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CONTENT

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EDITORIAL

We are very delighted to introduce the fifth issue of the Aquinas Journal of Multidisciplinary Research. The Journal attempts to investigate new perspectives on the crosscurrents of diverse disciplines to create a discourse of learning. We believe this fifth issue will be increasingly adequate to our well-wishers who probe for new topics.

The fifth issue of Aquinas Journal of Multidisciplinary Research includes the inventive and innovative thoughts of researchers that empowers the journal to take its wings far and wide that covers the area of research in the present social and cultural context. The Journal contains research papers and academic articles covering a wide range and enveloping a wide canvas of contemporary issues. Our central goal is to encourage and bring together the whole gamut of the fast changes occurring in the field of research under the umbrella of this journal. The Journal provides an outlet for innovative research, which advances understanding of the core areas of study in all its varied aspects. We wish to provide a forum for effective discussions on various issues related to society through this venture of ours.

Through this journal we aim at publishing research papers on multidisciplinary areas in different spheres of science, humanities, commerce, sports and arts. Let me take this occasion to extend our heartfelt thanks to the eminent contributors who enriched this journal by their research findings. We would also express our sincere gratitude to the peer review committee for their peer review work. We also extend our thanks to the Editorial Board who contributed immensely for the success of our Journal. We are looking forward for the constant support, cooperation and feedback of our beloved readers.

Editors:

Mrs. Bridgit Jeeji C. J., Principal

Dr. Joseph John, Associate Professor and Head

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Lt Dr. Joseph John, Associate Professor and Head

CONTENT

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Genetic similarity and phylogenetic analysis of *Pleurotus florida* species from different geographical regions using RAPD.

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ABSTRACT

Pleurotus var. florida, the third largest commercially grown mushroom in the world is bestowed with antimicrobial, antitumor properties, ability to produce nanoparticles and industrially important enzymes like laccase, lignin etc. The molecular phylogeny of four samples of *Pleurotus florida* from distinct regions was determined using 15 arbitrary RAPD primers. Among them, high degree of polymorphism was exhibited by three primers showed 23 polymorphic bands. Analysis of RAPD profiles showed 90% similarity among the strains 2, 3, and 4 and least similarity with the strain 1. The experimental results suggested that the four samples of *Pleurotus florida* from different regions were genetically similar, yet showed diversity among species.

Keywords: Pleurotus var. florida, RAPD, phylogenetic relation, genetic diversity.

INTRODUCTION

More than 200 types of mushrooms have been considered as utilitarian nourishments around the globe (Kalac, 2013), yet just about 35 species have been financially developed (Aida *et al.,* 2009; Xu *et al.,* 2011). *Pleurotus* species the third largest commercially produced mushroom in the world (Van 2009) have nutritional and medicinal properties (Garcha *et al.* 1993). They are rich source of supplements, especially proteins (20-35%), minerals, fibres, amino acids, and vitamins such as B1(thiamine), B2 (riboflavin), B5 (niacin), B6 (pyridoxine) and B7 (biotin) (Solomko & Eliseeva 1988),whereas they are low in lipids (Kalac, 2009). The pileus of *P. ostreatus* are esteemed for their taste as well as for their dietary characteristics, particularly among vegeterians.

The *Pleurotus* species of the class basidiomycetes known as "white rot fungi" (Tsujiyama, Ueno,2013) as they produce a white mycelium and largely developed on non-composted lignocellulosic substrates (Savoie *et al.,* 2007). *Pleurotus ostreatus var. florida* also widely known as white oyster mushroom. Oyster mushrooms are the second largest produced mushrooms in the world because of the versatility and absolute ease of cultivation (Kuforiji et al., 2009).

Mushrooms have well-being elevating benefits such as antifungal activities (Ye *et al*., 1999), antigen toxicity (Wang *et al.,* 2005), antioxidation (Roupas *et al.*, 2012), antiproliferative (Zhou *et al.,* 2013), antitumorigenic (Kim *et al.*, 2015b), antihyperlipidemic activities (Opletal *et al.*, 1997), hostile to hypertensive, immune stimulation (Vaz *et al.,* 2011), hostile to hypocholesterolaemic, atherogenic properties (Han *et al.,* 2011), decreased destructive blood cholesterol, stress-lessening properties and are likewise useful for diabetic patients (Akata *et al.*, 2012). They have got overwhelming consideration from food and pharmaceutical specialists due to their bioactive constituents (Sheu *et al.*, 2007; Mariga *et al.*, 2014).

Pleurotus ostreatus can be grown on a wide range of agricultural byproducts and industrial wastes with an average temperature of 15 ºC (Pani *et al.*, 1997; Zadrazil, 1978). A variety of *P. ostreatus* which grows in Thailand with the temperature above 25ºC is considered to be P. *ostreatus var. florida*, (Eger *et al.*,1976; Eger,1978) and it exhibits cream-coloured to white pileutables, and sexual compatibility with the Japanese isolate of *P.ostreatus* (Kinugawa *et al.*, 1997). It also produces secondary metabolites with pharmaceutical applications (Bobek and Ozdin 1994; Kurashige *et al*., 1997), and some proteins of potential industrial use (Shin *et al*., 1997).

The use of molecular tools is essential for the polymorphic studies and provide more accurate methods for identification. In mushroom taxonomy, molecular markers are quick and reliable to establish the identities (Sasidhara *et al*., 2012). RFLP, AFLP, RAPD, SSR are some of the markers used to study the genome for polygenetics which can be used to create genetic maps. In this study, the main objective is the phylogenetic analysis of *Pleurotus* strains from geographically diverse area using RAPD markers.

MATERIALS AND METHODS

The fungal strains of *Pleurotus florida* used in this study were procured from distinct regions of Kerala viz. Ernakulam, Thrissur, Alappuzha and Palakkad (S1, S2, S3 & S4 respectively). Samples were identified by distinct morphological characters (Yadav et al ., 2017 and samiya et al., 2011).

Preparation of fresh cultures

All the strains were inoculated in a petri dish containing PDA and incubated at 25º C in dark for for 5-7 days. Disc was cut from the border of the mycelial colony and inoculated in 100 ml of PDA broth. It was then incubated at 25ºC in darkness for 8-10 days until the mycelium spread all over the medium.

Isolation of genomic DNA

Mycelia of 10-day-old frozen (Fig.1) were used for genomic DNA isolation following the protocol suggested by Abd-elsalam et al. 2003) with several modifications. DNA purity was analysed spectrophotometrically using UV spectrophotometer. 1000ng/µl indicates sufficient amount of isolated genomic DNA.

The ratio between A260/A280 was also analysed and the purity was estimated. Pure DNA has A260/A280 ratio 1.8-2.0 in TE buffer. A low ratio indicated protein contamination whereas high ratio showed RNA contamination.

Analysis using RAPD markers

Primers	Sequence (5'-3')
OPA-09	GGGTAACGCC
OPA-10	GTGATCGCAG
OPA-11	CAATCGCCGT
OPA-13	CAGCACCCAC
OPA-14	TCTGTGCTGG
OPA-16	AGCCAGCGAA
OPA-20	GTTGCGATCC
OPB-06	TGCTCTGCCC
OPD-07	TTGGCACGGG
OPD-11	AGCGCCATTG
OPC-20	ACTTCGCCAC
OPL-02	GGAGGAGAGG
OPL-03	CCAGCAGCTT
OPL-11	ACGATGAGCC
OPA-15	TTCCGAACCC

RAPD reaction were carried out in a total volume of 25 µl of reaction mixture containing 12.5 µl of master mix,1.5 µl of 100µM RAPD primers (1:10 dilution), 9µl of nuclease free water and 2µl of template DNA samples.

PCR amplification profile had an initial denaturation of 94ºC for 5 minutes, This is followed by 35 cycles of 94ºC for 1 min, 36ºC for 1 min, and 72ºC for 2 min. Final extension was carried out at 72ºC for 7 minutes and was held at 4°C. Amplified fragments were subjected to electrophoresis with ladder DNA of known Molecular Wt in 0.8% agarose gel with ethidium bromide.

Analysis of data using NT sys software

The molecular weight of amplified DNA fragments obtained from RAPD primers were estimated using Image lab software. Depending on absence or presence of bands data was scored as 0 or 1 in spread sheet format for further analysis. Data analysis was carried out using software NTSYS-pc version 2.02i. Jaccard's coefficient of similarity generated was used in constructing dendrogram using UPGMA (Unweighted Pair Group of Arithmetic averages).

RESULTS AND DISCUSSIONS

Genetic diversity across four different strains of pleurotus species was analysed using 15 arbitrary RAPD primers. The quality or purity and quantity of the DNA was checked using the UV Spectrophotometer. Quality of the DNA recovered from different strain was 2.10 for sample 1, 2.0 for sample 2, 2.10 for sample 3, 2.0 for sample 4.

Quantity of DNA recovered from different strains of *Pleurotus florida* was sample 1 with 905.4 ng/ul, sample 2 with 464 ng/ul, sample 3 with 600 ng/ul and sample 4 with 487 ng/ul.

RAPD Analysis

Among 15 primers, only three primers viz. OPA 10, OPL 02, OPL 03 exhibited high degree of polymorphism in all the four different strains of P. florida. The RAPD analysis using the primers OPA10, OPL 02, OPL 03 shows 23 polymorphic bands for the selected *Pleurotus florida* strains.

The RAPD profile obtained for analysing genetic diversity among the four strains is given Fig 2,3 and 4.the banding patterns were scored for analysis in each *P.florida* isolate.

Dendrogram Analysis

The dendrogram generated based on RAPD markers revealed only one cluster and the main cluster comprised of strain 2, 3 and 4 in four different strains of P. florida was constructed based on similarity coefficient from the isolates with UPGMA (Figure 5). The dendrogram was made by average linkage cluster analysis with the statistics on the presence or absence of bands by strains. It was used to analyse Phylogenetic relationship using the NT sys – C program version 2.02. The dendrogram revealed that the strains S2, S3 and S4 shows 90% similarity and 10 % dissimilarity and the strain 1 shows 0 % similarity with all other 3 strains.

The results of RAPD analysis were almost similar to the results obtained by the phylogenetic analysis of *pleurotus* species. Similar results were reported by Ro et al., 2007 and Lee et al.,1997 in the phylogenetic classification of some strain of *Pleurotus eryngii* and *Lentinus edodes* mushrooms, respectively.

Fig 1: Mycelial growth in PDA broth of four samples

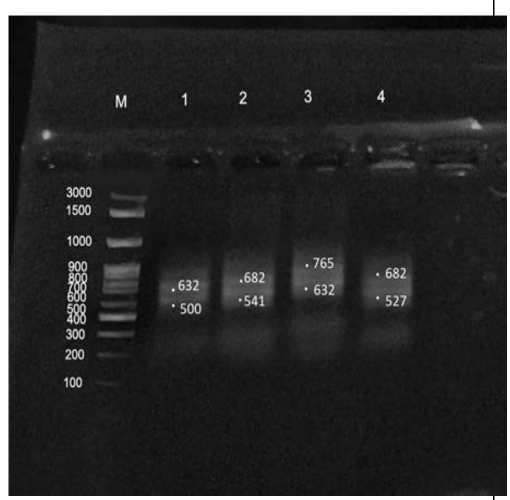

Fig2: Electrophoretic analysis of RAPD using primer OPA 10. Lane M-100 bp marker,lane1- S1,lane 2-S2,lane 3-S3 and lane4-S4.

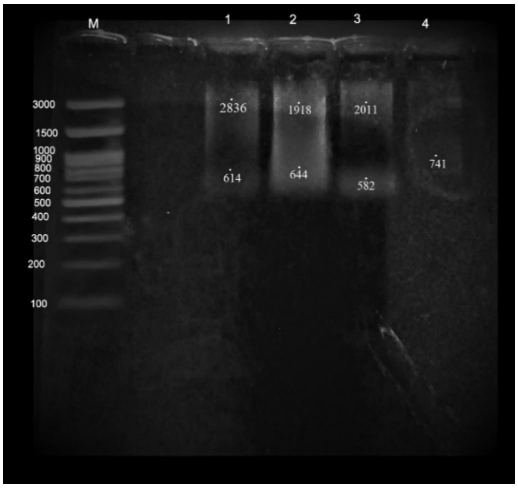

Fig 3 : Electrophoretic analysis of RAPD using OPL 02.Lane M-100bp marker,lane1-S1,lane2-S2, lane3-S3 and lane4-S4.

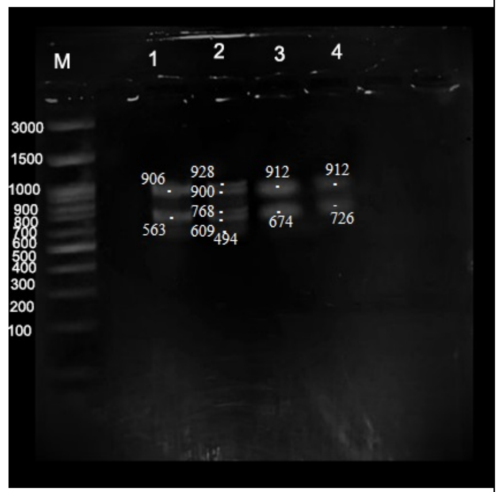

Fig 4 : Electrophoretic analysis of RAPD using OPL 03 Lane M-100 bp marker,lane1-S1, lane2-S2, lane3 -S3 and lane4- S4

CONCLUSION

RAPD-PCR amplification products of four strains with respect to the three random primers showed 23 polymorphic bands. The sequence level studies are needed for the phylogenetic analysis of the same species from different geographical regions. It can be concluded that the variation among the polymorphic bands shows a distinct variation among the species from different location, it may be due to the genetic variation or strain difference.

This study can be utilised for the strain improvement by providing suitable conditions for high productivity and thereby increase commercial potential of *Pleurotus florida.*

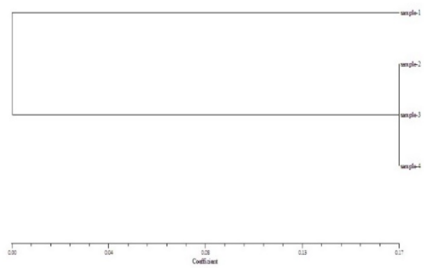

Fig 5: Dendrogram constructed based on RAPD markers of *Pleurotus florida* strains determined by NT Sys program Version 2.02

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Cyberattacks in COVID-19 Pandemic

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ABSTRACT

This paper studies the cyber security issues that have occurred during the coronavirus (COVID-19) pandemic. During the pandemic, cyber criminals and Advanced Persistent Threat (APT) groups have taken advantage of targeting vulnerable people and systems. This paper emphasizes that there is a correlation between the pandemic and the increase in cyberattacks targeting sectors that are vulnerable. In addition, the growth in anxiety and fear due to the pandemic is increasing the success rate of cyber-attacks. We also highlight that healthcare organizations are one of the main victims of cyber-attacks during the pandemic. The pandemic has also raised the issue of cybersecurity in relation to the new normal of expecting staff to work from home (WFH), the possibility of state-sponsored attacks, and increases in phishing and ransomware. We have also provided various practical approaches to reduce the risks of cyberattacks while WFH including mitigation of security risks related to healthcare. It is crucial that healthcare organizations improve protecting their important data and assets by implementing a comprehensive approach to cyber security.

Keywords: Advanced persistent threat, COVID-19, Cybersecurity, Internet Of Things, Malware, Phishing, Ransomware.

INTRODUCTION

The COVID-19 pandemic has created considerable uncertainty, anxiety, and a drastic change as regards our way of life. Organizations have had to adapt to the demand for remote working at speed and scale. Many have been forced to revamp their physical offices and policies which are created in panic to enable employees to work from home without the necessary training or well-prepared arrangements. Most of these companies and institutions have no plans on the ground to facilitate this drastic and sudden change within a short period.[1] In fact, only 38% businesses have a cybersecurity policy in place. By moving to an online environment, organizations and companies worldwide have implemented the work-from-home (WFH) business model that increases attack vectors and risks to the internal data. It is worth noting that WFH has become the new normal for people worldwide. In most scenarios, this implies the requirement of employees to use their own personal devices and home networks, which are mostly unsecured by nature and lack the required industrial standard security measures. For institutions that already provide their employees with business devices, these are typically secured with minimal or no administrative rights. Conversely, the general setup where staff are given temporary rights to install the required software becomes an issue. Hence, businesses need to provide more realistic solutions and provide employees with more rights, which indirectly implies more potential security issues. Cybersecurity during the coronavirus disease 2019 (COVID-19) pandemic is a genuine issue on account of the emerging cyber-threats and security incidents targeting vulnerable people and systems globally. This paper focuses on the cybersecurity issues that have emerged in various environments in the wake of the global pandemic.

BACKGROUND

Even under normal circumstances, online crimes such as scams provide better returns with the least risk for the attackers. It is a fact that, more people are now unemployed, spend more time at home and use the Internet for work and to socialize. Furthermore, governments have provided incentives to help people financially and so also other business to seek to attract or retain customers. As the world anticipates a potential cure to control the spread of COVID-19, all information related to "COVID-19" will gain the attention of netizens. The scammers are taking advantage of this avenue to send malicious [phi, smi, vi] shing attacks to victims disguised as the government, tax authorities, etc. with links to claim assistance in relation to COVID-19.

In its report, the World Economic Forum (WEF) highlighted that hacking and phishing is the new norm even after the viruses disappear. These scams are much more effective now during the pandemic as most vulnerable people are more anxious and expecting emails, text, calls, etc. relating to COVID-19 from the authorities. As cyber criminals become more aware of this situation, it is much easier for them to create fake messages or websites that replicate the appearance of relevant and familiar authorities, incorporating words that use urgency to exploit the globally felt fear factor due to the importance of handling emergency needs. Therefore, cyber criminals can increase the effectiveness of their phishing attacks. These attacks can come in various forms, such as internal and external updates, personal gains, and charity. A recent study from F-Secure highlighted that spam is one of the common ways to spread malware. It also pointed out how attackers are using the pandemic to entice people to click, primarily by hiding the executable in archive files such a .zip files. It should be mentioned that malicious actors may use existing, genuine materials as bait to encourage people to perform a risky action such as click on a link or open an attachment. It is essential that users look at the sender of an email and examine any links contained within it prior to acting. Cyber criminals often use impersonation techniques posing as the World Health Organization (WHO), United Nations (UN) or a popular company whilst people are WFH, Zoom, to trick users into clicking on links or to open infected documents.

As a result of the pandemic, we have seen a total lockdown in almost all parts of the world. The shift to the new way of working where employees are working from home primarily using their home systems which are secured by their employers has created a degree of concern within the sector. Owing to this mass quarantine arrangement, new challenges pertaining to the resilience of technological solutions to most ecosystems is vital; specifically, the resilience of current technology within employers' existing cyber infrastructures.

1. CYBERSECURITY ISSUES DURING THE COVID-19 PANDEMIC

1.1 Cyber-attacks during the COVID-19 pandemic

Cyber-attacks during the pandemic can be categorized into three categories: scams and phishing, malware, and distributed denial-of-service (DDoS). Certain examples of cyber-attacks during the pandemic are outlined in Table 1. Cyber criminals and Advanced Persistent Threat (APT) groups are launching cyber-attacks at vulnerable people and organizations via COVID-19 related scams and phishing. They are exploiting the pandemic for various motivations, for instance for commercial gain or to collect information related to COVID-19 vaccines by deploying different techniques such as phishing or ransomware and other malware. Examples of APT activities during the pandemic include Hades, Patchwork (aka Dropping Elephant, APT-C-09), TA505, and APT29.

Scams and Phishing: The most common and effective attack during this pandemic is via different types of scams and phishing. In fact, phishing attacks have a success rate of 30% or higher. It is extremely troubling that an attacker only requires a small percentage of clicks to make financial gains or other interests. Therefore, sending millions of emails to victims who are seeking to apply for funding relief provided by the government, their employers, banks, etc., will result in swift and enormous rewards. There are various phishing attacks (email, SMS, voice) targeting vulnerable people and systems using coronavirus or COVID-19 as a title to entice people. There were an increase of 600% coronavirus-related phishing email attacks in 2020. Cybercriminals also use more sophisticated techniques to lure victims such as using HTTPS encryption protocols in their websites. In fact, around

75% of phishing sites have been equipped with SSL. Additionally, webmail and Software-as-a-Service (SaaS) users are the most-targeted phishing sectors.

Malware: Malware includes computer viruses, worms, a Trojan horse, spyware, and ransomware. During the pandemic, cyber criminals and APT groups have taken advantage in targeting vulnerable people and systems by spreading various types of malware through emails and websites. In fact, 94% of computers corrupted by malware were infectedby an email. Specific types of malware, such as ransomware will be more effective for institutions that are heavily involved in dealing with the pandemic (see Table 1).

Table1: Examples of cyber-attacks during COVID-19 pandemic

Date	Country	Type of attack	Details of attack
March 2020	Czech Republic	Ransomware	The Brno University Hospital as one of COVID-19 testing laboratories in the country has been hit by a cyber-attack and was forced to shutdown its entire IT network.
March 2020	UK	Ransomware	The Maze ransomware group has published personal and medical details of thousands of former patients of a London-based medical research company which provide COVID-19 Testing.
March 2020	France	DDoS	The systems of a group of hospitals in Paris which plays an important role in fighting COVID-19 crisis in the capital were the target of a DDoS attacks disrupted access to Server and email.
March 2020	US	DDoS	The US Department of Health and Human Services Department which heavily dealing with COVID-19 issue in the country were the target of a DDoS attacks.
March 2020	Taiwan	Phishing	Emails contained a remote access hacking tool impersonating Taiwan's top infection-disease official urging recipients to get coronavirus tests.
June 2020	Germany	Phishing	Phishing emails to senior executives at the company which supply personal protective company which supply personal protective designed to direct executives to fake Microsoft login pages to steal their Credentials.
June 2020	US	Ransomware	The University of California San Francisco (UCSF) which working on COVID-19 vaccine was the target of a ransomware attacks and forced to pay $1.14 m to Cybercriminals called Netwalker.
June 2020	Canada	Ransomware	CryCryptor ransomware masquerades as COVID-19 contact-tracing apps on Android Device.

Distributed Denial-of-Service (DDoS): Due to its simplicity to launch attacks and its impact on the victim, a DDoS attack is considered as the most indefensible cyberattack today. Unlike traditional denial-of-service (DoS) attacks, a DDoS attack exploits numerous attack sources, is spread using multiple hosts to launch a coordinated DoS attack against one or more targets which effectively intensifies the attack power and makes defense more complicated. In the UK, universities' Internet service provider JISC experienced a DDoS attack during the pandemic, disrupting students and staff access to university IT resources and the Internet. Moreover, it is important to note that DDoS attacks are also being exploited to undermine health organizations worldwide (see Table 1).

1.2 Cyber-attacks on healthcare organizations

The healthcare sector has been one of the main targets of cyber-attacks during the pandemic. The hacking attempts on healthcare organizations has highlighted the problems associated with cybersecurity in the healthcare sector. These include healthcare bodies, pharmaceutical companies and research organizations. Healthcare organisations are vulnerable to cyber-attacks, such as the WannaCry ransomware attack that incapacitated the National Health Service (NHS) in 2017. One of the main reasons is due to limited budgets these organizations have to protect their IT systems as they are funded by cities or countries which typically under very strict budget controls. For example, many healthcare organizations still operate outdated software or no longer supported operating system (OS) like Windows 7 or Windows XP tocontrol medical devices throughout the hospitals. In fact, Europol stated that healthcare facilities are considered an easy and profitable target for ransomware. Nowadays, modern hospitals are run by computers. Computers and the Internet of Things (IOT) are utilized heavily in modern hospitals to store and monitor patients' data as well as to control medical devices such as an intensive care unit (ICU) or ventilators.

A joint advisory report and guidelines from the United Kingdom's National Cybersecurity Centre (NCSC) and the United States Department of Homeland Security (DHS) Cybersecurity and Infrastructure Security Agency (CISA) provided discussion on issues such as phishing, malware, the tools used in WFH such as Zoom, etc. It is predicted that APTgroups will continue to target healthcare and essential services globally. A recent joint advisory report from NCSC and Canada's Communications Security Establishment (CSE) strongly suggested that the Russian intelligence services are behind the APT29 (aka "Cozy Bear") cyberattacks on various organizations dealing with the development of a COVID-19vaccine in Canada, the US, and the UK, with the aim of stealing COVID-19 vaccines' related information. To achieve its goals, APT29 uses various techniques, such as vulnerability scanning, public exploits and phishing to gain access to the target network and custom malware known as 'WellMess' and 'WellMail' to carry out further damage.

