $\left[\partial^2_{\alpha\beta}\rho\right]_{\alpha,\beta=x,y,z}$ representing second order partial derivative with respect to coordinates. The diagonalization of Hessian matrix yields three real eigen values λ_i , the number of non-zero eigen values being equal to the rank, and the

algebraic sum of signs of eigenvalues, $S = \sum_{i=1}^3 \text{sign}(\lambda_i)$, define signature(S).

The estimation of π -electron delocalization in 6-membered ring can be effectively carried out using topological parameters of electron density function

such as electron density at given RCP ρ , the Laplacian $\nabla^2 \rho$, equal to $\sum_{i=1}^3 \lambda_i$, and the density of the total energy of electrons (H_c). The latter two parameters are defined using local virial theorem,

$$\nabla^2 \rho(r_{RCP}) = 8G_c + 4V_c$$

$$H_c = G_c + V_c.$$

The ellipticity (ϵ) and bond ionicity (i) or ratio of ionic to covalent character are respectively defined as,

$$\epsilon = (\lambda_1 / \lambda_2) - 1, |\lambda_1| \leq |\lambda_2|,$$

$$i = \frac{|\lambda_1|}{\lambda_3}$$

4.2.2. Electronic properties due to $-M$ effect

Since, the electron delocalization index (δ) is a measure of the level of aromaticity which is an indication of the average number of electrons shared between atoms, the analysis of δ can be regarded as an effective technique to analyze the mesomeric effect of the ring by analyzing π -electron delocalization level [28]. The disturbance of uniformity of δ of benzene ring, around 1.40, can be observed in the phenyl ring of aminophenylsulphonyl group (APS) of the title compound, consequent to $-M$ effect. Here, the largest values of δ equal 1.4348 and 1.4203, corresponding to C₁₈-C₁₉ and C₂₁-C₂₂ respectively and for the other bonds, the values range from 1.279 to 1.338, indicating the distortion of resonant structure. The similar trend can be observed for the electron density (ρ) values of bonds, confirming the above argument. The higher values of ρ and δ for C₁₈-C₁₉ and C₂₁-C₂₂ strongly suggest the shifting to double bond character which, in turn, specifies slight bend to the quinonoid form for the ring [29].

Another substantial evidence for mesomeric effect, based on the theory of atoms in molecule can be obtained by the comparison of para delocalization index of phenyl ring of APS group with that of benzene ring. The value of the former is

lower (0.085) than that of pure benzene ring (0.104) arising due to paradisubstitution, leading to mesomeric effect. The positive value of the Laplacian of the electron density $\nabla^2\rho$ for S=O indicates the depletion of electronic charge density, which justifies the previously described electron transport (fig 4) through the ring. The higher values of $\nabla^2\rho$ for C₁₈-C₁₉ and C₂₁-C₂₂ compared to other C-C bonds of the ring, which is in correlation with ρ and δ values, also confirms the shift to quinoid form originating from -M effect. The analysis of ellipticities of different bonds show that the lower values of ellipticity of O₃₃=S₃₅ and O₃₂=S₃₅ bonds strongly suggest the gain in covalency [30], revealing their involvement in the origin of mesomeric effect. Also, ion/cov parameter is found greater than one, for bonds outside the moiety where mesomeric effect acts, showing the dominance of ionic character of bonds involving -M effect.

4.3. Vibrational analysis of -M effect

The frequency range of S-N stretching has been reported in the region 919-896 cm⁻¹ [31] and the reduction in bond strength of S-N arising from the electronic transport in APS group is evident from the lower band position in IR and Raman, respectively equal to 748cm⁻¹ and 735cm⁻¹, supported by the scaled computed value of 734cm⁻¹. Consequent to electronic transport, the strength of S=O has been decreased drastically confirming the lower band position of stretching frequency whose IR experimental and computed values are respectively equal to 1256cm⁻¹ and 1270cm⁻¹, compared to the reported frequency range 1300-1390cm⁻¹ for different Sulphur derivatives [32]. The strengthening of C-S bond resulting from the electronic transport has been indicated by the increase of stretching frequency from its normal range of 780-860cm⁻¹ to 1085cm⁻¹ in IR and 1092cm⁻¹ in Raman, supported by the computed value of 1091cm⁻¹ [33].

4.3.1. Competing Resonance in Carbamate group

The delocalization of nitrogen lone pair in to the adjacent carbonyl group in amides, leading to the conjugated system has been reported [34]. The strong electron withdrawing carbonyl group allows the delocalization of adjacent nitrogen and oxygen lone pairs is found to form the resonance structure in the moiety [fig6]. The structural consequence of this resonance behavior is evident from the shorting of C₃-O₂₉ and C₃-N₂₆ whose values are equal to 1.36Å which is lower than the adjacent C₄-O₂₉ and C₅-N₂₆, respectively possessing bond length equal to 1.44Å

and 1.45Å. Both oxygen and nitrogen complete with each other to form delocalization with carbonyl π - system which has been favored by co-planarity of atoms involved in electron sharing.

The DFT computation reveals that C₄-O₂₉-C₃-O₃₀ is found to possess more planarity, with torsion angle 2.3°, compared to the planarity of N₂₆ moiety, have in torsion angle C₅-N₂₆-C₃-O₃₀, equal to 3.66°. The extent of delocalization is an expected to be more for oxygen lone pair and can be assessed using

the parameter $\frac{\Delta r}{r}$, an indicator of relative change in bond length originating from the

resonance. The comparison of $\frac{\Delta r_{CO}}{r_{CO}}$, which can be defined as the relative change

in CO distance, $\frac{r_{C_3-O_{29}} - r_{C_4-O_{29}}}{r_{C_3-O_{29}}}$, with $\frac{\Delta r_{CN}}{r_{CN}}$ shows that the value of the former and later are respectively to .0554 and .0626, indicating the greater delocalization of nitrogen lone pair with the carbonyl π - system.

The relative strength of resonance of oxygen lone pair and nitrogen lone pair with carbonyl group is found sensitive to IR stretching frequency and the relative change in stretching frequency can be found greater for C-N compared to C-O. The comparison of relative change in IR stretching frequency gives the values

$\frac{\Delta \nu_{CO}}{\nu_{CO}}$ and $\frac{\Delta \nu_{CN}}{\nu_{CN}}$. The similar behavior can be observed in Raman spectrum also, evident from the respective values, 0.028 and 0.097 and is found closer to the corresponding DFT computed values, equal to 0.025 and 0.11. This fact is conformity with the relative change in geometrical parameter and also with the co-planarity of moieties.

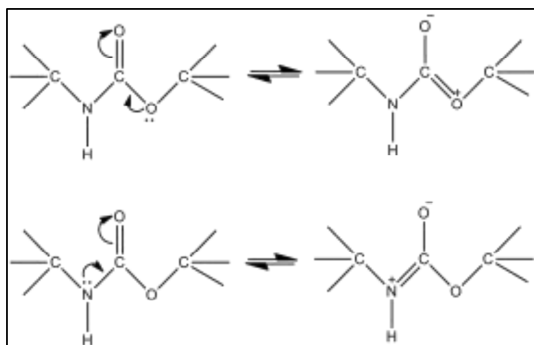


Fig 6: Competing Resonance structure

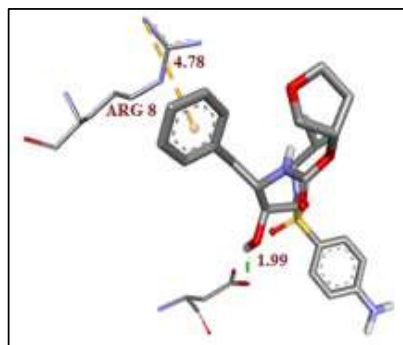


Fig7 :Molecular docking of Amprenavirwith HIV1.

4.4 Interaction of Amprenavir with HIV1 and HIV2

Molecular docking study reveals that amprenavir is found to bind with both HIV1 and HIV2, with the binding energy is equal to -6.23 and -7.38 kcal/mol respectively. It was observed that in HIV1-Amprenavir complex, the hydroxyl group of amprenavir preferred to interact with asparagine-25 to form O-H...O hydrogen bonding, with H...O distance being equal to 1.99 Å. The phenyl ring of amprenavir is found to interact with the amino group of Arginine-8 residue, via π -cation interaction. For HIV2, the binding of amprenavir takes place through Asparagine-41 via weak N-H...O interaction with an H...O distance of 2.5 Å, in addition to the strong hydrophobic contacts of the APS ring of amprenavir.

4.4.1. π -cation interaction

The π -cation interaction has been reported to play a vital role in drug-protein binding and has been recognized as the stabilizing interaction between a cation and the electron-rich face of the aromatic ring [35, 36]. This interaction has been thought to be important in the binding of more electrophilic regions, belonging to protein residues such as arginine with a primary amino group. The electrostatic potential (ESP) mapping of amprenavir shows that a uniform negative potential exists around the central area of the phenyl ring of amprenavir, similar to that of benzene and the ESP surface energy of the phenyl ring ranges from -15.1 to -16.3 kcal/mol. The range of values suggests that the phenyl ring of amprenavir is favourable for the formation of π -cation interaction with the electropositive moiety of arginine-8 residue, whose

ESP surface energy range from 12.6 to 20.1 kcal/mol .(fig7) The–M effect caused by sulphonamide group is found to make APS ring face more positive, making π -system a weak anion and is found to justify weak negative potential or small positive potential in certain areas of APS ring face in amprenavir. The consequence of the above effect is the formation of weak π -alkyl interaction with neighbor residues, isoleucine-50 and alanine-28 whose strength can be assessed from the distances of interactions, respectively equal to 5.37 Å and 5.28 Å.

4.4.2. π -anion interaction and cooperativity

The less negative electrostatic potential at central areas of APS ring face is found to form electron deficient π -system, making it favourable for π -anion interaction. The strong π -anion binding is further substantiated by the high nucleophilic region of carbonyl moiety of glutamic acid residue, as revealed by ESP mapping. The ESP surface energies of APS ring is in the range of -6.3 to -11.3 kcal/mol, while that of COO- group of glutamic acid ranges from -17.6 to -22.6 kcal/mol.

It has been reported that strong correlation exists between the quadrupole moment Q_{zz} of the ring with the electrostatic contribution to the π -anion interaction [37]. Compared to the higher negative value of Q_{zz} for benzene, the lower quadrupole moment of APS ring(Table)has been reported to be favourable for weak anion- π interaction [38]. This is evident from the lower distance of π -anion interaction, equal to 3.82Å which plays the dominant role in HIV2-amprenavir binding. This interaction is further favoured by the higher polarizability value of APS perpendicular to the ring, showing that the ring can be polarized by the attack of strong anion[39], allowing the binding with the π -system.The effect of strong π -anion binding is to increase the donor strength of APS ring[40],favourable for π -cation interaction of APS ring. This cooperative effect is further favoured by high electropositive moiety of the amino group of arginine-72 residue, whose ESP surface energies are in the range 12.6 to 20.1 kcal/mol.

4.5. Molecular Dynamics Simulation

The complexes of amprenavir with HIV-1 and HIV-2 obtained from molecular docking was used in MD Simulation and the stability of the complex were evaluated with the aid of Root Mean Square Deviation (RMSD). The RMSD values of C α atoms in HIV-1 and HIV-2 are around 1Åshowing that both are relatively stable throughout the simulation time,in the presence of amprenavir, which confirms the

occurrence of stable binding pose as predicted by molecular docking. The slight conformational changes to HIV-1 and HIV-2 complex revealed the state of amprenavir in the binding pockets for the whole simulation process which further endorses that the pocket is the stable binding site for amprenavir. This is further justified by the RMSF values for the residues forming strong bonding with amprenavir in the binding site which remain below 0.5 Å, clearly indicating that the amino acid residues in the pockets are less flexible for both complexes.

The simulation interaction analysis of HIV1-amprenavir complex shows that the strongest O-H...O interaction in the binding pocket formed by the OH group of amprenavir with aspartic acid-25 has been maintained for around 100% of simulation time. The strongest hydrophobic π -cation interaction of amprenavir with arginine8 and the weak π -alkyl interactions of APS ring with neighbour residues have been maintained, around 30% of the simulation time. But these interactions together, provide stable pose for the amprenavir in the binding site as observed from the docking output[41,42]. In the case of HIV2-amprenavir complex, the strongest N-H...O hydrogen bonding of the N-H group of asparagines-41 with the carbonyl group of amprenavir has been maintained over 75% of simulation time, while for the hydrophobic contacts, the duration of interaction is found lesser and the stable binding pose has been found to be contributed by all these interactions together.

5. CONCLUSION

The geometry and NBO calculation of amprenavir using DFT reveals that there is elongation of S=O and S-N bonds and the shortening of C-S bond, along with the electron deficiency at ortho and para position of the APS ring. These geometrical changes and charge distribution has been found to arise due to the electron transport through the ring, induced by the electron withdrawing sulphonamide group, leading to -M effect. Its vibrational spectral aftereffects have been exploited and the lowering of S=O and S-N stretching frequencies and the rise in C-S stretching band position, has been confirmed, based on the analysis of experimental IR and Raman spectra aided by theoretically simulated spectra. The depletion of electron density from S=O and the rise in strength of C18-C19 and C21-C22 bonds of the ring, leading to quinonoid form of the ring, consequent to -M effect have been established, based on the electron density topological analysis. The HIV1 and HIV2 complex formation with amprenavir has been found to take place by π -cation and π -anion interactions, in addition to the strong hydrogen bonding and π -anion

interaction is favored by the electron deficiency owing to $-M$ effect, evident from the low Q_{zz} value, higher polarizability and the negative ESP surface energies of APS ring. The stable complex formation is further supported by the results of molecular dynamics simulation.

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Ecocritical Implications in the Narrative Style of Vaikom Muhammed Basheer

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Key Words: Ecocriticism – Ecological Awareness – Deep ecology – Basheer

Vaikom Muhammed Basheer (1910-94), popularly known as Beypore Sultan, was a prolific writer in Malayalam literature. He was also a freedom fighter. His notable works include *Pathummayude Aadu*, *Balyakalasakhi*, *Ntuppuppakkoranendarnnu*, *Mathilukal*, *Shabdangal*, *Janmadhinam*, *Premalekhanam*, *Anargha Nimisham*, *Bhoomiyude Avakashikal*, *Thenmavu etc.* The writing style of Basheer is lucid, witty and down to earth. He is a very popular author with Malayalee readers. The ecological awareness found in his works make them relevant in studies related to ecocriticism.

Ecocriticism as a discipline is of recent origin. The term 'ecocriticism' was coined in 1978 by William Rueckert in his essay, "Literature and Ecology: An Experiment in Ecocriticism" (Cheryll and Harold, *Introduction* xxviii.) An important feature of ecocriticism is the study of the relation between human beings and the earth we live in. It takes up close reading and analysis of our relationship with nature including creatures that live around us. It also concerns itself with cultural issues related to nature. Ecocriticism prioritises the study of how human beings relate themselves to nature and its ways of being irrespective of exclusive pragmatic concerns. According to Estok ecocriticism is more than "simply the study of Nature or natural things in literature; rather, it is any theory that is

committed to effecting change by analyzing the function–thematic, artistic, social, historical, ideological, theoretical, or otherwise–of the natural environment, or aspects of it, represented in documents (literary or other) that contribute to material practices in material worlds" (Estok 16-17). Cheryll Glotfelty's working definition in *The Ecocriticism Reader* is quite simple: "ecocriticism is the study of the relationship between literature and the physical environment" (Cheryll and Harold, *Introduction* xviii).

In a deep ecological perspective the world is seen as a co-existing whole where man is only a part in the web of existence. It is the interference of man that has disrupted the balance of nature and it is this awareness that is essential for its restoration. Ecocriticism, decentering the human position in nature, attempts to correct the idea of the material world as mere resource at the service of human beings. Thus it is hoped that a renewed intimacy with nature will contribute to a more dynamic environmental ethics and a refreshing view of the material reality.

What Bhasheer is telling in a forthright, natural, native style in his story *Bhoomiyude Avakashikal* (Inheritors of the Earth) is that all living creatures have the same rights on this earth. Human beings do not have any special right of ownership of the earth on account of their legal or economic powers. Bhasheer with his wife settles down in a two-acre coconut grove and a house on it, with full property rights of possession and inheritance, hoping to lead a comfortable life. The coconut grove will fetch him enough money for his daily needs. Then all of a sudden a group of creatures intrude into his property which is secured with a gate and a barbed wire fence. As per the documents he is the owner of the property and no one else has the right to intrude. But these uninvited visitors, among them butterflies, termites, rats, and poisonous scorpions, without any regard for the documents, assuming to be the heirs of the earth like human beings, settle down on his property for their food and survival. Bhasheer has spontaneous, captivating empathy with these creatures and their ways of living with the charm of friendship between him and nature. The damages these intruders do to their property are seen differently by his wife, not as naughtiness of one's children, but as threat to one's property.

Bhasheer's wife, who is very practical and pragmatic, feels that the creatures are all troublesome intruders and should be exterminated for entering their land. Bhasheer's and his wife's outlook on nature are entirely different and are in conflict

with each other. But having respect for the views of his wife, he patiently deals with every developing situation in the story. But as the protagonist of the story his narrative voice is strong and makes the definitive statement: "There are billions of creatures like elephants, tigers, lions, boars, bears, bison, hippos, crocodiles, camels, horses and chimpanzees. For what purpose are they created? Who knows? We must try to live without killing others" (Basheer, "Inheritors" 13).

Unceremoniously Bhasheer is putting before the readers an ecological theme of great significance in a casual, natural manner, characteristic of his style of narration. His wife's attitude, which is the attitude of most people, is practical and concerned about the comfort and security of human beings alone as the sole inheritors of the earth. Then follows the arguments between the writer and his wife as can be heard even now in matters concerning ecology and the need for development for human comfort. In this scenario only the writer stands as the advocate for "the other inheritors of the earth."

What makes Basheer's ecological awareness fascinating is that he presented it casually, as if unfolding in ordinary life situations without any air of pretence long before the academia came alive with ecocritical discourses. The friendship and empathy Bhasheer shares with the trees and animals in his vicinity comes alive in his other stories also. In *Thenmmavu* ("Sweet Mango Tree") he gives the poignant message of planting trees before one leaves the earth. Basheer begins this crisp, heart warming story with the statement that he is not a worshipper but only a lover of trees. The narratological technique, often employed casually by Bhasheer, of the narrator becoming the protagonist is evident in 'Thenmavu' also, as in many other Basheer's stories.

Thenmmavu is the story of Rashid and Asma and their love for a mango tree superimposed on their act of kindness to a dying old man and his act of kindness to a mango sapling. Basheer conveys a heart warming ecological message that everyone who reads this story will be moved to be kind and caring to human beings and trees without exclusion of each other. Rashid and Asma complement each other in caring for the mango sapling and the dying old man with their warmth and love, which becomes life long love for each other.

Pathummayude Aadu (Pathuma's Goat) is another heartwarming story of the intimacy that grows between Pathuma and her goat. A loving harmonious

relationship between human beings and animals will contribute to the welfare of both. Any disruption in this interdependence can lead to disharmony or even catastrophe. The Ecocritical concerns in the work *Pathummayude Adu* (Pathumma's Goat) is studied by Thampi Ajoy. He observes that,:

Pathumma's Goat is also an excellent literary work that undoubtedly declares Basheer's sense of deep ecology. The narrator cum author provides equal space in the family for the non-human world including goats, hens, snakes and cats in the novel. He speaks to them as if they were human beings. He even permits Pathumma's goat to eat his famous books like, "The childhood friend" and "Voices" and watches the process of eating with great reverence and amusement. While giving fruits, nuts and vegetables to the children in the house, he does not forget to give it to the natural inhabitants like squirrels and cats. The novel concludes with the idea that the entire universe is a large joint family which comprises of billions of the human and the nonhuman world (20-21).

One of his translators, V. Abdulla, makes the observation that "Basheer has seen great hardship in his life and is familiar with the seamy side of humanity. But his pen is never dipped in gall. The essential humanist that he is, he can sense the goodness in every man and woman, that spark of divinity in the makeup of every being" (12).

The story *The Inheritors of Earth* very clearly illustrates Basheer's concern to preserve the abodes of creatures that live in harmony with nature. He sees all creatures as inheritors of earth, just like human beings. In the story he says:

Beliefs are diverse. There are monotheistic and polytheistic believers. Atheists are also there. There are quarrels over such beliefs—murders multiply. Earth is a globe and it rotates without an anchor or axis. Days and nights occur according to the exposure, proximity and remoteness of the sunlight. One day the sun may become dark and the earth may die. ...all living beings are the descendants of light and heat—termites, spiders, trees, ants, snakes and humans (Basheer, *Inheritors* 14).