1.3 Mitigation

Mitigation & preventing cyberattacks are not a trivial task. There are practical approaches that can reduce the risk of cyberattacks while WFH:

- User Education: Security is only as strong as its weakest link. People are considered the weakest link in many security systems. Therefore, developing cybersecurity awareness among users by means of constant training is important to reduce the risks of cyberattacks on an organization. A recent study shows that only 11% businesses have provided cybersecurity training to non-cybersecurity employees in the past year.
- **Virtual Private Network (VPN):** VPN is an encrypted communication channel between two points on the Internet to protect the data that is sent and received. The use of a VPN to surf the Internet is the new normal. A VPN provides twoaspects of

security: confidentiality and integrity and allows organizations to extend security policies to remote workers.

- **Enable multi-factor authentication (MFA):** MFA strengthens security by requiring a username and password plus a onetime code sent to mobile phone via SMS or an authentication app. MFA is an important factor to mitigate against password guessing and theft such as brute force cyber-attacks. An employee attempting to access her company's network from home will need to provide both her username and password and a onetime code sent to her mobile phoneto verify her identity before being allowed to access the internal network.
- **Ensure all devices firmware is up-to-date**: Ensure that all devices and equipment firmware/OS are up-to-date with the latest security patches implemented to inoculate them against known vulnerabilities. Regular and up-to-date patchesmay reduce the risk of a zero day attack.
- **Ensure that up-to-date antimalware software is activated in all network connected devices:** Cyber criminals targeting vulnerable people by spreading various types of malware. As millions of new malware and its strain are generated every year, regular and up-to-date antimalware may reduce the risk of cyberattacks caused by malware.
- **Enable strong company online policy**: Organizations have had little or no time to prepare for the WFH scenario. Robustand comprehensive WFH policy is necessary to protect data and prevent cyber-attacks. Strong WFH policies include avoiding holding sensitive work conversations in public, use only company approved video and audio conference lines, etc. The policies should also include a robust and proven recovery plan and backup strategy. It is also essential to havethese plans a regular test as a recent study highlighted that 46% businesses only test their recovery and backup plans once a year or less.
- **Segmentation and separation:** Move away from an "all-in-one" single purpose

device and network. Divide a networkinto different trusted zones: home office network (high trust level), guest and home entertainment network (low trustlevel) and Internet zone (untrusted). In smart homes, the IOT devices should be isolated in a separate Wi-Fi network. By isolating the IOT devices on a separate network segment, any compromise of an IOT device will not automatically grant access to a user's primary devices such as a corporate laptop.

- **Physical security of home office:** It is important to physically protect home office devices. Practical approaches include ensuring that work devices are not left unattended, use a lock screen or lock the laptop, always log off devices after use, etc.

In addition to the general mitigation approaches discussed above, an example of the mitigation of security risks relatedto healthcare is outlined below. During the pandemic, healthcare organizations dealing with COVID-19 have been the principal target of persistent cyberattacks. It is imperative that healthcare organizations protect their valuable data and assets from cyberattacks by improving their defense. Two important components as regards detecting malicious behavior that can compromise the security and trust of a network are intrusion detection system (IDS) and security incident and event management (SIEM). Typically, an IDS employs anomaly detection, stateful protocol analysis (aka deep packetinspection), signature matching or a combination of all three techniques (hybrid) to analyze incoming cyberattacks. Dueto its ability to detect zero day attacks more accurately, AI-based anomaly detection IDS is growing in popularity to detect cyberattacks. Furthermore, it is important for healthcare organizations to take a comprehensive approach to cybersecurity and not to view security from a technological perspective only, but in the framework of processes. Examplesof a comprehensive approach to cybersecurity include the CERT Resilience Management Model (CERT-RMM), risk management, and incorporating cybersecurity into the strategic planning and budgeting process.

CONCLUSION

In this paper, cybersecurity issues during the COVID-19 pandemic have been discussed and analyzed. Notable cyberattacks and vulnerabilities are highlighted and summarized. Certain practical approaches to reduce the risks of cyber-attacks and possible mitigation techniques are also discussed.

During this pandemic, cyber criminals and APT groups have taken advantage of targeting vulnerable people and systems. Furthermore, it is a situation that is unlikely to change in the foreseeable future. Healthcare organizations are one the main victims of cyberattacks during the pandemic for various reasons. Hence, it is crucial that healthcare organizations improve protecting their important data and assets from cyber-attacks by leveraging their defense such as implement comprehensive approach to cybersecurity.

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On the Effect of Cation Radius on the Conduction and Polarization Mechanisms of Multiferroic Perovskite Bismuth Ferrite

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ABSTRACT

$BiFeO_3$ doped with Vanadium and Yttrium was synthesized using soft chemistry procedures. The phase purity was investigated using X-ray Diffraction and surface morphology was observed using Scanning electron microscopy. Conduction mechanisms of the samples were studied by carrying out dielectric measurements while the variations in polarization mechanisms were clearly identified in the ferroelectric measurements.

Keywords: multiferroics, magnetoelectric, dielectric, ferroelectric

INTRODUCTION

Multiferroic materials are extensively researched nowadays because they exhibit both ferroelectricity and ferromagnetism simultaneously at room temperature. They find extensive applications in devices such as sensors, field effect transistors and memory devices. Rare Earth based multiferroics have attracted the attention of scientists and engineers because they satisfy some of the essential criterion for exhibiting multiferroicity namely non-centerosymmetry, d^0-ness and geometric frustrations. In particular the focus is on the multiferroic magnetoelectrics materials that are simultaneously ferromagnetic and ferroelectric with or without ferroelasticity. Bismuth Ferrite is a widely investigated perovskite multiferroic material now a days because of its ability to tune ferroelectric and antiferromagnetic order parameters in the perovskite structure, with numerous applications in nonlinear optics, thin film capacitors, photo electrochemical cells, nonvolatile memories etc. [1,2].

$BiFeO_3$ (BFO) is one of the few multiferroics that has Curie and Neel temperature above room temperature. The ferroelectric properties appear in $BiFeO_3$ below ferroelectric Curie temperature TC =1100K whereas the antiferromagnetic ordering together with weak ferromagnetic moment appear below the Neel temperature T_N = 643K. 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 $BiFeO_3$ is a room-temperature ferroelectric, it has a spontaneous electric polarization directed along one of the [111] directions of the perovskite structure [5,6]. The present investigation envisages studying the influence of cation radius on the inherent conduction mechanisms. Vanadium with higher ionic radius and Yttrium with lower ionic radius than Bismuth were substituted at the Bismuth sites of $BiFeO_3$ to understand the influence of structural distortions on conduction processes.

MATERIALS AND METHODS

All the reagents were of analytical grade and used without further purification. Synthesis of Vanadium and Yttrium doped $BiFeO_3$ ($Bi_xY/V_{1-x}FeO_3$, x= 1 and 0.7) was carried out by soft chemical route using bismuth nitrate, ferric nitrate, vanadium pentoxide, yttrium nitrate, nitric acid and carboxylic acid (tartaric acid) as source materials. In a typical experimental procedure 0.1 M of $Bi(NO_3)_3$.

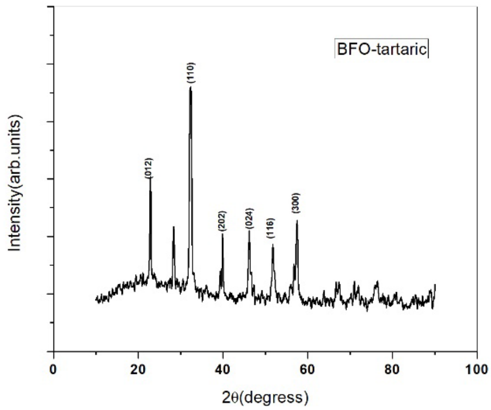
$5H_2O$ and 0.1 M of $Fe(NO_3)_3$. 9H2O were prepared separately in 100 ml deionized water. Nitric acid was added to both solutions until it became saturated. These solutions were mixed together. 1 M of tartaric acid solution was added drop wise until a yellow precipitate is formed. The reaction mixture was stirred using a magnetic stirrer. Then the solution was heated at a temperature of about 100^0C to 120^0C for 3 hours till the residue was completely burned. A brownish red sol was obtained. For preparing doped products the respective dopants were added in required stoichiometric ratio during the mixing process of the precursors. The samples are coded as BFO, BFOV and BFOY.

The structural phase formation is confirmed using Rigaku D-Max X-Ray Diffractometer and morphology was analysed using scanning electron microscopy. 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. Ferroelectric measurements were carried out using Precision LC tester Ferroelectric Loop Tracer (Radiant Systems).

RESULTS AND DISCUSSIONS

Structural Characterization

The phase formation is confirmed from the X-Ray Diffraction pattern obtained using Rigaku D-Max Cu Kα X-Ray Diffractometer. . The perovskite structure is clearly visible from the peaks and the graphs obtained were compared using the ICDD file. Synthesis using tartaric acid yielded phase pure $BiFeO_3$ (BFO) while BFOV and BFOY samples showed a little bit of impurity phases and is compared with the standard ICDD file (JCPDS- No.35-0795).



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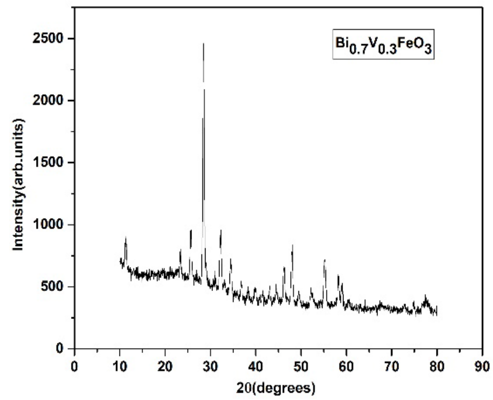

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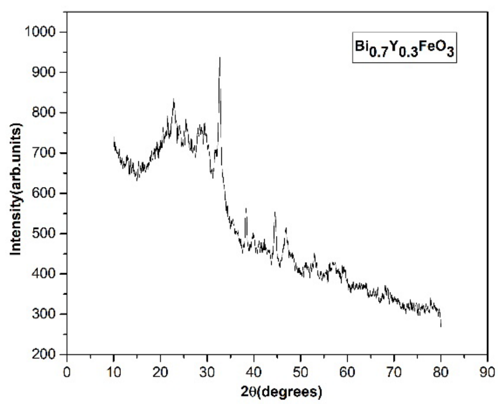
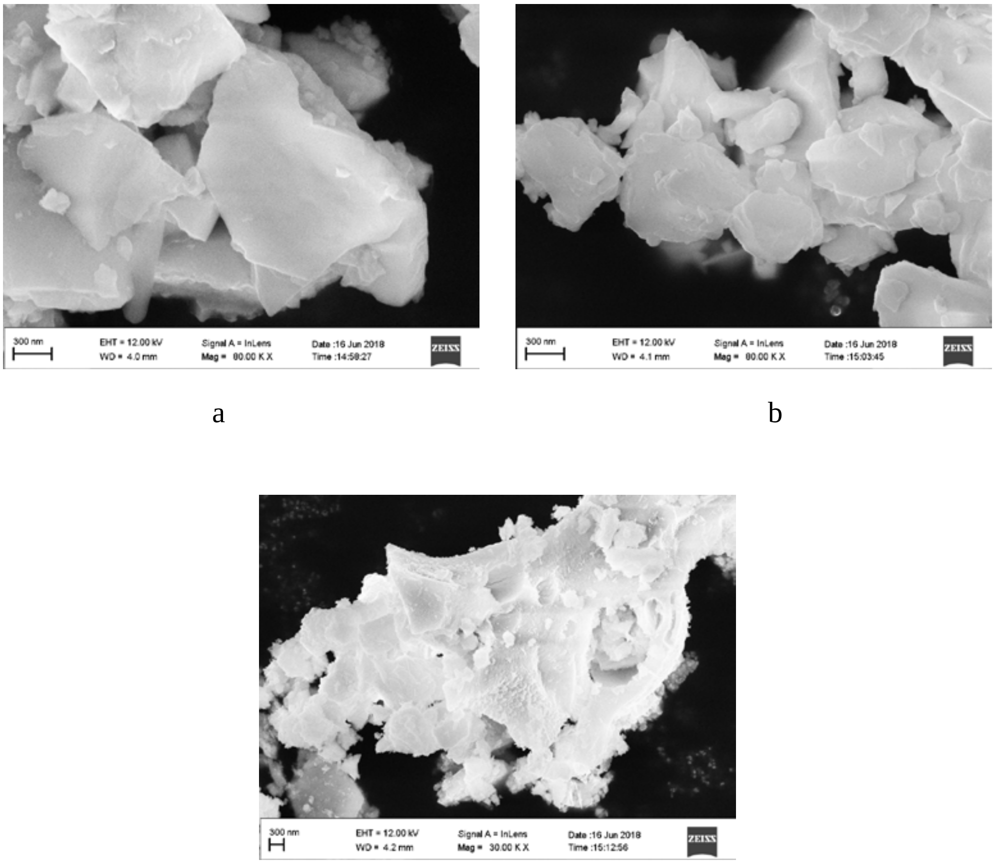


c)

Fig 1: XRD of a) BFO b) $B_{0.7}V_{0.3}FeO_3$ and c) $B_{0.7}Y_{0.3}FeO_3$

Scanning Electron Microscopy images clearly shows the formation of grains and clear cut grain boundaries. The figure shows the SEM micrographs of BFO, BFOV and BFOY.



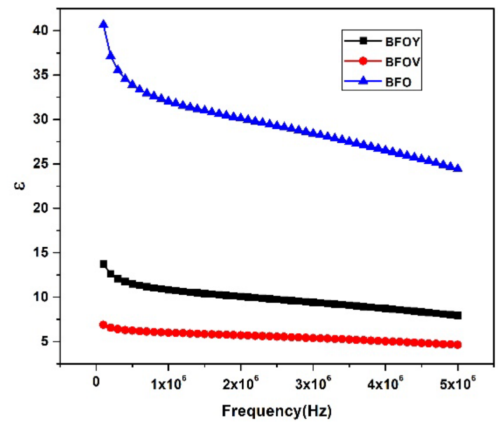
a b

c

Fig 2: SEM images of (a) BFO (b) BFOV and c) BFOY

Dielectric Studies

The dielectric studies carried out using a homemade dielectric cell coupled with LCR meter provided information on the conduction mechanisms inherent in the perovskite materials. The datas were obtained by interfacing the LCR meter with desktop PC using LabView software from National Instruments.



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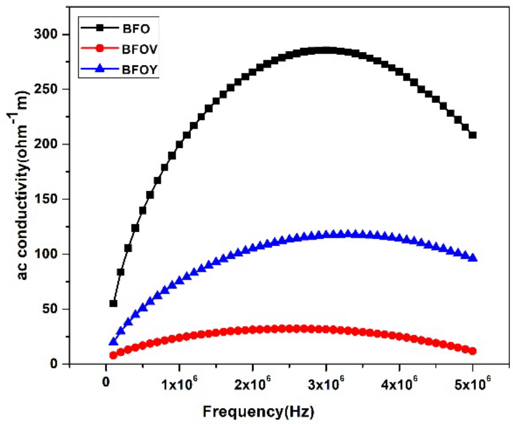

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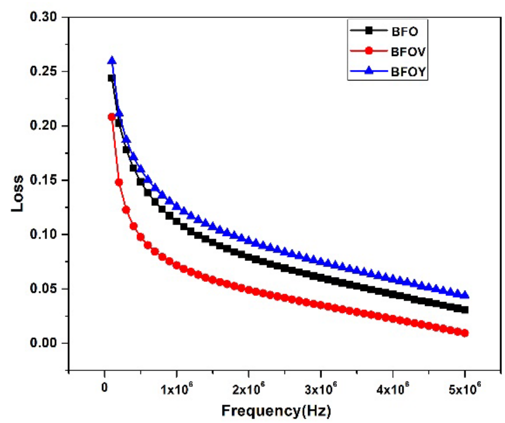


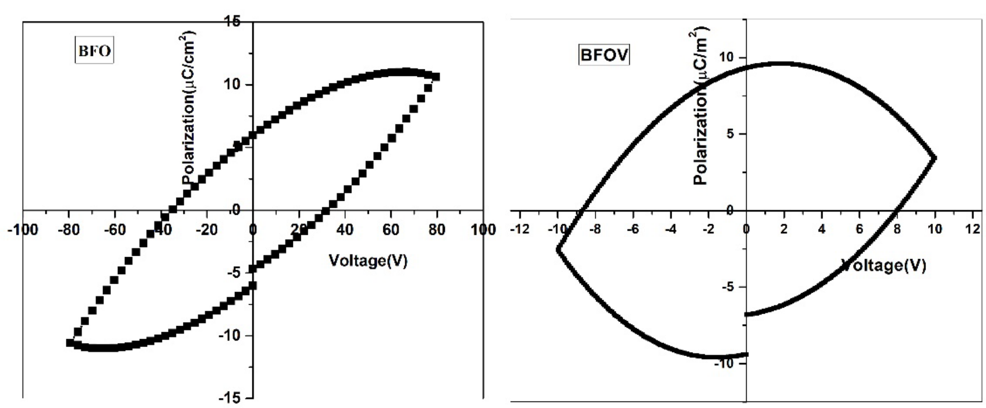
c

Fig. 3: Variation of (a) dielectric constant, (b) ac conductivity and (c) loss with frequency for BFO, BFOV and BFOY

The dielectric constant remains constant at lower frequency while as the frequency increase it starts decreasing in accordance with the Maxwell-Wagner theory. The polarization finds it difficult to cope with the increasing frequency and it lags behind leading to a decrease in the dielectric constant values. The grains form a conducting layer mainly dominant at high frequency giving low dielectric constant while the grain boundaries are poorly conducting mainly dominant at low frequency and having high dielectric permittivity values [12].

The BFO samples have higher dielectric constant than the BFOV and BFOY samples (Fig3a). The ceramic BFO sample has higher ac conductivity compared to the BFOV and BFOY samples (Fig3b). The loss graph of ferroelectric BFO sample is similar to usual perovskite dielectric phase while the substituted samples have lesser loss values. The loss peaks are signature of relaxation mechanism inherent in the material and the polarization can have dependence on thermal or other sources of energy (Fig.3c). Vanadium and Yttrium have the same oxidation state as that of Bi but their ionic radii is different. The ionic radius of Vanadium is higher than that of Bi while that of Y is lesser. This discrepancy in radius leads to structural distortion of the perovskite structure and brings about variations in the conduction and polarization processes. The decrease in dielectric constant can be attributed to the hindrance of dipole formation due to lattice distortion created by the variable cation radii at the B site. The same characteristic is reflected in all the dielectric parameters as well as the polarization measurements.

Ferroelectric Measurements



a) b)

Fig 4: P-E measurements of a) BFO and b) BFOV

The ferroelectric measurements carried out on the sample revealed their polarization mechanisms and inherent ferroelectric nature (Fig.4). BFO sample showed higher polarization compared to BFOV sample asserting the superior ferroelectric nature of $BiFeO_3$. The hysteresis loops are not saturated and there is a leakage in the measurement setup evident from the loops. But the hysteresis loops have the signature of ferroelectric phase making these perovskites efficient multiferroic materials.

CONCLUSION

Bismuth ferrite is a multifunctional multiferroic perovskite exhibiting interesting properties making it a potential candidate for memory applications. In the current study the influence of cation radius on the inherent conduction mechanisms was investigated by substituting the B site cation with cations of variable sizes and their dielectric and ferroelectric properties were compared. We have conducted an elaborate literature survey regarding the synthesis methods and we have tried to optimize the parameters needed for the synthesis. We selected a low temperature soft chemical route which requires minimal resources and gives better results. Dielectric studies confirmed the conduction mechanism with a signature of relaxation processes visible in the studies carried out on Bismuth Ferrite and also the results were well in agreement the processes described in literature. Ferroelectric measurements accurately revealed their inherent ferroelectric nature and the results obtained open new frontiers and prospects for tailoring the properties of multiferroic materials by varying the cation radius and hence tuning the structural changes to obtain multifunctional materials.

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Leap Motion Sensor and RPi based Smart Writing Technology using Convolutional Neural Network

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ABSTRACT

Smart Writing creates a virtual touch surface in the air. By touching this space, we can create virtual touch events. This can be done by using a Leap Motion Sensor and a Raspberry Pi. The Leap Motion Sensor detects the motion of out hand/pen and transfers the signals to the Raspberry Pi. From there the corresponding image will be created and displayed on the screen. Henceforth leads to the identification of the character. Mixed Reality (MR) opens a new dimension for Human Computer Interaction (HCI). Combined with computer vision (CV) techniques, it is possible to create advanced input devices. This project describes a novel form of HCI for the MR environment that combines CV with MR to allow a MR user to interact with a floating virtual touch screen using their bare hands. The system allows the visualisation of the virtual interfaces and touch screen through a Head Mounted Display (HMD). Visual tracking and interpretation of the user's hand and finger motion allows the detection of key presses on the virtual touch screen. Artificial Intelligence is used to train the system and to improve the accuracy.

INTRODUCTION

Computer vision techniques are the least intrusive for interaction in a MR environment. In the case of hand-based interaction, some require the use of special gloves or markers attached to the hand to facilitate the interaction. This is less intrusive than the use of data gloves or 3D mice, as these special gloves or markers are lighter and do not need any wiring. However unadorned hand tracking can make it possible for a MR user to interact with the virtual and the real in the same way, by using their bare hands. Gesturing is a natural part of human communication and becomes more and more important in AR/VR interaction. The Leap Motion Controller is a new device developed for gesture interaction by Leap Motion. The device has a small dimension of 0.5x1.2x3 inches. To use the Leap Motion Controller, the user needs to connect it to a computer by USB. Then the users put hands on top of the Leap Motion Controller. Figure 1 gives the block diagram of the Leap Motion Controller.

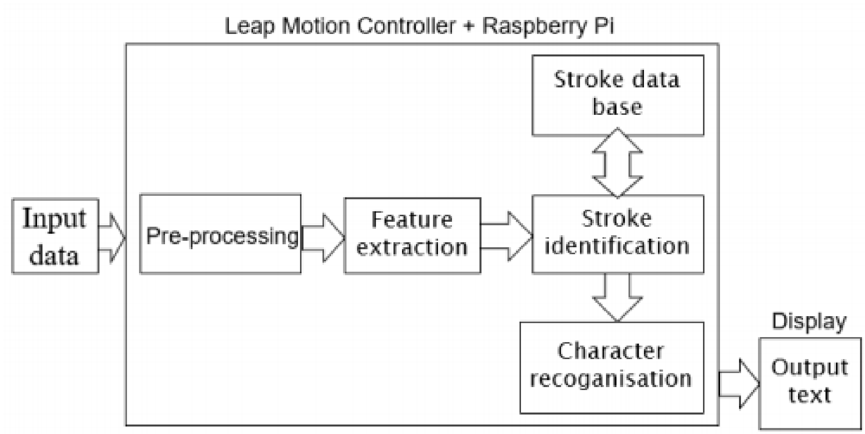

Figure 1. Block Diagram of Leap Motion Controller

The Leap Motion Controller could detect palm and fingers movements on top of it. The tracking data which contains the palm and fingers' position, direction, velocity could be accessed using its SDK. According to the Leap Motion Controller provides a detection accuracy of about 200m. The newest version of Leap Motion Controller Orion currently does not provide gesture recognition. We are trying to implement the gesture recognition by ourselves. Figure 2 gives the Leap Motion Coordinate system.

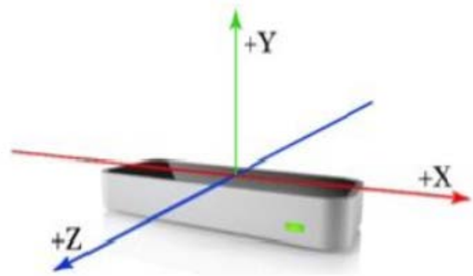

Figure 2 Leap Motion Coordinate system

Methodology And Design

In the proposed system, an input gesture is acquired using a Leap Motion sensor. It tracks hands and fingers movements in 3-D digital format. It gives a mapping of the gesture interms of feature points. The extracted fingertip positions ofeach gesture are stored in the database. The distance between them is used as feature vector. While testing, again gestures are captured and the positions of the finger points are extracted. Distances are calculated by Euclidean distance method for current gesture and all gestures stored in the database. For recognition, the feature vectors are compared using the four similarity measures viz. Euclidean distance measure, Cosine similarity, Jaccard Similarity and dice similarity. The one with maximum similarity is returned asthe detected gesture.

Functionality of the framework begins with user writing a character in air, the Leap Motion Controller gets track the movements of the finger. After pre-processing takes place frames are generated and feature extraction is done. Using computer vision techniques the text written in air is recognized on the basis of strokes. The recognized text is then displayed on the screen. For the evaluation of the proposed framework some experiments were created. Those experiments were carried out by some students. Each student was asked to write English alphabets (Upper case or Lower case), numeric digits or a complete word in the air. One by one each student starts writing in the air in front of LMC. The proposed framework starts recognizing the alphabets and numeric digits. The recognition accuracy and the number of attempts were recoded and analysed. The results obtained from these experiments were presented and discussed in the following section.

Leap Motion Controller

The Leap Motion controller is a small peripheral device shown in figure 3, which is designed to be placed on a physical desktop, facing upward. It can also be mounted onto a virtual reality headset. It consists two monochromatic Infrared (IR) cameras and three infrared LEDs, the device observes a roughly hemispherical area, to a distance of about 1 meter. The LEDs generate patternless IR light and the cameras generate almost 200 frames per second of reflected data. This is then sent through a USB cable to the host computer, where it is analyzed by the Leap Motion software using "complex math" in some way synthesizing 3D position data by comparing the 2D frames generated by the two cameras.

Data Description

Leap Motion Controller (LMC) is being used as input device capable to record finger gestures perform within the interaction region. The input data is for example, user writing in air with fingers or performing gestures with hands. All these hand movements are being tracked by Leap Motion Controller and are being sent to our application. To calibrate initially the LMC with the computer through hands, we've fixed few gestures. For air writing the finger movements is being tracked and recordsthe strokes. Finger movements for different alphabets in English, numeric, words and some especial gestures for erase and space are recorded as input data. There are 20 people are taken to record the input data to get the variations in writing styles.Strokes:

Stroke is sudden or sharp change in the movement or it is a mark made by drawing a figure in one direction. Mathematically or geometrically it is the maximum curvature in a line curve. Here are some examples of the strokes recorded against different gestures generated for writing letters or words in English. The alphabet ‘A’ has three strokes. The system stores the strokes template, which is used for recognition process. Following figure show the examples of the hand written alphabets, numeric and word (‘Casper’) in English.

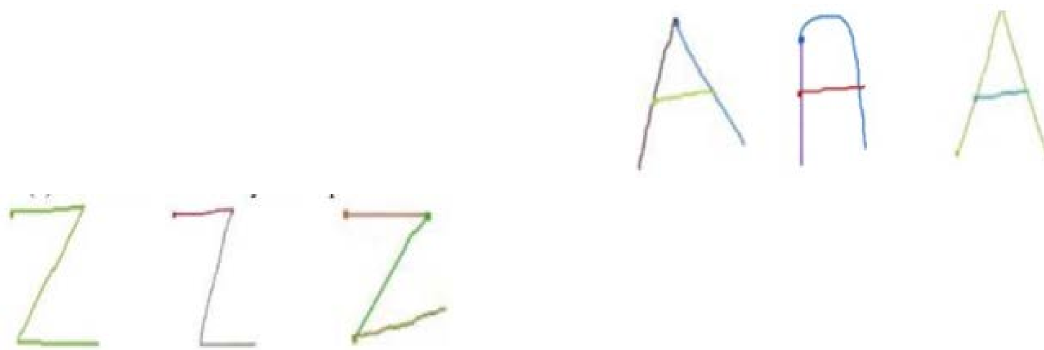

Figure 3 Hand written alphabets – Different Stroke style of alphabets A and Z

After the strokes the corresponding data about all the information of strokes is then taken from inspect element. Following template shows an example of the data stores against the stroke. Due to large size of the template, digits are omitted and few are inserted instead. The recognition of the alphabet or the text is uses the template which is display on the screen accordingly. There cognition process of alphabets and numeric digits is taking place on basis of strokes; an expert system is being used to recognize the letters

Training

We had a huge data corresponding to each of alphabet in English in addition to numeric therefore we motivated to use Neural Network and Fuzzy Logic to train the system for the proposed framework. Neural Network is a field of Artificial

Intelligence which finds data structures and algorithms for learning and data classification which is inspired by a normal human brain. Neural Network techniques can be used to learn through examples and create a structure of rules to classify the different kinds of inputs for example the recognition of images. Fuzzy logic is a computing based approach which is based on 'degrees of truth' rather than the usual 'true and false' of '1 or 0' Boolean logic on which most of the modern computers are based on. In Fuzzy Logic the true value can be anywhere in between 0 and 1 and 0 and 1 are extreme cases of truth. In the proposed frame work neural network has been used to train the model. The output of the trained model was based on the Fuzzy logic instead of binary classification.

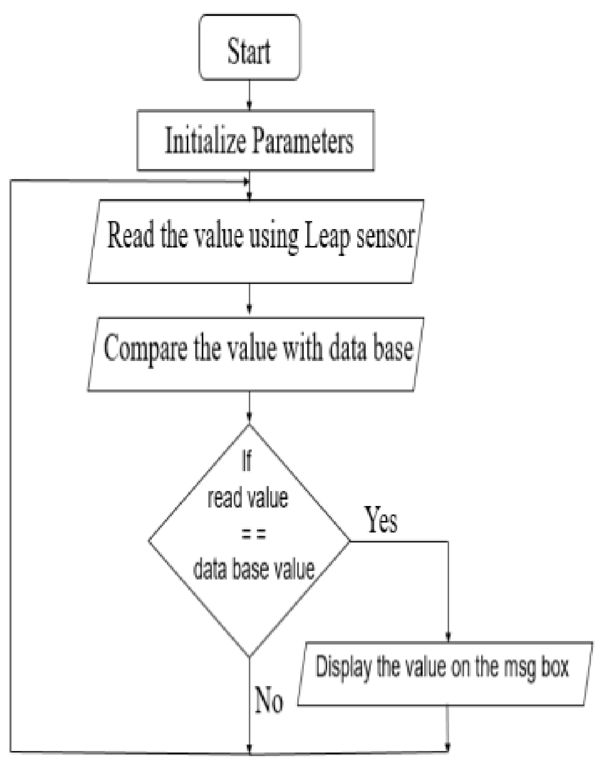

Figure 4 Flow Chart

RESULTS AND DISCUSSIONS

The average numbers of attempts for English alphabets and numeric digits were also analysed. Table 1 shows the observations of average number of attempts for recognition of numeric digits and the accuracy results obtained after testing is mentioned in Figure 5. The framework was getting little confused in the recognition of “O”, “0” and “Q” for these characters we got accuracy result of 90%, 90% and 88% because of the resemblance in their shape. We have recorded the results of each character (capital alphabets, small alphabets and numeric values) in the tables below.

Table 1 Observations of average number of attempts for recognition of numeric digits.

Numeric Digits	Attempts
0	2
1	2
2	3
3	5
4	5
5	6
6	5
7	5
8	4
9	4

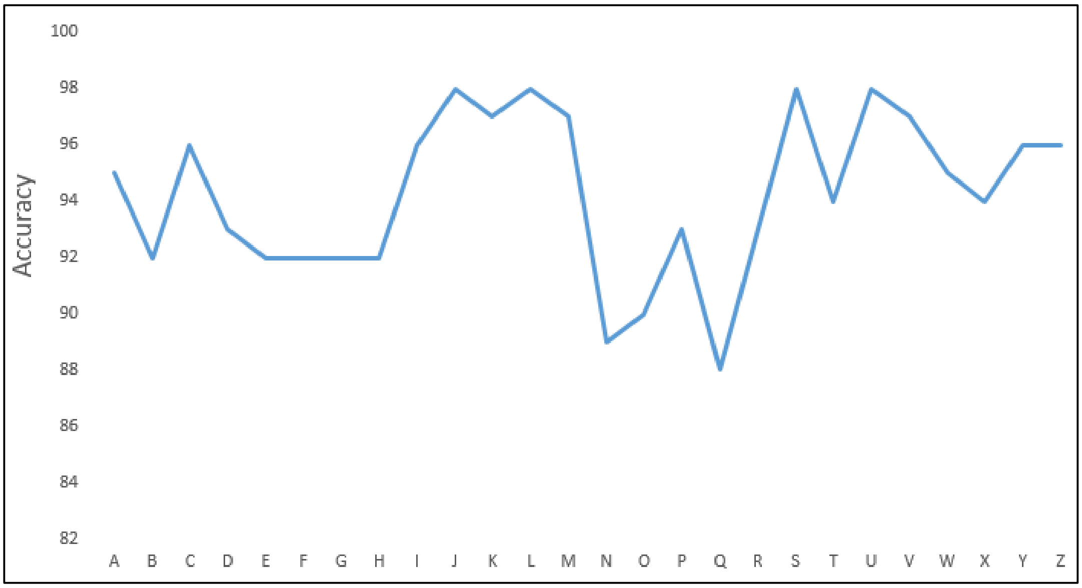

Figure 5 System Accuracy for Capital Alphabets

Leap Motion Controller (LMC) is being used as input device capable to record finger gestures perform within the interaction region. The input data is for example, user writing in air with fingers or performing gestures with hands. All these hand movements are being tracked by Leap Motion Controller and are being sent to the application. Then the text written in air is recognized on the basis of strokes and recognized text is then displayed on the screen.

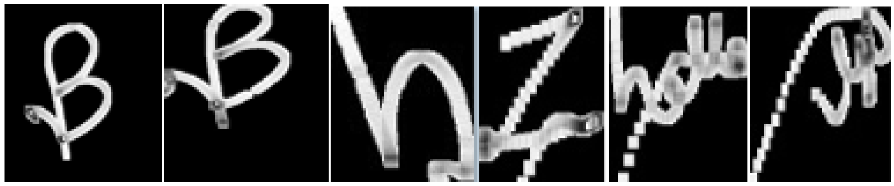

Figure 6 Experimental Setup

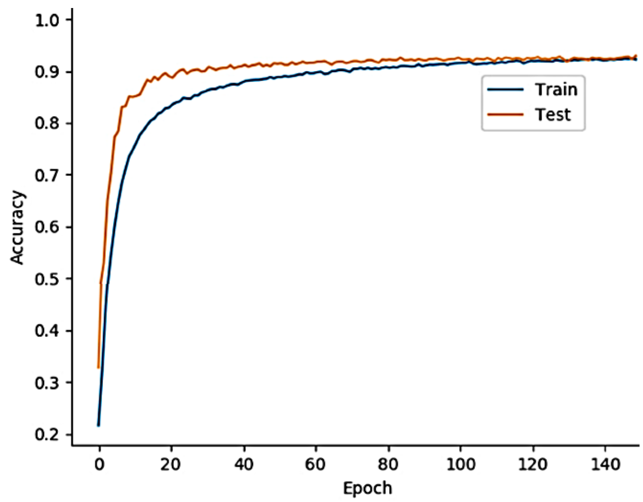

Figure 7 Accuracy of proposed neural network

CONCLUSION

This presented framework which enables its user to literally write in the air through his/her figure and hand movement. The frame work records strokes of the gestures and apply computer vision approach to recognize written characters. These characters could be single English alphabets, numeric or a complete connected word. Experimental results demonstrated high accuracy in recognition. This framework will also help to do basic physiotherapy for hand or finger which is proposed future direction of this framework. The evaluation of each alphabet separately and for most of the characters (upper and lower case alphabetsand numeric digits) the system shows the average recognition rate is greater than 90%.

In future this system can be transformed to new system which can enable dyslexic write alphabets naturally in air and to make their learning experience fun.

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Ecocriticism and Eco-Sulfism: Analysing the Harmony in Contiguity

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ABSTRACT

Today, nature becomes a subject matter for a wide-range of discussions due to human intrusion into it, which causes ecological crises. Nature has always been represented as the all-giving mother without any expectation other than giving only. It becomes a great supporter, when man uses it properly; but, when misused or exploited, it is destroyed. Man's greediness turns him more and more exploitative; finally, he meets his own doom. No one can separate living or non-living things from nature because all of them are the integral part of nature, indivisible. Ecocriticism and Sufism advocate man's return to embrace nature and for this, he should renounce the conquest of it. This article focuses on the symbiotic relationship between man and nature in the technological society. Also, it embarks on the journey of developing self-purification and self-discovery, which can happen only with man's attainment of God. The significance of understanding Ecocriticism and Sufism is to awaken the ecological consciousness in man as well as to promote a more eco-friendly lifestyle that humans may live harmoniously with nature. Ecocriticism and Sufism celebrate the beauty of nature in the finest possible way. Furthermore, both of them are against man's greediness and selfish attitude towards nature and lament human helplessness in the case of natural disasters. Sufism comprises the whole world of nature and denounces environmental degradation. Both of them are two aspects of ecocriticism. Here, Rumi's, the famous Muslim mystic and poet of 13th century, famous lines, "I died as mineral and became a

plant", have been quoted in this article. These lines glorify the divinity within man and a harmonious cycle of life, inclusive of man and nature. This is the primary meaning. Thus, Sufism and Ecocriticism unify human beings and other forms of life such as plants and animals because every life is a manifestation of God.

Key words: Ecocriticism, Ecology, Sufism, Eco-sulfism, Tasawwuf

Nature has always been represented as the all-giving mother, a symbol of renouncing one's self. It expects nothing in return and plays the role of a benefactor in the life of every human being. It continues to support humanity on a regular basis, even at the risk of its own sustainment. Often, the avarice of humans leads to over-exploitation and abuse of nature. They function as causative agents, though it never dawns on them. Finally, this attitude towards nature boomerangs on them. Yet, their limitless greed accumulates, making them more and more exploitative, until they finally meet their own doom. In this context of an impending disaster, one should be aware that it is impossible to separate the animate and inanimate components from their indivisible composition. Nature maintains this perfect balance between its various components in total harmony; the principle, human beings are yet to learn and emulate properly. Various schools of philosophy on nature have come up to reform the human-centered approach to nature. Humanism, Transcendentalism, Asceticism and Hindu traditions of Prakriti Dharma are a few of these guiding philosophies. One such philosophy is Sufism.

Sufism is a belief system that advocates human beings' return to embrace nature. A Sufi is a mystic, who renounces all attempts to conquer nature. This paper focuses on the symbiotic relationship between human beings and nature in a society dominated by technology. Also, it attempts to establish the fact that self-purification and self-discovery can happen only by being united to God. The significance of Ecocriticism and Sufism lies in their awakening of interest in ecological consciousness and advocacy of an ecological lifestyle for humans, guiding them to live harmoniously with nature. Sufism alerts people into their spiritual well-being, the spiritual component of Islam. It develops awareness in human mind to protect the environment and salvage it from the impending crisis. Following the path of a Sufi, one can express their anxieties of ecological views. The analysis of Sufist themes has proved that it has contributed largely to the Islamic environmentalism, leading to the formation of a new branch called "Eco-Sufism". The term was mainly used by Seyyed Hossein Nasr, a scholar in Islamic environmentalism. Suwito, another Islamic scholar, uses the term "eco-Sufism" to define the relationship between the three elements such as Spirituality, the Divine and Nature. His pertinent view is that human beings' harmonious interaction with nature, considering it as a sacred entity inclusive of every single thing imaginable, will enable them to achieve spiritual awareness (47).

Defining Sufism is a simple yet complicated task at the same time. There are several definitions of Sufism available in literature. Diverse definitions and opinions occur due to the fact that Sufism is a personal experience of the Sufis in achieving their union with God. Therefore, different definitions of Sufism come forth from different perspectives. Western scholars often refer to Sufism as Islamic mysticism. In Arabic, it is known as *tasawwuf (*becoming a Sufi). It is believed that both the terms are derived from the word "Sufi". The people, who embrace Sufism, are also called as Sufi. The word Sufi itself has several etymological origins. Some scholars argue that it comes from the word *suf,* which means "wool". Wool is associated with the simple woolen cloak worn by ascetics in the pre-Islamic era and in the early period of Islam (Niam 24). Certain others believe that it is derived from the word *safa,* which means purity, emphasizing the act of purifying the heart to attain the union with God. There is also another theory, which argues that it comes from the word *suffah,* or porch. The disciples of Prophet Muhammad used to sit on the porch of his house to recite the *dhikr* (litanies in remembrance of God). It is even suggested that the word Sufi may have originated from Greek Sophos, meaning wisdom. However, most scholars prefer to go with the *suf* or “wool” interpretation. Thus, Sufis were an early set of pious Muslims, who were inclined to asceticism and wore woolen garments, which symbolized voluntary poverty and repudiation of the world with all its pleasure.

Shahram Pazouki mentions that Sufism is “the infinite resignation to the point that one sees nothing but God with the vision of the heart; or, to the point that all other beings are seen as mere shadows of the Divine, until the Divine state is reached. In the Divine state, “There isn’t any other being but God”, and “There is nothing but Him” (Pazouki 440). In order to attain the level of a Sufi, one should disengage from their worldly temptations. Sufism emphasizes on the concept of purification. Only with a purified mind, a Sufi can try to reach God and unite themselves with Him. A prominent exponent of Sufism, SufiAbu’l-Hasan al-Nuri, states that “Sufism is not rituals and forms and is not bodies of knowledge, not doctrines, not ideas, not theories. But it is impeccable in its manner; the manner of the lover in the presence of the Beloved” (Khan 12).

In line with al-Nuri’s statement, Ibn al-Jala defines Sufism as “a reality without a form” (Geofffroy 1). Here, both al-Nuri and al-Jala emphasize that Sufism is the essence. In order to attain the intimacy between Sulfi and God, al-Nuri characterizes a Sufi as “the one who possesses nothing and is possessed by nothing” (Khan 3). Again, it is underlined that dis-engagement with worldly temptation is important so that a Sufi can reach the beauty of the intimacy with God. From the above mentioned definitions of Sufism propounded by different scholars, a common theme may be deduced. Their focus is on withdrawal from material temptation, love for all, cleansing the heart and unity with God.

Sufism believes that human beings and nature are the manifestation of God. It offers a fruitful relationship between humans and nature. In Sufism, every living and non- living creature is the creation of God. In that sense, no creation is detached from its creator and is always linked in an invisible chain of connectivity with each other. Therefore, everything that we see, touch, smell, or hear is sacred. Here, we can relate the notion of harmony with Barry Commoner's First Law of Ecology. The First Law of Ecology states that “Everything is connected to everything else” (Rueckert 108). It reveals the existence of the elaborate network of interconnections in the ecosphere: among different living organisms and between populations, species and species, and individual organisms and their physicochemical surroundings” (108). Human beings know well about what should be protected by them. Unfortunately, in their hurry to succeed, they fail to prioritize. They rush forth to capture materialistic ends, losing focus of the greater picture. They take care of their family, friends, home and all that encompasses their immediate circle. They are careful in protecting the desirable components of their life. But, a similar concern is not seen in their dealings with nature. In their telescopic view of a perfect life, the damage they inflict upon nature is not visible to them. Ironically, unlike their ancestors, the modern and progressive human beings’ relationship with nature has transformed to that of exploitation. They seem to be detached and consider themselves to be above all, even though they are an inherent part of it.

Sufism takes a different view in the light of its teachings. The concept of care and compassion towards nature is of prime importance in Sufism unlike what people generally believe. Sufism is not only about austerity but is about austerity achieved by avoiding exploitation of anything. Consequently, exploitation of nature for selfish needs is highly discouraged. Unfortunately, the trend today, is to give more importance to human beings’ selfish needs than the well-being of nature. The emphasis on technological and industrial developments gave human beings a free sway to continue to expand their kingdom by ignoring nature. Liberation through love is a very important concept in Sufi spiritual thoughts. The book by Abu'lQuasimAbd al -Karim bin-Hawazin al- Qushayri's *The Risalah: Principles of Sufism*, which is a pivotal text in Sufism, defines freedom from this angle. Sufism believes that this kind of freedom is the ability to control our mind from being attached to any materialistic things or concepts (Hawazin 287). According to this tradition, though human beings live in this world, they must not be chained to worldliness. Similarly, they must be in a body; but, must not be entirely tethered to physical needs alone. Human beings may have desires; but, they should not be the sole driving force in their life. They need to transcend total reliance on material thoughts and desires after a certain point of their existence. Material things are just for utilization in order to achieve their needs and desires. Gold, silver or other elements are merely supposed to help or give solutions to their problems. They do not have a value of their own except for that ascribed to them by human beings and their worldly standards. These worldly standards differ from time to time based on the vagaries of their needs. There was a time when they saw wealth in a handful of salt. Roman soldiers were paid their monthly allowance with salt for its essential worth and rarity then ("Brief History" 66). Centuries later, salt is at the lowest rungs of worth to humans due to its ubiquity. This may or may not become the case with every element valued by their fickle sense of assessment. Human beings are created such as to have their own soul and charm. Apart from selecting what laws of God and Nature, they choose to follow, they can also decide according to their intuitions and insights, how and what they should become. Their limited senses may make them become slaves or totally dependent on materialistic possessions like gold and silver. They may not realize eventually they devalue their own self charm.

The following lines mentioned in Rumi's iconic anthology of poems, *Masnavi*, question greed and meaninglessness of accumulating huge amounts of money. Human beings desire to acquire money beyond their limits and this act makes them selfish and violent. In their quest to acquire more wealth, they do not care for justice and injustice. They are slowly blinded to the values of right and wrong. This greed comes from their foolish thinking that everything created on the earth belongs to those who possess it. No amount of wealth satiates a greedy human being. They wrongly place their souls, which should be considered invaluable and pure, under the control of money, as though the money that they accumulate would give them immortality. "He will desire for one more gold chain even when he has two gold chains. He will be gratified only if he has the whole wealth for himself" (Rumi 29). Another thought which Rumi tries to convey is that greed for material things increases as humans get older.For Sufis, nature is meant to be a friend as well as a source of meditation. As per their teachings, Sufis follow the path of a simple life, marked by austerity bordering on asceticism. In such a lifestyle, they strive to lead an environment-friendly life compared to those who destroy nature in order to achieve a luxurious life. Viewed from a worldly point of consideration, Sufism plays an integral role in creating an environmental awareness among people. Rumi, the famous Muslim mystic and poet of 13th century, was associated with the whirling dervishes' dance. Rumi has mentioned the mystical magic of the whirling dervishes in his poetry (202). Sufism celebrates the beauty of nature in the finest possible way. Furthermore, it is against human beings' greediness and selfish attitude towards nature and laments human helplessness at the fury of nature. Sufism comprises reference to the world of nature and denounces environmental degradation, which in actuality, reflects the two themes of ecocriticism.

Ecocriticism has transformed the academic study of literature, fundamentally developing a new literary agenda for the interpretation of literary texts. CheryllGlotfelty states, "Ecocriticism is the study of the relationship between literature and physical environment" (xviii). Therefore, ecocriticism has opened up a space for critics to search for environment and nature in literary texts. Adopting the principles propounded by ecocriticism, critics have directed their attention to the environment and nature. The concept of ecocriticism was first introduced in William Rueckert's essay "Literature and Ecology: An Experiment in Eco criticism" (107). This essay was instrumental in bringing the meaning of ecology and ecological concepts to the study of literature. He defines ecocriticism in his essay as "the application of ecology and ecological concepts to the study of literature, because ecology has the greatest relevance to the present and future of the world we live” (107).

Joseph Meeker’s book, The *Comedy of Survival: Studies in Literary Ecology,* is considered a pioneering work for American ecocriticism and precedes Reuckert’s essay. Meeker is a biologist, who worked in the field of literature. The first genuinely new reading of literature from an ecological point of view is offered by him.He used the term ‘literary ecology ‘in the year1972 (Meeker 5). According to him, literary ecology is “the study of biological themes and relationships which appear in literary works” (5). However, the term ecocriticism became popular in 1991, when the Modern Language Association organized a meeting by Harold Fromm titled, “Ecocriticism: The Greening of Literary Studies" (Glotfelty xviii). In the succeeding year, the annual meeting of the Western Literature Association, ecocriticsformed the Association for the Study of Literature and Environment (ASLE), with Scott Slovic being elected as the first president (xviii). ASLE is the first organized association dealing with the topic of literature and the environment. It needs to be highlighted that *Ecocriticism Reader: Landmarks in*

Literary Ecology by CheryllGlotfelty and Harold Fromm revived the ecocritical approach towards literary texts. This book is regarded as the first anthology of essays that discusses the relationship between literature and environment. It is the source book for ecocriticism. In the introduction to this anthology, Glotfelty gives a preliminary definition of ecocriticism as:

> Simply put, ecocriticism is the study of the relationship between literature and physical environment. Just as feminist criticism examines the language and literature from a gender -conscious perspective, and Marxist criticism brings an awareness of modes of production and economic class to its reading of a texts, ecocriticism takes an earth -centered approach to literary studies. (xviii)

The ecocritical basis of the text is designed by the presence of a close connection between living and non-living components. Therefore, ecocritical approaches disregard the social and linguistic structure of the text, and stress on the relationship between literature and physical environment. Moreover, Glotfelty predicts in the introduction of her anthology that ecocriticism in the future will be an interdisciplinary, multicultural, multiethnic and international set of approaches.