Basheer's wife wants to do away with the creatures that destroy their tender coconuts. She finds out that bats are responsible for the falling of coconuts and is

about to kill them. She fails in her attempt as the neighbours believe that the bats are the souls of their forefathers. Basheer when he hears the outcome of the incident remarks that “Bats, the souls of the departed forefathers! I have to sum up:” ‘Bats are not the souls of anybody’s predecessors. From birth itself, they fly around. Let the coconuts—tender or ripe—be claimed by them. We can take the remaining ones. Let the bats claim the tender fruits of coconut trees. They are also the inheritors of this earth!’”(Basheer, “Inheritors” 16).

Rafi Muhammed has made an extensive study of the ecological concerns in the works of Basheer and he points out that animism (the attribution of a living soul to plants, inanimate objects, and natural phenomena) is a common feature found in the works of Basheer. He makes the observation that in *Patthumma’s Goat* the ecofeminist concerns can be seen, as a woman and the goat both are exploited by the people in the story. The milk of goat is sold by Pattumma for survival and this makes the goat a symbol of great exploitation. The simplicity of the story is very deceptive as it has woven strands of great philosophy embedded in it (Muhammed 157).

In the story *Mathilukal (Walls)* Basheer maintains a rose garden in the prison compound and he is extremely happy taking care of the plants. His love of Narayani, an inmate of the jail and his love for rose flowers co-exist in the narrative:

I ran into the rose garden. Wonderful! The flowers stood bathed in the sunlight in full bloom with new found smiles! I picked the most beautiful plant with the most branches. I dug it up keeping the earth round the roots and wrapped up the roots and earth in a secure gunny packing. I bound together the leaves and branches. I ran back to the wall (Basheer, *Walls* 94).

CONCLUSION

The world view that Basheer expresses in his stories have affinities with the main features of deep ecological theories that have emerged recently. But what makes Basheer’s ecological concerns unique is that he has employed a narrative style which conveys the theme in a conversational, unobtrusive, intimate way. There is scope for researchers to explore in detail Basheer’s stories in the light of the emerging new literary theory of ecocriticism, as he exhibits deep concern and love for nature all the creatures around him and expresses it in a simple, casual

style of writing. Further close reading of his works will enrich studies in ecocriticism both in Malayalam as well as English.

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The Recurrent Motifs of Masculinity and Misogyny in the Post-war Fictional works of Britain during the 1950s

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ABSTRACT

The loss of colonies and its implication played a major role in shaping the characteristics of literature and art in Britain during the 1950s. The psychological feeling of emasculation that haunted the British male subject, finds literary expression in the form of aggressive masculinity and the accompanying sense of misogyny that characterise the behaviour and attitude of the male protagonists appearing in the literary works, especially in the Movement fiction and drama, leading to a unique class of literary progenies termed as the angry young men by critics and the reading public. Jimmy Porter in Osborne's play *Look Back in Anger*, the heroes appearing in the novels of Kingsley Amis and John Waine and the working class novels of Alan Sillitoe and John Braine exhibit these traits.

Keywords

American Age, Welfare State, Suez Canal fiasco, emasculation, masculine ego, misogyny, domesticity, conformity, Hypergamy

The need to assert the dominance of the male in the post-war fictional works of Britain during the 1950s has to be reviewed in the context of the British Empire's continuing collapse into itself and its new confinement within the borders of its original island kingdoms. It was indeed a great fall from ruling the waves to a "pretty dreary living in the American Age" as observed by Jimmy Porter in Osborne's *Look Back in Anger* (11). Thus with England's loss of its masculine dominance over the rest of the world and confinement to its own domestic sphere, the white man no longer carried the burden of the colonized world, and therefore, had no brave causes left. This is summed up in Jimmy's famous dialogue in Act Three Scene One of Osborne's *Look Back in Anger* (1956):

I suppose people of our generation aren't able to die for good causes any longer. We had all that done for us in the thirties and forties, when we were still kids. ...There aren't any good, brave causes left. If the big bang does come, and we all get killed off, it won't be in aid of the old-fashioned, grand design. It'll be for the Brave-New-nothing-very-much-thank-you. About as pointless and inglorious as stepping in front of a bus. No, there's nothing left for it, me boy, but to let yourself be butchered by the women. (89)

Thus the white woman carried the burden of keeping the white man in check, in caring for the domestic world that England had become, which even had a Queen as its monarch. The Welfare State nurtured its people, denying them space to explore and assert their entrepreneurial skills. Man no longer had to labour or hunt to bring home the bacon-not only did the state deliver it to him, the woman had begun to go out to work. As a consequence of the Second World War, women joined the labour force and when the men returned home after years of struggle abroad which, coupled with the loss of the empire, denied the British male the superior seat of prominence which he had enjoyed both at home and outside. It was a less manly world now and the country was an emasculated one. The lowering of Britain's clout in the world was dramatic and a few months after the premiere of *Look Back in Anger*, it culminated in the Suez Canal fiasco when the USA backed the United Nations in condemning Britain for its aggression and forced Britain to both lose face and the Canal.

Many critics have traced the element of misogyny in the writings of the novelists and playwrights of the period to these historical and social factors. In reply to the charges of misogyny levelled by many feminist critics against the novels and plays written in England during the Fifties, male critics argue that the misogyny is the result of the male ego striving to establish its superiority, of the English male trying to establish his masculinist dominance in the contexts of emasculation of the empire and the consequent loss of power as well as the feminization of the domestic space and liberal ideology. G. J. V. Prasad in his "Introduction" to *Look Back in Anger* has pointed out that if colonialism and the empire could be read as an expression of masculinity and superiority, then the loss of the erstwhile colonies enacted a loss of British masculinity and a capitulation to the feminine (xxv).

This takes up the issue of the alleged misogyny in much of Movement and Angry writing. In the field of psychology, there was a backlash to the obsessive focus on the importance of the mother-child bond with the growing youthful rebellion against the oppressiveness of those dutiful mothers. An early warning had appeared in the United States when J. D. Salinger, in his bestseller *The Catcher in the Rye*, accused that parents, particularly mothers, exist to torment and warp the young. In the writings of the Angry Young Novelists too the same hint can be traced. Hence in John Braine's novels like *Room at The Top* (1957) and its sequel, *Life at the Top* (1962), as well as *The Jealous God*, there are such overbearing mother figures. In the first two novels, the mother-in-law of the working class hero, Joe Lampton, prisoner of War, demobilized at the end of the war who is trying to rise in life, is an overbearing presence who interferes unnecessarily in the marriage life of her daughter. Like her daughter, she too was her husband's meal-ticket when he married her to rise in life.

Since 'domesticity' came to symbolize 'conformity' in the Fifties and class differences were considered surmountable through education and Welfare provision, men who felt at odds with their time, bored and dissatisfied, were to turn their anger against the ideals of hearth and home. They turned against women, especially against the 'powerful' mother in the home, displacing onto her all the hatred and resentment they felt towards 'the Establishment' (Segal 13). The pattern is most pronounced in Osborne's *Look Back in Anger* where all mothers seem bad, except perhaps Hugh's mother who supplies Jimmy with the money to start the sweet stall. Jimmy's own mother never cared for him while Alison's mother is termed "such an upper- class cow".

Michelene Wander in her brilliant feminist critique of post-war British drama entitled *Look Back in Gender*, elaborates that in Osborne's play, gender conflict has two functions: it becomes the site for a displaced class conflict which Jimmy cannot and need not fight anywhere else as he has the 'enemy' on his own territory. Second, the battle with Alison is also a fight for sexual identity, for it is through her that Jimmy has the potential to be like a 'real' man. In order to establish his manhood he has to attack women (43).

The same is the situation with the tough, amoral, anarchic working-class heroes of Alan Sillitoe in *Saturday Night and Sunday Morning* or *The Loneliness of the long Distance Runner*. These men fight for a sense of freedom and fun against

the dreary grey jobs and marriages awaiting them. Women are seen as the part of a system that tries to trap, tame and emasculate men and therefore not to be trusted. Thus Arthur Seaton declares in *Saturday Night and Sunday Morning* that ‘women are all the same,’ “whores, shrews, fools” enticing the suckers into “the hell that older men call marriage” (36). While the male protagonists see themselves as opposing all authority--“fighting everyday until I die . . . fighting with mothers and wives, landlords and gaffers, coppers, army, government”(65)--in reality the battle is with mothers and wives alone. In Sillitoe’s celebration of an aggressive, misogynistic masculinity, there is no reflection on women’s lot: “There was something about the whole situation which made him want to hurt her” . . . “all you could do was end up by giving them a smack in the chop” (126). Nigel Grey subsequently pointed out in his study of post-war working-class fiction, “Arthur is against all authority -except the authority of men over women. He fights the authorities with his mouth when they are out of earshot-that’s cunning, and saves his muscle for women” (129).

Sillitoe’s individualistic angry young man “shares the cynical, self-seeking character and quest of other contemporary heroes” created by John Braine, John Wain, John Osborne, Stan Barstow, David Storey or J. P. Donleavy, but the “flippant and facetious Kingsley Amis hero” is rather like Keith Warehouse’s *Billy Liar* and “is less physically aggressive, but no less contemptuous of all he sees as effeminate, sensitive or refined” (Segal 14).

Yet it might appear a contradiction that the 1950s was the last great age of the male courtship novel. There were several reasons for this as pointed out by D. J. Taylor:

The fictional heroes of the 1950s and their creators were predominantly heterosexual, interested in women in a way in which some of their 1930s predecessors were not. Moreover women were an important part of the aspiration process, which underlies so many novels of the period. This is not merely a result of their sexual attractiveness. Several 1950s heroines, or at any rate several of those devised by male authors, have the additional advantage of being connected to money. (224)

The high connections that the heroines possess definitely add to the temptation and desire that Jim has for Christine in *Lucky Jim* and Joe Lampton for Susan Brown in *Room at the Top*. Though Christine captivates Dixon by her good looks, the reader is left with the feeling that much of her poise and Dixon's appreciation of it is directly related to the fact that she is financially secure as the niece of Gore-Urquhart, a wealthy cultural philanthropist. So also is the case with Susan Brown, the wealthy daughter of an industrialist for whose sake Lampton ruthlessly discards Alice, the married woman he sincerely loves. Again as pointed out by Geoffrey Gorer in "The Perils of Hypergamy" (1957) regarding the process of men marrying upwards,

NOW I'M PRACTICALLY SURE OF IT. *Lucky Jim*, *Look Back in Anger* and all that roused my suspicions; the clincher has come with John Braine's *Rom at the Top*, which tells much the same story all over again, brilliantly and bitterly. The curse which is ruining, in fantasy if not their own lives, these brilliant young men of working-class origin and welfare-state opportunity is what anthropologists have dubbed hypergamy. It is a new pattern in English life, and apparently a very distressing one. (315)

Gorer displays the patronizing and, inevitably sexist perspective of the academic elite of his day and goes on to speculate that these educated sons of the working class felt in especial danger of losing their virility.

Hence it calls for a closer analysis of the entire spectrum of sex relations in these novels. The male characters in Amis's novels exhibit a deliberately chauvinistic attitude in the way they view women. Gareth Jenkins in his essay "Why Lucky Jim Turned Right-- An Obituary to Kingsley Amis" raises the question whether the male chauvinism exhibited by Amis's central male characters is simply an unpleasant side of characters who are meant to be unpleasant. The justification sometimes advanced is that his view of women was the product of the unenlightened times in which Amis started his writing career and that it continued to mark his fiction as a consequence. In the 1950s and 1960s culture, one pervasive theme is the 'woman problem'. As Lynne Segal explains:

Predictably, 'domesticity' came to symbolize 'conformity' in the fifties: the extreme domestication of women--represented as more 'feminine' both in blissful maternity and the 'New Look' seductive

fashions of the fifties--paralleled the mild domestication of men, represented as more home-based . . . Since class differences were now considered surmountable through education and welfare provision, men who felt at odds with their time--bored and dissatisfied were to turn their anger against the ideals of hearth and home. (13)

The reason for the element of misogyny in the writings of the novelists under discussion can perhaps be the direct result of a feeling of revolt or a revulsion against being tied to home, marriage and domesticity. Given women's traditional identification with this area of life, antagonism (by men) towards the social order often tended to involve a more or less conscious element of antagonism towards women. Social conflict came to be expressed as a battle between the sexes.

A few examples of this can be seen in the novels by working class novelists like Alan Sillitoe and Stan Barstow. In Sillitoe's *Saturday Night and Sunday Morning*, the hero resists being forced to marry because he fears losing the freedom which the relatively good pay from his mindless factory job allows him to enjoy. Again Jimmy Porter rails against his upper class wife, whose perpetual ironing and silence is taken by him as a part of what is wrong with the world. Similarly Stan Barstow's *A Kind of Loving* (1960) just about manages to reconcile his hero being trapped into marriage by his girlfriend's pregnancy.

Of course, as pointed out by Gareth Jenkins, real political understanding would have resolved this antagonism and shown that women's identification with the family was a sign not of their being on 'the wrong side' but of their victimization at the hands of society. But in the less political 1950s such insights were rare. Not surprisingly, therefore, given the generally apolitical nature of Amis's revolt against the Establishment, the perception of women is ambiguous from the start.

On the one hand, there is the rejection of the (hypocritical) sexual codes preached by the Establishment. Jim's pursuit of Christine in *Lucky Jim* is part of his fight against the world of the Welches. Several critics have perceived a fairy-tale buried in the deep structure of *Lucky Jim* where Jim is the Frog Prince, Christine is the Princess, Gore-Urquhart the Fairy Godmother, and Margaret the Witch. However David Lodge in "Lucky Jim Revisited" which appears in *The Practice of Writing*, has suggested that Jim's relationship with the two women is more subtle

and complex than what is suggested by the analogy. It is the most serious strand in the novel and is pursued with particular attention in the chapters leading up to Jim's fight with Bertrand.

The character of Christine, admittedly, rarely rises above her archetype, the blonde, beautiful, virginal, yet voluptuous object of male desire and the conversations between her and Jim are often embarrassingly banal. The dark, skinny, neurotic Margaret is much more interesting. Her claim on Jim's emotional loyalty is analogous to the university's claim on his professional allegiance (93)

Gareth Jenkins also comments on the treatment of the two central female characters in the novel in a similar way. In his essay, "*Why Lucky Jim Turned Right*", Jenkins criticizes that Christine seldom rises above the stereotypical blonde. But the other woman in Jim's life is treated much more harshly. She is shabbily treated, first courted, and then shunned by Jim as he pursues Christine. This could have made for a fairly complex picture of tangled emotions. But instead Margaret's neurosis is revealed as self-created. Her previous boyfriend, Catchpole, appears at the end of the novel to prove to Jim that her suicide attempt at the beginning of the novel was a total fake. Catchpole states:

...Quite soon I realised that she was one of these people - they're usually women - who feed on emotional tension. We began to have rows about nothing, and I mean that literally. I was much too wary, of course, to start any kind of sexual relationship with her, but she soon started behaving as if I had. I was perpetually being accused of hurting her, ignoring her, trying to humiliate her in front of other women, and all that sort of thing."(*LJ* 235-36)

Absolved of all responsibility, Jim is reassured by Catchpole that not only is it too dangerous to help her any more but that she doesn't need any help either. His pursuit of Christine is therefore totally justified. For as pointed out by Jenkins himself, what is objectionable is not so much the situation itself, for sexual treachery has been the staple of the novel virtually from its inception, as the way in which Amis rigs the fiction to get the result. Catchpole is a character solely designed to give the desired outcome and does not in any sense arise from the

objective structure of the novel itself. Margaret is manipulated authorially into becoming a monster, an enemy - part of the conspiracy to stand in the way of Jim and the realization of his desires. Catchpole's comment, quoted above, is delivered as an unchallengeable truth

Patricia Meyer Spacks in *Desire and Truth: Functions of Plots in Eighteenth Century English Novels* has raised certain pertinent issues regarding the depiction of sexual relations in fiction. Discussing the plots of Eighteenth century novels, Spacks observes that sexual relations are power relations in which men, with the advantage of social and physical force oppose women. Either man or woman may choose to submit rather than to combat, and society provides many disguises for the struggle. Nonetheless, "the contest for dominance remains the fundamental fact of relations between the sexes" (56). Her comments regarding the world portrayed in the novels of Richardson -- "In the general brutality of the depicted social world, the openness and crudeness with which men and women attempt to use one another epitomize the prevailing spirit of interpersonal relations. There is little question of giving: only taking. Sexual taking constitutes the principal form of self-aggrandizement" (60)--holds good for the novels of the Angries as well. Spacks's final conclusion regarding these struggles is that whether men or women win ultimately, "the construction of relationship as combat affirms a stereotypically 'masculine' view of the world" (63). Hence Amis's *Take A Girl Like You* (1960) which is most directly related to the eighteenth century novel *Clarissa* also raises a host of issues.

This misogynistic streak in the writings of the Angry Young Men can be closely linked with the interest shown by some of these authors in spy thrillers. After the death of Ian Fleming in 1964, Kingsley Amis wrote a James Bond adventure, *Colonel Sun* (1968). His study of the world famous spy appeared under the title *The James Bond Dossier* (1965). Similarly John Braine also holds a strange place in the history of spy fiction. Braine's spy thriller *The Pious Agent* (1975) was followed by a sequel *Finger of Fire*, released in 1977. The Angry Young Men phenomenon had a great impact upon the spy genre, for until their arrival, it had predominantly featured patriotic and upper-class gentlemen with a customized walking stick as something to while away the times before the hunting season began. The nameless anti-hero of Len Deighton's the IPCRESS file and its sequel owes a lot to *Room at the Top*'s Joe Lampton.

Amis's resurrection of the espionage hero James Bond in *Colonel Sun* has international ramifications. In the story Sun Liang-tan of the People's Liberation Army of China collaborates with an ex-Nazi Plan to open the eastern Mediterranean for Chinese influence and continue to the whole Arab world and Africa. Braine's hero in *The Pious Agent*, however, is not Bond himself but Xavier Flynn, a half-Irish, half-British counter-espionage agent who is a devout Roman Catholic. He drives fast, has easy sex with beautiful women, and goes after a terrorist group called F.I.S.T., standing for Fear, Insurrection, Sabotage and Terror. Stylistically the novel is much similar to Len Deighton. Flynn, the hero, is working class, a rough diamond, religious but deeply cynical. The sequel *Finger of Fire* shows one of the villains calling Flynn "a smudged carbon-copy of James Bond". Flynn's distinctive character traits are marked for he drinks Bison Vodka, prays for his victims and his agency uses C.S. Lewis's Narnia novel as a base for its codes. What remains common with these Spy thrillers written by the Angry Young Men and their other fiction is the depiction of women as objects of desire for men.

This trait is most pronounced in Amis's later fiction and the seeming misogyny is an aspect of Amis's darkening overall view than sheer male chauvinism. Malcolm Bradbury in *No, Not Bloomsbury*, has rightly connected "the dark punishments women eventually impose upon male sexuality" in Amis's fiction with "the loss of joy and the emptying of meaning" from a cultural landscape that Amis finds to have radically changed since World War II. His portrayal of the break down of beliefs encompasses both individual and societal relationships, both of which are maimed as the moral world seems to dissolve before unreason" (216).

In short the destruction of the sexual relation-the most fundamental, intimate and compelling of all human relations-becomes a paradigm of a larger-scale disintegration of values. The image of perverted sexual relations has been a powerful one in modern fiction where virtue grows stained, and moral purpose is defeated. In a world confronted with cultural emptiness, sexual corruption, and mortal exposure the world promised by Jim Dixon, which is one of common sense taking victory over pretension and hypocrisy, and social clarity over social falsehood, can no longer be sustained. This is borne out by the treatment of man-woman relationships in the works of the later novelists of the twentieth century.

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Evolving Gayspaces in Bollywood

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Anderson defines nation as an “imagined political community” (Anderson 6). In this respect the nation state of India can be envisaged as a nation imagined and produced through a confluence of the discourse of history and culture. Hindi cinema often functions as the visual discourse of the nation state of India. India has the largest film industry in the world, releasing approximately 1,000 films a year to an international audience of 3.6 billion (Ghosh 419). Bollywood produces a fictional metanarrative of Indian nation, its culture, national identity and cultural mores, which is then propagated through a national audience through the medium of cinema. Hindi cinema is popularly known as Bollywood, a portmanteau word derived from Bombay and Hollywood. Bollywood, the culture industry acts as a dream factory offering an extension of Indian life in the context of hyper reality. Bollywood acts as a space and site of production of national identity and its culture. The production of identity and culture is an intensely political act which entails validation of certain identities and cultures and the marginalization of others. However it certainly does address the pressing concerns of the nation state.