> In the future … The interdisciplinary work is well underway and could be further facilitated by inviting experts from a wide range of disciplines to be guest speakers at literary conferences and by hosting more interdisciplinary conferences on environmental topics. (xxv).

The current state of the environment is so dire that all the sciences need to act together to find solutions to this crisis. The above development is thus a deliberate step in this direction. From this point of view, ecocriticism becomes interdisciplinary as it tries to analyze the relationship between humans and environment from different perspectives: sociological, psychological, anthropological, theological, scientific and philosophical. Michael Cohen defines ecocriticism in his book *Blues in the Green: Eco criticism under Critique* as an interdisciplinary approach. He further states:

> How does one become interdisciplinary? Because ecocriticism is interested in ecology and other environmental sciences, it must cross disciplinary boundaries and use the methods and feelings of other disciplines when it asks “What is environment?" or "Why think in ecological or revolutionary ways about it?” (18).

Connecting the religious discourse with the environmental agenda is an example of interdisciplinary approaches. Myriad branches of philosophy such as deep ecology, social ecology and eco feminism and others have tried to find common grounds in order to formulate ideal behavior or alternative solutions to prevent the avaricious and reckless destruction of the earth .Theology, too, has similar areas of moral conduct set for human beings. This can be inferred from the fact that one of the theological books is subtitled’, "The Environment Is a Religious Issue”. There is ample evidence of such expositions in the Judeo-Christian scriptures. Descriptions and elaborations lead to the unmistaken core of ecocriticism, which are the emphasis of the interrelationship as well as interdependence of all the components of nature. Each component regardless of its magnitude or utility is vital to the completeness of the circle of life. It is this core message of ecocriticism that is shared with Sufism. Though Sufism is theologically based, it is not less in its message espousing nature centric activities. As mentioned earlier, Rumi is one of Sufism’s most iconic advocates.

The essence of ecology itself is the balance it maintains with every single component in its sphere. Literature and its allied branch of literary criticism and theory deal with the presence of ecology and the human interference with it. A crisis occurs when ecology loses its balance. And this, too, is reflected in ecocriticism and theory. A major chunk of Sufism also attempts to seek the truth in ecology, which points out the righteous for both the animate and inanimate. Spirituality also seeks to understand ecology as a substantial part of the human being. In this regard, Seyyed Hossein Nasr argues that "the environmental crisis has the meaning of the erosion of human spiritual -existential wisdom which results in the bluntness of self-awareness as a creature of God" (Nasr 32). In fact, Sufism is a combination of two concepts, viz., Sufism and eco-Sufism, both of them referring to the spiritual dimension in Islam. The term, ecology defines the environment as a habitat or home for myriad objects and creatures including humans sharing the ecological space devoid of supremacy for any particular creature. This is ecocentrism. It is the "study of the relationship of organisms to the environment, or the science of the reciprocal relationship between living organisms and their environment", according to Eugene P Odum (Odum 3). Mirrored in ecological Sufism, it is environmental morality leading to the ultimate goodness in humans. And finally, its manifestation radiates around its practitioners. So, ecological Sufism is ecological awareness, which is the upkeep of "the environment and personal safety or communality" (Suwito 33-47). Understanding the love of God and nature along with their inter-relationship forms the moral basis for the environment in Sufism. Ecological Sufism attempts to attain wisdom through ecological medium obtained through spiritual awareness by interpreting the interactions between systems of existence, especially in the surrounding environment. It also examines man and nature as a way to unite them and approach god. It is spiritual ecology, ecological spirituality and greening religion as well as green spirituality.

Most of Rumi's works can be called ecocritical observations as they call for harmonic relations between humans, trees, animals, birds, oceans and every other mundane element therein. The following lines from one of his celebrated poems are as such:

I died as mineral and became a
plant,
I died as plant and rose to
animal,
I died as plant and rose to animal
I died as animal and I was
Man.
Why I should I fear? When was I
less by dying?
Yet once more I shall die human,
To soar with angels blessed
above.
And when I sacrifice my angel
soul
I shall become what no mind
ever conceived.
As a human, I will die once more,
Reborn, I will with the angels
soar.
And when I let my angel body go,
I shall be more than mortal mind
can know. (Masnavi)

These lines are renowned for being interpreted as the anthem of the soul. Many interpret these lines as signifying birth and death. Still others see these lines glorifying the divinity within human beings. But, all interpretations agree that a harmonic cycle of life inclusive of humans and nature is the prima facie meaning. Rumi mentions the tiny mineral and gradually proceeds to higher creations in the cycle; but makes sure they are all linked highlighting connectivity and interdependence.

Sufism advocates the love of nature that is possible only through the medium of love of God. This would bring human beings into harmony with nature.

Ecocriticism promotes and respects life in all its forms, especially the flora and fauna. They are considered as equal to human beings. Eco-Sufism unifies human beings and other forms of life such as plants and animals because every life is a manifestation of God. To Sufis and Eco critics, nature is the breath of their soul. They always maintain a fine balance and close communion with mother earth. The concepts of love and self-purification have to be seen in connection with the love of God.

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ചരിത്രനിർമ്മിതിയിലെ പ്രശ്നങ്ങൾ

ഡോ.പി.എസ്.രാജേഷ് കുമാർ, അസ്സോസിയേറ്റ് പ്രൊഫസർ
മലയാളവിഭാഗം, യൂണിവേഴ്സിറ്റി കോളേജ്, തിരുവനന്തപുരം

ഏതൊരു വിഷയം പഠിക്കുമ്പോഴും അതിന്റെ ചരിത്രത്തിലൂടെ വിഷയത്തിലേക്ക് പ്രവേശിക്കുന്നതാണ് ഉത്തമം. ഫെമിനിസം, ദളിതിസം, അപകോളനീകരണം, പരിസ്ഥിതിവാദം തുടങ്ങിയ ഉത്തരാധുനിക സിദ്ധാന്തങ്ങളെക്കുറിച്ച് പഠിക്കുമ്പോൾ പോലും നാം അതിന്റെ നാളിതു വരെയുള്ള ചരിത്രം അന്വേഷിക്കാറുണ്ട്. സാഹിത്യത്തിൽ തന്നെ ഒരു കൃതി യെ (Work)ക്കുറിച്ച് പഠിക്കുമ്പോൾ അതിന്റെ കാലഘട്ടത്തെ ക്കുറിച്ചും നാം ചരിത്രപരമായി വിലയിരുത്താറുണ്ട്. ഒരു തത്ത്വചിന്ത ഉരുവപ്പെടുമ്പോൾ ഇതിന് ഗതകാല ചിന്തകളുമായി ഏതെങ്കിലും വിധത്തിൽ ബന്ധമുണ്ടോ എന്നും പരിശോധിക്കാറുണ്ട്. എന്തിന് നിലവിലുള്ള സിദ്ധാന്തങ്ങളുടെ അടി ത്തറയിൽ (Base) നിന്നു കൊണ്ടുതന്നെ പുതിയ സിദ്ധാന്തങ്ങൾ രൂപപ്പെടു ത്താനാണ് ശാസ്ത്രം പോലും ശ്രമിക്കുന്നത്. അതിനാൽ മനുഷ്യവർഗ്ഗത്തി ന്റെ ഇന്നുവരെയുള്ള വികാസപരിണാമങ്ങൾക്ക് സവിശേഷതയാർന്ന ഒരു തുടർച്ചയുണ്ട്. ഗതകാല സംഭവങ്ങളെ വസ്തുതാപരമായും സത്യസന്ധമാ യും അറിയുവാൻ മനുഷ്യവർഗ്ഗപ്രേമിയായ ഏതൊരാൾക്കും അവകാശമു ണ്ട്. എന്നാൽ ലോകത്തിലെ ഒരു ചരിത്രകൃതിയും ചരിത്രത്തെ അതിന്റെ സൂഷ്മതയിലും സത്യസന്ധതയിലും ഗവേഷണാത്മകതയിലും അവതരിപ്പി ക്കുന്നില്ല. അതിനാൽ ചില വസ്തുതകൾ തമസ്കരിക്കുകയും മറ്റു ചിലത് പൂരിപ്പിക്കാതിരിക്കുകയും വേറെ ചിലത് വികലമായി രേഖപ്പെടുത്തുകയും ചെയ്യുന്നത് ചരിത്രരചനയിലെ ഒരു പതിവ്കാഴ്ചയാണ്. അതുകൊണ്ടു തന്നെയാണ്.

"കാണുന്നീലൊരക്ഷരവും എന്റെ വംശത്തെപ്പറ്റി
കാണുന്നുണ്ടനേക വംശത്തിൻ ചരിത്രങ്ങൾ"

എന്നു പൊയ്കയിൽ യോഹന്നാൻ പറയേണ്ടിവന്നത്.

ഇന്നലെകളിലെ സംഭവപരമ്പരയാണ് ചരിത്രം. എന്നാൽ മിക്ക ചരിത്ര രചനകളും പ്രബലരുടെ ശക്തമായ പ്രതിനിധാനത്തെ മാത്രം കുറിക്കുന്നു. ഇതിനെതിരെ ഏതെങ്കിലും തരത്തിലുള്ള അടയാളപ്പെടുത്തലുകൾ ഉണ്ടായാൽ അവയെ നിരാകരിച്ചുകൊണ്ട് യഥാസ്ഥിതിക ചരിത്രകാരന്മാർ കൂട്ടമായി രംഗത്ത് വരാറുണ്ട്. "ചരിത്രപരമായ പുതുരചനകളുടെ സ്വീകാര്യത അത് സാഹിത്യം, ചരിത്രം, പാഠം, പരിസരം തുടങ്ങിയ സമ്പ്രദായിക വിഭജനങ്ങളെ അന്ധമായി അംഗീകരിക്കുന്നില്ല എന്നതും കർത്താവ്, കൃതി തുടങ്ങിയ ഏകീകൃതാ നന്യതകളുടെ സാമൂഹ്യ പശ്ചാത്തലത്തിനെതിരെ പ്രതികരിക്കുന്ന നടപ്പുരീതിയെ ചോദ്യം ചെയ്യുന്നുവെന്നതുമാണ്."[1] അതുകൊണ്ടു തന്നെയാണ് മനുഷ്യനെ അവന്റെ വിശാലതയിൽ അടയാളപ്പെടുത്തുന്ന മിഷേൽ ഫൂക്കോയുടെ ചരിത്രപഠനങ്ങളെ പാരമ്പര്യചരിത്രകാരന്മാർ തമസ്ക്കരിക്കുവാൻ ശ്രമിച്ചതും. 5 ലക്ഷം വർഷം ദൈർഘ്യമുള്ള മനുഷ്യന്റെ ജീവിതദശയിൽ നിന്നും തനിക്കു വേണ്ടപ്പെട്ടവരെക്കുറിച്ച മാത്രം ഓരോ ചരിത്രകാരനും മുറിച്ചു മാറ്റി അന്വേഷിക്കുമ്പോൾ അവനു ലഭിക്കുക സങ്കുചിത നിഗമനങ്ങളും വർണ്ണവർഗ്ഗ അധികാര വെറി കവർന്ന മനുഷ്യവംശത്തേയുമായിരിക്കും. തങ്ങളെ ആലേഖനം ചെയ്യാത്ത ചരിത്രഗ്രന്ഥങ്ങളെ ഓരോ ജനവിഭാഗവും നിരാകരിക്കുക സ്വാഭാവികമാണ്. ഒരു മികച്ച ചരിത്രഗ്രന്ഥം വ്യക്തി (Individual), സംഭവം (Incident), അധികാരം (Power), ഭാഷ (Language), തുടങ്ങിയവയുടെ ഗവേഷണ നിഗമനങ്ങളുടെ സമാഹാരമാകണം.

1. വ്യക്തി (Individual)

നിലവിലുള്ള ചരിത്രരചനയുടെ പ്രധാന ന്യൂനത അത് എല്ലാവരേയും പ്രതിനിധാനം ചെയ്യുന്നില്ല എന്നതാണ്. ആദിമകാലത്തു തന്നെ സമൂഹത്തിന്റെ അടിസ്ഥാന വർഗ്ഗത്തെ മോശമായിട്ടാണ് ചരിത്രകൃതികളിൽ അവതരിപ്പിച്ചിട്ടുള്ളത്. "ദാസന്മാരെ ഋഗ്വേദ സ്തോത്രങ്ങളിൽ വിവരിക്കുന്നത് കറുത്തവർ, അനിഷ്ടകരമായി പെരുമാറുന്നവർ, കാളച്ചുണ്ടന്മാർ, കുട്ടിമൂക്കന്മാർ, ലിംഗാരാധകർ, മറുത്തുപറയുന്നവർ എന്നിങ്ങനെയാണ്."[2] സമൂഹത്തിലെ പ്രധാന വർഗ്ഗത്തെക്കുറിച്ചുള്ള ഇത്തരം രൂപപരവും വർഗ്ഗപരവുമായ വിലയിരുത്തൽ അവരെ മാനസികമായും ശാരീരികമായും തകർക്കാൻ വേണ്ടി ബോധപൂർവ്വം സൃഷ്ടിച്ചതുമാണ്. ലോകത്തിലെ ഏതു കാലത്തേയും പ്രദേശത്തെയും ജനങ്ങളുടെ ശരിയായ പരിച്ഛേദം അവിടുത്തെ അടിസ്ഥാനവർഗ്ഗമാണ്. ഇന്ത്യയും അതിൽനിന്നും ഭിന്നമല്ല. "ഇന്ത്യയിലെ വിവിധ ജനപഥങ്ങളുടെ-പ്രത്യേകിച്ചും സാമൂഹിക സാംസ്കാരിക സാമ്പത്തിക നിലവാരമനുസരിച്ച് ഏറ്റവും താഴെ പടിയിലുള്ള ജനപഥങ്ങൾ - മതാനുഷ്ഠാനങ്ങൾ അവ ഉയർന്ന ഉല്പാദനക്ഷമമായ ഒരു സമൂഹത്തിലേക്ക് എങ്ങനെ കണ്ണിചേർക്കപ്പെട്ടുവെന്നതിന്റെ ക്രമത്തെ സംബന്ധിച്ച ഒരു ഏകദേശരൂപം കാട്ടിത്തരുന്നുണ്ട്."[3]എന്നാൽ ഏതാണ്ട് എല്ലാ ചരിത്രഗ്രന്ഥങ്ങളും അധ:കൃതരെ വളരെ നിഷ്ഠൂരമാം വിധം ലോകചരിത്രത്തിൽ നിന്നു തന്നെ നിന്നെ നിഷ്കാസനം ചെയ്തിരിക്കുന്നു. വസ്തുതകളുടെ അടിസ്ഥാനത്തിലുള്ള സമഗ്രപഠനമാണ് ചരിത്രം. അതായത് ഭൂതകാല യാഥാർത്ഥ്യങ്ങളുടെ അടിസ്ഥാനത്തിൽ കരുത്തുറ്റ ഭാവിയുടെ നിർമ്മിതി ചരിത്രം ലക്ഷ്യമിടുന്നു. വസ്തുതകൾ (Fact) ചരിത്രത്തിന്റെ അടിത്തറയാണ്. ഈ വസ്തുതകൾ സൂക്ഷിച്ചുവച്ചിരിക്കുന്നത് കൊട്ടാരത്തിലും ദേവാലയങ്ങളിലും പ്രഭുകുടുംബങ്ങളിലുമാണ്. അവിടെ സൂക്ഷിച്ചുവച്ചിരിക്കുന്ന ഗ്രന്ഥങ്ങൾ വരേണ്യവർഗ്ഗത്തിന്റെ അപദാനങ്ങൾ മാത്രമാണ്. അതിനാൽ മാനവവംശത്തെ തങ്ങളുടെ അധ്വാനത്തിലൂടെ എല്ലാ വിധത്തിലും സംരക്ഷിച്ച അടിസ്ഥാന

വർഗ്ഗത്തെക്കുറിച്ചുള്ള വസ്തുതകളും വിവരണങ്ങളും ഇന്ന് ലഭിക്കുക അസാധ്യമാണ്. അതുകൊണ്ടുതന്നെ മനുഷ്യവർഗ്ഗത്തിന്റെ യഥാർത്ഥ നിർമ്മാതാവായ വർഗ്ഗത്തെക്കുറിച്ച് നമ്മുടെ ചരിത്രങ്ങളിൽ രേഖപ്പെടുത്തുന്നില്ല. അടിമ-ഉടമ, വേലക്കാരൻ - രാജാവ്, തൊഴിലാളി-മുതലാളി എന്ന് മനുഷ്യന്റെ ഓരോ കാലഘട്ടത്തിലെയും ഇല്ലാത്തവനെയും ഉള്ളവനേയും അടയാളപ്പെടുത്തുന്ന സാമൂഹ്യശാസ്ത്രങ്ങളിൽ അടിമ, വേലക്കാരൻ തുടങ്ങിയ പദങ്ങളിലൂടെ അധ:കൃതവർഗ്ഗക്കാരെ പ്രതിപാദിക്കുന്നുണ്ടെങ്കിലും അവർ ആരാണെന്നോ, ജീവിതം എങ്ങനെയാണെന്നോ, എന്താവണവരുടെ തൊഴിൽ എന്നോ പോലും പരാമർശമില്ല. ഭൃത്യൻ, വേലക്കാരൻ, ശൂദ്രൻ തുടങ്ങിയ പദങ്ങൾ ഉപയോഗിക്കുന്നത് തന്നെയും പരിഹാസരൂപത്തിലാണ് (ശൂദ്രൻ = ശുചി ദ്രവിച്ചവൻ = വൃത്തിഹീനൻ എന്നാണ് വാക്കിന്റെ അർത്ഥം) ഉന്നതമായ ഒരു ഇടവും അതിന് അർഹതയുള്ള വർഗ്ഗത്തിന് ചരിത്രത്തിൽ ലഭിക്കുന്നില്ല. ചിലർ നിത്യസ്മരണീയരായ ചരിത്ര പുരുഷന്മാരാണ്. അലക്സാണ്ടർ, നെപ്പോളിയൻ തുടങ്ങിയവർ, മറ്റു ചിലർ ഒരു പ്രത്യേക കാലത്ത് പ്രാധാന്യം കൈവരിക്കുകയും വീണ്ടും വിസ്മൃതിയിലാവുകയും ചെയ്തവർ; മാർട്ടിൻ ലൂഥർ കിങ്ങ്, നെൽസൺ മണ്ടേല തുടങ്ങിയവർ ഈ വിഭാഗത്തിൽപ്പെടുന്നു. വേറെ ചിലർ തങ്ങളുടെ കാലഘട്ടത്തിനു ശേഷമായിരിക്കും പ്രശോഭിക്കുക. ഷേക്സ്പിയറും അംബേദ്ക്കറും അവരുടെ കാലശേഷം തീവ്രശോഭയോടെ പ്രകാശിച്ച നക്ഷത്രങ്ങളാണ്. എന്നാൽ പച്ചയായ മനുഷ്യന്റെ വിവരണമില്ലാത്തതും അവനെ തിരസ്ക്കരിക്കുന്നതുമായ ചരിത്രനിർമ്മിതി ഭ്രമാത്മകഭാവന മാത്രമുള്ള സാഹിത്യകൃതിയെപ്പോലെ നിരാകരിക്കേണ്ടതാണ്.

2. സംഭവം (Incident)

ചരിത്രം എന്ന വിഷയം തന്നെ ഒരു തീവ്ര പ്രതിസന്ധി നേരിടുന്ന കാലമണിത്. ലോകരാഷ്ട്രങ്ങളിലെ പാഠ്യപദ്ധതിയിൽനിന്നും ചരിത്രപഠനത്തിന്റെ പ്രാധാന്യം കുറഞ്ഞുവരുന്നുമുണ്ട്. "ഉത്തരാധുനികതയുടെ ഒരു

നിർവചനം തന്നെ ചരിത്രബോധക്കുറവ് എന്നാണ്."[4] യൂറോപ്യന്മാർ പൊതുവെ പാരമ്പര്യവാദികളാണ്. യൂറോപ്പ് ഒരു കാലത്തും മറ്റാരു ഭൂഖണ്ഡത്തിന്റെയും അധിനിവേശത്തിലാകാത്തതിനാലാണ് അവർ തങ്ങളുടെ നീണ്ട പാരമ്പര്യത്തെ ഉദ്ഘോഷിക്കുന്നത്. പാരമ്പര്യത്തെ ഉദാത്ത ചരിത്രമായി വിലയിരുത്തിയാൽ ഇന്നത്തെ ഒന്നാം നമ്പർ രാജ്യമെന്ന് അഹങ്കരിക്കുന്ന അമേരിക്കയ്ക്കുപോലും സന്തോഷകരമായ ഒരു ഭൂതകാലമോ ചരിത്രമോ ഇല്ല. "കൊളോണിയലിസത്തിന്റെ രൂപത്തിലായാലും സ്വാധീനമണ്ഡലങ്ങളുടെ രൂപത്തിലായാലും വിദേശമേധാവിത്വം എന്നത് രാജ്യങ്ങളിലെ ജനജീവിതത്തിനുമേൽ ദൗർഭാഗ്യകരമായ ഒരു അടയാളം വീഴ്ത്തിയിട്ടുണ്ട്."[5] ക്രിസ്റ്റഫർ കൊളംബസ് 1492 ആഘസ്റ്റ് 3 ന് അമേരിക്കയിൽ എത്തിയത് കച്ചവടത്തി നായിട്ടായിരുന്നു. തുടർന്ന് ബ്രിട്ടീഷ്, ഫ്രഞ്ച്, ഡച്ച് തുടങ്ങിയ രാജ്യക്കാരും കച്ചവടത്തിനായ് അവിടെയെത്തി സ്വാധീനമുറപ്പിച്ച്, അമേരിക്കയെ തങ്ങളുടെ കോളനിയാക്കി. തുടർന്ന് ബ്രിട്ടീഷുകാർ മറ്റുള്ളവരെയെല്ലാം തങ്ങളുടെ വരുതിയിലാക്കി അമേരിക്കയെ അവരുടെ സമ്പൂർണ്ണ കോളനിഭരണത്തി ലുമാക്കി. എന്നാൽ ജോർജ്ജ് വാഷിങ്ടന്റെ നേതൃത്വത്തിൽ അമേരിക്കക്കാർ ഒന്നിച്ചു പോരാടി 1789-ൽ സ്വാതന്ത്ര്യം നേടി. ഇന്ന് ലോകത്തിലെ മുഖ്യ അധികാരശക്തിയായ അമേരിക്ക ഒരിക്കൽ ബ്രിട്ടന്റെ കോളനിയായിരുന്നു എന്നത് അമേരിക്കൻ പാരമ്പര്യത്തിന്റെ കറുത്ത അധ്യായമാണ്. അത് ഓർക്കുവാൻപോലും അമേരിക്കക്കാർ ഇഷ്ടപ്പെടുന്നില്ല. അതുകൊണ്ടു തന്നെ അമേരിക്കൻ സർവ്വകലാശാലകൾ തങ്ങളുടെ വിദ്യാർത്ഥികളെ ഇത്തരം കാര്യങ്ങൾ അഭ്യസിപ്പിക്കാറുമില്ല. അമേരിക്കക്കാർ ഏറ്റവും വെറുക്കുന്ന വാക്ക് Colony എന്ന പദമാണ്. ഈ വാക്ക് കേൾക്കുന്നതുപോലും വേദനാജനകമായ ഒന്നിന്റെ തിരിച്ചുവരവാണ് അവർക്ക് ഉണ്ടാക്കുന്നത്. തന്നേയുമല്ല ലൂയി പതിനഞ്ചാമന്റെയും പതിനാറാമന്റേയും ഭരണത്തെ ഫ്രാൻസ് ഊഷ്മളതയോടെ ഓർക്കുമോ? സർ ചക്രവർത്തിമാരുടെ ഭരണത്തെ റഷ്യ എന്ന ന്നേക്കുമായി തിരസ്കരിച്ചില്ലേ? അഡോൾഫ്

ഹിറ്റ്ലറും ബനിറ്റോ മുസ്സോളി നിയും തങ്ങളുടെ രാജ്യത്തെ ലോകത്തിന്റെ ഉന്നതിയിലെത്തിച്ച ഭരണകർ ത്താക്കൾ ആണെങ്കിലും ഇന്ന് ജർമ്മനിക്കും ഇറ്റലിക്കും പോലും അവരുടെ ഭരണം പൊള്ളുന്ന ഓർമ്മയാണ്. കംബോഡിയയിലെ പോൾപോട്ടിന്റെയും ഉഗാണ്ടയിലെ ഈദി അമീന്റെയും ഭരണം അവസാനിച്ചത് ആ രാജ്യങ്ങളിലെ ജനങ്ങൾ സമാശ്വാസത്തോടെയാണ് ഓർമ്മിക്കുന്നത്. എന്തിന് ഇറാക്കിലെ സദാം ഹുസൈന്റെ ഭരണം മികച്ച താണെന്ന് പുതിയ ഭരണകൂടം രേഖപ്പെടു ത്തുമോ? അതുകൊണ്ട് തന്നെ പോയകാലത്തിലെ ദുരന്തമാർന്ന ജീവിതത്തെയും ഭരണാധികാരികളുടെ ഭീകരവാഴ്ചയേയും പുതിയ കാലവും തലമുറയും അംഗീകരിക്കുമോ? അതിനാൽ അവരുടെ ഭരണകാലത്തെ ധീരഗാഥകളെ നിരാകരിച്ച് സംഭവ ങ്ങളെ യാഥാർത്ഥ്യബോധത്തോടെ മൂല്യനിർണ്ണയം ചെയ്യുന്ന ചരിത്രരചന ഇനിയും ഉണ്ടാവേണ്ടതാണ്. ഭൂതകാലഭരണത്തെ വർത്തമാനകാല ഭരണ വും നടപ്പുഭരണത്തെ ഭാവികാല ഭരണവും തച്ചുടയ്ക്കേണ്ടത് ഓരോ ഭരണകൂടത്തിനും അവരുടെ നിലപാടു തറകൾ ഒരുക്കുന്നതിന് അത്യാ വശ്യമാണ്.

ലോകത്തിലെ പല സംഭവങ്ങളും അതർഹിക്കുന്ന വിധത്തിലല്ല ചരി ത്രത്തിൽ ആലേഖനം ചെയ്യപ്പെട്ടതും വ്യാഖ്യാനിക്കപ്പെട്ടതും. അതിൽ ഒന്നാ ണ് 1498-ൽ പോർട്ടുഗീസ് കപ്പിത്താനായ വാസ്കോഡഗാമ കോഴിക്കോട്ടി നടുത്തുള്ള കാപ്പാട് എന്ന സ്തലത്ത് എത്തിയത്; നമ്മൾ വലിയ പ്രാധാന്യ ത്തോടെയാണ് ഇത് കുട്ടികളെ പഠിപ്പിക്കുന്നത്. എന്നാൽ ഗാമയുടെ ഈ കാൽതുത്തരാണ് പിന്നീട് 40 വർഷത്തോളം ഇന്ത്യയെ വൈദേശിക ശക്തി കളുടെ അധിനിവേശത്തിലും അടിമത്തത്തിലും കൊണ്ടെത്തിച്ചത്. അതിനാ ൽ നാം ഇന്ന് വ്യാഖ്യാനിച്ച് മനസ്സിലാക്കിയതിന്റെ നേർവിപരീതമാണ് ഗാമ യുടെ ആഗമനംകൊണ്ട് സംഭവിച്ചത്. തന്നെയുമല്ല നാം ചരിത്ര പുസ്തക ങ്ങളിൽ കുട്ടികളെ ആവേശത്തോടെ പഠിപ്പിക്കുന്ന വില്യം ബെന്റിക്, റിപ്പൺ, കഴ്സൺ തുടങ്ങിയവരുടെ ഭരണപരിഷ്കാരവും മെക്കാളെയുടെ മിനിറ്റ്സും

മറ്റും സംഭവിച്ചതാണെങ്കിൽ കൂടി അത് നമ്മുടെ അടിമത്തത്തിന്റെ അടയാളമാണ്. അതിനാൽ അതിനെ കോളനീകരണത്തിന്റെ ഭാഗമായി വിലയിരുത്തി ഇന്ത്യയുടെ ഇരുണ്ട ഭൂതകാലത്തെ നാം തിരിച്ചറിയണം. അധീശന്മാരായ ബ്രിട്ടീഷുകാരുടെ ഇന്ത്യയിലെ എല്ലാ പ്രവർത്തനങ്ങളും അവരുടെ ഗുണത്തിനുവേണ്ടി മാത്രമുള്ളതായിരുന്നു എന്ന വസ്തുതയും വിസ്മരിക്കരുത്.

3. അധികാരം (Power)

"നവ സാമൂഹിക പ്രസ്ഥാനങ്ങളുടെ ആവിർഭാവം അസാധാരണമായ ഒരു ചരിത്രപ്രതിഭാസമാണ്."[6] എല്ലാ ഭരണകൂടവും തങ്ങളുടെ ഭരണകാലത്തെ ആലേഖനം ചെയ്യുന്നതിനെ ഭയപ്പെടുന്നു. അധാർമ്മികമായാണ് പല ഭരണാധികാരികളും മുന്നേറിയത്. തങ്ങളുടെ കടുത്ത ഭരണദൗർബല്യങ്ങൾ ചരിത്രത്താളുകളിലെത്താതിരിക്കാൻ ഭരണവർഗ്ഗം ആഗ്രഹിക്കുന്നു. അതിനാൽ ചരിത്രരചയിതാക്കളെ മാത്രമല്ല മാധ്യമങ്ങളെപ്പോലും അവർ സ്വാധീനിക്കുകയോ പ്രതിരോധിക്കുകയോ ചെയ്യും. തന്റെ ഭരണകാലത്തെ ജർമനിയെക്കുറിച്ചെഴുതിയ ചരിത്രകാരനെ ഹിറ്റ്ലർ ക്ഷണിച്ചുവരുത്തി അയാളെക്കൊണ്ടുതന്നെ ആ ഗ്രന്ഥം തീറ്റിച്ചത് ഭരണാധികാരിയെക്കുറിച്ച് സത്യസന്ധമായെഴുതിയ ചരിത്രകാരനുണ്ടായ ദുരനുഭവമാണ്. ഇറാക്കിൽ സദാം ഹുസൈൻ പ്രസിഡന്റായിരുന്നപ്പോൾ സ്വർഗ്ഗാത്മക രചനകളിൽപ്പോലും ഭരണകൂടത്തിനെതിരായ സൂചനകളുണ്ടെങ്കിൽ നിരാകരിക്കുന്ന ഒരു സെൻസർബോർഡ് അവിടെ നിലവിലുണ്ടായിരുന്നു. 500 പേജുള്ള ഒരു കൃതി സെൻസർ ബോർഡിന്റെ മുന്നിലെത്തിയാൽ 200 പേജ് പ്രസിദ്ധീകരിക്കാനുള്ള അനുമതി മാത്രമേ ബോർഡ് നൽകിയിരുന്നുള്ളൂ. സർക്കാരിനെതിരെ വിദൂരസ്ഥമായ പരാമർശങ്ങൾ ഉണ്ടെങ്കിൽപ്പോലും അതിന് പ്രസിദ്ധീകരണാനുമതി നൽകിയിരുന്നില്ല. അതിനാൽ സദാം ഭരണത്തിനെതിരായ യാതൊന്നും അന്ന് വെളിച്ചം കണ്ടിരുന്നില്ല. ഭൗർഭാഗ്യമെന്നു പറയട്ടെ സദാം ഭരണമസ്തമിച്ച് പതിറ്റാണ്ടുകളായിട്ടും പ്രസ്തുത സെൻസർബോർഡ് അവിടെത്തന്നെയുണ്ട്. പുതിയ ഗവൺമെന്റിന്റെ പ്രശ്നങ്ങളെക്കുറിച്ചെഴുതി

യാൽ അതും സെൻസർ ചെയ്യപ്പെടും. ചുരുക്കത്തിൽ ഭരണാധികാരി മാറി യിട്ടും ഭരണകൂടസ്വഭാവത്തിന് യാതൊരു മാറ്റവും സംഭവിച്ചില്ല. ഇന്ത്യയി ലും മാറിമാറി വരുന്ന സർക്കാരുകൾ തങ്ങളുടെ ആവശ്യത്തിനനു സരിച്ച് ചരിത്രത്തെ മാറ്റിയെഴുതാറുണ്ട്.

4. ഭാഷ (Language)

ചരിത്രരചന നിർവ്വഹിക്കപ്പെടുന്നത് ഏതെങ്കിലും ഒരു ഭാഷയിലാ യിരിക്കുമെല്ലോ. അതിനാൽ എല്ലാ ചരിത്രകൃതികളിലും ഭാഷകളുടെ മിക വിനെക്കുറിച്ചും അതിന്റെ വിനിമയത്തെക്കുറിച്ചും പ്രസ്താവിക്കാറുണ്ട്. മല യാളത്തിന്റെ അഭിപ്രായം മാത്രമുള്ളതും മലയാളികളെക്കാൾ എണ്ണത്തിൽ കുറവായ ഒരു വിഭാഗം ഉപയോഗിച്ചിരുന്നതുമായ ഇംഗ്ലീഷ് ലോകഭാഷ യായത് ബ്രിട്ടീഷുകാർ തങ്ങളുടെ ഭാഷയെ സൂക്ഷമമായി വിനിമയം ചെയ്ത തുകൊണ്ടാണ്. ഭൂമിയിൽ പരമാധികാരം ഏത് രാജ്യത്തിലാണോ അവരുടെ ഭാഷയാണ് ലോകഭാഷ; ഏത് തദ്ദേശീയർക്കാണോ അധികാരമുള്ളത് അവ രുടെ ഭാഷയാണ് പ്രാദേശീകഭാഷ. എന്നാൽ പല സാഹിത്യ ചരിത്രകാരന്മാ രുടെയും നിഗമനങ്ങളിലും പ്രകടമായ ന്യൂനതയുണ്ട്. മലയാളഭാഷയുടെ ഉൽപ്പത്തിയെക്കുറിച്ചുപോലും ഭിന്നാഭിപ്രായങ്ങളുണ്ട്. മലയാളം സംസ്കൃ തത്തിൽ നിന്നും തമിഴിൽ നിന്നും പ്രാകൃതഭാഷയിൽ നിന്നും മിശ്രഭാഷ യിൽ നിന്നും മൂല ദ്രാവിഡഭാഷയിൽ നിന്നും രൂപപ്പെട്ടു എന്നിങ്ങനെ ഓരോ ഭാഷാ ചരിത്രകാരന്മാരും തങ്ങളുടെ തോന്നലുകൾക്കനുസരിച്ച് കുറിച്ചിട്ടു. എന്നാൽ ഒരാളും തെളിവുകളുടെ അടിസ്ഥാനത്തിൽ മലയാളഭാഷയുടെ ഉൽപ്പത്തി എവിടെനിന്നാണെന്ന് അസന്ദിഗ്ദ്ധമായി സ്ഥാപിച്ചിട്ടുമില്ല. ഇത് വസ്തുതകളെ അപഗ്രഥിച്ച് നിഗമനത്തിലെത്തുന്നതിനുള്ള ചരിത്രകാരന്മാ രുടെ കഴിവില്ലായ്മയാണ് വ്യകതമാക്കുന്നത്. തന്നെയുമല്ല മലയാളഭാഷ എന്ന് രൂപപ്പെട്ടു എന്നതിനും ഭാഷാചരിക്രരന്മാർ ഭിന്നാഭിപ്രായം പ്രകടി പ്പിക്കുന്നു. ഇതും വിശ്വസ്തമായ രേഖകളുടെ അടിസ്ഥാനത്തിൽ സ്ഥാപി

ക്കാനാവാത്തതും ഭാഷാചരിത്രകരന്മാരുടെ പരാജയത്തെയാണ് കുറിക്കുന്ന ത്.

ഇന്നത്തെ പ്രധാന സൈദ്ധാന്തിക വിശകലന പദ്ധതികളിൽ ഒന്നാണ് നവചരിത്രവാദം. വസ്തുനിഷ്ഠാവിശകലനത്തിന്റേയും ശാസ്ത്രീയ അപഗ്ര ന്ഥത്തിന്റെയും പേരിലും ഭാഷാ ബാഹ്യമായ യാഥാർത്ഥ്യമോ സുസ്ഥിര മായ അർഥ സാധ്യതകളോ ഇല്ല എന്ന ആശയത്തിന്റെ അടിസ്ഥാനത്തിലും ജ്ഞാനസിദ്ധാന്തങ്ങളും പ്രതിനിധാനധാരണകളും അസാധുവായതിന്റെ വെ ളിച്ചത്തിലുമെല്ലാം ചരിത്ര പ്രശ്നവൽക്കരിക്കപ്പെടുകയും സാഹിത്യപഠന മണ്ഡലത്തിൽ നിന്നു ക്രമേണ നിഷ്ക്കാസിതമാകുകയും ചെയ്തു. ഈ യൊരു പ്രതിസന്ധിയിൽ വിമർശനത്തിലേക്കു ചരിത്രത്തെ പുനരാനയിക്കു വാനുള്ള ശ്രമത്തിന്റെ ഭാഗമായാണ് നവചരിത്രവാദം ഉരുത്തിരിയുന്നത്."[7] അതുകൊണ്ടു തന്നെ ഖനനത്തിലൂടെയും നവഗവേഷണങ്ങളിലൂടെയും ലഭിക്കുന്ന വസ്തുതകളെ അടിസ്ഥാനമാക്കി ചരിത്രരചനകളിൽ തമസ്ക്കരി ക്കപ്പെട്ട ജനതതിക്ക് ഒരു മേൽവിലാസമുണ്ടാക്കേണ്ടത് പുതുചരിത്രനിർമ്മി തിയുടെ ഒരു മുഖ്യലക്ഷ്യമാണ്. രാജാക്കന്മാരും പ്രഭുക്കന്മാരും വരേണ്യ രുമല്ലാത്ത പച്ചയായ മനുഷ്യവർഗ്ഗത്തെ അതിന്റെ ഭൂതകാലസമഗ്രതയിൽ അടയാളപ്പെടുത്തുന്നത് മനുഷ്യവർഗ്ഗ പ്രേമിയായ ഏതൊരാൾക്കും സന്തോ ഷകരവുമാണ്.

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समकालीन महिला कहानीकारों की कहानियों में नारी चित्रण

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सियन्ना कॉलेज ऑफ प्रोफेशनल स्टड़ीस, एडकोच्ची

समकालीन महिला कहानीकारों का स्थान विशेषकर 1960 के बाद रहा है । शिक्षा के क्षेत्र में चेतना संपन्न होने पर नारी ने पारंपरिक भूमिका तथा अन्य अत्याचार एवं पाखंडों का विरोध कर लेखन प्रारंभ किया लेकिन आज भी उन्हें इस समाज में कोई स्थान नहीं है । एक नारी द्वारा नारी की पीड़ा का चित्रण मन की गहराई को छूता है । महिला कहानीकारों ने नारी मानसिकता का सूक्ष्म अंकन किया है । समकालीन महिला कहानीकारों ने हिंदी साहित्य में अपना महत्वपूर्ण योगदान दिया है । उनमें प्रमुख हैं मालती जोशी, उषा प्रियंवदा, मंजुल भगत, ममता कालिया, मन्नू भंडारी, चित्रा मुद्गल, राजी सेठ, नासिरा शर्मा, नमिता सिंह आदि ।

स्त्री और पुरुष समाज रुपी रथ है । नारी को मानव सभ्यता और संस्कृति के विकास का मूलाधार माना जाता है । नारी को समाज में मान-सम्मान मिलना चाहिए लेकिन ऐसा न होने के कारण महिला लेखिकाओं ने अपने कलम द्वारा यह ज़िम्मा उठाया है|

मालती जोशी की "ढाई आखर प्रेम का" कहानी में एक त्यागमयी नारी का चित्रण है । जयंती एक प्राध्यापिका है । वह अपने कॉलेज जीवन में दलजीत चौहान से प्यार करती है लेकिन दलजीत शहीद हो जाता है । बाद में जयंती दलजीत के माता-पिता की बेटी बनकर उनकी सेवा करने का निर्णय लेती है । अविवाहित होते हुए भी जयंती ने एक विधवा का जीवन बिताया । "उसने अपने जीवन को दलजीत के घर समर्पित किया ।"

'दहेज प्रथा' समाज को लगा हुआ शाप है । इस प्रथा के कारण नारी पर अन्याय एवं अत्याचार होते आए हैं । मालती जोशी ने 'बकुल फिर आना' कहानी में दहेज के लोभी पति ने पत्नी को जलाकर मार डाला । ऐसे क्रूर व्यक्ति का पुनर्विवाह भी होता है । नयी बहु भी दहेज के कारण उत्पीड़ित होती है । वह इसे अपने भाग्य में लिखा हुआ मानकर सबकुछ चुपचाप सहन करके जीती है । वह कहती है "जो भाग्य में लिखा होगा वही तो होगा । दान दहेज गारंटी नहीं दे सकते हैं ।" सुमित अय्यर के "एक जैसी छत" कहानी में प्रिया को उसके पिता ने दहेज़ कम दिया था । इसलिए उसका पति उसे पीटता रहता है । प्रिया सब कुछ सहन करती है और मन में विचार करती है कि "पति से लताड़ खाकर भी उससे चिपके रहना भारतीय हिन्दू नारी का आदर्श हो सकता है, पर मैं नहीं जी सकती ऐसी ज़िन्दगी ।"

हमारे समाज में पति के मृत्यु के पश्चात विधवा को अपराधी के सामान देखा जाता है । ऐसे में विधवा का जीवन दासी के समान है | उसे तो सहानुभूति की ज़रूरत होती है |

पुरुष पुनर्विवाह कर सकता है लेकिन एक नारी ऐसा करती है तो उसे कलंकित कहा जाता है । कुसुम अंसल की 'मात्र एक मकान' कहानी में विधवा सुधा का चित्रण मिलता है । विवाह के कुछ ही समय बाद वह विधवा हो गई । ससुराल में उसके देवर और जेठ ने उसकी सारी जायदाद वापस कर दी और उसे पत्नी राधा के साथ रखैल के रूप में रख लिया । सुधा ने भी मल्होत्रा के प्रति वफादारी जताई । वह उसके प्रति इतनी समर्पित हो गई, कि राधिका भी उसके समर्पण में फेल हो गई । कॉलेज का हर व्यक्ति सुधा को उपेक्षा की दृष्टि से देखता है । सुधा की लड़की की सगाई में कोई जाने केलिए तैयार नहीं था ।" यही सवाल उठता है कि पुरुष पुनर्विवाह करता है तो कोई कुछ नहीं कहता लेकिन विधवा का विवाह करना बुरा समझा जाता है ।

आज सुविधा संपन्न घरों से सामान्य घरों तक भ्रूण परीक्षण के बाद माँ के पेट में ही कन्या की भ्रूण हत्या की जाती है । मैत्रेयी पुष्पा की कहानी 'पगला गई है भागो' में इसका ज़िक्र मिलता है । "यहाँ कन्या भ्रूण संहार में पुरुष के साथ नारी का भी हाथ है । यहाँ पर

मातृत्व की महिमा का अपमान होता है ।" भ्रूण हत्या आज के समय में भी प्रासंगिक है । भ्रूण हत्या पर कानून केवल नाम का है । भ्रूण हत्या गैर कानूनी तरीके से की जाती है । यहाँ एक नन्ही सी जान को जनम से पहले ही मार दिया जाता है ।

ममता कालिया द्वारा लिखित 'बोलने वाली औरत' कहानी के अंतर्गत समाज, घर, परिवार में घटित अन्याय, अत्याचार, बुराई के प्रति आवाज़ उठानेवाली, विद्रोह करनेवाली नारी को त्रासदी झेलना पड़ता है ।"

समकालीन कहानी में कामकाजी नारी को महत्व दिया है । महिला कहानीकारों ने घर की चारदीवारी से निकलकर पुरुष सत्ता के अधीन क्षेत्र में अपने अनुभवों को शब्द बद्ध करने का कार्य किया । "मैत्रेयी पुष्पा की कहानी 'वह छोटी बहु' में विधवा समस्या की अभिव्यक्ति हुई है । कहानी की नायिका दमयंती अपने पति की मृत्यु के बाद स्वतंत्र रहने का निर्णय लिया है ।" कहानी में मैत्रेयी पुष्पा ने विधवा नारी को एक अच्छा संकेत दिया है कि आज का समाज कामकाजी नारी के बिना आगे नहीं बढ़ सकता है ।

इस प्रकार आज नारी पुरुषों के साथ काम कर रही है । इस प्रकार समकालीन महिला कहानीकारों ने अपनी कहानी में नारी जीवन को शोषण, अन्याय, एवं अत्याचार से मुक्त होने की ताकत दी है । नारी को जागृत कर भारतीय संस्कृति को समृद्ध बनाकर एक विशाल राष्ट्र बनाने का उद्देश्य रखा है । घरेलू कामकाजी नारी की समस्याएँ एवं विवशताएँ पुरुष वर्चस्व विरोधी इन कहानियों में मिलती है । पुरुष की भाँती नारी को भी समाज का महत्वपूर्ण हिस्सा बनाना एवं अपनी अभिव्यक्ति को पूर्ण स्वतंत्रता से समाज के सामने रखना ही इन महिला कथाकारों का मुख्य उद्देश्य रहा है ।

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The Process of Employee Induction in Public Enterprises under the Department of Industries in Kerala

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ABSTRACT

Induction is the process of welcoming new employees to an organization by equipping them with all basic information in order to facilitate their smooth and quick settling down into work. The significance of this process is underlined in the fact that, the rate of turnover among new employees is higher when compared to that among senior employees in Public Sector Units (PSUs) in Kerala. It therefore becomes an important duty of the HR personals, to make arrangements so that new entrants socialize with the existing workforce and work environment of their organizations. This will not only help reduce their anxieties but also dispel their doubts and nervousness. Despite the widely accepted significance of Induction programs, it is often debated that, the root cause of huge cash loss and accumulated losses of 26 out of 38 PSUs under the Department of Industries in Kerala, is poor management of their human resources. This paper argues that the absence of planned and effective induction programs is one of the important reasons for this inefficiency of PSUs in Kerala. In order to assess whether there exists a well managed system of employee induction in these units, a total of 618 respondents; 436 workers and 182 managers were selected and a questionnaire was applied to obtain their responses. The results reveal that a systematic induction program is absent in these units. This paper puts forth certain suggestions to repair this lacking, so that employee satisfaction may be improved, and thereby, the overall efficiency of the enterprise ensured.

Keywords: Human Resource Management, Induction, Kerala State Public Enterprises

INTRODUCTION

Induction is the process of welcoming new employees to an organization by equipping them with all basic information in order to facilitate their smooth and quick settling down into work. Hence, induction plays a pivotal role in acquainting the new employee to the new environment, company rules and regulations. It is also known as ‘orientation’ or ‘indoctrination’. The significance of this process is underlined in the fact that, the rate of turnover among new employees is higher when compared to that among senior employees in Public Sector Units (PSUs) in Kerala. This final step of employment process is essential as a newcomer often feels insecure, shy, nervous, and disturbed, which in turn lead to instability of turnover. It therefore becomes an important duty of the HR personals, to make arrangements so that new entrants socialize with the existing workforce and work environment of their organizations. This will not only help reduce their anxieties but also dispel their doubts and nervousness. Induction has greater significance in a developing country like India, because in the wake of high illiteracy rates, worker may find themselves completely at sea when they have to shift from rural into an industrial environment. Such employees require a short and simple induction program, conducted by someone who speaks their language.

Statement of the Problem

Success in today’s competitive business environment is increasingly a result of effective human resource management. Even when the public sector has occupied a pivotal position in the Indian economy, especially in Kerala, a good number of them are running on negative net worth with high cash losses. Out of the 38 PSUs under the Department of Industries in Kerala, 26 are running on cash loss and huge accumulated losses. It is often debated whether poor management of human resources, which includes the absence of planned and effective induction programs, is the root cause of these ailing units in Kerala. As the state government is making efforts to improve the efficiency of these public enterprises to make them commercially viable and vibrant, this study attempts to aid this process, by assessing the inefficiencies in induction programs followed in these sick public enterprises.

Review of Literature

Mir Mohammed Nurul Absar (2012) through an article entitled “Recruitment and Selection Practices in Manufacturing Firms in Bangladesh” tries to explore the differences and similarities between the public and private sector manufacturing firms of Bangladesh in terms of recruitment and selection practices, sources of recruitment, and selection devices. He concludes that the recruitment and selection practices of the private sector firms are significantly better than those of the public sector firms in Bangladesh

Dilipkumar Datta (Sept. 2011) through his article titled “Industrial Sickness, in India, Magnitude and Intensity” shows that the problem of industrial sickness has had adverse effect on Indian economy which can neither afford unemployment nor loss of production by keeping capital assets idle. He also states that during the period from 1980-81 to 2002-03, the total number of sick industrial units in India increased by about seven times. During the same period, the total amount of bank credit blocked increased by about five times.