Bollywood has a long history and tradition ranging over a century. The first films made in Bollywood were mythologicals starting with Raja Harishchandra in 1913. The post- independence era saw a resurrection of nationalism specially promoted through the image of mother India. The 1970s saw the emergence of the ‘Angry young man’ expounded by Bachchan which crystallized the social and political unrest of the post -Nehruvian era. The 1980s saw the emergence of Doordarshan and the relay of Ramayana and Mahabharata and also among films a mix of action, romance and musicals. The 1990s saw a culture of liberalization with the proliferation of satellite TV and advent of MTV culture, it is during this time movies addressing queer themes began to be released. The 2000s saw a rapid influx of movies openly dealing with queer themes which range from stereotyping to authentic representation. When alternate sexuality is represented by mainstream film makers they often resort to stereotype and spectacle, which often caters to popular misconceptions. This is quite in contrast to conscious and committed film

making which offers an authentic representation voicing the causes and concerns of queer population.

Alternate sexualities were always a part of Indian culture. Puranas, myths and legends point to a culture where gender variance and fluid sexualities were accepted and acknowledged. Kamasutra extensively dwells on same sex love and the existence of male homoerotic love. In Medieval India Sufi tradition and Radha–Krishna tradition serve as notable instances of male same sex love where the union of human and divine was envisaged in homoerotic metaphors. Ghazal tradition vouches for the yearning male poets had for young male lovers. Male homoeroticism was a long standing part of Indian culture and terms like MSM (men having sex with men), Kothis(men and hijras taking passive role in sex) and Panthis, men enjoying active role in sex were part of common parlance. With the advent of gay rights, homoerotically inclined men started identifying themselves as gay which separates their identity from sexual connotations and permits a more holistic conception and scope of the relation. The number of gay population in India is huge. There are about 2.5 million men reported to be a gay in India.

Bollywood, which has always addressed the major concerns and currents of the nation state of India, in itself has a tradition of gay representation. A study of gay representation in Bollywood closely parallels the socio-cultural milieu of gay existences in India.

The earliest tradition of gay representation starts with yaarana or dosti tradition, where male homoeroticism masquerades as male bonding. *Dosti* (Friendship, 1964) directed by Satyen Bose is the first film in this tradition. It tells the tale of intense bonding between two friends Ramu,(Sushil Kumar) a physically challenged orphan and Mohan(Sudhir Kumar), a blind youth. Mohan is a gifted singer who uses this to afford a better life and education for his friend. Shohini Ghosh reads physical disability as a metaphor for homosexual love. AN intense bond where two friends rely each other on a symbiotic relationship, clearly shows a bond deeper than friendship. *Sangam* (Confluence 1964) directed by Raj Kapoor features a love triangle where two heroes love the same heroine. One of the heroes embraces death to unite his friend with his beloved. This stands as a sterling example of male bonding which encourages the supreme sacrifice.

Badnam Basti (1971) directed by Prem Kapoor is remarkable film in the tradition of male bonding. The film is based on Kamaleshwar Prasad Saxena's first novel by the same name. The movie revolves around the conventional love triangle between two men and a woman. However, the subplot reveals an unconventional homoerotic bonding between the two men, one a bus driver who alternates as a dacoit and his cleaner. *Anand* (Joy 1971), *Namak Haram* (The Traitor 1973) and *Anurodh* (Request 1977) celebrates the camaraderie between a more feminine Rajesh Khanna and a machoistic Amitabh Bachchan. The actor duo typically occupies the space of a gay couple. Shohini Ghosh, a notable film maker makes a pertinent observation in this regard:

In both films, Rajesh Khanna plays the role of the hyper emotional, feminized man while Bachchan plays the intense, brooding lover, consumed simultaneously by love for the other man and rage at finally losing him. The heterosexual love interests are so marginal to the plot that they hardly matter. In these parables of love and eventual loss, the feminized man dies in the arms of his distraught partner. (421)

Sholay (Embers 1975) could be seen as an epitome of gay romances. The movie shows the buddy duo of Veeru played by Dharmendra and Jai enacted by Amitabh Bachchan who act as a typical gay couple. The movie has attained a cult status with its depiction of the intense buddy bonding and the song "Yeh dosti hum natin thodenge" ("we will never break this friendship"), has become a queer anthem sung at gay pride marches. The trend continues in a number of movies and *Dostana* (Friendship 1980) which features Amitabh Bachchan and Shatrughnan Sinha who fall in love with the same woman played by Zeenat Aman is especially notable. The movie features a scene where the two heroes sing to each other about their friendship which exudes the warmth of homoeroticism.

Many movies in the decades of 1980s and 1990s have buddy pairs with actors like Akshay Kumar- Saif Ali Khan, Salman –Govinda and Akshay Kumar- John Abraham, which all celebrate the intense friendship between the male pairs which is often a disguised form of homoeroticism. Cross dressing is another favourite trope used for latent homoeroticism actors ranging from Amitabh Bachchan to Rishi Kapoor and from Shah Rukh Khan to Ritesh Deshmukh has donned female avatars often to the delight of gay audience.

Song and dance sequences also depict male stars at close proximity often dancing in tango to singing together, which are often veiled manifestations of homosociality and homoeroticism.

Bomgay (1996) directed by Riyad Vinci Wadia deserves credit as the first openly gay movie in Bollywood. The movie is divided into six segments based on a collection of six poems by the notable gay poet R.Raj Rao. The film was widely appreciated specially for the commendable performance of Rahul Bose and it has also received criticism for its depiction of explicit sex scenes. *Kal Ho Naa Ho* (Tomorrow May Never Come 2003), directed by Nikhil Advani develops the trope of buddy bonding to depict gay bonding. The movie shows the buddy duo of Aman (Shah Rukh Khan) and Rohit (Saif Ali Khan) who falls in love with the same heroine. The two heroes' bond with each other in their pursuit of heroine Aman sacrifices his love and bond with Rohit. The movie privileges buddy bonding than heterosexual love.

Masti (Fun 2004) is an adult comedy which explores sexcapades of the three heroes and opens up gay possibilities. *Honeymoon Travels Pvt. Ltd.* (2007) is another movie to depict a closet homosexual, Bunty-one husband among the six couples who embark on honeymoon.

My Brother Nikhil (2005) tells the tale of a gay swimming champion who becomes an AIDS victim. The film which won much critical acclaim is a sensitive portrayal of gay lives and the social ostracization they have to face.

Partner (2007) is a romantic comedy movie directed by David Dhawan. The movie shows buddy bonding between Prem, a hypermasculine love guru played by Salman and a diffident novice played by Bhaskar , Govinda.

Dostana (Friendship 2008) directed by Tarun Mansukhani depicts two heroes who fall in love with the same heroine, end in being in love with each other. The movie celebrates gayness in a big way. *Straight* is a 2009 film directed by Parvati Balagopalan starring Vinay Pathak as Pinu. The movie takes a comic turn when Pinu kissed by Anuj goes bewildered thinking that he is a gay. The movie posits gayness as an aberration which seem to spread by the touch of a gay man.

DunnoY.... Naa Jane Kyon(2010) realistically portrays the plight of Indian gays who could not get acceptance for their love in a conservative culture like India. A sequel of the movie which tells gay loves in a diasporic setting DunnoY2 was released in 2016.

Kapoor and Sons (2016) directed by Shakun Batra tells the tale of two estranged brothers who come back to their ancestral home to meet their dying grandfather. The movie exposes the sham of big Indian family. The movie is remarkable for it shows one of the brothers coming to terms with homosexuality. *Loev*(2016) is the tale of the love of two gay men in an urban setting. Unrequited love and self-acceptance form the central themes of the movie.

Aligarh (2016), is a biopic directed by Hansal Mehta, based on the real life story of Professor Ramachandra Siras of Aligarh University who was sacked for being gay and was shortly afterwards found dead. The movie which won national and international acclaim is the sensitive portrayal of a poignant gay life.

Over the years Bollywood has evolved from gay stereotypes to authentic tales of gay existences. Still movies with gay directors, actors and crew remains a hope of Bollywood. Real life of gays which reflect their real lives and an emerging culture of gay acceptance is the need of the hour.

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Postgenderism: Recasting Gender in Cyber Space

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The emergence of the non-binary identity which challenges the authority of binary gender is the most recent and notable movement in queer community. With more and more people identifying with other gender identities or altogether rejecting it has resulted in the expansion of Gender spectrum. Since gender is seen as a social construction, entirely different from the biological aspects of a man, the question of the necessity of a gender label is a prominent topic in academic circles and queer movements. According to Alok Vaid Menon, gender binary should be abolished because it is limiting the possibilities of human life. For him, 'man' and 'woman' is just two among the many gender categories available to humanity, to explore their gender.

I want 'woman' & 'man' to contain multitudes & not be homogenized & flattened. Identifying as a man or a woman isn't about 'reinforcing the gender binary. the way that we perpetuate the gender binary is more about the systems of value we uphold & how we treat each other than the particular words that we affix to our experiences. This is why i believe that all of us – regardless of how we identify & navigate the world – have a stake in ending the gender binary! it's a system of power that values its reproduction over our realities, its supremacy over our stories, its universality over our uniqueness. i want a world where gender is respected as a story, not just a word. One where we understand that it means a fundamentally different thing for one person to be a woman than another, where we recognize that there is no one way to be a man. When non-54 binary & gender non-conforming people challenge the gender binary it is not because we want to police or restrict others, rather it is because we want to create a world that values difference, complexity, and infinite transformation. (Menon "Ending the Gender")

Postgenderism can be defined as a phenomenon in which gender binary is rejected from the social political and cultural circles of human life. According to

post gender critics, erasing the structure of gender binary from society will be “liberatory” (Dvorsky 2) since the fixed notions of binary gender is a bondage that limit human potentials. They reject the division of human society based on phenotype i.e., on the basis of genitals. According to George Dvorsky and James Hughes in their work “Postgenderism: Beyond the Gender Binary”:

Postgenderism is an extrapolation of ways that technology is eroding the biological, psychological and social role of gender, and an argument for why the erosion of binary gender will be liberatory. Postgenderists argue that gender is an arbitrary and unnecessary limitation on human potential, and foresee the elimination of involuntary biological and psychological gendering in the human species through the application of neurotechnology, biotechnology and reproductive technologies. Postgenderists contend that dyadic gender roles and sexual dimorphisms are generally to the detriment of individuals and society. (Dvorsky 2)

Postgenderism has its roots in feminism, posthumanism, and transgenderism along with androgyny, metrosexual or technosexual movements. Postgenderist ideas have its origin in feminist thoughts where critics argued for equality between the binaries and rejection of the naturalized hegemonic classification where man was seen as superior.

Iconic feminist campaigns seek to stop sexual violence, sexual harassment, gendered income inequality, pornography, and so on. The idea of feminism as excessively focused on the dismal constitutes a recurring criticism from both within and outside of the feminist movement. The much-maligned radical feminists of today understand gender as strictly negative - the system of male dominance - and proclaim gender abolition as their goal. (Abbot “Posthuman Gender”)

A Canadian American radical feminist, Shulamith Firestone in her work *The Dialectics of Sex*, quoted one of the earliest notions which later on influenced Postgenderism movement. She said that

... end goal of feminist revolution must be, unlike that of the first feminist movement, not just the elimination of male privilege but of the sex distinction itself: genital differences between human beings would no longer matter culturally. (A reversion to an unobstructed pansexuality Freud’s ‘polymorphous perversity’-would probably

supersede hetero/homo/bi-sexuality.) The reproduction of the species by one sex for the benefit of both would be replaced by (at least the option of) artificial reproduction: children would be born to both sexes equally, or independently of either, however one chooses to look at it; the dependence of the child on the mother (and vice versa) would give way to a greatly shortened dependence on a small group of others in general, and any remaining inferiority to adults in physical strength would be compensated for culturally. (Firestone 95)

Another important theorist, Donna Haraway, a cyberfeminist has talked about postgender society which have influenced these phenomena. Her concept of cyborg doesn't support the complete rejection or transcendence of biological gender. For her it,

... is not constrained by social gender; this is the result, not of transcendence or denial of material reality, but the embrace of it. Only when gender is constructed as global identity must it be rejected- but cyborgs are free to consider the 'partial, fluid, sometimes' aspect of sex and sexual embodiment... Postgender, therefore, in the sense of somehow getting beyond gender entirely, is not a concept represented in cyborg. (Thweatt-Bates 90)

But her usage of the concept of cyborg as a solution influenced post-gender theorists and enabled them to question the relevance of gender in describing the identity of a person, as stated by George Dvorsky, co-author of *Postgenderism: Beyond the Gender Binary*. According to Dvorsky in his online article, *25 years later: Donna Haraway's 'A Cyborg Manifesto'*, Donna Haraway's work *A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century*,

... brought transhumanists into the discussion, who integrated and re-interpreted Haraway's ideas, resulting in the emergence of postgenderist theory- the suggestion that both females and males should look to be liberated from gendered constraints through the application of advanced biotechnologies. (Dvorsky)

It is thus associated with transhumanism which deals with the betterment of human society with the help of technological advancements. According to Benjamin Abbot, "the dream of transcending biological sex and established gender norms occupies a key place in transhumanist thought. Transhumanists extoll

transgender people as prescient pioneers of morphological freedom and technological enhancement” (Abbot “Posthuman Gender” 2013). Martine Rothblatt, a supporter of transgender and transhumanist movements once said that there are as many distinctive gender identities in this world as there are individuals (Abbot “Posthuman Gender”).

Postgenderism theories recommend the usage of technology for the betterment of humanity as a whole by giving a choice to the individual to decide on his gender i.e., individuals will have a choice whether, “to remain gendered, to experiment with their sex and sexuality, to mix and match gendered characteristics, or to reject gender altogether” (Dvorsky “25 Years Later”). They strictly speak against instances where an individual is controlled by their gender assigned at birth. “The idea is to exact control over our bodies and minds... (it doesn’t) imply the end of all gendered characteristics, it merely signifies the end of fixed and traditional gender assignments wrought by evolutionary processes” (Dvorsky “25 Years Later”). Technological advancements have led to the improvement the quality of human life. For example, advanced medical science has enabled man to live longer compared to earlier times. Communication between people across the world has become much easier than a time where telegrams and letters were in the forefront. Advancement in communication technology have thus limited the technological distance between people, disregarding the vast geographical distance across the world. Technologies have thus succeeded in bringing individuals closer than ever before. Internet and all the social networking sites have made the existence of a virtual community transcending the real world a possibility. Even though not part of one’s physical body, Instagram can be seen as a part of the technology which helped with the existence of the virtual community that has also played a role in the improvement of transgender communities.

Instagram is a social networking site which have enabled queer individuals to form a family with other fellow queer folks and to bring out their voice in a gendered society which were adamant on silencing them. Thus, in this way, advancement in communication technology has thus helped queer community to establish their identity.

Instagram provides us with space to seemingly reconstruct our histories and lived experiences. More, it allows us to proclaim out future agendas and identities through pictures and rhetorical commentary. Our identities function as necessary fictions, selected and abandoned to fulfil political objectives. It is a consensus across

communication fields and allied disciplines that individuals become and develop due to human interaction and lived experience that derive. Contemporary modes of communicating often default to online mediums, and communication scholarship is only starting to explore the ways Instagram is complicating the process of constructing and becoming. (Calkin 2)

As a technological tool, *Instagram* accounts of queer groups and individuals have become a form of virtual literary history which traces and make people aware of the existence of the transgender community. As a virtual space it also enables us to create our own identity rather than the one assigned to us by birth. It is like a virtual world on its own, like VR games. If we take an example, *Ready Player One*, a 2018 science fiction movie directed by Steven Spielberg is set in a dystopian world where almost the whole of humanity virtual reality software OASIS to escape the barrenness of the world. In this movie the game avatars created by the players are very different their own physical real self.

Inside the *Oasis*, which is the world's most successful company in *Ready Player One*, your avatar could look like anything. The avatars shown were all over the place, from a Wizard (Oasis creator Haliday's avatar) to anime-like, semi-realistic versions of themselves (Parzival and Artemis), to giant robots like the Iron Giant and Gundam... As rendering technology advanced, you started to see more sophisticated representations, like the characters in *World of Warcraft*, and avatars in virtual worlds like *Second Life*, where people would build houses and have virtual relationships and much more. You might even say that *Oasis* is pretty much *Second Life* on steroids. (Virk "Ready Player One")

In this movie, the main female character Samantha Cook talks about her avatar Art3mis as an image which is completely different from the real physical body. This virtual world gives an individual immense freedom to destroy the shackles of identities placed on them by birth. Like the VR games, *Instagram* also allows the user to create their accounts according to their terms. For queer society, social networking platforms are a much more real and comfortable space than the real world because it gives the liberty to live as they are. This sense of inclusion was also brought forth due to the representation and several options of different gender identities rather than the traditional binary gender.

Many queer individuals have made a mark for themselves and have become virtual celebrities who motivate other queer people and inspire the virtual society. Most of the queer individuals find that they can express their desires and views much more freely in virtual world rather than physical world. It also helps them to form a close-knit community which would help them to fight against the oppression and isolation they are forced to face from the cisgender's community. Non-binary people who are even more marginalized due to their lack of fixed gender identity are oppressed both in transgender community and cisgender's community. But *Instagram* personalities like Alok Vaid Menon, Durga Gawde, Tyler Ford have successfully used the *Instagram* life as platform to talk about their daily life and the struggles they face, like a testimony to the hostile world. According to Jenna Wortham, "social media has turned out to be the perfect tool for non-binary people to find- and model- their unique places on the gender spectrum" (Wortham "On Instagram"). They have carved out a space for themselves and boast a huge fan following including heteronormative people who supports them and their cause. Langford Jo points out that visibility is important for one's identity in this world, so that they get a sense of acceptance and are not cast away to the periphery. He remarks,

... visibility and affirmation can be vital to acceptance and even survival. Sites like Facebook, Instagram, Tumblr, Twitter, and YouTube can help. There are loads of inspiring YouTube vlogs and Facebook groups, Reddit conversations, and dozens and dozens of memes and sites to help explain the admittedly complicated Rubik's Cube that is sex, gender, orientation, and expression. (Langford 46)

Unlike the earlier queer people who had to fight their own battles to get acceptance due to their gender dysphoria, queer individuals of today get support from their own community and the popularity of the queer online personalities also help them to find their own identity unlike the trans people who were not aware of the gender identities other than the binary gender. Because of the popularity of social networking sites and availability of Internet in most of the parts of the world, young people have the advantage of having role models whom they can look up to when they struggle to transition from their assigned gender identity to their comfortable self. For example, according to Matic Moore a non-binary artist, finding:

... people like Vaid-Menon online gave (them) the courage to reconsider how they approached gender... Alok Vaid-Menon's

assuredness, Moore said, “boosted my confidence in terms of defining and asserting my own identity in public spaces.” ... Moore also clarified their gender pronouns on Instagram. “I wrote it into my profile to make it more explicit.” To some, the act might seem small, but for Moore, their identity “felt crystallized, and important.” (Wortham “On Instagram”)

In her online article *On Instagram, Seeing Between the (Gender) Lines*, Wortham talks about Helana Darwin, a sociologist at the State University New York, famous for her work on non-binary identities- *Doing Gender Beyond the Binary: A Virtual Ethnography*. For Darwin, social media sites are important to the queer people who lives an isolated life amidst the cisgender’s community,

... especially those who were geographically isolated from other nonbinary people. “Either they were very confused about what was going on or just feeling crushingly lonely and without support, and their online community was the only support in their lives, ... They turned to the site to understand they aren’t alone.” Most of her subjects said social media was instrumental in deepening their understanding of their identities. (Wortham “On Instagram”)

Among all the social networking media sites, *Instagram* attracts more youngsters and provides them with a much more interactive platform than *Facebook* and *Twitter*. According to Chloe West, digital marketing manager, *Instagram* has a varied client base, but it is undeniably the most popular with young individuals. Almost two in three adults between 18 and 29 years use *Instagram* (“17 Instagram Stats”). According to the online article “Instagram-Statistics & Facts” in the site *Statista*, *Instagram* has a high level of user engagement as one of the world’s most famous mobile social applications (Clement). Thus, *Instagram* has become a platform for non-binary people rather than just a social networking site for entertainment. Queer people are actively using their Instagram accounts to gain recognition and acknowledgement so that they can successfully spread awareness and point out the injustice that are done to them. The vast number of users of social networking sites like *Instagram* guarantee maximum amount of visibility to the queer people because of the number of people using them across the world. Thus, social networking sites lifts up Queer activism as a global phenomenon.

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Vampires of the New World: Fanged Evil Spreading Through the Unknown Lands Beyond the Atlantic

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ABSTRACT

This paper makes an attempt to study the early vampire beliefs as well as the vampire literature of Britain and continental Europe slowly spreading in the United States, as the colonization of the New World led to the sharing of traditions and culture, thus bringing a mixture which consists of a few additions from different parts of the world in the Americas. This can be seen reflected in the literature of the United States, which has inherited the vampire legend with the more creativity and innovation added to it.