Purnima Srikrishna, N (2011, March) in her study of “Continuous Learning Will Place You on Firm Growth Path” argues that whenever an employee finds his work less than exciting, it means he has outgrown his job and needs some fresh challenges to keep him engrossed. Continuous learning alone can place him firmly on the growth path. She adds that in order to enjoy excellent career prospects, we have to ensure our learning curve is always on.

Chandankumar Sahoo, Dr. and Santhosh kumar Tripathy, Dr. (2011) have made a study on "Building Work Place Commitment through Strategic HRM Initiatives". They suggest that the organizations today need to change themselves by being more innovative, creative and people –oriented.

Jagadish Prakash, Nageshwar Rao and Mata Badal Shukla (2010) have made a study on "Administration of Public Enterprises in India". They opine that since the adoption of the new Industrial Policy on July 24, 1991, there has been a move towards liberalization and globalization of the Indian economy with the result that the PEs are required to face several challenges. They also suggest that PEs have to improve their productivity, efficiency and competitiveness and learn to live without budgetary support.

Bhaskar Chatterjee (2010), Secretary, Dept. of Public Enterprises, Ministry of H & PE, in his speech at the first public sector day celebration on 10th of April 2010 stated that PEs should place special emphasis on the corporate social responsibility, talent attraction and retention so as to ensure their strong participation at a global level.

Suriyamurthi,S, Dr., Mahalakshmi,V, Lalitha, S (2010) state that the workplace is changing. Today's managers are competing for skilled workers, facing high turnover and coping with technology changes that occur at warp speed. They also point out that effective managers must be less product-oriented and more people-oriented.

Ramanandham.V.V (1996) states that "PEs has been transformers of our economy. They have played an important role in the development processes and borne a heavy proportion of the burdens of national development".

Narayan,R (1989) in an article entitled “Performance and Development of the State Level Public Enterprises in Kerala” opined that the inefficiency of PEs in Kerala is due to labor unrest and lack of professionalism in management.

OBJECTIVES OF THE STUDY

- To assess whether there exist an effective and systematic system of induction of employees in State level Public Enterprises in Kerala.
- To study the views of workers regarding the presence and workings of Induction system in Public Enterprises in Kerala.
- To study the views of Managers/Supervisors - regarding the presence and workings of Induction system in Public Enterprises in Kerala.

HYPOTHESES

Keeping in view of the objective of the study, the following hypotheses were formulated for the purpose of the study:

- There is no significant difference between the opinion of the two categories of employees (workers and managers) regarding an efficient and systematic Induction system is absent in Public Enterprises in Kerala.
- There is no significant difference between the opinion of the two categories of employees (workers and managers) regarding the workings of Induction Programs in State level Public Enterprises.

METHODOLOGY

This Study was based on descriptive research, which is aimed at assessing whether there exist an effective and systematic system of induction of employees in State level Public Enterprises in Kerala. Both primary and secondary data were collected for the study. A questionnaire was developed for collecting the primary data.

Selection of Sample

There are 26 Sick Industrial Public Sector units as per the review of Public Enterprises in Kerala published by the Bureau of Public Enterprises in Kerala (2015-16).Out of these 7 units were considered for the study. Convenience sampling method was applied in selecting the sample units. The population comprises 2180 workers and 455 managers. From that 436 workers, which is 20 percent of the total and 182 managers which is 40 percent of the total managers were selected. So a total of 618 respondents were selected.

Tools applied for Analysis

For the purpose of analysis, statistical tools such as averages, percentages and chi-square test, were used. Chi-square test was applied to examine the significant variation in the opinion of different categories of employees regarding the workings of Induction of employees in Public Enterprises in Kerala.

Views of Employees on the workings of Induction Programme

Induction is the process of orienting the fresh recruit hand to the new social setting of his world. The objective of this programme is to familiarize a new employee with his new environment and to enable him to integrate his personal goals with organizational goals. Orientation helps to reduce labour turnover, absenteeism, startup time and costs. Every organization has an obligation to make integration of the individual into it as smooth and comfortable as possible.

a) Opinion of Workers-Zonal wise

Table 1 shows the opinion of workers on different zones on, as to whether there exists any induction system in their unit. As per the table, 73 per cent of the total respondents opined that there is no system of induction in their units. Only 15.1 per cent of the workers in total expressed that, there has a system of induction in their unit. But in the northern zone majority (60%) of the respondents say that induction system is followed in their unit. The remaining 11.5 per cent have ‘no knowledge’ about the induction system**. As the Chi-square value is more than that of table value there exists a significant difference of opinion between the zones.**

Table 1: Induction System in PES- Opinion of Workers

Zones / Opinions	South		Central		North		Total	
	No:	%	No:	%	No:	%	No:	%
Yes	10	13.7	44	12.8	12	60.0	66	15.1
No	61	83.6	255	74.3	4	20.0	320	73.4
No knowledge	2	2.7	44	12.8	4	20.0	50	11.5
Total	73	100	343	100	20	100	436	100

Source: Primary data

Chi-square (Df=2) = 32.876

p value = 0.001

(Significant at 5% level)

b) Opinion of Managers/Supervisors-Zonal wise

The numbers of managers in the three zones who believe that there is an induction system are 38.2%, 69.2% and 77.8%, which are entirely different opinion when compared with that of the workers (Table 2). **The result of the table reveals that there exists a significant difference among the opinions expressed by the managers in the three regions** .Chi-square result proves the argument.

Table 2: Induction System in PES- Opinion of Managers

Zones / Opinions	South		Central		North		Total	
	No:	**%**	**No:**	**%**	**No:**	**%**	**No:**	**%**
Yes	13	38.2	90	69.2	14	77.8	117	64.3
No	21	61.8	36	27.7	4	22.2	61	33.5
No knowledge	0	0	4	3.1	0	0	4	2.2
Total	34	100	130	100	18	100	182	100

Source: Primary data

Chi-square (Df=2) = 12.861

p value = 0.002

(Significant at 5% level)

c) Category –wise Analysis

- As per Table 3, the opinion of the workers is entirely different from that of managers regard to induction system in PEs in Kerala. As the chi-square value is more than that of table value, there exist a significant difference between the opinion of workers and managers regarding the presence of induction system. **So the second hypothesis that-'There is no significant difference between the opinion of the two categories of employees (workers and managers) regarding the workings of Induction Programs in State level Public Enterprises is rejected.**

Table 3: Induction System in PES- Category-wise Analysis

Opinions / Category	Yes		No		No knowledge		Total	
	No:	**%**	**No:**	**%**	**No:**	**%**	**No:**	**%**
Workers	66	15.1	320	73.4	50	11.5	436	100
Managers	117	64.3	61	33.5	4	2.2	182	100
Total	183	29.6	381	61.7	54	8.7	618	100

Source: Primary data

Chi-square (Df=2) =150.491

P value =<0.001

(Significant at 5% level)

FINDINGS

- While analyzing the views of workers on induction, it was observed that 73% of them opined that no system of induction is followed in their units.
- But in case of northern zone 60 percent of them expressed that there exist a system of induction in their units. So here exists a significant difference in the opinion of workers between the zones.
- Even though majority of the managers in total opined that there exists a system of induction in PEs, a good number of managers (62%) in the southern zone also support the opinion of workers that there is no system of induction in their units. Opinion of managers between the zones also shows a significant difference.

SUGGESTIONS AND CONCLUSION

The study has revealed that there is need to not only introduce more formal and planned Induction programs in sick PSUs in Kerala but also ensure the efficiency of the existing programs. Below are a few suggestions to facilitate this:

- Induction programs must vary with each employee's needs. For example it should be short and simple and conducted in the native language of the employee, for a new entrant unfamiliar with urban settings.
- Induction programs should also cover aspects like, mission, vision, rules and regulations of the organization, and job related particulars like salary, benefits, service conditions, safety and welfare measures and so on.
- Induction programs need not be restricted to be a one-time process. It may be spread over periods of time ranging from a few weeks even months.
- Provide employees with a catalogue of written and documented information about the organization in the form of pamphlets or CDs.
- Induction must be conducted by a right instructor (qualified specialist on industrial psychology) who is professionally trained to plan and implement Induction.
- Induction programs must be constantly subjected to evaluation that makes the organization know whether new employees are smoothly habituated into their work environment.
- The HR management must shift focus from merely planning the financial burden of their organization for induction programs, to understanding whether this expenditure has turned into an investment.

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The Impact of Academic Stress among Post Graduate Students in Ernakulam during the Covid 19 Pandemic.

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ABSTRACT

The education sector is the one important area that has been severely affected by the lockdown and restrictions that are required to slow down the Covid 19 disease transmission. Due to this the educational institutions forced to use various online methods conduct classes. Academic stress is defined as the body's response to academic-related demands that exceed adaptive capabilities of students. Most commonly reported stressors in the academic environment are related to oral presentations, academic overload, and lack of time to meet commitments and taking examination. The study is intended to understand the impact of academic stress among the postgraduate students in Ernakulum district during the period of pandemic and the research mainly focus on the mental health and stress level of students. The findings of the study reveal that effective use of the different stress busters helps to reduce impact of academic stress.

Keywords: Covid 19, Academic Stress, Stress busters

INTRODUCTION

The World Health Organization (WHO) defined pandemic as the spread of a certain disease worldwide or across international borders, affecting a large number of people. COVID-19 is a newly discovered infectious coronavirus that spreads from one person to another through droplets. The virus emerged in December 2019 and was first discoveredin Wuhan, China. It was declared as a public health emergency of international concern in January 2020. It is an extreme health, economic and social emergency and it was declared a global pandemic by the World Health Organization in March 2020. Disease outbreaks impacted individual mental health and well-being. Multiple risk factors were addressed during the pandemic.

Government implemented strict precautions on its citizens in an attempt to control the spread of disease. The country transferred its in-person educational system to virtual learning, closing public places of aggregation, invoking travel bans and curfews. The COVID-19 pandemic has affected educational systems worldwide, leading to the near- total closures of schools, universities and colleges.

During times of COVID-19 pandemic lockdown of schools and colleges, students exhibit stress-related issues, responses to fear of contagion and to limitations of personaland relational life. Furthermore, the COVID-19 related containment measures imposed massive work and school closures, segregation and social distancing, deeply impacting on personal life and exposing people to experience uncertainty, fear of contagion, feelings of isolation and also academic stress on students also. From this perspective,the academic context was deeply affected by the lockdown restrictions worldwide. COVID-19 outbreak among students highlighted high levels of anxiety and worries about academic delays and influence of the epidemic on daily life, due to the disruption in student’s daily routine, in terms of activities, objectives and social relationships.

Academic pressure has increased over during the pandemic, there are examinations, assignments and many other activities that a student has to shuffle through. Not only thedesign but teachers and parents also burden the students with a lot of pressure of getting good grades. These expectations make the students work relentlessly and end up in creating more stress. With academics, the parents and the institutions want the students to participate in extracurricular activities too, the current expectations from the students is to be an all-rounder. Lack of proper channels for counselling leads to more confusion and the students are unable to choose a career for themselves even after rigorous studying patterns. This demanding attitude from parents and teachers leave the students bewildered and builds up stress. Teenage and high school plays fundamental role in shaping a child‘s personality and outlook towards life.

REVIEW OF LITERATURE

- Akhtarul Islam, Sutapa Dey Barna, Hasin Raihan, Md. Nafiul Alam Khan, Md. Tanvir Hossain(2020) **–Depression and anxiety among university students during the COVID-19 pandemic in Bangladesh",** The purpose of this study was to investigate the prevalence of depression and anxiety among Bangladeshi university students during the COVID-19 pandemic. It also aimed at identifying the determinants of depression and anxiety. Around 15% of the students reportedly had moderately severe depression, whereas 18.1% were severely suffering from anxiety. The binary logistic regression suggests that older students have greater depression. It is also evident that students who provided private tuition in the pre-pandemic period had depression. It is expected that both the government and universities could work together to fix the academic delays and financial problems to reduce depression and anxiety among university students.

- Dina Masha'al, Mohammad Rababa , Ghada Shahrour (2020) **"Distance Learning–Related Stress Among Undergraduate Nursing Students During the COVID-19 Pandemic(2020)",** The aim of this study was to examine the stress levels, stressors, and associated socio demographic variables among undergraduate nursing students as a result of the transition to distance learning amid COVID-19. Descriptive statistics and one-way ANOVA tests were used for data analysis. This study shows statistically significant differences in stress levels on some of the socio demographic characteristics of the students. Four themes representing the stressors related to distance learning emerged from the qualitative data.

STATEMENT OF THE PROBLEM

Higher institutions across the world moved to e-learning in response to the disruptions caused by the pandemic. While e-learning has an advantage for the students that they can attend to their courses from anywhere at their convenience, yet the sudden disruptive shift to e-learning during the pandemic saw students facing many challenges, which had strong ability to induce mental health issues to the students. The study aimed at examining the impact of various sources of academic stress among post graduate students. It also aimed at finding whether there is any difference among students of various programmes with respect to the sources of academic stress.

OBJECTIVES OF THE STUDY

- To understand the various sources academic stress among the post graduate students due to COVID 19 outbreak.
- To identify the role of academic workload, separation from school and the fear of contagion among students.
- To find out whether there is significant difference between male and female and among different programmes with respect to academic stress.

HYPOTHESIS

1. There is significant mean difference between male and female students with respect to sources of academic stress.
2. There is significant mean difference among students of various programmes with respect to sources of academic stress.

METHODOLOGY

The present study is both descriptive and analytical in nature. The study is descriptive in the sense that it attempts to discover various characteristics of the problem under investigation. 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 obtainedthrough a structured questionnaire. Secondary data was obtained from various website articles.

Sample Technique

For collecting primary data from the post graduate students of various colleges in Ernakulam District, purposive sampling and snowball sampling methods are adopted. A sample of 152 students were taken from various colleges in Ernakulam District.

ANALYSIS AND INTERPRETATION OF DATA

Table 1 Gender Classification of the Respondents based on Postgraduate Programmes

(Source: Primary Date)

Gender	Programmes			Total
	Commerce	Science	Economics	
Male	22	25	17	64
Female	47	9	32	88
Total	69	34	49	152

From the table it clear that majority of the respondents are female and belongs to commerce programme followed by economics and science programmes.

Table 2 Classification of various sources of Academic Stress

Measure	Mean	Standard Deviation
Personal inadequacy	3.14	1.170
Fear of failure	3.67	1.144
Mental depression	3.25	1.175
Poor network connection	3.54	1.296
Inadequate availability of raw materials	3.51	1.342
Academic workload	3.86	1.224
Lack of relationship between teachers	3.46	1.139
Peer to peer relationship	3.64	1.299

(Source: Primary data)

While analyzing table it can be found that all the measure has a mean of above 3 which indicate that most of the respondents agree with factors of academic stress. The highest mean was reported for academic workload. The least mean was reported for personal inadequacies.

Table 3 Analysis of opinion on different factors that are influenced by stress

Factors	Mean	Standard Deviation
Started eating more/less	2.51	.956
Suffers from weakness and dizziness	2.92	.873
Headache and cramps	3.18	.857
Lack of concentration	3.05	.856
Angry	3.01	.876
Lack of sleep	2.84	.936
Confusion	3.18	.825
depression	2.54	.941

(Source: primary data)

From the above table it very clear that all the factors that are influenced by stress has a mean of more than 2.5. The highest mean is for headache/cramps and confusion. The standard deviation for all the factors are below 1.

Table 4 Analysis of the influence of various stress busters in reducing Stress

Stress Busters	Mean	Standard Deviation
Spending quality time with friends/family/ loved ones	3.89	1.299
Spending quality time alone	3.18	1.170
Practicing your hobby	3.41	1.237
Going for a trip/outing	3.84	1.324
Listening to music/reading books	3.71	1.264
Exercise yoga and meditation.	3.23	1.258
Spending more time in sports and games	3.58	1.274

(Source: Primary data)

While analyzing the table it can be found that all the measure has a mean of above 3. The highest mean is reported for spending quality time with friends/family/loved ones. The standard deviation is greater than one for all the stress busters hence the respondents react vividly to the all the stress busters.

Hypothesis Testing

H0: There is no significant mean difference between male and female post graduate students with respect to sources of academic stress

Ha: There is significant mean difference between male and female post graduate students with respect to sources of academic stress

Inference:

Table 5 Independent Sample T- Test

Variable	***Size***	***Mean***	***SD***	***t-value***	***p-value***
Male	54	3.5625	1.06602	.550	.583*
Female	88	3.4730	.87396		

Note: * denotes significant at 5 percent

Since P Value is greater than 0.05 we accept null hypothesis. The null hypothesis is accepted at 5% level of significance hence concluded there is no significant mean difference between male and female students with respect to sources of academic stress.

One way ANOVA

H0: There is no significant mean difference among Post graduate students of various streams with respect to sources of academic stress

Ha: There is significant mean difference among Post graduate students of various streams with respect to sources of academic stress

Table 6 Programme wise Mean and Standard Deviation of sources of Academic Stress

Programme	**No. of Students**	**Mean**	**Standard Deviation**
Commerce	69	3.36	.945
Science	34	3.86	.868
Economics	49	3.47	.987
Total	151	3.51	.957

Table 7 ANOVA Table

Academic Stress	Sum of Squares	Degree of Freedom	Mean Square	F	Sig. (P value)
Between Groups	5.827	2	2.913	3.276	.041
Within Groups	132.515	149	.889		
Total	138.342	151			

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 mean difference between students of various streams with respect to sources of academic stress.

Post hoc Test – Tukey HSD

Table 8 Programme wise comparison

Programme (I)	Programme (J)	Mean Difference (I – J)	Sig (P value)
Commerce	Science	-.50165	.032
Science	Economics	.38948	.157
Economics	Commerce	.11217	.800

Tukey post hoc test showed that there is significant difference between Commerce and Science programmes with respect to various sources of academic stress. There was no statistically significant difference between Science and Economics or between Economics and Commerce.

FINDINGS

- Majority of the respondents are extremely stressed in academics because of increased academic workload, inadequate availability of study materials and they lack peer to peer relationship. Further analysis shows that fear of failure, mental depression and poor network connections have a significant role in increasing the academic stress of respondents during the pandemic.
- Most of the respondents feel severe headaches and cramps, angry, confusion when they are stressed at their academics. They also suffer from weakness and dizziness, lack of concentration and sleep, depression when they are influenced by stress.
- Stress busters such as spending quality time with friends/ families, going for a trip/outing, listening to music/ reading books and spending more time in sports and games can reduce their stress most significantly.
- It is evident from the Independent sample t-test that there is no significant mean difference between male and female post graduate students with respect to sources of academic stress.
- From ANOVA it clear that there is significant mean difference among Post graduate students of various streams with respect to sources of academic stress.
- Post Hoc test reveals that there is significant mean difference between science and commerce programmes.
- There was no statistically significant mean difference between Science and Economics or between Economics and Commerce programmes.

SUGGESTIONS

- Keep up with regular routines; create a schedule for learning activities, prepare for classes in advance and listen to lectures regularly.
- Continue with routine stress management techniques
- Talk with people you trust about your concerns and how you are feeling, talk openly about that stress you.
- Always keep in touch with your academic professors and seek assistance or advice when you need it.
- Take breaks at regular intervals and prioritise your mental health

CONCLUSION

The study title “A STUDY ON THE IMPACT OF ACADEMIC STRESS AMONG P.G STUDENTS IN ERNAKULAM DURING THE COVID 19 PANDEMIC” conducted mainly to know the level of academic stress among the students during the pandemic situation. It has become a devastating problem affecting the student’s mental health and well-being. Results of the findings shows that stress inoculation techniques were effective in fostering adjustments to academic stress among the students. Many of them have started diverting themselves to various stress management techniques and learned to relieve from stress.

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A Study on Financial Well-Being of Women Households

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ABSTRACT

Financial well-being is one's satisfaction towards their financial situation. It is like a continuum ranging from financial stress of individuals being highly satisfied with their financial situation. With continuous financial learning and efforts one can move from a situation of financial stress and attain financial satisfaction or well-being. Explaining financial well-being in the context of high income would be inappropriate because a high income person may sometimes financially healthy or satisfied, Hence we can say that financial well-being is a situation, were a person is away from his financial worries and stays financially happy.

The study is conducted to understand financial well-being among women households. Financial well-being is based on control of day to day finances, to have a financial freedom of choices, the level of financial satisfaction from financial activities.

Hence this study is carried out to understand what is the conceptual framework of financial well-being and what are the major factors affecting financial well-being of women households and on the basis of these factors determining the financial well-being of women households. This study reveals that majority women are much aware of their respective financial position and adopts a frugal behaviour and thus contributing to overall financial well-being.

INTRODUCTION

Financial well-being is one’s satisfaction towards their financial situation. It is like a continuum ranging from financial stress of individuals being highly satisfied with their financial situation.

Financial well-being has mainly two aspects, subjective and objective. Subjective concept is mainly assessed in terms of financial satisfaction and objective concept is measured in terms of income. Major elements which constitute financial well-being are; To have a control over day to day finances, the ability to bear financial shocks in future, arranging financial goals in a way to attain financial obligations. Financial well-being is a concept which is related to financial happiness which is correlated with financial freedom to make financial choices.

Financial well-being has significant effect on once over all well-being. More specifically, women are the manager of household finance. They plan, allocate, meet expenditures and save etc. for their family. Hence it is necessary to assess the level of financial well –being among the women household in Kerala and the factors effecting financial well-being. The assessment of financial well-being and its determinants will enable the government to enhance the economic and financial well-being and standard of living of women households in the state.

SIGNIFICANCE OF THE STUDY

The study is conducted to understand financial well-being among women households. Financial well-being is based on control of day to day finances, to have a financial freedom of choices, the level of financial satisfaction from financial activities.

OBJECTIVES OF THE STUDY

- To understand the theoretical concept of financial well-being.
- To identify the determinants of financial well-being among women households.
- To assess the level of financial well-being among women households.
- To make suggestions and recommendations based on study.

LIMITATIONS OF THE STUDY

The major focus of the study is on financial well-being among women households while there can be other sectors in which the study can be extended like financial well-being among students, working population, retired persons etc. The determinants of financial well-being is not limited to financial knowledge, financial capability, social and economic environment, financial stress, financial behaviour, But this study is limited to only these determinants, While other factors such as assessment of financial ratios, work environment etc. are ignored. The demographic variables in this study are delineated to age, geographical location, income of family, composition of family, education. The study was limited to mailed survey due to the prevalent covid19 pandemic situation.

THEORETICAL FRAMEWORK

FINANCIAL WELL-BEING

Financial well-being is a multi-part concept. According to Van Praag et al. (2003), wellbeing is provided by individual satisfaction in six areas: business, finance, home, leisure, health and environmental. According to Porter (1990) the financial well-being is one’s attitude toward the financial status based on objective aspects and judge them with regard to the standards. Financial well-being is defined as “a state of being financially healthy, happy, and free from worry" and is typically based on a subjective appraisal of one's financial situation.

KEY COMPONENTS OF FINANCIAL WELL-BEING.

Major components which influence the financial well-being among households are financial knowledge, financial capability, savings and investments, financial stress, social and economic environment, personality traits, life stages, financial behaviour.

SAVINGS AND INVESTMENT PATTERN

Savings are important for protecting one's future and securing from unforeseen expenses. Intentional savings would protect an individual from future contingencies, improve peace of mind and financial well-being. The major factors of financial wellbeing

Which affects the savings position of an individual includes, household income, savings rate, ability to save, future income, savings meet goals. Income plays an important role in determining the savings pattern It includes the money to the real income of the individual and covers the various sources of income of the individual. It shows the earning capacity of the individuals. Major variables of income considered by people in determining their savings pattern are family income, sufficient assets, diversified income, sufficient income to needs, position of debt.

Hence savings and investment patterns of individuals play an important role in determining the financial well-being. Savings and investment pattern of individuals promote financial security and also prepares individuals to face or overcome financial shocks due to the unprecedented financial contingencies.

FINANCIAL STRESS

Financial stress is a term in corporate finance used to indicate a condition when promises to creditors of a company are broken or honoured with difficulty. Sometimes financial distress can lead to bankruptcy. Family with inadequate income, wealth, or debt may experience economic hardship that precipitates stress when they struggle to afford their current and ongoing financial obligations.

Major factors affecting the financial stress of individuals includes,

Family size: the number of dependents is inversely proportional to risk tolerance since individuals with greater responsibilities act with more caution. With increase in number of dependents in family increases the financial stress among households.