The paper goes through this special journey of transformation to adapt to a new world, in which novels like *I am Legend*, *Salem's Lot* and *Interview with the Vampire* are works of higher relevance due to both the similarities and the innovations which can be seen in relation to the vampire legends of Europe and the British vampire literature. United States has seen an increased interest in vampire novels as well as vampire films in the beginning of the twenty first century, but this newly discovered popularity has its roots in the earlier works which made sure that there was a strong base for the new group of vampires. The readers and movie lovers outside the United States have also followed the same trend.

Keywords: Gothic, vampire, horror, undead, fear, supernatural

INTRODUCTION

The early settlers in the Americas were looking for a new home where they could thrive, and for the same, they were ready to do whatever it would take - "Although the dreams and ambitions of its first human settlers can only be surmised, whether crossing the Bering Straits on foot or arriving by sea, early migrants to the North American continent came in search of a better life" (Grant 10). Most of them didn't have the best of times back in their homelands, and they would take the risk to change that forever. Europe had to expand, but there was not

enough lands nearby. Their trade was also restricted by changes in the balance of power among nations. The situation was the same for most of the European countries which were not looking for any more of the devastating battles with each other, unless forced into the battlefields. Besides, an expansion into another nearby continent would require years of continuous war, costing a lot of natural resources and human lives. This paper attempts to study the beliefs about vampires as well as the vampire literature spreading to the United States from Britain, as the colonization of the newly found lands led to a sharing as well as mixing of cultures and traditions. The same is also reflected in the literature of the United States, which also inherited the vampire legend much later in comparison to the British literature.

There were small deviations in the reasons for different people to cross the Atlantic Ocean - "As Christopher Columbus said, men crossed the Atlantic primarily in search of gold. But they were also idealists. These adventurous young men thought they could transform the world for the better. Europe was too small for them - for their energies, their ambitions, and their visions" (Johnson 11). The new stage of process in geographical discoveries had its beginning with the journey of Christopher Columbus in 1492, who made an attempt to reach Asia by traveling through the other side, exploring the Atlantic Ocean with the aid of Isabella of Spain. The marriage of Isabella of Castile and Ferdinand of Aragon had successfully united these two kingdoms, leading to the formation of a stronger entity, the Kingdom of Spain, setting things in motion. The Ottoman Turks who had captured Constantinople and put an end to the Byzantine Empire, then controlled most of the usual routes, which made the European nations desperate to find another passage for trade. This newly imposed restriction on Europe's strongest naval powers led to the time period known as the Age of Exploration and the Age of Discovery.

Discovery of a Land of Mystery

Columbus who finally found land in the Atlantic felt that he had successfully discovered a new route to Asia for the Spanish. It was only a few years later that Amerigo Vespucci had made the point that the island and this particular landmass where Columbus landed were not part of Asia, but a location which they hadn't encountered before, later referred to as the New World. Later, Vasco da Gama would discover the direct sea route to India as he landed in Calicut in 1498, which would prove to be another method to avoid the territories controlled by

Ottoman Turks. The first settlement in the New World was built by Columbus' crew in 1493, and was named Isabella after the Queen of Spain, in an area located on the island of Hispaniola which is now Dominican Republic. In 1494, the French established Port Royal as their first settlement and centre for shipping and commerce in south eastern Jamaica. The Spanish, along with their Iberian neighbour Portugal, were quicker in expanding their territories in the mainland compared to the French who would take more time in establishing their settlement on the major landmass.

The British couldn't keep themselves away from the competition, as there was a lot of resources and land to be claimed. Leaving themselves on the islands on the side of Europe was only going to restrict their power and influence in front of the continental powers. The defeat of the powerful Spanish Armada in the hands of the Royal British Navy in 1588 during the Elizabethan Age set an easier path in front of her successors. Spain was no longer the invincible enemy in the ocean, and the British felt the need to take advantage of the situation, even though a battle in the sea was to be avoided if possible. "James I was keen on colonization, provided it could be carried out without conflict with either Spain or France. As in Elizabethan times, the method was for the crown to issue charters to 'companies of adventurers,' who risked their own money" (Johnson 24). The British established their first colony of the New World at Jamestown, Virginia in 1607, and it was followed by a group of Puritans known as the Pilgrims establishing Plymouth, Massachusetts in 1620. The conditions of this newly discovered lands were really tough for the new settlers. They had to keep struggling hard to survive in this territory which was too strange in comparison to the European setting which they were familiar with. Despite the presence of Incas, Mayas and Aztecs who thrived in the form of empires and controlled a good extent of territory during their strong points in history, the New World was nowhere close to being modernized. Europeans coming to the continent meant changes in the flora and fauna as well as the economy of the New World as cattle, horses and other animals were brought to the lands (Johnson 13-14).

Birth of a New Nation

The United States of America was formed after the Declaration of Independence, and after winning the war with Britain, but it was still a small collection of states which formed a territory concentrating on the eastern side of

North America. The purchase of Louisiana from France helped the nation's expansion as it doubled the territory of the country. Louisiana hadn't really prospered under the French rule as it continued to be a colony which was not self-sufficient, and it provided no products for which France could become a good market – the exported indigo and tobacco were also inferior in comparison to the same in West Indies, and provided low prices (Taylor 16). The newly formed United States of America was quick to make use of the lack of French interest to claim territories close to its member states. The process continued slowly, but steadily, from the early settlements to the expansion of the colonies - “The creation of the United States of America is the greatest of all human adventures. No other national story holds such tremendous lessons, for the American people themselves and for the rest of mankind” (Johnson 11).

Despite having the mixed population of different European nations as majority, there was also the presence of a significant minority from other continents - “Even before the nation came into being, there had already been an immense population of Africans in North American continent imported, if not kidnapped, to build towns and villages for European colonists” (Jang 225). The newly formed nation too required a lot of manpower, which was managed with a large slave population who were uprooted from Africa. These slave-driven plantations brought income and prosperity to the area, which also led to the establishment of new cities and further development of already established cities nearby. New Orleans, such a city on the Mississippi River, and named for Philippe II, Duke of Orleans, formed a part of Louisiana, and proved to be a perfect place for strange beliefs and superstitions. It was a place which celebrated the variety from within - “One of the most novel features of the Territory of Orleans was its population composed, as it was, of Creoles, Frenchmen, Spaniards, Americans, Negroes, and several other minority groups. It was the first territory in which Americans were numerically in the minority” (LeBreton 2). The beliefs about the supernatural spread from these multiple sources.

Vampires and the Mysteries of Louisiana

Louisiana was considered to be a land which was home to many secrets, some of them also having an exotic touch. The Black population had a combination of the traditional African beliefs and Roman Catholicism which the French and the Spanish brought with them while being in control of the area. The mixture of

cultures could also give rise to another set of beliefs which are divergent from the original by a long way, and lot of them are related to immortality. According to *Ghosts*, “Evidence for a belief in immortality can be found in ancient burial customs which reveal that our ancestors had an expectation of an afterlife and a respect for the memory of the dead” (Roland 21). These beliefs all around the world also had a many things in common, even without any direct contact being established between them for centuries.

In *Interview with the Vampire*, Louis de Pointe du Lac talks about this particular city – “There was no city in America like New Orleans. It was filled not only with the French and Spanish of all classes who had formed in part its peculiar aristocracy, but later with immigrants of all kinds, the Irish and the German in particular” (Rice 39). As a plantation owner from the American South, he is one of those vampires who continues to have the elements of his human identity and earlier life’s essence as a significant part of his existence as a vampire. He feels that New Orleans is the right place for vampires to hide among different groups as the other, and even thrive at the same time. A vampire from Europe could be perfectly placed between all of these, as the vampire who bit him, Lestat de Lioncourt had already shown through his own example. A world of complicated beliefs and strong superstitions could consider a vampire as something beyond their understanding, as there were so many myths and legends with monsters that were terrifying enough, and another creature among them would have been nothing new.

Nocturnal Diversion in the New World

Before *Interview with the Vampire*, it was *Salem’s Lot* which made the vampires popular in the United States with the establishment of a fictional town in Maine, and bringing an Austrian vampire, Kurt Barlow, one of the strongest of his kind. This fictional town mentioned by the author is also given a history that goes back to the Puritans of England and the colonies established by them in the New World. It had the vampires facing the humans who hoped to fight the evil using the usual weapons from European legends and fiction – “I pulled the crucifix out of my shirt and showed him. I was born and raised Congregational, but most folks who live around the Lot wear something – crucifix, St Christopher’s medal, rosary, something” (King 608). Barlow is to the United States, what Dracula was to England, trying to spread the undead curse in the faraway lands – from Austria to the United States instead of Romania to the United Kingdom. *Salem’s Lot* did the

job of spreading the genre in United States, the same work which the novels starting from *The Vampyre* did for the vampire fiction in the British Isles.

Before *Salem's Lot*, Richard Matheson came up with *I am Legend*, another novel with vampires in the United States, but set in a distant future. He has painted the picture of a completely vampire infested Los Angeles - "Outside, on the lawn, the dark figures stood like silent soldiers on duty. As he watched, some of them started moving away, and he heard them muttering discontentedly among themselves. Another night was ended" (Matheson 11). Here, vampires are not lone hunters, but the creatures that hunt the lone human being as a group in the darkness of the night. Despite being an early novel featuring vampires, it was categorized more into the post-apocalyptic novel due to its features and setting. The novel takes a step forward to predict the existence of vampires in Americas during a distant future. The novel could also take a vampire and place it into a world of science fiction - "Science fiction also suggested a second origin for the vampire: disease" (Melton 5). The novel came up with the idea that a vampire could come into existence in a future United States of America, and it also made sure that the readers would accept the nocturnal creatures in a different form, diverging from the original vampires of Europe. *The Vampire Tapestry*, a 1980 horror novel by Suzy McKee Charnas also had the vampire's condition coming from biologic rather than supernatural means.

Undead Curse in New Literature

George R. R. Martin had authored *Fevre Dream*, published in 1982, establishing vampires as separate race of people who try to get over their unnatural blood addiction during the antebellum period in the history of the United States. Christopher Pike's *The Last Vampire* series had a 5,000-year-old vampire at its centre. *The Hunger* series of novels by Whitley Strieber featured vampire-human hybrids, while tracing the original vampire origins back to Ancient Egypt. L. J. Smith's series of novels named *The Vampire Diaries* had a high school girl in love with more than one vampire, and it became very popular with the television series of the same name, as the teenagers were instantly attracted to this particular world. Charlaine Harris' *The Southern Vampire Mysteries*, better known as *The True Blood* Novels had vampires living with humans as a part of their world, and it also became very successful as a television series.

Stephenie Meyer's *Twilight* worked with vampire romance and made the genre more popular in the continent, and the fame also spread internationally, thanks to the film series which became instantly successful at the box-office. *Vampire Academy* series of novels by Richelle Mead also make an attempt to cater to the young generation. Seth Grahame-Smith connected the sixteenth President of the United States with hunting of vampires through his work, *Abraham Lincoln, Vampire Hunter*. *The Passage* by Justin Cronin also has a virus infection turning humans into vampires. Rachel Caine wrote *The Morganville Vampires*, another series of novels which interested the youngsters. All these works were slowly spreading the tales about vampires among the readers of North America, especially the youngsters, who were only getting more interested in reading more.

Conclusion

It can be seen that vampire fiction became popular in the Americas slowly, but in a steady manner. The popularity of such novels has only increased with the progress of time, and even in works belonging to other genres, vampires had a strong presence. Other than the movies based on Bram Stoker's *Dracula* which had the same aristocratic vampire tale coming under different titles again and again, there were other movies like *Embrace of the Vampire* (1995), *Vampires* (1998) and *Blade* (1998), and all of them were in favour of humans slaying the vampires. The image of the vampire was fixed as the pure evil creature which needs to be laid to rest to save humanity. The immortality gained by the vampire was a curse on mankind. This portrait of the vampire had its limitations in appealing to a few people who had an aversion to horror. Something else had to spread the image of the vampire in a better way.

Then, movies like *The Twilight Saga* (2008-2012) and *Vampire Academy* (2014) brought the vampires of the novels of the same name from teenage fantasy on paper to the big screen, developing a certain vampire addiction among a new generation. The selection of a popular cast which included the crowd-favourites like Kristen Stewart Robert Pattinson for these movies also helped further in attracting the audience. *Interview with the Vampire* and *I am Legend* had their film adaptations much earlier. *Underworld* series of movies from 2003 to 2016 also popularized vampires by bringing a war against werewolves in an action-packed adventure. Lesser known and non-English vampire works were also made into critically acclaimed movies, like *Let Me In* (2010) and *Byzantium* (2012) which

used the movie's visuals effectively to create an atmosphere of mystery. In the first half of the second decade of the twenty first century, there were not many people who were couldn't understand vampires as the most admired creatures of fantasy, legends and myth. Vampires were not creatures with tales focused on Europe anymore, as they would go on to become the favourite dark creature from fantasy, myth and legend – it is a status which has continued to remain the same through the years after these movies gained popularity. The tales of vampires had spread through the Americas, and almost all over the world, and United States of America had become the new home of vampires, despite the traditional beliefs of North America having nothing to do with the blood-drinking creatures of the night.

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Trauma and Memory in Jose Saramago's *Blindness*

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ABSTRACT

The present paper attempts to re-read Jose Saramago's novel *Blindness*, in the context of the pandemic situation. It tries to analyze how the pandemic of "white blindness" is represented in the novel, with the aid of the theories of trauma and memory. There is an endeavour to inquire into the worldview constructed in the novel through such an encounter with a pandemic. The existential crisis which leads to the nemesis and the consequent redemption through the collective memory of the trauma, is analysed. The study is relevant as it tries to contextualize the pandemic as a cultural discourse.

Keywords: Pandemic, Trauma, Memory, Worldview, Nemesis, Redemption, Cultural Discourse.

Trauma has been a recurring motif in the literatures of all times, as humanity has always been afflicted with one or other kind of adversities in its evolution. In its journey forward, humanity has always carried forward through generations, the cultural memories of the trauma that they have experienced. The devastation effected by the traumatic events has defined distinct epochs in the history of the evolution of humanity. These epochs have marked their presence as indelible cultural discourses, which have necessitated readings and re-readings from time to time, in order to have broader perceptions of the phenomena. Literary and cultural theorists have felt the urgency to reconsider and rethink the representations of the cultural discourses of traumatic events, delineated through different literary and cultural texts through the ages, in the wake of the Covid-19 pandemic. Critique of these cultural discourses render fresh insights and understanding of the worldview disseminated through these texts. It is in this context, that this paper attempts to re-read the representation of the pandemic of "white blindness" through the novel, *Blindness* by Jose Saramago. The study is done with the aid of the literary and cultural theories of trauma and memory.

Blindness is a mind shattering novel by a literary maestro, Jose Saramago, who, through his vision and insights, portrays the state of affairs of a society, afflicted with a pandemic of “white blindness”. A re-reading of the violence and the heart-rending incidents in the text, after the outbreak of a devastating pandemic in the twenty first century, invokes the traumatic memories of the readers, who have been directly or indirectly participants in the Covid- 19 pandemic. The trope of “white blindness” is a brilliant choice to represent the trauma experienced by the characters and the aftermaths effected upon a society which gets toppled down in its efforts to survive. The many facts which cannot be accounted for, remind the humanity of its fundamental nature and the very nature of existence and survival. The nemesis ultimately leads to redemption.

The construction of traumatic cultural memories through literary and cultural narratives have undoubtedly revealed the inevitable engagement between trauma studies and cultural memory. Traumatic events undeniably invoke memories; and cultural trauma passes on these cultural memories down the generations. A re-reading of *Blindness*, reverses the concept of the transmission of memory to the next generations, rather it is a return to the understanding of the cultural trauma of the pandemic of “white blindness”, as a traumatic memory and the re-enactment and re-living of the traumatic cultural discourse of the Covid- 19 pandemic. As Cathy Caruth in her Introduction to the edited book, *Trauma: Explorations in Memory* states, “The traumatized carry an impossible history within them, or they become themselves the symptom of a history...” (5). It is with the symptom of the deep rooted and disturbing experiences of the “impossible history” of the twenty first century pandemic, that one can return and re-read Saramago’s classic novel *Blindness*.

Saramago, at the outset, prepares the readers to be participants in a massive pandemic, looming large in the air. The dramatic opening of the narrative, introduces the first man who goes blind in the city, a driver, who holds up the traffic at a traffic signal in the city, panicky about the sudden blindness that has descended upon him. He feels that he has been “caught in a mist or had fallen into a milky sea” (Saramago 5). The ophthalmologist, unable to account for the reasons of the mysterious “white blindness”, himself turns blind without much delay, and the patients who have come to consult him, soon start seeing the “milky sea”, losing their eyesight. The car thief, who has taken the first blind man home, and who has

stolen his car after his magnanimous action, too turns blind. The policeman, who accompanied the blind thief home, also goes blind. Saramago depicts the pathetic condition of the outbreak of a contagious “white blindness”, depicting how it spreads among the different characters who have come into close physical contact. The doctor, promptly informs the authorities and the Ministry and soon the contagion is declared as a serious national emergency and immediate measures are taken to quarantine those who have gone blind as well as those who have been infected with the mysterious disease.

The Minister orders the victims to be isolated in a deserted mental asylum, which anticipates the mental as well as the physical brutality, which the quarantined are going to encounter. The doctor, along with his wife, who pretends to have gone blind, is the first to arrive at the mental asylum. The narrative is carried forward with the advantageous vantage point, from which the doctor’s wife can grasp the traumatic incidents that take place in the asylum. The first man who contracted the sickness and the immediate persons who have come into contact with the doctor arrive soon and the number increases. The enclosed space makes them “remote from the world that any day now, we shall no longer know who we are, or even remember our names, and besides, what use would names be to us, here are we like another breed of dogs, we know each other’s bark or speech, as for the rest, features, colour of eyes or hair, they are of no importance, it is as if they did not exist...” (55).

The existential crisis experienced by the quarantined in the beginning of their isolation, is an anticipation to the forthcoming events of the text. “... they did not know how many they were. And they were carrying no luggage.... names are of no importance here” (57). It is only the beginning of a highly traumatic as well as a chaotic state of affairs, which goes beyond control. The intensity of the trauma increases. “This is terrible, a real disaster” (57). The uncertainty of life begins to loom large. The doctor’s wife sensed that “the promised hell is about to begin” (64). Humanity ceases to be humane and begins to unravel the grotesque, hidden deep inside.

The Government gives strict instructions to the quarantined to ensure their solidarity in safeguarding the nation. Soldiers are employed at the entrance to assure obedience and adherence to the laws imposed. The inmates soon become confined under an established hegemonic structure. To quote Michel Foucault, “It was an

instance of order, of the monarchial and bourgeois order being organized..." (40), in a totalitarian framework. The soldiers whose duty is to protect the people even invoke the greatest of horrors. The isolated blind inmates of the mental asylum in the narrative of *Blindness*, are confined and suppressed under an authoritarian power that is imposed upon them. Foucault writes, "Confinement,... betrays a form of conscience to which the inhuman can suggest only shame" (67).

The shameful insults and humiliation which they undergo, the dehumanizing demeanour they meet with, the open conflicts that arise in the wards, the hideous crimes and atrocities that they are subjected to, the appalling violence, including the gruesome murders that the inmates suffer from the authorities and all the debasing things they suffer, remind again of Foucault's words, "This, to be sure, is a whole security system against the violence of the insane and the explosion of their fury....it is conceived in terms of an animal freedom" (73). The confined blind inmates of the mental asylum gradually expose their animal like behaviour. "There are many ways of becoming an animal,... this is just the first of them" (Saramago 89). According to Foucault, the animal in man is a reflection of his madness. The blind inmates confined in the mental asylum, losing their power of reasoning, are on the verge of insanity.

We're all going to stink to high heaven. At that moment sighs could be heard, moaning, tiny cries, muffled at first, sounds that seemed to be words, that ought to be words, but whose meaning got lost in the crescendo that transformed them into shouts and finally heavy, stertorous breathing. Someone protested at the far end of the ward. Pigs, they're like pigs. They were not pigs, only a blind man and a blind woman who probably knew nothing more about each other than this. (89- 90)

The trauma faced by the blind, disrupts their selves and the organized order of things, leading to a state of fragmented psyche and turmoil. "The panic out there is such that it won't be long before they start killing people off the moment they know they have gone blind" (112). Hunger and starvation lead to terrifying mishaps. The women characters find no escape from the brutal rape they are subjected to. The universal myths get subverted. The entire city is under the grip of the pandemic and it is a catastrophic situation. The narrator portrays the moment when one of the blind inmates has contracted "white blindness". The inmate has been at a museum, watching a painting with "so many pictures and by such different

painters. And there were some men eating... There were thirteen men altogether” (123). The number reminds one of the downfall which has happened to the Saviour of the world. It foreshadows the nemesis which soon will befall on the inmates of the asylum. In the painting, there is battle too, “There were corpses and wounded men, It’s only natural, sooner or later, all children die, and soldiers too, And a horse stricken with terror, With its eyes about to pop out of their sockets” (123) and soon the person goes blind.

The ‘normal’ scenario outside the mental asylum succumbs to the “white evil” without much delay. The instinct for survival makes the doctor’s wife to set the asylum on fire. The blind inmates who have managed to escape from their confinement, enters the outside world only to discover that devastation has reached its peak. The authorities have gone blind, the soldiers have gone blind, the law and order have gone blind and there are no more restrictions and confinement. “... everyone is blind, the whole city, the entire country...” (211). The grotesque state of affairs prevailing in the city is horrifying. Nemesis has fallen upon the city. The powerlessness and the utter helplessness invoke the disturbing memories of the Covid- 19 pandemic which has devastated the whole world in a very short span of time. The collective memory of the readers makes them participate in the horrific drama of events, identifying themselves with the characters in the narrative.

The doctor’s wife is the only character unaffected by the contagion. She, however, retains her sanity and mental prowess in the midst of the trauma and suffering and extends her helping hands to those in need. It is with the help of the doctor’s wife that they reach the outside world. She helps them in getting food and helps them to settle them down. It is through the vision of the wife of the doctor that the trauma and suffering unfold before the readers. She is a symbol of the still last drops of compassion and virtue remaining in the world.

The collective memory of the trauma and suffering helps the infected to learn the lessons of survival. It has been for the characters:

... redemption through penitence, the visions of the seventh day, the advent of the angel, cosmic collusions, the death of the sun, the tribal spirit, the sap of the mandrake, tiger ointment, the virtue of the sign, the discipline of the wind, the perfume of the moon, the revindication of darkness, the power of exorcism, the sign of the heel, the crucifixion of the rose, the purity of the

lymph, the blood of the black cat, the sleep of the shadow, the rising of the seas, the logic of anthropology, painless castration, divine tattoos, voluntary blindness, convex thoughts, or concave, or horizontal or vertical, or sloping, or concentrated, or dispersed, or fleeting, the weakening of the vocal cords, the death of the word.... (282)

This reflects the paradigmatic shift in the worldview of the people who have gone through the trauma. The memory of the trauma has effected in them a cathartic transformation, which helps them to accept the wholeness of life and the spiritual principles fundamental to their existence and survival. The fragmented psyche and anarchy brought about by trauma and the collective memory it reinforces, combine together to form a new whole with a different meaning. It is the deconstruction of the self for a reconstitution which helps the humanity to move forward.

The humanity, after imbibing fresh insights and a worldview which is urgent for the futurity, gets absolved from the trauma, but retains the collective memory, which will help in the betterment of the world. The trauma is over and what remains are the memories, the trauma has created. The collective memory has lessened the burden of suffering. The belief in the redemption after great suffering and trauma, is the worldview imparted through the narrative of *Blindness*. The characters imbibe the trauma and suffering, and learn acceptance. The survivors of the trauma suddenly regain their eyesight and return to normalcy towards the end of the novel. It is with the collective memories of the trauma, that they attain a miraculous state of redemption.

Saramago's narrative of *Blindness* becomes all the more relevant in the contemporary context of the Covid- 19 pandemic, as the text can be located and critiqued in the cultural discourse of the pandemic. The narrative itself serves as a cultural discourse, which invariably delineates the cultural trauma of the characters as well as the situations and the memories that they evoke among the readers.

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**Psychological Impact of Online Classes during the Covid 19
Pandemic and the Switching Back to Offline Classes - A Study
conducted among the Students of Aquinas College, Edakochi,
Kerala, India**

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ABSTRACT

Background: The outbreak of Covid 19 corona virus infection and its fast spreading all over the world had created uncertainty and fear globally while the global preventive measures including social distancing, quarantine, online education, etc has made great impact on the mental health of people especially the young students. Addition to it, the lockdown of colleges as a preventive measure against the virus' spread changed the learning platform to online mode which resulted in social isolation and screen addiction. When the colleges reopened after the Covid lockdown, the students cannot perform well in the offline classes as compared to pre-corona days.

Objective: The pedagogical shifts have created psychological problems and have reduced the learning skills. In this study we tried to identify the emotional and psychological issues of students of Aquinas College due to the shifts between online and offline learning modes. We also tried to evaluate the perception of students for online learning and to compare it with conventional classroom teaching.

Methods: The articles and research papers related to the Covid 19 outbreak, Online education, psychological impact of the pandemic and online learning in students have been reviewed.

A survey was conducted among the students of Aquinas College to explore the impact of this pandemic and the online learning methods on their lifestyle, daily routine and mental health of students.

Comments: The fear about corona virus and the changes in lifestyle imposed by the health organizations and the pedagogical shift from offline to online and then back to offline mode of teaching-learning process have led to psychological problems such as depression, anxiety, sleeping disorders, anger and fear in the students.

Suggestions: The authorities in the Government health organizations as well as the educational institutions should take necessary measures to cater to the psychological issues of students especially adolescent students and college students. Government should provide the availability and service of qualified psychologists at the colleges for students and each and every student should be provided Government funded individual and group counselling sessions and tele counselling.

Keywords: Covid 19, Corona Virus, Mental Health, Psychological Impact, Online Learning, College Students

1. INTRODUCTION

According to Erik Erikson, the personality of a person gets developed in a series of stages. Each stage poses a conflict. If a person successfully deals with the conflict, he will emerge from the stage with positive psychological elements which will help him in further advancement and if he fails to deal with it effectively, he may not develop the essential skills needed and it may result in some psychological distresses. The intended group of survey belongs to either adolescence (17/18 years old) or young adult group (19 to 22 years old). These stages are very crucial ones in the successful psychosocial development of a person. The conflicts they face in these stages as per Erikson's theory of Stages of Psychosocial Development are Identity vs Role Confusion and Intimacy vs Isolation. The significance of the development of Identity in Teens is very huge. The key task of being a teenager is to develop a confident and stable sense of self. The teenage years are the crucial stage where an individual starts seriously pondering over identity and how it's going to affect their future and their life. This may lead to either the teens becoming extremely self-conscious about themselves and the way others see them or it can result in a self-discovery. All these can be developed in a social set up. As a social animal, the social interactions and relationships have a greater impact on the development and growth of a human being.

Identity refers to how an individual defines themselves in terms of values, beliefs and their role in the world. Developing a self-identity in adolescence will later result in self-esteem. The identity of a teenager depends on various internal and external factors. Internal factors can be genetic, biological, cognitive and psychological factors. The external factors are peers, family, school, ethnic identity and other social environmental factors. The identity is developed as the teen experiments with various roles and attitudes in different settings like home, school and public places. It occurs as a response to various crises which allows them to explore their own values, belief system, personal ethics, spirituality, sexuality and gender.

Social support and social interactions are very essential for a successful development of self- identity. It's only through interaction and experiences one can understand his own strengths and weaknesses. The social support is the supportive relationships which help a person in his personality development. It is the strong positive relationships and interactions that mould a person. The two important social support systems are the family and peer groups. The family constitutes the initial stages of identity formation and the peer groups offer models, diversity, and opportunities for exploration of beliefs and values. The peers greatly influence a teen in his attitude, behaviour and character formation. Teens' experimentation with his identity fixation takes place mainly within the peer group. So it's very important for a teen to have a good social support system which can help him in successfully overcoming the conflict by providing comforts, security and motivation. The lack of which may result in role - confusion.

The Covid 19 pandemic and lockdowns have restricted social interactions. It has greatly handicapped the social support system of teens. The paper aims to study the psychological impact of covid 19 pandemic, social distancing and new normal teaching learning process on the students of Aquinas College, Edacochin.

2. REVIEW OF LITERATURE

The outbreak of Covid 19 corona virus started on 31st December 2019 among human beings in Wuhan, China (<https://www.cdc.gov/coronavirus/2019-ncov/index.html>) and it's first case in India was identified in Kerala on 30th January, 2020 (<https://dashboard.kerala.gov.in/index.php>) (Udhaya Kumar et al., 2020).The World Health Organization (WHO) declared COVID-19 as a pandemic

on 11th March, 2020 (WHO website www.who.int) and the Govt. of India declared a 14- hour Janata Curfew on 22nd March 2020 (Curfew, W. I. J., 2020) following which a 21 days lockdown was announced from 25 March 2020, 0.00 am (Pulla P., 2020). The Coronavirus' fast spread all over the world and the world wide preventive measures had made a great impact not only on the physical health but also the mental health of people leading to stress, anxiety, depressive symptoms, insomnia, denial, anger and fear globally due to the fast spread of the virus, lack of medicines to cure the corona virus infection resulting in the fear and uncertainty as well as the prevention strategies taken all over the globe such as social distancing, mask, isolation, quarantine etc. (Torales et al., 2020).

Even before the Covid-19 pandemic, researches showed that the working conditions and quality of life are related to the psychological factors like stress, anxiety and depression. (Rusli et al., 2008) The psychological impact of Covid-19 on the mental health of the general population all over the world was studied by various researchers. Studies have established a link between the COVID-19 pandemic and poorer mental health (Santomauro et al., 2021)

(Serafini et al., 2020) observed that Covid-19 pandemic as well as consequences like lockdown, social distancing and quarantine has led to the psychological reactions such as uncontrolled fear of infection, pervasive anxiety, frustration and boredom.

(Stamatis et al., 2022) studied the effects of Covid -19 pandemic on mental health symptoms in a sample of U.S. college students and their findings indicate that the pandemic related experiences and the pessimism about the future has led to depression, anxiety, stress, alcohol and substance use in young students. Their findings suggest that using the internet and other sources to check for pandemic-related information may negatively affect mental health, whereas some other researchers suggest that using social media as a way to increase social connection and reduce loneliness may help improve mental well-being (e.g., Marzouki, Aldossari, & Veltri, 2021). Some studies shows that human relationships and outdoor time were helpful for a positive mental health during this time as (Kantor & Kantor, 2020) observed that having more family members and being male were both associated with lower risk for anxiety and depressive symptoms

(Grover et al., 2020) conducted a survey to study the psychological impact of lockdown in India and observed that more than two-fifth of the people in India are experiencing anxiety and depression due to the covid-19 pandemic and lockdown. A study conducted among the Indian public reveals how prevalent the stress, anxiety and depression among the people during the Covid-19 lockdown and the study calls for urgent attention of the Indian government and mental health experts (Verma & Mishra., 2020).

Researchers observed that while older adults are more vulnerable to the virus, younger adults are at a greater risk of poor mental health (Varma et al., 2021). In particular, there is a need to consider the impact of COVID-19 among young adults and college students.

Covid 19 has brought a significant shift in the way of life of people all over the world and in education, the major pedagogical shift was the adoption of online learning. It has made a significant effect on the mental health of student's world wide. A study using a secondary data collected globally, it was observed that online learning is a major cause of stress despite being a solution to the challenges of the Covid 19 lockdown to learning and the causes of stress includes inability to talk and interact with peers and their lecturers, the lack of guidance and counselling and the high levels of distractions associated with the online platform. (Akpinar E., 2021)

The Covid – 19 pandemic brought out a drastic change in the educational system in India. On 16th March 2020, the union government declared a countrywide lockdown of schools and colleges and the online teaching method was the only choice for the schools and colleges which had a great impact on the lifestyle and mental status of students and teachers. (Ravi., 2020). Since most of the teachers in Aquinas College were well equipped with online teaching tools, there was no break in the academic schedule, almost all the departments started online classes on the very next day of the closing of the college. Of course it was a major shift in the education system. To date, studies have been conducted regarding this pedagogical shift among the medical students (Rafi et al., 2020) and self-financing teachers (Kalarenjini & Balasubramanian., 2021). One of the studies says that stressors such as influence in daily life and academic delays due to the pandemic increased the anxiety in students while, access to extended family and non-family social support and impact on family income were negatively correlated with anxiety that acted as

a buffer against mental health disorders among college students in India (Chouksey & Agrawal., 2021). A survey conducted among students of different age groups from various educational institutes in Delhi, India identified that Covid-19 pandemic and online teaching method had impact on time spent on mobile/computer and self-study time, medium used for learning, engagement on social media platforms, sleeping habits, daily fitness routine and the subsequent effects on weight, social life and mental health (Chaturvedi et al., 2021)

The online teaching method plays a key role in the education system in India during this Covid-19 pandemic because of which the students could resume their studies when the schools and colleges were closed by March 2020. Of course the advantages of online teaching cannot be neglected. Because of online classes, the students and teachers didn't need to present together at a particular place and the teaching process became possible from home which also saved their time. Online teaching is beneficial because it enables the students to record the lecture and attend it as many times as they want to understand the concept. Online platforms promoted by the government give the opportunity to all students of the country to get education from one of the best teachers selected by the education department and can explore the virtual learning tools for visualizing the concepts. However there are some disadvantages like technology issues, sense of isolation, inability to focus on screens, lack of socializing skills, health issues, lack of interaction and feedback etc. In this scenario we tried to evaluate the perception of students to compare online learning and conventional classroom teaching.

There are studies in the literature before and after the Covid-19 pandemic regarding the benefits and disadvantages of online classes. We focused on the studies based on college students of India paying special attention to Kerala. In a cross-sectional study conducted among medical students in a college in India, it was observed that the majority of students preferred conventional classroom teaching with regard to convenience, acquisition of knowledge, practical skills, interactive, doubt clearance and the preferred method of teaching. However, most of the students agreed that online learning saves time and was better suited for submission of assignments and the study concluded that online learning is not a substitute for classroom teaching but might supplement conventional classroom teaching to complete the syllabus and to boost the morale of the students during this pandemic. (Jain et al., 2021). In a study conducted among the medical students of central Kerala, it was concluded that online teaching learning is the best example

of adoption of technology in long term crisis situations especially disaster including public health crisis. In their study it was observed that the students are able to follow the online classes and have good learning experience on the Didactic part and an active involvement of faculty would facilitate identifying the barriers and resolving it (Rafi et al., 2020).

In this study, we tried to study the impact of the Covid-19 pandemic and the online teaching-learning method adopted during the pandemic and the switching back to offline classes after the reopening of the college on the emotional and mental well being. We have also to evaluate the perception of students for online learning and to compare it with conventional classroom teaching.

3. METHODOLOGY

The study was based on a survey conducted among the students of Aquinas College Edacochin, affiliated to M.G.University, Kotayam by circulating a google form among the students of I, II, III U.G, I and II P.G. The google form contained 34 questions including both Demographic Characteristics including gender, branch, year, annual income, etc and personal perspectives on various issues faced during Covid 19 pandemic and switching over to New Normal teaching methodologies. The survey was conducted from 20th March 2022 to 25th March 2022.

4. ETHICAL CONSENT

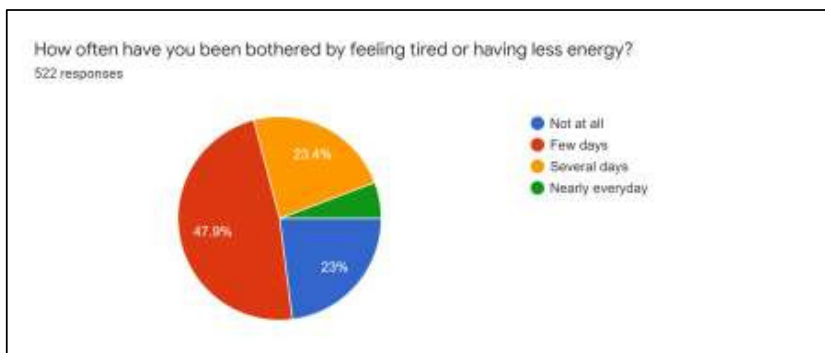
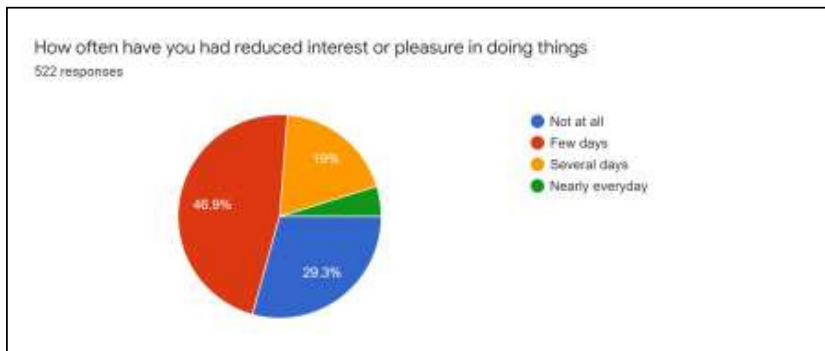
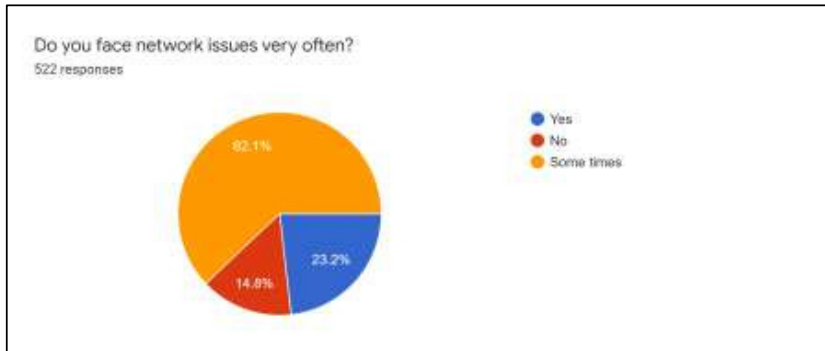
The survey was conducted purely on student's voluntary consent. Around 500 students from various departments both Aided and Self-Financing took part in the survey by submitting the form. The survey was conducted by circulating Google-Forms through the respective WhatsApp groups of various classes by seeking the help of HOD's and Class Tutors.

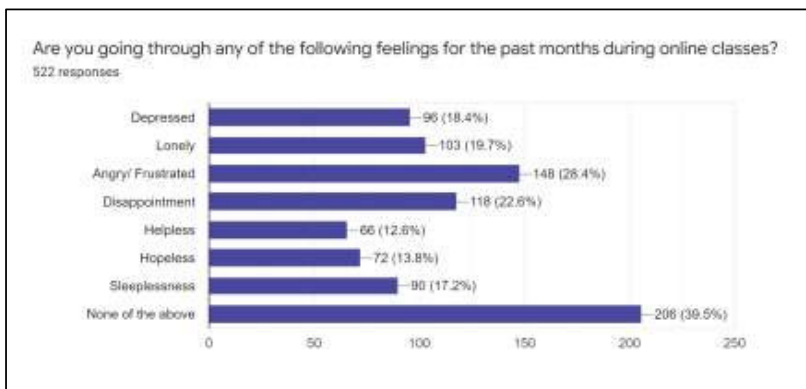
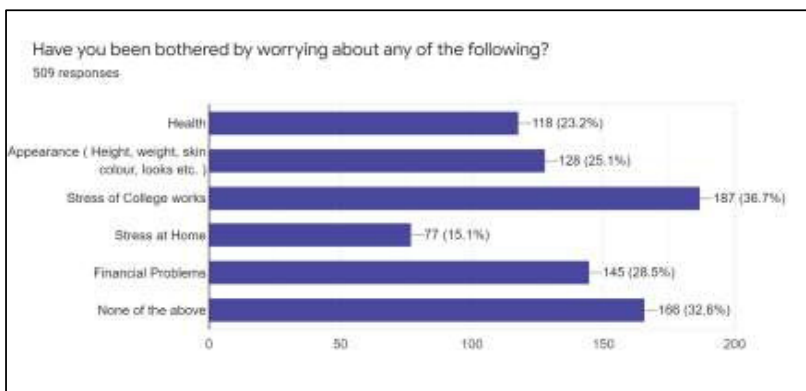
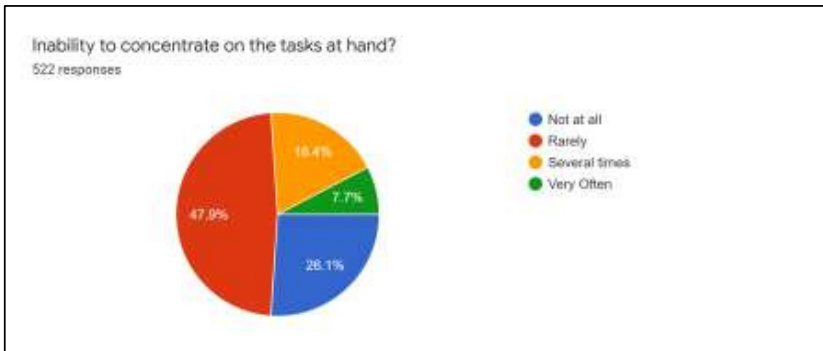
5. DATA ANALYSIS

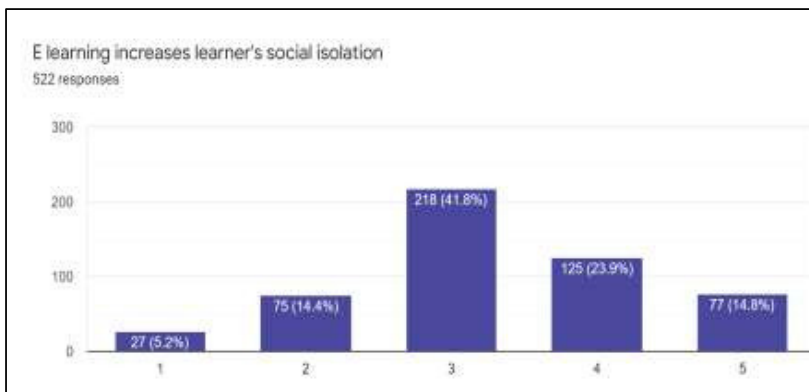
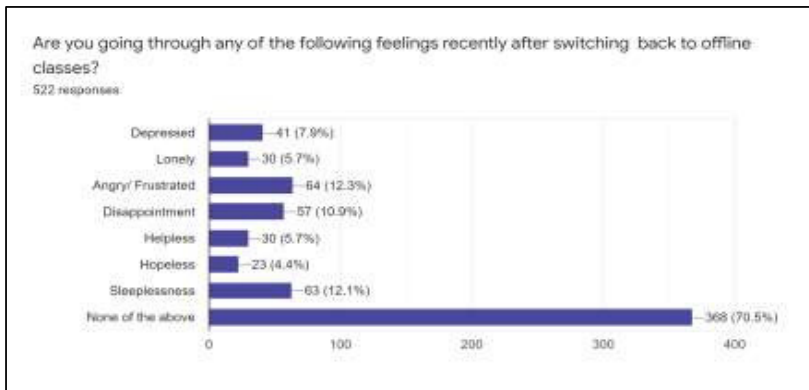
The total number of responses received were 522. In which 73.4% were girls and 26.6% were boys. The majority of the students had an annual income less than 1 lakh. Out of the total responses received 32.8% students were infected with CoronaVirus.