Income: The risks you can afford to take depend on your total financial situation, including the types and sources of your income exclusive of investment income. A higher level of income encourages greater risk tolerance and managing the financial stress. A better management of financial stress eventually leads to financial well-being among households.

Education: The level of education an individual achieves has some impact on managing financial stress and it is regarded to increase an individual's capacity to appraise risks inherent. Higher education has been found to encourage risk taking ability and managing financial stress among individuals. There is a positive relationship between education and managing financial stress among individuals.

FINANCIAL BEHAVIOUR

Financial behaviour is a sum of financial decisions taken by people in their daily life. Financial behaviour can be broadly classified into:

- Behaviours related to money management
- Behaviours related to seeking knowledge
- Watching or others seeking advice from others
- Behaviour related to financial goal setting and planning

Behaviour related to money management:

Taking financial decisions consciously is prerequisite for achieving financial well-being. People can be frugal or disciplined in spending behaviour with an intention to achieve long term financial goals after retirement. People who have a free spending lifestyle without a concern for meeting future financial contingency would likely to face difficulty in managing their financial well-being position. Some individuals relay on credit cards for their purchases, Carrying a credit card for a long time indicate the inability to meet financial well-being position for individuals.

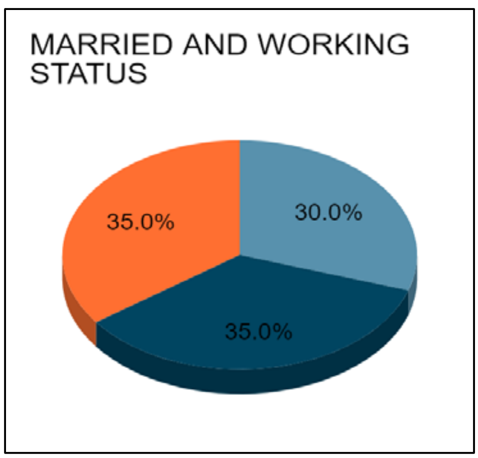
ANALYSIS AND INTERPRETATION

TABLE 1 Status of Women Households

STATUS	FREQUENCY	PERCENTAGE
MARRIED WORKING WOMAN	30	30
UNMARRIED WORKING WOMAN	35	35
HOUSEWIFE	35	35
TOTAL	**100**	**100**

SOURCE: PRIMARY DATA

FIGURE 1 Status of Women Households



Source: Primary Data

Interpretation:

About 30% of women households are married working women; 35% of women households are unmarried working women and 35% of women households are housewives.

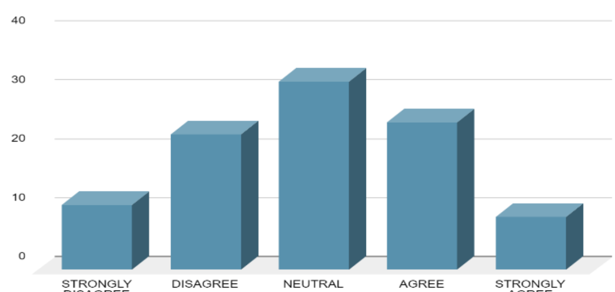
LEVEL OF FINANCIAL WELL-BEING AMONG WOMEN HOUSEHOLDS

TABLE 2 - Have surplus fund after meeting monthly expenses:

HAVE SURPLUS FUND AFTER MEETING MONTHLY EXPENSE	FREQUENCY	PERCENTAGE
STRONGLY DISAGREE	11	11
DISAGREE	23	23
NEUTRAL	32	32
AGREE	25	25
STRONGLY AGREE	9	9
TOTAL	**100**	**100**

SOURCE: PRIMARY DATA

FIGURE 2 Have surplus fund after meeting monthly Expenses:



Source: Primary data

Interpretation:

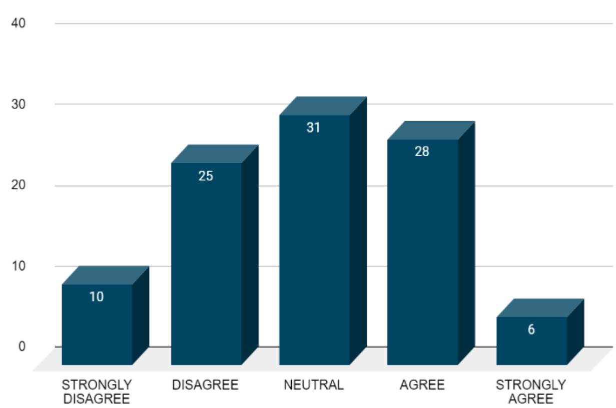
From table 2, it is clear that about 25% of women households agree that they have surplus funds after meeting monthly expenses; while 9% women households strongly agree with this statement.

TABLE 3 - Able to handle major unexpected expenses

ABLE TO HANDLE UNEXPECTED EXPENSE	FREQUENCY	PERCENTAGE
STRONGLY DISAGREE	10	10
DISAGREE	25	25
NEUTRAL	31	31
AGREE	28	28
STRONGLY AGREE	6	6
TOTAL	**100**	**100**

SOURCE: PRIMARY DATA

FIGURE 3: Able to handle major unexpected expenses



Source: Primary data

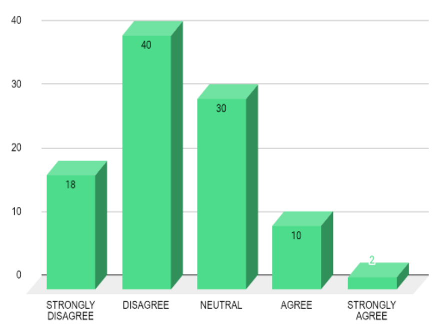
Interpretation:

From table 3; it is clear that about 28% of women households agree that they can manage unexpected expenses; while 6% women households strongly agree with this statement; while 31% women households keep a neutral stand. While 25% of women households disagree and 10% of women households strongly disagree with this statement.

TABLE 4 Finances are out of control

FINANCES ARE OUT OF CONTROL	FREQUENCY	PERCENTAGE
STRONGLY DISAGREE	18	18
DISAGREE	40	40
NEUTRAL	30	30
AGREE	10	10
STRONGLY AGREE	2	2
TOTAL	**100**	**100**

SOURCE: PRIMARY DATA



Source: Primary data

Interpretation:

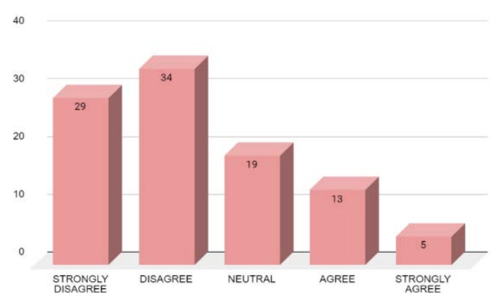
From table 4., it is clear that about 10% of women households couldn't control finance and 2% of women households strongly agree that they couldn't control finances; While 2% of women households take a neutral stand. While 40% of women households disagree and 18% of women households strongly disagree with this statement.

TABLE 5- There is too much debt obligations

THERE IS TOO MUCH DEBT OBLIGATIONS	FREQUENCY	PERCENTAGE
STRONGLY DISAGREE	29	29
DISAGREE	34	34
NEUTRAL	19	19
AGREE	13	13
STRONGLY AGREE	5	5
TOTAL	**100**	**100**

SOURCE: PRIMARY DATA

FIGURE 5 There is too much debt obligations



Source: Primary data

Interpretation:

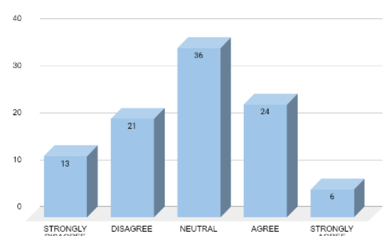
From table 5;13% of women households agree that they have too much debt obligations; 5% of women households strongly agree that they have debt obligations; about 19% of women households take a neutral stand.While 34% of women households disagree and 29% of women households strongly disagree with the statement.

TABLE 6- Current financial situation limits the spending behaviour

CURRENT FINANCIAL SITUATION LIMITS THE SPENDING BEHAVIOUR	FREQUENCY	PERCENTAGE
STRONGLY DISAGREE	13	13
DISAGREE	21	21
NEUTRAL	36	36
AGREE	24	24
STRONGLY AGREE	6	6
TOTAL	**100**	**100**

SOURCE: PRIMARY DATA

FIGURE 6 - Current financial situation limits the spending behaviour



Source: Primary data

Interpretation:

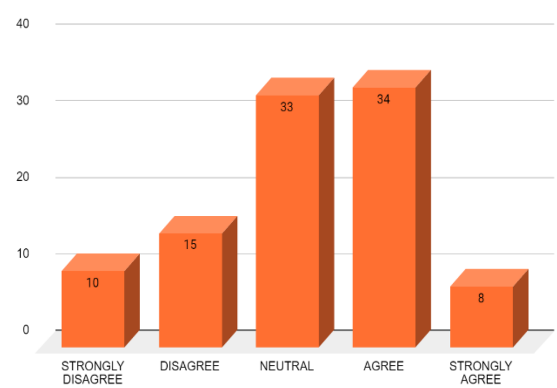
Table 6 shows that about 24% of women households agree that their current financial situation limits their spending behaviour; while 6% of women households strongly agree with this statement and 36% of women households take a neutral stand. While 21% of women households disagree and 13% of women households strongly disagree with the statement.

TABLE 7 - Family income is enough to meet monthly expenses

FAMILY INCOME IS ENOUGH TO MEET MONTHLY EXPENSES	FREQUENCY	PERCENTAGE
STRONGLY DISAGREE	10	10
DISAGREE	15	15
NEUTRAL	33	33
AGREE	34	34
STRONGLY AGREE	8	8
TOTAL	**100**	**100**

SOURCE: PRIMARY DATA

FIGURE 7- Family income is enough to meet monthly expenses



Source: Primary data

Interpretation:

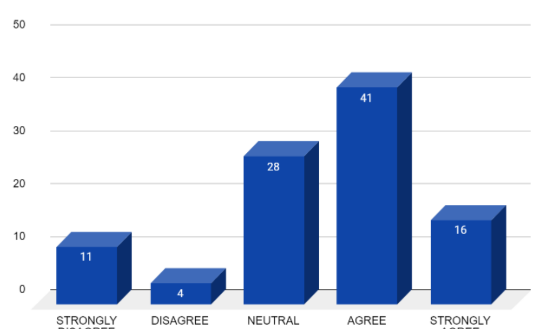
From table 7, it is clear that about 34% of women households agree that their family income is enough to meet monthly expenses;while 8% of women households strongly agree with the statement and 33% of women households take a neutral stand.While 15% of women households disagree and 10% of women households strongly disagree with the statement.

TABLE 8 Prefer to invest or save after meeting monthly expenses

PREFER TO INVEST OR SAVE AFTER MEETING MONTHLY EXPENSE	FREQUENCY	PERCENTAGE
STRONGLY DISAGREE	11	11
DISAGREE	4	4
NEUTRAL	28	28
AGREE	41	41
STRONGLY AGREE	16	16
TOTAL	**100**	**100**

SOURCE: PRIMARY DATA

FIGURE 8 Prefer to invest or save after meeting   monthly expenses



Source: Primary data

Interpretation:

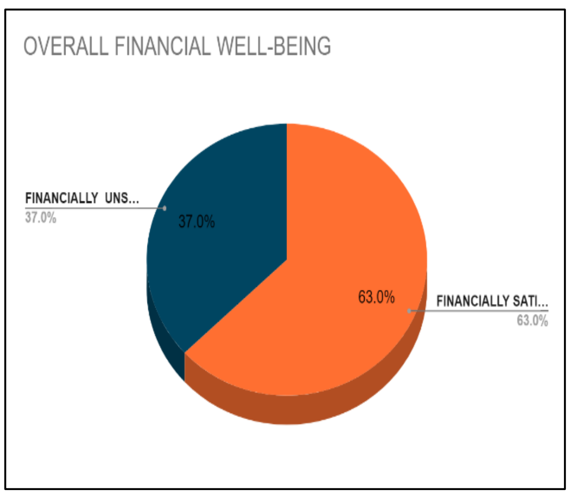
From table 8; it is clear that about 41% of women households prefer to save or invest surplus funds after meeting monthly expenses; while 16% of women households strongly agree with this statement and 28% of women households take a neutral stand. While 4% of women households disagree and 11% of women households strongly disagree with statement.

TABLE 9 Overall financial well-being of women households

PARTICULARS	PERCENTAGE
FINANCIALLY SATISFIED WOMEN HOUSEHOLDS	63
FINANCIALLY UNSATISFIED WOMEN HOUSEHOLDS	37
TOTAL	**100**

SOURCE: PRIMARY DATA

FIGURE 9-Overall financial well-being of women households



Source: Primary data

Interpretation:

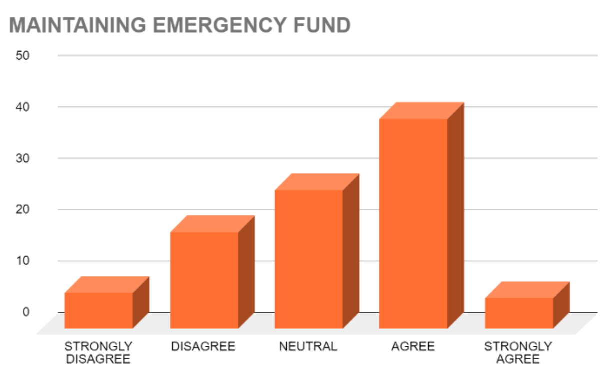
About 63% of women households agree that they are financially satisfied; While 37% of women households are not financially satisfied.

TABLE 10 - Habit of Maintaining Emergency Fund

HABIT OF MAINTAINING EMERGENCY FUND	**FREQUENCY**	**PERCENTAGE**
STRONGLY DISAGREE	7	7
DISAGREE	19	19
NEUTRAL	27	27
AGREE	41	41
STRONGLY AGREE	6	6
TOTAL	**100**	**100**

SOURCE: PRIMARY DATA

FIGURE 10 - Habit of Maintaining Emergency Fund



Source: Primary data

Interpretation:

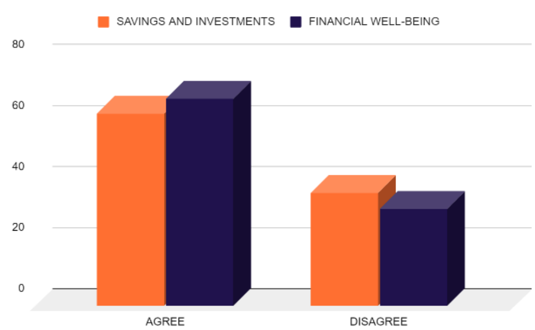
From table.10, 41% of women households agree with managing an emergency fund and 6% of women households strongly agree with this statement and 27% of women households take a neutral stand. While 19% of women households disagree and 7% of women households strongly disagree with this statement.

TABLE 11: Overall financial well-being and savings and investment pattern

PARTICULARS	FINANCIAL WELL-BEING	SAVINGS, INVESTMENT
AGREE	63	68
DISAGREE	37	32
TOTAL	**100**	**1OO**

SOURCE: PRIMARY DATA

FIGURE 11: Overall financial well-being and savings and investment pattern



Source: Primary data

Interpretation:

From table 11, majority of women households agree that savings and investment patterns leads to financial well-being of women households.

TESTING OF HYPOTHESIS

Hypothesis I

Ho: There is significant relationship between overall financial

Well-being and family income of women households.

H1: There is no significant relationship between overall financial

Well-being and family income of women households.

Observed frequency(O)	Expected frequency(E)	O-E	(O-E *O-E)/E
40	40.32	0.1034	0.0025
23	28.98	35.7604	1.2339
14	23.68	93.7024	3.957
23	17.02	35.7604	2.1012

Calculated value of Chi-Square: 7.2946

Table value of Chi-square, where degree of freedom =1 @ 5% level of significance=3.841

INFERENCE:

Since calculated value is greater than table value @ 5% level of significance, the null hypothesis is rejected. Hence, **there is a significant relationship between family income and financial well-being.**

Hypothesis II

Ho: There is significant relationship between overall financial
Well-being and personality traits of women households.

H1: There is no significant relationship between overall financial
Well-being and personality traits of women households.

Observed frequency(O)	Expected frequency(E)	(O-E)*(O-E)	(O-E)*(O-E)/E
55	49.14	34.3396	0.6988
8	13.86	34.3396	2.4776
23	28.86	34.3396	1.1898
14	8.14	34.3396	4.2186

Calculated value of Chi-Square: 8.5848

Table value of Chi-square, where degree of freedom =1 @ 5% level of significance=3.841

INFERENCE:

Since calculated value is greater than table value @ 5% level of significance, the null hypothesis is rejected. Hence, **there is a significant relationship between personality traits and financial well-being of women households.**

FINDINGS, CONCLUSION AND SUGGESTIONS

FINDINGS

- It has been found that the majority of women households have a financial well-being position.

- About 66% of women households are able to manage surplus funds after meeting monthly expenses .Only 34% are not able to manage extra money after spending for recurring monthly expenses.

- Majority of women households are able to meet unexpected expenses; while only few of women households are exposed to financial shocks.

- Few of the women households face difficulty in meeting debt obligations; while majority of women are able to manage their debt obligations.
- About 75% of women households are financially satisfied with their family income; While 25% of women households face difficulty in meeting monthly expenses out of their monthly income.
- 82% of women are financially satisfied in the way they manage money. only small portion of them are not satisfied about the way in which they managing their money

CONCLUSION

This study reveals that majority women are much aware of their respective financial position and adopts a frugal behaviour and thus contributing to overall financial well-being

In a patriarchy world were most of the affairs are managed by male, female counterparts often finds a negligible part in managing financial chores, Today being a world which gives more emphasis on women empowerment most of the minuet to medium financial chores are managed by women households as from the study it is evident that about majority of women households are educated, Hence we can conclude that education plays an important role in women's ability in grasping financial knowledge and their ability to maintain financial wellness. This study mainly concentrates on analysing financial knowledge, savings and investment pattern, personality traits in assessing their role in financial well-being of women households. The study reveals that majority of women households have better financial knowledge, stronger savings and investment pattern, healthier behavioural traits which leads financial satisfaction and wellness. Hence, culminating that level of financial well-being of women households reveals that the women households are financially satisfied and financially happy.

SUGGESTIONS

- The present study throws light on financial well-being of women households, some suggestions to improve the financial well-being are:
- Maintaining emergency fund for meeting future contingencies and to insure one-selves from financial shocks.
- More financial awareness should be provided to women from a future perspective and complexities which evolve in future.
- Gender discrimination has to be avoided while discussing financial matters in house. Money related matters and financial decisions has to be taken in consultation with women.
- Women must take initiatives to learn basic financial concepts like simple interest, compounding, inflation and savings. They can maintain a financial diary to track their expenses and spend wisely.
- Women households need to understand the changes in the economy and modify their financial portfolio accordingly. One has to beware of downfalls and understand the risk involved in every financial choice made.
- Behavioural aspects, culture, social values and beliefs affect the financial decisions of women households. The beliefs, social values, cultures should be changed in such way to enhance the financial wellbeing.
- Always set a dynamic financial plan by continuously updating financial plans according to socio-politico-economic environment.
- Government should develop plans and policies to enhance the financial well-being among women households.

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Walking for Transport and Health Trends in India in the Last Decade

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INTRODUCTION

"Creating a walkable and cycleable city is an important part of creating a sustainable city -one that is equitable, livable, cost-effective, healthy, environmentally sound and safe."

-Planning guidelines for walking and cycling (NSW Government 2004)

Transport planners have historically advocated for an increase in the use of sustainable modes of transport such as walking to reduce the adverse environmental impact from a rising trend in private vehicle use. In recent years, health practitioners have participated in this campaign after recognising the health benefits that can be gained from active modes of transport. Thus, there was a convergence of transport and health objectives. This began sometime in the mid-1990s when medical thinking shifted from the prescription of vigorous physical activity to moderate exercise on most days of the week (Pate R et al, 1995). This concept was supported and institutionalised when in 1999, the WHO Charter on Transport, Environment and Health was introduced setting out strategies primarily aimed at reducing motorised travel and its associated negative environmental outcomes but also specifically directing the "shift of transport to environmentally sound and health-promoting modes" (WHO 1999). In India, this new public health approach was taken on board with the implementation of a range of health promotion strategies and policies. In 1999, the National Public Health Partnership (NPHP) identified active transport by walking or cycling as a high-priority initiative to reduce physical inactivity (NPHP and SIGPAH, 2001). In 2000, the health promotion strategy recommendations included infrastructure support to encourage more cycling and walking. Cross-sectoral 'event day' media-based campaigns such as 'Walk to Work Day' and 'Walk to School Day' have also been implemented in NSW since 2000 and these events grew to national stature by 2003 (Merom D, Bauman A 2005).

Walking delivers wide-ranging benefits. It is a highly effective means to reduce inactivity and combat the epidemic of non-communicable ailments such as hypertension, diabetes, heart disease and obesity. It also improves mental health by reducing depression and anxiety. Walking is also a highly accessible form of transport and exercise, is cost-effective and environmentally sustainable. It has high acceptability, particularly for those that are typically sedentary (Bauman A, Bellew B, Vita P, Brown W, and Owen N. 2002; NSW Government 2004).

With the wide acceptance of the advantages of walking and initiatives already being implemented to assist in its adoption, it becomes a serious concern when trends manifest a declining incidence as what can be observed in the last decade in the Bangalore Greater Metropolitan Area (GMA). This paper aims to assist in addressing this issue by informing policy formulation, identifying target groups and areas of maximum engagement through a better understanding of people's walking behaviour and patterns of change. In this paper, data from the Transport and Population Data Centre's 1991 Home Interview Survey (HIS) and continuous Household Travel Survey (HTS) were used to analyse the trends and characteristics of walking in the Bangalore GMA in the 1991 to 2001 period. Because of the limitations in the size of the cycling data, this paper focused solely on walking. (For details about the HIS and HTS, the survey data, its geographical coverage, limitations, and the methodology used in this paper, please refer to the Appendix.)

This paper analysed the walking behaviour mainly from a transport perspective but with consideration to some health aspects. It considered the incidence of walking in relation to the level recommended by health professionals, that it be undertaken in at least 10-minute bouts accumulating to the desired 30 minutes per day on most days of the week to accrue physical benefits (Merom D, Bauman A 2005).

In the following sections, the broad movements in walking between 1991 and 2001 are first examined. The walking behaviour is then analysed in detail against a number of sociodemographic, geographic, and trip characteristics to understand the nature of the shift from walking and the factors likely affecting it. The exploration also identifies key patterns of change that may be used to better align policy with current trends.

Broad Trends

Between 1991 and 2001, the number of walk trips made by residents of the Bangalore GMA during weekdays grew by 1.1% per annum, at a slower rate than the population (Figure 1). The result is a decline in the per capita number of walking trips and a contraction in its share as a mode of travel (Figure 2). In 1991, walking accounted for 29% of all weekday trips. This share diminished to 28% in 2001 as was the case for public transport for which the proportion also fell by 1%. The modal shift went in favour of the private vehicle which dominated with a 60% share in 1991 and further expanded to 62% due to a stronger growth in car use of 2% per annum in the following decade.

Walking during weekends was less prevalent capturing only 21% of all trips in 1991 which also fell to 20% in 2001 as a result of a low annual increase of 0.9%. Once again, this decline in the share of walking corresponded to an increase in the share of the private vehicle from 73% to 74%.