6. RESULTS

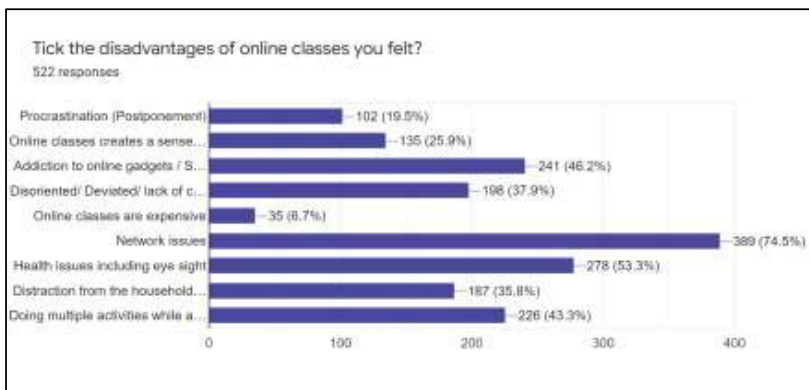
The results of the 522 responses of the survey conducted among the students of Aquinas College are as follows;

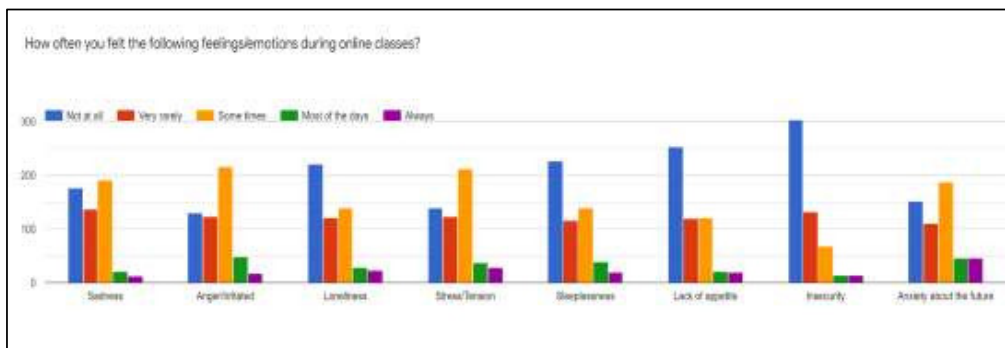
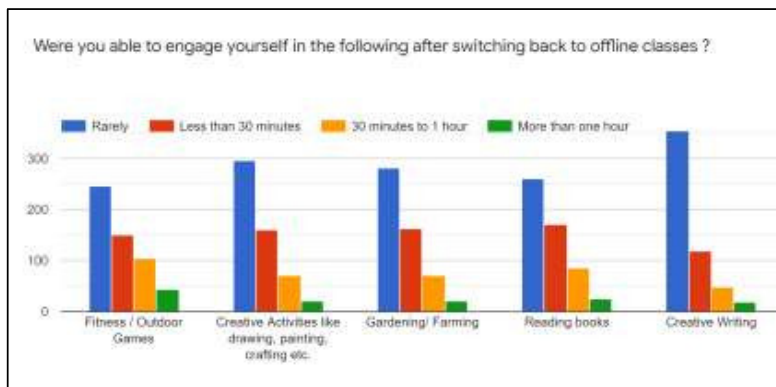
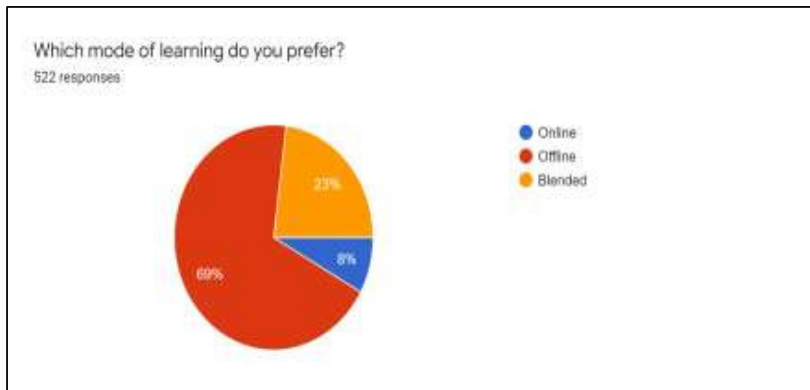


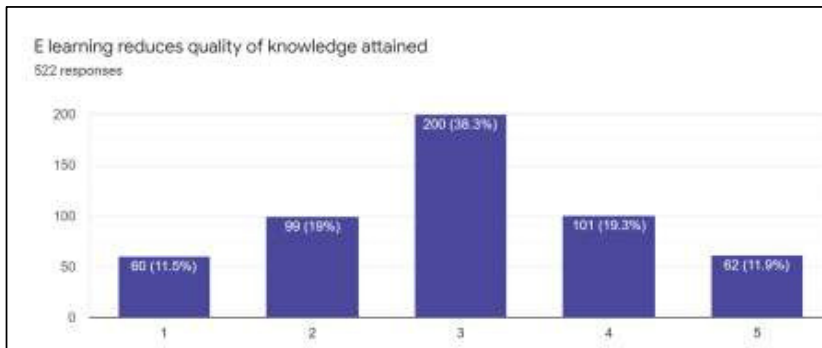




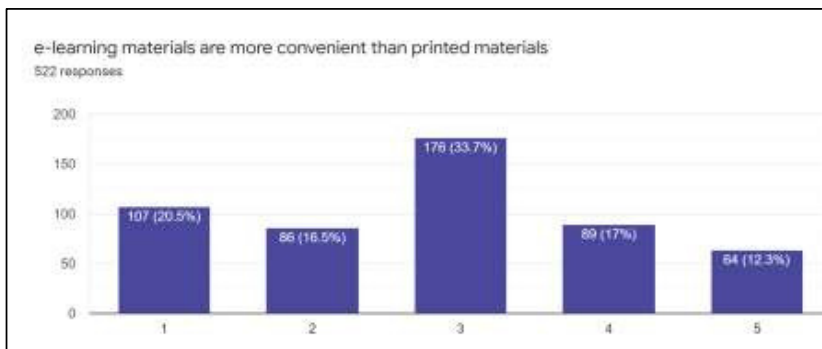
1= Strongly disagree | 2= Disagree | 3= Undecided | 4= Agree | 5= Strongly agree



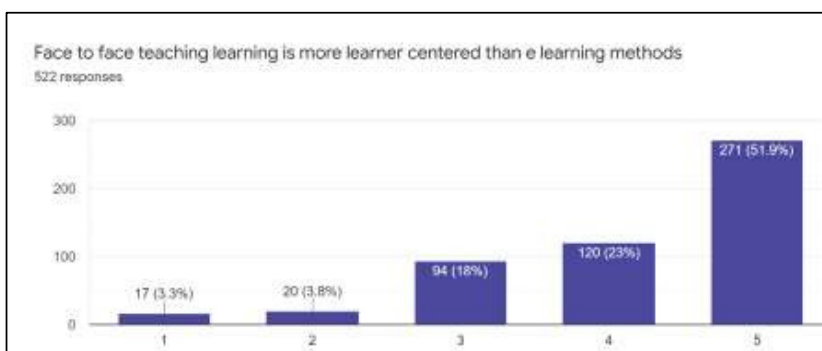




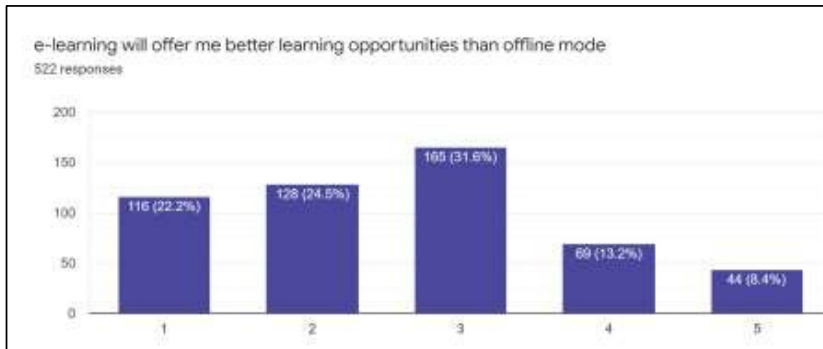
[1= Strongly disagree | 2= Disagree | 3= Undecided | 4= Agree | 5= Strongly agree]



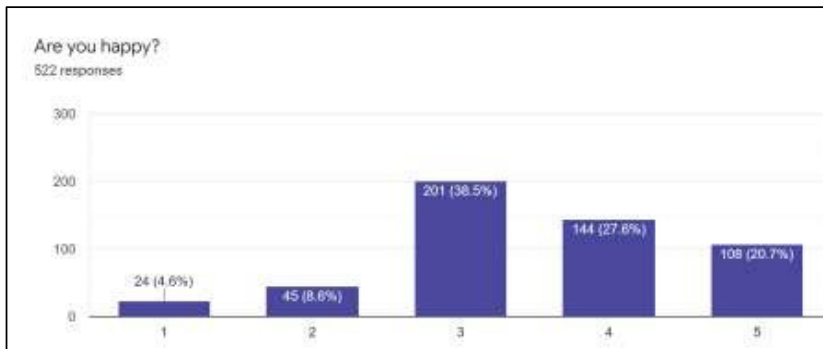
[1= Strongly disagree | 2= Disagree | 3= Undecided | 4= Agree | 5= Strongly agree]



[1= Strongly disagree | 2= Disagree | 3= Undecided | 4= Agree | 5= Strongly agree]



[1= Strongly disagree | 2= Disagree | 3= Undecided | 4= Agree | 5= Strongly agree]



[1= Very Sad 2= Sad 3= Neutral 4= Happy 5= Extremely happy]

7. FINDINGS

According to Erik Erikson , the personality of a person gets developed in a series of stages. Each stage poses a conflict. If a person successfully deals with the conflict , he will emerge from the stage with positive psychological elements which will help him in further advancement and if he fails to deal with it effectively he may not develop the essential skills needed and it may result in some psychological distresses. The intended group of survey belongs to either adolescence(17 to 18 years old) or young adult group (19 to 22 years old). These stages are very crucial in the successful psychosocial development of a person. The conflicts they face in these stages as per Erikson’s theory of Stages of Psychosocial Development are Identity vs Role Confusion and Intimacy vs Isolation. As a social animal , the social

interactions and relationships have a greater impact on the development and growth of a human being.

The Covid 19 pandemic and lockdowns with imposed social distancing had a huge adverse impact on the College Students as they were completely cut off from their physical social gatherings with peer groups. The parental controls , financial instability , restricted movements , connectivity issues , online classes all had a negative effect on the students. It resulted in unlearning of many study skills , disrupted learning habits , screen addictions, etc. From the survey it is evident that the students find it difficult to concentrate on online Classes as they indulge in distractive multitasking in social media networks and online games. They also find it difficult to complete the assignment as they got into procrastinating their works due to lack of self motivation. The majority of students become unresponsive and lethargic during the online sessions; it may be due to network issues , family distractions and screen addictions.

The online classes also lead them to social isolation which inturn resulted in students feeling angry , frustrated , insecure, anxious , depressed and disappointed . Few students even face the problem of sleeplessness. From the survey it's evident that even though students prefer getting e - study materials as it's easy for them to retrieve the information they opted for Offline classes over online classes. As offline classes cater to academic , co-curricular ,social , emotional needs of pupils. The initial stage of switching over to offline classes from online classes will be tiresome for students as many have lost the learning habits. Unlearning and relearning are always a part of our life. In time the pupils will come back to the track of learning with proper guidance , motivation and monitoring of both the teachers and the parents.

8. CONCLUSION

The mental health of college students has been significantly affected by the Covid – 19 pandemic which is evident from the survey conducted among the students of Aquinas College. Majority of the students have less or reduced interest and pleasure in doing things, feel tired and feel low energy level and unable to concentrate on studies at times almost all the day.

College work and academic pressure are the main stressors for the students. Almost 60% of the students have at least one of the emotional/psychological issues: anger & frustration, disappointment, sleeplessness, feeling depressed, feeling lonely, feeling hopeless and feeling hopeless during the pandemic and even after it. However these negative emotions have been significantly reduced after switching back to offline classes.

The pandemic has changed the lifestyle and daily routine of students and the parents can play a major role in helping them to come back to the ideal lifestyle and daily routine suitable for their academic growth as well as physical and mental well being. Teacher's mental health is also affected by the pandemic and the pedagogical shifts. We call for studies on the psychological impact of Covid-19 pandemic on parents of college students as well as the psychological impact of the pedagogical shifts between online and offline teaching modes on the teachers.

Aquinas College has established a Student Counselling Centre during the academic year 2021-22 as a part of its ruby jubilee celebrations and has conducted various programmes for students and parents. The availability of a psychologist at any time was ensured by the college management for the students of Aquinas College. Individual mentoring and counselling sessions were provided for the needy students and their parents. It is suggested that the Government should provide a post of a trained psychologist as a Government employee in colleges especially minority colleges like Aquinas College where majority of the students are females and belonging to backward socio economic conditions.

We suggest to develop a mental health toolkit to help the students cope with the COVID-19 pandemic and to develop an app that tracks and maintain mental well-being and reduced rates of anxiety and depression throughout and immediately following the COVID-19 pandemic.

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Writing as Resistance: Reading Naga Women in Northeast Indian Anglophone Literature

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ABSTRACT

Recent writings that have issued out of the corpus of literatures from Anglophone Northeast India are evidently representations of its contemporary history, geographical and emotional insularity and long periods of turmoil and deep disjunctions from the nation-state among other salient features that mark the imaginary as different and somewhat separate from other literatures in the country. This discussion takes up writings from a select body of Naga women's fictions as gendered, and as expressions of protest against violence inflicted upon them historically and physically and thus read, more significantly, as a semiotics of resistance. I shall feature two novels by Temsula Ao and Easterine Kire and the recurrent tropes of struggle and survival in their writings, which are corroborated by feminists and Naga women activists who negotiate custom and community to emerge as distinct voices and agency of change in the region.

Keywords: *Naga women writers; resistance; violence; indigenous lives; feminist agency*

Belonging to a secure world in our digital and gated lives or as members of academic fraternities and the educated sphere, sitting in the safety of our respective homes illuminated by exchanges in theory and making new knowledge about violence against women and its representations in different forms, the actual experience of it still remains removed from a readers' perspective. In Naga fictions from recent literary history, the idea of violence assumes a nuanced and complex state of reality that the people of the state encounter, internalize consequently project in altered forms of creative protest and silent resistance. As an exercise that attempts to close that wide chasm and seemingly unbridgeable gap, writing as resistance against violence is a way to unshackle women from this long and hoary tradition of unfreedoms, of cultural violence and in a world and environment dictated and informed by an aggressive masculinity (Kikon 2015) The fact of

institutionalizing violence has not merely the onus of men in this society, and demonstrated in like manner in several other tribal and non-tribal societies but is part of an embedded patriarchy that takes into its sweep its men and its women as custom and ritual in everyday practice overwhelm the natural liberties of women, from early childhood through adult and marital roles . In the face of such a climate of suppression, strategies of resistance have been deployed by women over the ages and this is what Naga women's writings most powerfully, among other agencies, have reminded both its own people and others of the need to break free from the many exclusionary structures of its social, political, ideological and the more compelling, familial and private oppressions of women.

Through my own experience as an academic and woman of the country's Northeast, I have had the privilege of talking about our region and our various if intersecting women's lives, and in particular the location out of which the complexity of being woman manifest in the broader scheme of things. In the contemporary discourse that has emerged on women and gender from here, several intersectionalities overlap and coalesce to create subjectivities that in the literary and cultural imaginary invoke the vulnerable tribal woman, not least of all, that of the militarized frontier where she has been raped, tortured or systematically disempowered (Ao 2014). These sites of knowledge and debate are inevitably mediated by dual perspectives leading to the problem of representation, and what Temsula Ao refers to as "a double-edged sword because of the complexity" of being seen in a way by others and also the way the Naga views herself that eventually constitutes the subject historically, psychologically, philosophically and rhetorically.

At the center of this debate and discussion is the life of the tribal woman, the indigenous society and the native woman of the hills and the valley, perhaps non-literate who often finds herself beyond the pale of rights and the law, whether in Nagaland or elsewhere, and trapped in the frames in which she is cast. Any examination of the representation of these inequalities must necessarily focus on systemic, symbolic and structural modes of violence upon women which then also draws one's attention to another such insidious form, that of linguistic violence, something that submerges both consciously and subconsciously the horizon of the woman and the quotidian world in which she is subsumed. As we read and analyse the many writings by, and voices, of Naga women , I am led to Judith Butler's now famous proposition that the speaker cannot exercise complete control over an

auditor's interpretation, because the speaker, the auditor, the occasion for speaking and listening, and indeed, the words themselves are sutured into larger cultural relations. The speaker always/already exists within a web of historicities and discursive formations that encourage her to attach already-taken-for-granted meanings to words as/he articulates them in the public sphere. (Butler 1997). Judith Butler emphasizes how "words might, through time, become disjoined from their power to injure and recontextualized in more affirmative modes" (15)

In Naga writings from the "benevolent subordination" that Temsula Ao famously phrased as the gendered space to which Naga women belong through the customary laws that girded and circumscribed them, or the nationalist rebellions and non-state violence in to which they had been flung in recent decades, and to other "possible selves" one is witness to the emergence of a speaking subject. (Ao 2014) This subject is an interlocutor, a voice that takes up cudgels against injustice, violence, and against forms of insubordination and stereotyped categories. As Ao cogently remarks, "Being a Naga has never been easy for us. The mystique and negative power of the 'savage' has always fascinated the western mind and when we were 'discovered' by anthropologists and ethnographers in the 19th century, we became exotic and exciting specimens for them to study, but from their perspective only" (Introduction).

In writing herself, the Naga woman does not therefore rely on western tools and epistemology and can be seen breaking out of the mould, challenging paradigms that have happily existed on the box of women's writings. The kitchen table politics of the Naga woman alluded to by scholars earlier is a site of dialogue, a level playing field where the woman who cooks and cleans is also the woman and critic who is able to hold her own in any discussion of everyday life and the complexities of survival. The indigenous and/or native, or tribal is always a subject in the making for she is to be named (naming the Naga is a contentious issue and requires another separate debate, not possible within the time and space here). To be sure, the Naga woman is able and equipped to create her own rhetoric countering the idiom that is already in circulation through ethnographers and anthropologists that typically frame, contour, seal and deliver her to the audience and reader.

Thus, writing allows her to say what is not true in what has been always already said, to unscript herself and share and tell stories that mainstream historian and critics sanitise or simply gloss over. Sharing painful narratives, sometimes even

thought to be “shameful” to others and to her tribe is for the Naga not just truth telling but also a sure way of healing from the cobwebs of violence and tangled histories of survival. Most indigenous feminist writings the rule is to name the enemy and thus accomplish the primary goal of writing to resist and thus to survive. Here womanhood is her subjectivity, a new one, perhaps unrecognized, as she challenges the relationships between patriarchy, gender and subordination. Writing is primarily like speaking in this struggle, and once these find an audience and a listener they dovetail into movements of women resisting violence. In this context, it is necessary to note that non literary writings are equally seminal in this movement and chart, survey and calibrate the changes in their society while also giving space to their voice and accommodating new histories by women. In the process these writers have created a democratic space for the community and a body of extraordinary literature. Consequently, a new voice and a flurry of writings from the women’s community in Nagaland has seen the light of day with fictions like *These Hills Called Home* and *A Bitter Wormwood*, which sought to complete and correct the older narratives and thus the history of Naga women in contemporary times. (Ao 2005, Kire 2011)

While the collective experience of women writing in Nagaland gets enshrined in the language of colonisers, it is also their quest for their destination and a coming to voice. As Kimberley Blaeser suggests while speaking of indigenous American women’s writings “whatever mystery we are exploring, we tell our way, and in the telling we find our way. That search called writing leads us home ...” (Harjo and Bird). In Cherokee poet Joy Harjo’s poem “I Give You Back”, the unnamed narrator resists violence and fear by giving back to the community and the forces that commit violence, thus coming out in the open with her shame, her injury, her wounds and her anger. In remembering and the retelling of her past, the Naga writer counters the exclusionary mechanisms of state and dominant societies with her own gaze. In a discursive understanding of her society, the Naga woman writing is actively engaged in the rhetorical practice of rehistoricizing the turbulence of her tribe’s past even as she navigates an uncertain present which she necessarily must be in control of. In *These Hills Called Home* the primacy of oral story tellers is inserted into the narrative to bring to the reader a new and heightened sense of the daily struggles in the militarized environment the Naga communities inhabit. Yet as Naga scholars also argue, the metaphor of the English language doesn’t always replace those of the mother tongue (Bendangsenla et al 2021).

Clearly, it is to the compelling order of the oral that attention is drawn as Naga women's writings fill the empty spaces with a powerful retelling of the oral, bringing about "wonderful worlds that writing opens, (where) the spoken word still resides and lives" (Ong 8).

I argue that the rearticulation of marginalized voices, via a reappropriation of racial, communal epithets, and native usages, brings voice to the powerless by claiming subjectivity. While race and region have been often seen as the larger and primary markers of Naga history that in writing herself, the first act of the Naga woman is an act of survival but that depends on other attributes of life, such as rights to legal justice, cultural identity and economic equality all of which figure in the works of Naga women writers and especially of sacred territory and resource ownership, much of which often concerns an author like Easterine Kire. Her *A Terrible Matriarchy* (2007), or the more recent *A Respectable woman* (2019) are lyrical instances of a people's orality, whereby the stories of the past are not separate from her concerns about her land, the earth, human and the nonhuman. If she is self-avowedly not a feminist writer, she places the woman in the realm of the larger story, something *A Respectable Woman* does, balancing out war, loss, restoration and life, mediated by a woman's telling and documentation.

Oral histories, I learnt, and while speaking to Theyie Kreditsu, fellow academic and Naga cultural theorist of Naga oral culture, reenergise the space where women come in to script their lives. She explained that "collecting histories of women, matriarchs so when it comes to textiles, personal narratives, women's narratives, these become very important because I think one of the things that I have learnt that this simple act of just telling the story of a woman, the telling part, just the speaking or the telling or the writing of a woman's story actually brings it into a medium that belongs or that traditionally would have only been thought to be open for a man" (Interview 2019).

Whether writing and telling, like working for women and reporting their situation, is a process of self-actualization, is a difficult claim to make and I shall not presume on behalf of the women who write, but I certainly believe that this has been one of the drivers of recent writings, and of the prolific women's writings that is coming out of Nagaland. Publisher-academic, Lanusangla Tzudir, a woman I admire for making available the space and a ready platform for Naga women to publish on every possible sphere of experience, understanding or knowledge, is part

of that task of creating a women's movement in print. Her enterprise of bringing these lesser known writings to visibility, reminds me of the great Native American women's writing and oral history projects that have enriched the history of a nation with that strand that was missing or not wholly written. In their combined strengths, thus, Naga feminists, scholars, writers and publishers have led this liberating journey bringing in other feminists who had not told their stories: mothers, sisters, grandmothers and other women of courage who had no voice or had chosen to be silent. In breaking that silence, Naga women writers document the history of the transformation of Naga women and tribal feminism of a hundred years, from colonial past to modern and contemporary history. To invoke Kire, "every story has a right to be told, some stories are more desperate than others, because they are trying to shout, "what we have is not what we want".

We laughed before we knew war
we told happy stories before we began to be killed
we would give anything to tell happy stories again
to be able to stand up and say
we once had war and bloodletting
but now we have peace in our land...

(*Barcelona Dreamtime* ' 2007)

In conclusion, I wish to invoke one of the early concerns with which I began the discussion, which is claiming space by Naga writers that has not been theirs, the peril of stepping onto landmines while undertaking the business of writing and working for women's causes, and against violence.

In understanding what these writings mean and what they achieve, women encounter several odds but they have at their disposal a range of strategies and positions. As writer activist, Annette Kolodny urges the business of the woman writing her society, her community and, more centrally, herself, involves the art of negotiating and manoeuvring, and what she metaphorically calls "dancing through the minefield" in her celebrated essay of the same name(Kolodny 1980) . I wish this act of agency reclaimed by women in Nagaland assumes the performance of a

vibrant dance on the canvas stepping out and away from the odd blur and blotch of hostility and control as the writers gather together in the collective task of ensuring through bold strokes and positions, their safety, their happiness and their freedoms.

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दक्षिण भारतीय हिंदी शोध की समस्याएँ

डॉ.श्याम प्रसाद के.एन

उपनिषत् का वचन है -

“हिरणमयेन पात्रेण सत्यस्या पिहितं मुखं ।

तत्त्वं पूषन्नपावृणु सत्य धर्माय दृष्टये ॥ ”¹

अर्थात् सोने से बने कुंभ की कल्पना उपनिषद्कार करते हैं जिसके अंदर वास्तविक सत्य छिपा हुआ रहता है । लेकिन वास्तविक सत्य तक पहुँचने के लिए कुंभ के ढक्कन को खोलकर उसकी गहराई तक जाकर सत्य की प्राप्ति करनी होती है । यह परिभाषा के अनुसार (1) तात्त्विक दृष्टि (2) सत्य प्राप्ति (3) तथ्यान्वेषण (4) गहनतम दृष्टि (5) धर्म निष्ठा आदि अनुसंधान के बुनियादी चरण माने जाते हैं । चाहे साहित्यिक हो या वैज्ञानिक यही पद्धति का अनुसरण हमें शोध के संदर्भ में देखने को मिलता है । सी.सी.क्रौफोर्ड के अनुसार -“सामान्य से अधिक परिणाम प्राप्ति के लिए प्रयुक्त विशिष्ट साधन-सामग्री तथा प्रणाली के समन्वय का निष्कर्ष शोध है । शोध में क्या के साथ कैसे’ अर्थात् तथ्य के साथ प्रक्रिया भी महत्वपूर्ण है ।”² ठीक इसी प्रकार डब्ल्यू.एस.मनरो का भी विचार है -“मूलभूत तथ्यों के आधार पर कठोर श्रम एवं विवेक से उपलब्ध किसी समस्या के समाधान की प्रक्रिया ही शोध है ।”³

उपर्युक्त विभिन्न परिभाषाओं के विवेचन के पश्चात् हम अनुसंधान की संकल्पना और उसकी प्रक्रिया के बारे में यह कह सकते हैं कि अनुसंधान मूलतः किसी विषय के अध्ययन या अनुशीलन की सुनिश्चित पद्धति है,

जिसमें अनुसंधानकर्ता तटस्थभाव से या पूर्वाग्रह रहित होकर प्रयोग, सूक्ष्म पर्यवेक्षण, तथ्यों के वर्गीकरण और विश्लेषण द्वारा किसी यथातथ्य निष्कर्ष तक पहुँचने का प्रयास करता है, भ्रमों का निवारण करना या उस संबंध में उपलब्ध तथ्यों को सुसंयोजित करके व्याख्या करना, पुराने तथ्यों को नव्य परिप्रेक्ष्य प्रदान करना, किसी नए सत्य की प्रतिष्ठा या ज्ञात तथ्य को प्रामाणिकता प्रदान करना है ।

आगे हम केरल में पाए जानेवाले हिंदी शोध के सामान्य समस्याओं पर विचार करने जा रहे हैं ।

1. विधाचयन की समस्या

हिंदी अनुसंधान में शोधार्थी को विषय चयन या शीर्षक निर्माण से पहले अपने लिए उपयुक्त विधाचयन करना ज़रूरी होता है । इस संदर्भ में केरल के विद्यार्थियाँ ज्यादातर उपन्यास या कहानी विधा को चुनते हैं । उनके मन में यह गलत फहमी पहले से ही है कि यह विधाएँ दूसरों की उपेक्षा सबसे आसान है । इसलिए ये दूसरे विधाओं के बारे में कभी-कभार सोचते भी नहीं है । इसकारण केरल में संस्मरण, आलोचना, डायरी, यात्रावृत्तान्त, हास्यव्यंग्य जैसे विधाओं पर पर्याप्त शोध कार्य नहीं हो रहे हैं । विद्यार्थियों के अध्ययनशीलता की कमी भी एक प्रमुख कारण है । पर्याप्त अध्ययनशीलता नहीं होने पर किसी प्रत्येक विधा पर रुचि होने की संभावना बहुत कम रहती हैं ।

2. विषय चयन की समस्या

शोध में विषय का निर्वाचन शोधार्थी और शोध निर्देशक के उचित समझौते के आधार पर निर्मित होता है । लेकिन आजकल के शोधार्थियों में अध्ययनशीलता कम होने पर ज्यादातर शोधनिर्देशक ही विषय निर्वाचन करता है । शोध निर्देशक का स्तर शोधार्थी से ऊँचा होने के कारण कभी कभार शोधार्थी विषय को समझ नहीं पाता । आजकल ऐसे भी देखने को मिलता है कि शोध शीर्षक का निर्माण मूलग्रंथ अध्ययन से पहले किया जाता है । इस से शोधार्थी को यह समस्या उत्पन्न होती है कि वह विषय से तादात्म्य स्थापन नहीं कर पाता । दूसरी समस्या यह होती है कि मूलग्रंथ अध्ययन के बाद विषय के आन्तरिक पक्ष तथा शोध शीर्षक में ज़मीन आसमान का फर्क भी होता है । यह सब शोधार्थी के समक्ष कठिन समस्या खड़ा करती हैं ।

3. साहित्य के प्रति अनावश्यक मोह

आज कल के शोधार्थियों में अनुसंधान के संदर्भ में साहित्य विषय के प्रति अनावश्यक मोह देखने को मिलता है । ज्यादातर विश्वविद्यालय के छात्र साहित्यिक विषयों को ही शोध के लिए चुनते हैं । केरल के शोध निर्देशक वर्ग भी साहित्यिक विषयों का पीछा करते हुए नज़र आते हैं । इस कारण भाषा वैज्ञानिक शोध, तुलनात्मक शोध, ऐतिहासिक शोध, अनुवादाश्रित शोध, पत्रकारिता शोध आदि से संबन्धित विषय यहाँ पर ज्यादा देखने को नहीं मिलता । अतः यहाँ के शोधकार्य हिंदी के साथ पूर्णतः न्याय नहीं कर पाती ।

4. सृजनात्मक शोध की कमी

केरल के अधिकतम शोधार्थी एम.फिल या पीएच.डी इसलिए करते हैं ताकि उनको जल्दी से जल्द नौकरी मिल सके । कुछ छात्र इन महत्वपूर्ण उपाधियों को सेट/नेट के समतुल्य दृष्टि से भी देखते हैं । कम समय में शोध कार्य समाप्त करने के लिए ये लोग शोध में ज्यादा जोखिम नहीं लेते । सुरक्षित विषय को प्रश्रय लेने के कारण शोध स्तर में गिरावट आने लगी है । सृजनात्मक विषय कम आने लगे तथा शोध स्थापनाएँ भी बहुत फीका बनने लगा । अनुवाद मूल्यांकन, तुलनात्मक शोध, मीडिया शोध, भाषा वैज्ञानिक शोध आदि से संबंधित सृजनात्मक विषय छात्र कभी लेना ही नहीं चाहते । क्योंकि ये सारे विषय बहुत परिश्रम की माँग करती हैं ।

5. सामग्री संकलन की समस्या

शोध कार्य को सारगर्भित बनाने में सामग्री संकलन की विशेष भूमिका बनती है । शोधार्थी को जितनी सारी सामग्री मिलती है उनका शोध कार्य उतना ज्यादा स्तरीय बनता है । लेकिन केरल के छात्र आजकल एक पेकेज के रूप में प्रकाशक लोगों से दस-पन्द्रह पुस्तकें लेकर शोधकार्य को मुकम्मल करने लगे हैं । पत्र-पत्रिकाओं का संकलन, कोई विशेषांक का संग्रहण, पुस्तकालय भ्रमण, साहित्यकार या विषय विशेषज्ञ से साक्षात्कार आदि करना पसंद नहीं करते हैं । इन कमियों का असर सीधा उनके शोध कार्य पर भी पड़ता है । आधिकारिक संदर्भ की कमी रहती है तथा शोध प्रबंध में संदर्भ ग्रंथ सूची भी कमज़ोर रहती है ।

6. इंटरनेट सामग्री का भरमार

आज के तकनीकी युग में शोधार्थियाँ अधिकतम इंटरनेट सामग्रियों का इस्तेमाल करते हैं । हालांकी इंटरनेट सामग्री को यूजीसी ने अवैध माना है, यह जानते हुए भी । विकिपीडिया से, शोध गंगा से, ब्लॉग, फेसबुक, ट्विटर, यू ट्यूब आदि से छात्र संदर्भ ले रहे हैं । इनमें से लिए हुए संदर्भ कहाँ तक विश्वसनीय हो सकेगा । क्योंकि इंटरनेट सामग्री दिन, समय, माह के हिसाब से बदला रहता है। आज अगर कोई रेफरन्स कई भी हो यह ज़रूरी नहीं कि वह उधर ही रहें । अतः शोध प्रबंध की विश्वसनीयता पर सवाल उठ सकता है । इसी के साथ इंटरनेट सामग्री को बिना संदर्भ हूबहू उतारने का प्रयास भी बच्चे करते हैं । इससे शोध की स्तरीयता में बाधा आती रहती हैं ।

7. पुराने शोध प्रबंध / आलोचनात्मक ग्रंथों का नकल

केरल के संदर्भ में शोध छात्र खूब पुराने शोध प्रबंधों का नकल करते हैं । उनको मालूम है कि जो ट्रेन्ड शोध में चल रहा है उससे संबंधित शोध कार्य तो सभी विश्वविद्यालयों में समान प्रकार से चलता है । अद्यतन देखा जाए तो आदिवासी, प्रवासी, किन्नर, स्त्री परिस्थिति जैसे विषयों पर तो बहुत शोध प्रबंध हर कहीं प्रस्तुत की गई है । इससे विद्यार्थियों का काम ओर आसान हो जाता है । कभी कभार पूरे अध्यायों को भी बच्चे उतार कर ले आते हैं ।

इसी के साथ देखने लायक एक ओर बात आलोचनात्मक ग्रंथों के नकल के संदर्भ में हैं । विगत पन्द्रह-बीस सालों में देखा जाए तो केरल के लगभग

पीएच.डी प्राप्त शोधार्थियों ने अपने शोध प्रबंध को प्रकाशित किया है । अब प्रकाशन का कार्य एक व्यवसाय होने से आज लगभग विषयों की सामग्री उपलब्ध हैं । उदाहरणार्थ: अगर किसी का विषय है 'मृदुलागर्ग के उपन्यासों में स्त्री विमर्श तो इससे संबंधित 25-30 प्रकाशित शोध प्रबंध पुस्तकाकार के रूप में आप को मिलेगा । अगर शोधार्थी होशियार है तो इन पुस्तकों से एक-एक अध्याय को लेकर अपना शोध प्रबंध पूरा कर सकता है । अतः इस प्रकार के प्रवृत्तियों से शोधकार्य में कोई विकास नहीं हो पा रहा है ।

8. शोध लेखन में आलोचना की कमी

शोध प्रबंध को तो हमेशा आलोचनात्मक स्थापनाओं का जगह माना जाता है । विषय विस्तार तथा शोधार्थी का मौलिक विचार शोध प्रबंध की आत्मा मानी जाती है । लेकिन आज कल के शोध प्रबंध को देखा जाए तो इन तमाम विषयों की कमी आपको देखने को मिलेगा । आज कल के शोधार्थियों की पद्धति है कि मूलग्रंथ से उद्धरण उतारों, उसका विश्लेषण करो तथा एक पंक्ति में समीक्षा तथा दूसरा पैराग्रेफ । कहीं भी छात्र विषय को गहराई से नहीं परखते । कहीं भी आपको मौलिक स्थापनाएँ देखने को नहीं मिलेगा । कहीं भी शोध के सत्यों को व्यावहारिक जीवन के साथ मिलाने की प्रवृत्ति भी नहीं चलती । इससे केरल में हिंदी का शोध स्तर गिरता हुआ नज़र आता है ।

9. विषय को समझने की समस्या

दक्षिण भारतीय छात्रों को खासकर केरल के छात्रों को हिंदी अपनी मातृभाषा न होने के कारण विषय को समझने में बहुत ज्यादा समस्याओं का

सामना करना पड़ता है । शुद्ध खड़ी बोली हिंदी तो इन छात्रों को समझ में आती है । लेकिन हिंदी के मिश्रित शैलियों को समझने में इनको दिक्कत आती है । खासकर आदिवासी साहित्य, दलित साहित्य, किन्नर साहित्य आदि में मौजूद शब्द या पदबंध शोधार्थियों के लिए समस्या खड़ा करती है । विषयगत समस्याओं के कुछ उदाहरण हैं - 'चली फगुनाहट बौरे आम (विवेकीराय), 'चौखटे तोड़ते त्रिकोण (राजेन्द्र यादव), काग भगोड़ा (हरिशंकर परसाई), क्याप (मनोहर श्याम जोशी, बलचनमा (नागार्जुन) आदि । इन शीर्षकों के सही अर्थ को समझने के लिए सामान्य हिंदी का ज्ञान पर्याप्त नहीं है । अतः शोध करते वक्त शोधार्थी विषय को गहराई तक पहुँच नहीं पाते हैं और विषय के बहुत महत्वपूर्ण अंश तिरस्कृत होने लगता है ।

10. भाषा की समस्या

विषय के साथ-साथ हिंदी भाषा को लेकर भी अनेक समस्याओं का सामना छात्रों को करना पड़ता है । शोध प्रबंध लेखन के दौरान हिंदी में उचित शब्द न मिलने पर ये छात्र लोग मलयालम शब्दों को हूबहू हिंदी में उतारने का प्रयास करते हैं । उदाहरणार्थ:- क्षेत्र (मंदिर के अर्थ में), संविधान (निर्देशन के अर्थ में), कण्डमान (ज्यादा के लिए), स्वाधीन (प्रभाव के लिए), समाधान (शांति के लिए), चित्रीकरण (चित्रण), उद्योग (नौकरी), विकसन (विकास), भूरिभाग (लगभग) जैसे प्रयोग छात्रों के लेखन में देखने को मिलता है । इसी के साथ व्याकरणिक, संरचनात्मक गलतियाँ भी छात्र खूब करते रहते हैं । इससे शोध निर्देशक मायूस होने लगते हैं ।

11. गैरकानूनी हरकतें

जिन शोधार्थियों को स्थिर नौकरी के कारण समय का अभाव है या भाषा की समस्या है या केवल डिग्री प्राप्त करना उनका मात्र लक्ष्य है इन लोगों के लिए अनेक गैरकानूनी पेकेज केरल में उपलब्ध है । 2-3 लाख में शोध प्रबंध लिख के देने वाले अनेक प्रोफसर लोग केरल में उपलब्ध है । इसी के साथ पैसे लेकर अध्याय संशोधन करनेवाले अध्यापक भी केरल में खूब मिलेंगे । पर्याप्त सबूत न मिलने के कारण ये सारे शोध छात्र हमेशा बचके रहते हैं । इन कारणों से केरल में हिंदी शोध के स्तर में गंभीर गिरावट हुई है ।

12. परीक्षण एवं मूल्यांकन की कमी

केरल में कॉलेज तथा विश्वविद्यालय के शोध निर्देशकगण हमेशा बहुत कारणों से व्यस्त रहते हैं । नेक की तैय्यारियाँ, क्लास लेना, तथा अन्य यू.जी.सी परियोजनाओं के कारण शोधार्थी में पर्याप्त ध्यान देने में ये लोग असमर्थ रहते हैं । कभी कभार महीनों तक ये शोधार्थियों से मिल भी नहीं पाते । अक्सर शोधार्थियों का प्रबंध समर्पण उनके शोध काल के अंतिम क्षणों में चलता है । इससे बिना परीक्षण के अवमानक शोध प्रबंध का जन्म होता है ।

इसी के साथ देखने लायक एक मुद्दा है शोध प्रबंध मूल्यांकन की बात । अक्सर शोध निर्देशक द्वारा दिए गये पेनल को ही मूल्यांकन के लिए थिसीस जाती है । इस कारण शोध प्रबंध अगर खराब भी हो तो निर्णायक

सकारात्मक रिपोर्ट देने में मजबूर होते हैं । अगर मूल्यांकन कर्ता नेगटिव रिपोर्ट देते हैं तो आगे से उनको कोई थिसीस परीक्षण के लिए नहीं मिलता और शोध निर्देशक से उनका आपसी रिस्ता भी खराब हो जाता है । इसलिए शोध प्रबंध का मूल्यांकन भी आज एक प्रकार के समझौते के आधार पर चलती है । शोधार्थी की खुली मौखिकी में भी यह समझौता हमें देखने को मिलता है ।

समस्याओं का समाधान

1. विधाचयन के पूर्व शोधार्थियों से खूब साहित्य का अध्ययन करवाएँ । पर्याप्त अध्ययन से शोधार्थी उचित विधा तक पहुँच सकते हैं ।
2. विषय चयन का कार्य शोधार्थी खुद करे । मूलग्रंथ तथा आलोचनात्मक ग्रंथ के पर्याप्त अध्ययन के बाद ही उचित शीर्षक तक पहुँचे ।
3. साहित्येतर विषय पर भी ध्यान दिया जाए । इसमें शोध निर्देशक की भूमिका ज्यादा है ।
4. सृजनात्मक शोध को प्रक्षय दें । इसलिए प्रत्येक विभाग में सृजनात्मक शोध हेतु नए विषयों की सूची बनवा लें ।
5. रूपरेखा बनाने के पूर्व शोधनिर्देशक शोधार्थी के शोध सामग्री का मूल्यांकन भी करे । अगर कुछ कमी है तो सुधार हेतु छात्र को प्रोत्साहन दें ।
6. इंटरनेट सामग्री के लिए यूजीसी के द्वारा निर्धारित प्रतिशत का आयोजन करें । वह 20% से ज्यादा न हो ।

7. प्लेगरिज़म प्रक्रिया को सक्षम बनाएँ । शोध प्रबंधों को अन्य विश्विद्यालयों के शोधार्थियों को संदर्भ के लिए न दिया जाय । नकल को रोकने के लिए शोध निर्देशक परीक्षण का कार्य सूक्ष्मतः करे ।

8. शोध निर्देशक शोधार्थी से चर्चा करके आलोच्य बिन्दुओं की सूची बनाके छात्र की मदद करे ।

9. विभिन्न कोशों की सहायता ले । साहित्यकार से चर्चा करके संदेह निवारण करें ।

10. संप्रेषणीय भाषा को विभिन्न तकनीकों से सुधारे । पुराने हिंदी सिनेमा तथा धारावाहिकों से हिंदी भाषा सुधर सकती है ।

11. संदेह होने पर निर्देशक शोधार्थी का मौखिक परीक्षण भी करे । जिससे दूध का दूध पानी का पानी निकलता है ।

12. पूर्व प्रस्तुतीकरण समिति का दायित्व इसमें बड़ा है । विशेषज्ञ समय लेकर पढ़ें और परीक्षण की गुणवत्ता परखें । प्रबंध मूल्यांकन के संदर्भ में शोध निर्देशक के पेनल व्यवस्था को समाप्त करें । न्यूट्रल विशेषज्ञ को प्रबंध मूल्यांकन का कार्य सौंपें । खुली मौखिकी संतोषजनक न होने पर फिर से चलाने के लिए नियम व्यवस्था बनाएँ ।

संदर्भ

1. उपनिषत्सार संग्रह
2. शोध प्रविधि - दक्षिण भारत हिंदी प्रचार सभा - पृ.14
3. शोध प्रविधि - दक्षिण भारत हिंदी प्रचार सभा - पृ.14

An Analysis On Investors Awareness Towards Investing In Financial Assets With Special Reference To Salaried Class In Ernakulam District

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ABSTRACT

A Financial asset is a Liquid asset that gets its value from a contractual rights or ownership claim. Cash, Stocks, Bonds, Mutual funds and Bank deposits are all are examples of financial assets. Financial assets plays an important role in economy nowadays. Investing in financial assets like stock and bonds become a habit of people in this current world. This study is focusing on awareness of investors towards financial assets with special reference to Ernakulam District. This study access the level of awareness of investors towards investing in financial assets and problems faced by them while investing. The findings of the study reveal that most of the people are unaware about various financial assets and its advantages.

Keywords: Awareness, Financial assets, Investment

INTRODUCTION

A Financial asset is a Liquid asset that gets its value from a contractual rights or ownership claim. Cash, Stocks, Bonds, Mutual funds and Bank deposits are all are examples of financialassets. Unlike land, property, commodities, or other tangible physical assets, financial assets do not necessarily have inherent physical worth or even a physical form. Rather, their value reflects factors of supply and demand in the market place in which they trade, as well as the degree of risk they carry. Most assets are categorized as either real, financial or intangible.

Real assets are physical assets that draw their value from substances or properties, such as precious metals, land, real estate and commodities like Soybeans, wheat, oil and iron. Intangible assets are the valuable property that is not physical in nature. They include patents,trademarks and intellectual property.

Every organization always needs to have a good record of its financial assets to be put to use whenever needed, like in financial emergencies. Therefore, it is helpful to check the availability of such assets. Every financial assets has a different but particular goal for the holder Each has a different amount of risk associated with it. Thus, returns are also different Based on risk for the purchase of such assets. Since each type of asset has some reward and risk associated with it, it's always advisable to keep a mix of different asset types to have an optimal portfolio. It helps in the proper functioning of the Organization without any shortage of assets.

This study access the level of awareness of salaried class in investing in financial assets with special reference to Ernakulam District. This study helps to identify the various types of financial assets, its characteristics, advantages and disadvantages. It also gives a framework of Bombay Stock Exchange (BSE) and National Stock Exchange (NSE) etc.

Review of literature

- **Rakesh H.M (2014) :**

The paper proposes to study the behavior of individual investors in the stock market and the factors that influence their investment decisions, which include awareness level, investment duration etc. The research was based on the primary data collected from the city of Mysore of 150 respondents, being stock market investors. The research paper observed that people do not want to stay committed for longer period of time into the stock market despite it giving better returns. He states that “investors are fully aware about the stock market and they feel that market movements also affect the investment pattern of investors in the stock market.”

- **Dr. Bimal Anjum and Ramandeep Saini (2011) :**

Examined the relationship between investor awareness and risk perceptions in the context of mutual funds investment in India. The study concluded that mostly the investors have positive approach towards investing in mutual funds and emphasized the need maintain their confidence in mutual funds by providing timely information relating to different trends in the mutual fund industry. The results documented in this study focused that as the investors become more aware and informed about the market trends they perceive lower risk.

Statement of the problem

This project is on the topic “An analysis on Investors awareness towards investing in financial assets with special reference to salaried class in Ernakulam District”. A financial asset is a Liquid asset that gets its value from a contractual right of ownership claim. Investing in financial assets is more convenient; but it has many problem also. High expense ratios and sales charges, Management abuses, Tax Inefficiency, brokerage Commission kill profit margin etc. are some of the limitations of financial assets. Also many people are unaware about financial assets like Certificate of Deposit, Derivatives etc. So they may show less interest in investing in these types of financial assets. Some Financial asset like saving account provide very low interest rate that can't even beat inflation.

Objectives of the study

- To assess the level of awareness possessed by salaried class about investing in financial assets.
- To explore the various factors influencing people's investment decision in financial assets.
- To evaluate preference of the salaried class while taking investment decisions.

HYPOTHESIS

- Ha1 : There is significant difference between male and female regarding the preferences while investing in financial assets
- Ha2 :There is significant difference between location of respondents and awareness regarding financial assets.

METHODOLOGY

The present study is both descriptive and analytical in nature. The study is descriptive in the sense that it attempts to discover various factors influence people in investing in financial assets. The study is analytical since the collected data has analyzed in order to arrive at the conclusion.

COLLECTION OF DATA

Primary and Secondary data has been used for the study. Primary data has been obtained through a structured questionnaire. Secondary data was obtained from various website and articles.

SAMPLE TECHNIQUE

For collecting primary data from the salaried class investors in Ernakulam District, Random sampling method is adopted. A sample of 160 students were taken from various investors in Ernakulam District.

ANALYSIS AND INTERPRETATION OF DATA

Table 1 Demographic Presentation of the Respondents

Variable	Values	Frequency	Percentage
Gender	Male	58	37
	Female	102	63
	Total	160	100
Age	20-25	113	70
	25-30	28	17
	30-35	10	7
	35-40	4	2
	40 Above	5	4
	Total	160	100
Educational qualification	SSLC	8	5
	Plus Two	15	9
	Degree	95	59
	PG	38	24
	Others	4	3
	Total	160	100
Occupation	Central Government	12	7
	State Government	15	10
	Private Sector	133	83
	Total	160	100
	Below 10000	54	34

Monthly Income	10000-30000	76	47
	30000-40000	15	10
	40000-50000	8	5
	Above 50000	7	4
	Total	160	100
Location	Urban	58	36
	Semi-urban	48	30
	Rural	54	34
	Total	160	100

(Source: Primary Data)

From the above table it is clear that most of the respondents are female and belongs to the age category of 20-25. Majority of the respondents are graduates. A lion share of the samples occupied at private sector. In case of monthly income 47% belongs to 10000-30000 and 34% belongs to below 10000. Among the total respondents 36% of them are in urban area followed by 34% in rural and remaining 30% in semi-urban area.

Table 2 Analysis of awareness about various aspects of Financial Assets

Particulars	Mean	Standard Deviation
Awareness about financial Assets and Types	2.71	1.338
Awareness of Certificate of Deposit	2.68	1.271
Awareness of NSE and BSE	2.87	1.374
Awareness about Stocks and Bonds	3.04	1.35
Awareness about Cash and Cash Equivalents	3.05	1.302
Awareness about Derivatives and Types	2.62	1.258
Awareness about Forwards, Futures and Swaps	2.53	1.228
Awareness about different types of Deposits	3.03	1.3

Awareness about loans and Receivables	2.93	1.242
Awareness about advantages and disadvantages of Financial Assets	2.83	1.25

(Source: Primary Data)

While analyzing the table it can be found that all the measures has a mean of less than or equal to 3 which indicate that most of the respondents are slightly aware of the financial assets and their investment opportunities. Highest mean 3.05 was reported for cash and cash equivalents. The least mean was found on awareness about forwards, futures and swaps. Standard deviation is highest for awareness about NSE & BSE hence the respondents react vividly to that.

Table 3 Analysis of Factors Influence in Investing in Financial Assets

Particulars	Mean	Standard Deviation
Liquidity	4.29	0.648
Convenience	4.34	0.643
Predictable Returns	4.23	0.854
OTC	3.98	0.588
Convertibility	4.19	0.675

(Source: Primary Data)

While analyzing table it can be found that most the measures has a mean of above 4. The highest mean was reported for convenience and least mean was found on over the counter. All the measures had same response from all the respondents as the standard deviation is low.

Table 4. Analysis Based on Respondent’s Preferences in Investment

Particulars	Mean	Standard Deviation
Safety	2.17	1.411
Income	2.28	1.283
Capital Growth	2.54	1.192
Tax Minimization	2.50	1.249
Balancing safety, growth and capital gains	2.59	1.362

(Source: Primary Data)

From the table it is clear that mean for all the preferences are above 2. Standard deviation is more than 1 hence the respondents reacted vividly to all the measures.

Table 5 Analysis of various limitations of Financial Assets

Particulars	Mean	Standard Deviation
High Expense and Sales Charges	2.61	1.088
Tax Inefficiency	2.61	0.932
Volatile Investments	2.74	0.947
Poor Trade Execution	2.8	0.983
Time Consuming	2.84	1.021
Management Abuses	2.63	0.909
Brokerage and Commission kill Profit Margin	2.79	1.122

(Source: Primary Data)

It is clear from the table that most respondents considered time consuming as the main limitation since it has the highest mean score among the various measures.

Hypothesis testing

Ho: There is no significant mean difference between male and female regarding the preferences while investing in financial assets

Ha: There is significant difference mean between male and female regarding the preferences while investing in financial assets

Table 6 Independent Sample T-test

Variable	Size	Mean	SD	T – Value	P – Value
Male	59	2.7424	1.029	2.940	.004*
Female	101	2.2218	1.163		

*Note: * denotes significant at 5 percent*

Since P Value is less than 0.05 we reject null hypothesis. The null hypothesis is rejected at 5% level of significance hence concluded there is significant difference between male and female regarding the preferences while investing in financial assets. Based on the mean score it is clear that male (2.74) have better preferences while investing financial assets than female (2.22).

Ho: There is no significant difference between location of respondents and awareness regarding financial assets.

H1: There is significant difference between location of respondents and awareness regarding financial assets.

Table 7 ANOVA

Variable	Size	Mean	SD	T – Value	P – Value
Urban	58	3.1069	1.0729	4.769	.010*
Semi-urban	48	2.8714	.9389		
Rural	54	2.4849	1.1646		

Note: * denotes significant at 5 percent

Since P Value is less than 0.05 we reject null hypothesis. The null hypothesis is rejected at 5% level of significance hence concluded that there is significant difference between location of respondents and their awareness level regarding financial assets. Based on the mean score it is clear that respondents in urban area (3.11) have better awareness regarding financial assets than other groups. Followed by semi-urban area with mean 2.87 and rural area with mean of 2.48.

Table 8 Post Hoc Analysis

Location	N	Subset for alpha = 0.05	
		1	2
Rural Area	54	2.4849	
Semi-urban Area	48	2.8714	2.8714
Urban Area	58		3.1069
Sig.		.152	.492

From the post hoc analysis it is found that there is significant difference between rural area and urban area with respect to awareness about financial assets. There was no significant statistical difference between rural and semi-urban or semi-urban and urban areas.

FINDINGS

- Majority of the respondents are moderately or not aware of the various aspects of financial assets.
- Majority of the respondents considers liquidity, convenience and predictable returns as the factors influence in investing in financial assets.
- Most of the respondents are preferring balancing safety, growth and capital gains while investing in financial assets.
- Majority of the respondents believes that time constraint and poor trade executions as the main limitation while investing in financial assets.
- It is evident from the Independent sample t-test that there is significant mean differences between male and female regarding the preferences while investing in financial assets.
- From ANOVA it is clear that there is significant mean difference between location of respondents and their awareness level regarding financial assets.
- Post hoc analysis reveals that there is significant difference between rural area and urban area with respect to awareness about financial assets.
- There was no significant statistical difference between rural and semi-urban or semi-urban and urban areas.

Suggestions

- More people must be encouraged to invest in Financial Assets.
- Make the people more aware about advantages and disadvantages of Financial Assets.
- Government should ensure security against unregistered stock trading apps.
- Investors themselves have to be more aware about risks and frauds assigned with Over The Counter trading (OTC)
- Portions about Financial Assets and awareness must be included in the syllabus for more knowledge.
- Advertisement messages are to be created for giving investors awareness & encourage them in investing.

CONCLUSION

The study mainly focuses on the awareness of investors towards investing in financial assets with special reference to the salaried people in Ernakulam District. From the study it is understood that most of the people are unaware about financial assets. Most of them feels unsecure in investing on these instruments. Also their investments in these type of assets are comparatively low.

The government as well as financial institutions has to make necessary actions to increase the awareness of financial assets among these people. It is also suggested that the Government should ensure security on these type of investments. Also make the investors more aware about the advantages and disadvantages of financial assets. It will encourage people to invest more in these assets.

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A Comparison of Food Behavior and Nutritional Facts of Physical Education and Non-Physical Education College Students

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INTRODUCTION

In India, the adults' average BMI values were similar for both males and females. About 50% of the adult population had a BMI below 18.5 kg/m² while only a negligible proportion was overweight or obese. In a few States such as Arunachal Pradesh, obesity and correlated diseases are becoming a public health problem. In the last 20 years, a clear shift to the right is seen in the distribution of BMI values, suggesting an improvement in adults' nutritional status over this period.

The consumption of foods like pulses, roots and tubers has fallen, while that of other foods like sugar, "jaggery" (unrefined brown sugar), fats and oils and green leafy vegetables have slightly increased.

The average Indian diet remains largely deficient in green leafy vegetables, meat, fish, milk and milk products. Moreover, it also remains deficient in some micronutrients such as vitamin A, iodine and iron.

Review of Literature

Rosenbloom (2002) study found that 47 per cent of men and 43 per cent of women believed protein supplements to be necessary, whereas only 13 per cent of participants thought this achievements of these studies show that education interferences will cause a growth of knowledge and an important for individual's attitude toward nutrition.

Objectives of the Study

To know the overview of Nutritional Knowledge and Food Behavior of People. To evaluate the comparison of Nutritional Knowledge and Food Behavior in physical Education and non-physical education college. To identify the reasons for Nutrition Problems in Adolescent Stage of Male and Female.

Methodology of the study

The study based on both primary and secondary information. The primary data has been collected through questionnaire and the secondary source has collected from different sources like journals, magazines, annual reports.

The population consisted entirely of male and female students of Kalady University , in Kerala. The sample size contains 115 physical Education (P.E) and Non-physical Education females and 120 Physical Education and Non-Physical Education student of males randomly.

Results and discussion

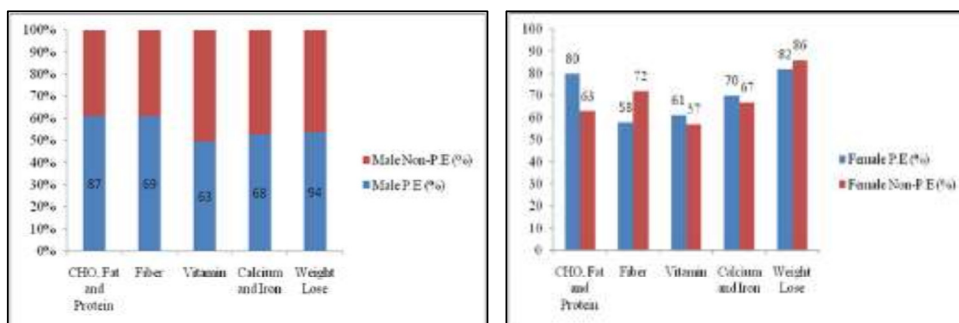
Mean Deviation of Age, Height and Weight

Particulars	Freq.	(%)	Age (Mean)	Height (Mean)	Weight (Mean)
Physical Education Male	55	25	23	175	71
Non-Physical Edu. Male	50	25	21	176	75
Physical Education Female	54	25	22	162	56
Non-Physical Edu. Female	55	25	20	161	54

Mean Percentage of correct response to Subgroups Nutrition

Particulars	Male		Female	
	P.E (%)	Non-P.E (%)	P.E (%)	Non-P.E (%)
CHO, Fat and Protein	87	55	80	63
Fiber	69	44	58	72
Vitamin	63	64	61	57
Calcium and Iron	68	61	70	67
Weight Lose	94	81	82	86

Mean Percentage of correct response to Subgroups Nutrition



Findings and conclusion

It is found that the percentage of physical education male were significantly more than non-physical educational males. It is also observed that the physical education female were significant higher than non-physical education female, while this difference was not significant between physical education females and physical education males. It is identified that the outputs showed that there is significant and positive correlation between general nutrition and sport nutrition of male and female students.

It also depicts that superiority of knowledge and attitude of physical education students in comparison with students of other fields will emphasize this idea too. Appropriate nutrition is very significant in important for social health. Based on the result of our study the knowledge of Kalady University student is moderate in comparison to a student from others and these suggest that nutrition knowledge and attitudes of Kalady University student need to improve. So, improving a nutrition education program for non-physical education majors could be an effective way to improve college athlete's nutrition knowledge and attitudes. The importance of nutrition in various college curriculums and improvement of the learning environment, relate to nutrition need to be emphasized on university and college campuses.

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