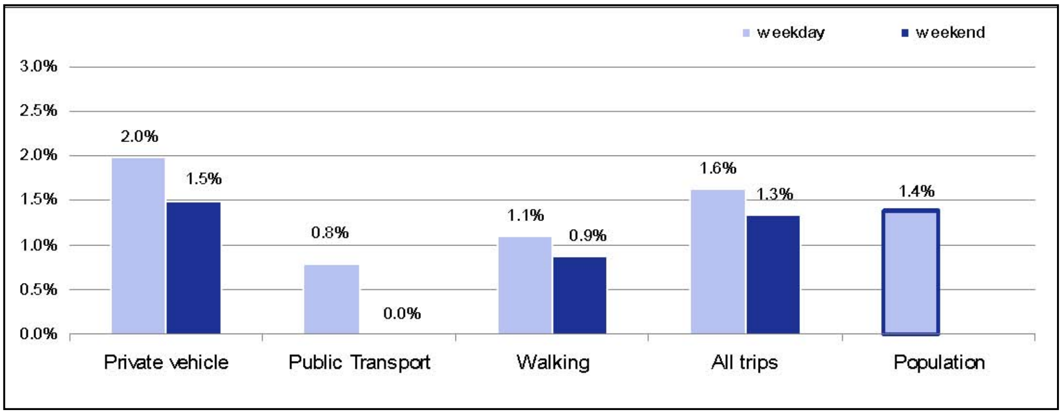

Figure 1 Annual average growth between 1991 - 2001, Delhi GMA

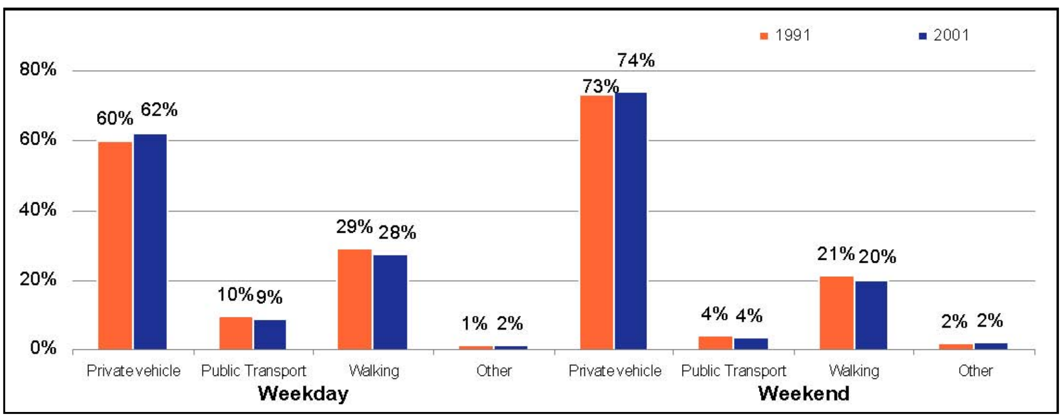

Figure 2 Mode share of trips in 1991 and 2001, Bangalore GMA

To understand the factors contributing to this decline in walking, a detailed investigation with respect to a number of socio-demographic, geographic, and trip characteristics are discussed in the subsequent section.

Walking by socio-demographic characteristics

The mean number of walk trips and trip time per day for residents of the Bangalore GMA fell from 1.13 to 1.09 trips and 11 to 10 minutes between 1991 and 2001. These decreases were statistically significant.

Some socio-demographic groups exhibited more significant declines than others (Figures 3 and 4). The biggest decreases were for the 5 to 14 age group (1.1 to 1.0 walk trips and 11 to 8 minutes) and the primary and secondary student group (1.3 to 1.1 walk trips and 12 to 10 minutes). As a corollary, persons from households with children undertook less walking. These results attest to the general increase in inactivity among children which has been recognised and addressed in various ways but with limited success (Bauman A et al, 2002). This has serious implications as travel patterns developed during childhood, whether healthy or otherwise are likely to be carried to adulthood.

In addition to identifying which groups experienced the largest decreases in walking, it will also be informative to establish which ones undertook more or less walking relative to others. Figures 3 and 4 show that there were clear differences in the walking behaviour between socio-demographic groups. Females walked more compared to males, for whom car use particularly among adults was more dominant. The older teenagers (aged 15 to 19 years) and younger adults (aged 20-34 years) tended to walk more than the other age groups.

The higher incidence of walking for the highly mobile young adult group was primarily due to less accessibility to the private vehicle and the greater use of public transport. This age-related pattern was also reflected in full-time/part-time tertiary students walking more than the rest of the labour force status groups.

There was also a marked difference in the incidence of walking between those with and those without driving licences. This result was supported by the similarly large difference between those persons with and those without vehicles in their households. These findings suggest that the accessibility to the private vehicle reduces the propensity to walk. Further, the group closest to accumulating the prescribed 30 minute per day healthy walking are those without access to a private vehicle.

This information about the differences in the walking patterns between socio-demographic groups and especially about those groups which undertake less walking must be applied to tailor campaigns and maximise efficacy. It should be noted that age and access to a private vehicle appear to have a strong impact on the walking behaviour and should be considered when defining policies.

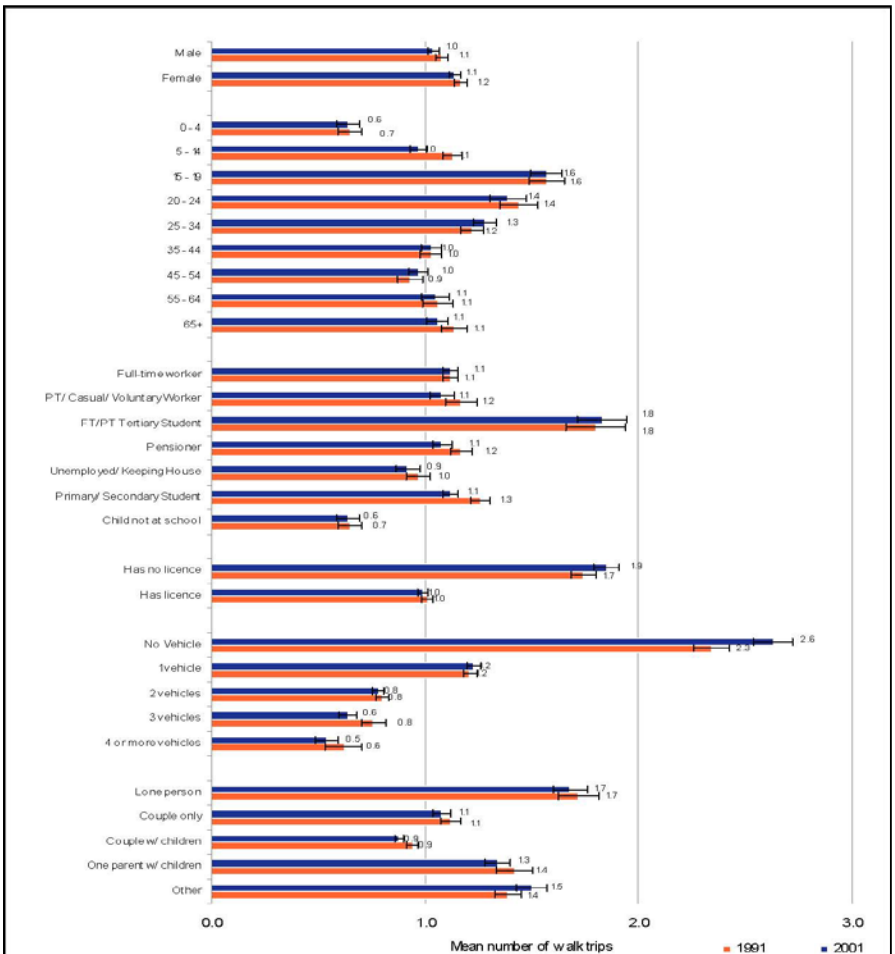

Figure 3 Mean number of walk trips per person per day by socio-demographic charactaristics

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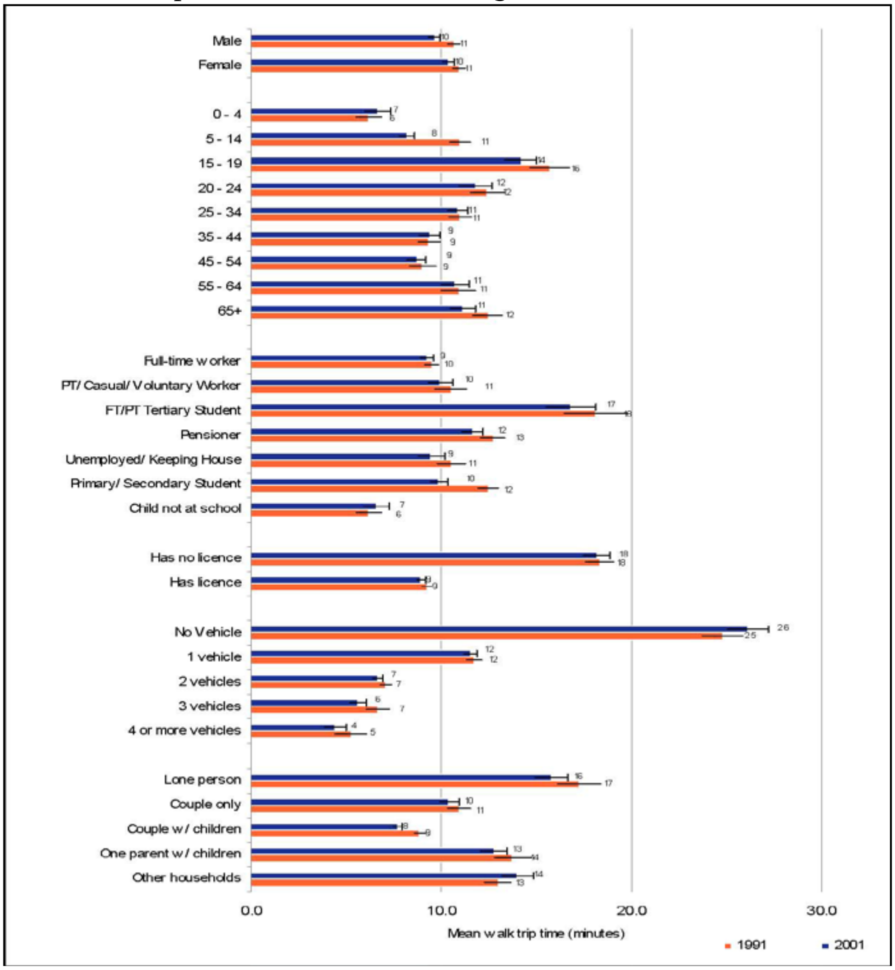

4 **Figure 4 Mean total walk trip time per person per day by socio-demographic characteristic**

Characteristics of the walking behavior

In this section, the following aspects of the walking behavior are analyzed: why (purpose of walk trips), how (trip time), when (day analysis) and where (geographical analysis) people walk in the Bangalore GMA.

4.1 Purpose of walking trips

The largest proportion of walking trips during weekdays are undertaken to 'change mode', that is to change from walking to access another mode of travel (Figure 5). A majority (87%) of these trips were accessing public transport. Between 1991 and 2001, walking trips to 'change mode' were also among the fastest growing, increasing annually by 2.3% and expanding its purpose share from 23% to 26%. This trend is noteworthy and is indicative of the potential to induce more walking by creating and/or improving accessibility to other modes of travel, particularly public transport.

Walking trips made for social and recreational purposes (which include walking for exercise) also grew strongly posting an average annual growth of 2.6% during the period which resulted in an increase in its purpose share (17% to 20%). This growth may be attributable to the various initiatives instituted in the 1990's promoting walking as healthy exercise (Merom D, Bauman A, 2005). This demonstrates the merit of marketing walking for these purposes.

Also growing was walking to go or return to 'work' which grew 1.6% per year. Largely, these trips were for those where the previous trip was a commute by public transport (54%) or walking for another activity (41%). This high incidence of public transport use in relation to walk trips to work reinforces an earlier finding that walking is likely to be induced when associated with public transport use. It also shows how walking can be encouraged with the improvement of accessibility to services within employment centers.

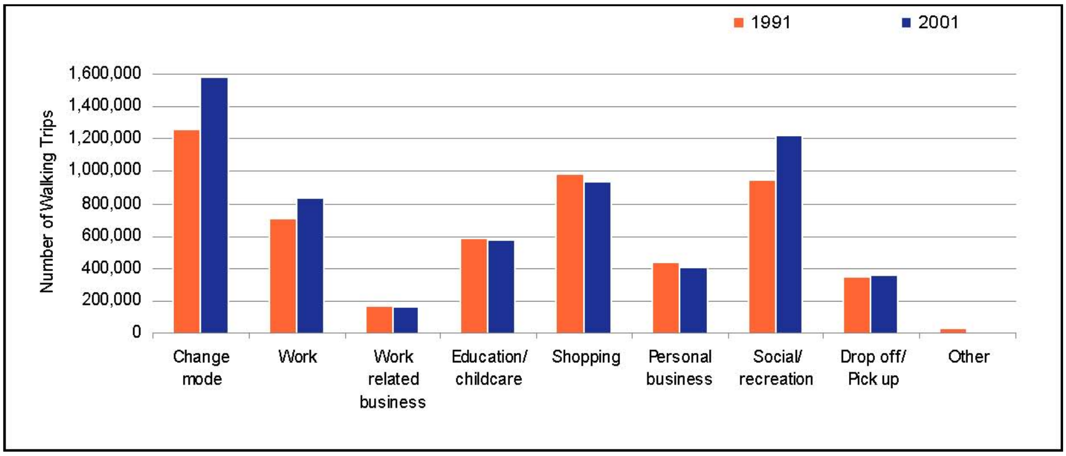

Figure 5 Walk trips by purpose on an average weekday

Similar pattern can be seen in walking trips undertaken during weekends. The largest increases in walking trips were for those made to 'change mode' and for social and recreational purposes. The number of walking trips for other purposes was static in the last decade.

4.2 Walking trip time

The mean travel time for all walking trips made on an average weekday by residents of the Bangalore GMA has remained stable at about 9 minutes in the last decade. This average duration almost satisfies the minimum ten minute per walking trip prescribed by health professionals to accrue physical benefits which, therefore, reinforces its health-promoting potential. There are, however, differences between trip purposes with some walk trip times shorter than the recommended duration (Figure 6).

Walking trips for social and recreational purposes had the longest average trip time of 12 minutes. Given that these trips exceeded the ten-minute prescription and were also among those with the highest growth, it should clearly be targeted for greater engagement for health purposes.

Walking trips for education and childcare on average also met the ten-minute health requirement but posted a statistically significant decline from 11 to 10 minutes between 1991 and 2001. In addition, this average trip time is only equivalent to about a kilometre or less in distance which is well within the minimum home to school distance set by the NSW Government (2.3 km for years 3 to 6 and 2.9 km for years 7 to 12) as being entitled to free school travel passes. This indicates that there is some difference between the distance students are generally prepared to walk for educational purposes and the school distance considered in current policy as accessible by non-motorised modes. This disparity is in part reflected in the per capita decline in walking trips to school in the last decade. Also consistent with this finding is the results of a 2002 survey on the travel of primary students in NSW which showed that the proportion of those doing nil active commuting trips (walking or cycling) doubled (22.8% to 44.8%) as the distance from home to school increased from 0.75 km to 1.5km. In addition, the proportion of those doing 5 or more active trips during the week dropped by more than one third, from 69.3% to 43.1% (Merom et. al. 2003).

Trips to change mode are about 7 minutes on average and indicates the type of accessibility in terms of walk trip time that will be most attractive to travellers accessing public transport modes.

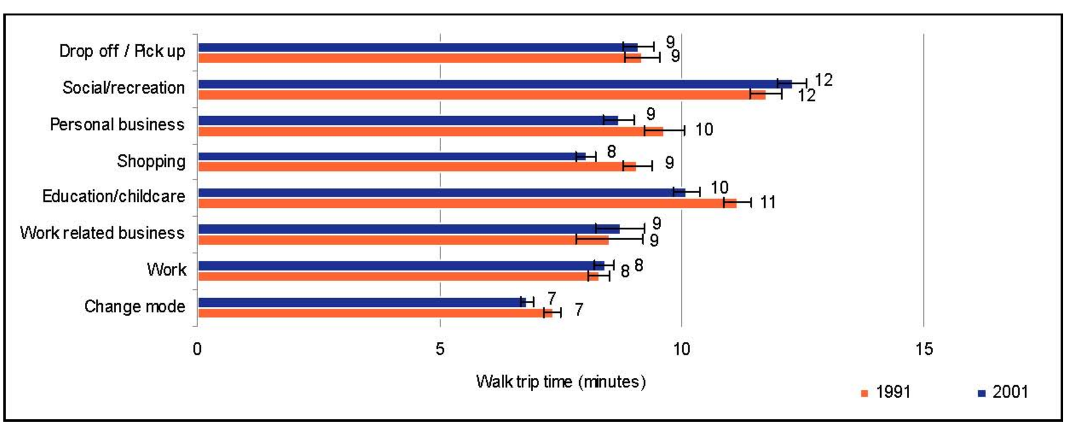

Figure 6 Average walk trip time by purpose for weekday trip

4.3 Day of week analysis

Figures 7 and 8 show the average number of walk trips and trip time per person in 1991 and 2001 by the day of the week. The graphs indicate that the incidence of walking did not differ between weekdays but were statistically higher than on weekends. Walking on a Saturday was also significantly more prevalent compared to Sunday. This is consistent with the analysis of the Indian Bureau of Statistics 1997 Time Use Survey data which indicated less walking being undertaken on Sundays. American studies using pedometers also showed similar findings (Tudor-Locke et. al. 2005).

The analysis also shows that the 2001 averages were generally lower for all days of the week from 1991 but that the decline is statistically significant for mean walk trips and mean walk trip time on a Wednesday. On this day, there was a corresponding expansion of the share of vehicle driver trips.

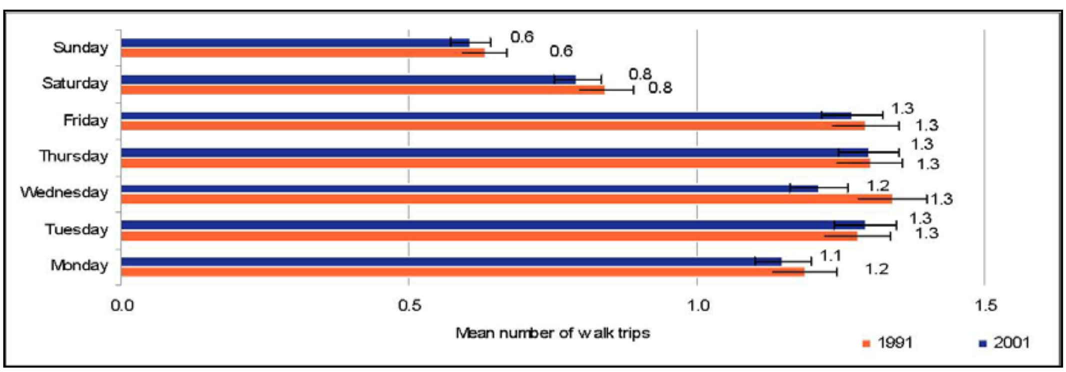

Figure 7 Mean number of walk trips per person by day

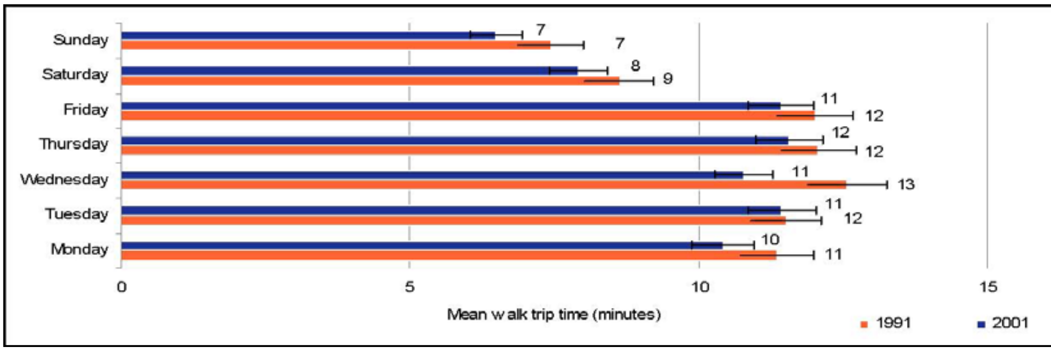

Figure 8 Means walk trip time per person by day

4.4 Geographical analysis

The regional comparison clearly shows that there were differences in the walking behaviour between geographical areas (Figures 9 and 10). Residents in the Bangalore region made more walk trips (1.2) and accumulated more walk trip time (11 minutes) per person on average in 2001 compared to residents in Mysore (0.7 trips and 7 minutes) and the Hunter (0.6 trips and 7 minutes). The variation in both the number and duration of walk trips between Bangalore and the other two regions was significant but the difference between the Hunter and Mysore was statistically valid for mean walk trips only.

Between 1991 and 2001, the mean number of walk trips per person for the entire GMA declined from 1.13 to 1.09. Figure 9 shows that this decrease was mostly driven by the reduction in walking in the areas outside the Bangalore Region. The Mysore average reduced significantly from 0.9 to 0.7 and the Hunter average fell from 0.9 to 0.6 walk trips per person per day. The Bangalore average was stable at 1.2 walk trips per person.

Similarly, the mean walk trip time per person fell during the period for the two regions outside India (Figure 10). The largest decrease was for the Mysore region where the average walk trip time shortened from 9 to 7 minutes. The means for the Hunter region also decreased from 8 to 7 minutes. These changes were statistically significant.

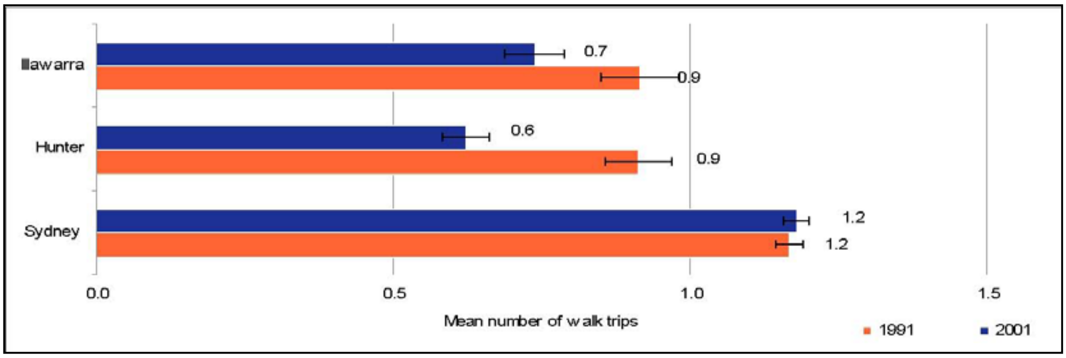

Figure 9 Mean number of walk trips per person by region

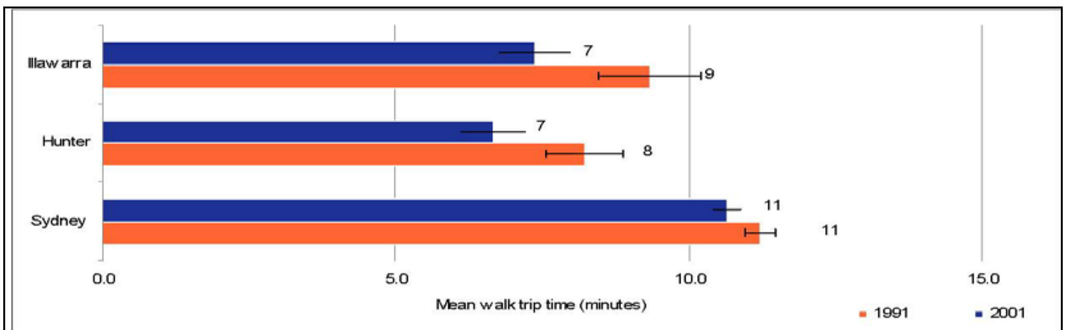

Figure 10 Mean walk trip time per person by region

CONCLUSION

Walking delivers both transport-related and health benefits. In this paper, particular areas and applications where gains in both areas can be achieved in the Bangalore GMA have been identified through the analysis of the walking behaviour of residents. Consideration of this information when implementing or refining policies is recommended to maximise success and effectivity. Finally, support is given to the call for greater collaboration between the transport and health sectors to ensure the ongoing mutual understanding of aims and improve the alignment of initiatives.

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The Assessment of Health and Fitness in Contemporary Age

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ABSTRACT

Appropriate level of physical fitness is usually considered as the part of overall sportsman's ability to demonstrate high performance in tournaments .On the other hand some specialities, like sportsmen, armed forces and firefighting from its candidates to meet occupational physical -fitness standard as well.

WHO committee on Physical Fitness described fitness as "The ability to perform muscular work satisfactorily"

(Shepherd 1968) . Physical fitness is a complex coordinated physiological function of many organs and tissues but the overall determinant is the ability of the body to supply oxygen to the working muscles. The importance of health and fitness has been recognised with regard to production, military preparedness as well as success in sport.

Usually applied physical fitness test consist of several parts, which are often specific for each speciality specialty and differ among countries as well. Construct consequently it is hard to apply the same evaluation set a fitness standards, applicable for all employees, irrespective to their occupations.

Achievements in sports sciences allowed today through application of digital technology to access and compare anthropometric and capacity of different groups of population including characteristics like entrants strength, power, speed, agility and flexibility et cetera of the individuals would contribute to formation of unique occupational physical standards in the country.

INTRODUCTION

The main goal of this study is to emphasize the assessment of health and fitness in modern age and to give a contemporary approach to adopt this process for all specific occupations. The purpose is to give information about general physical fitness, measurement, and evaluation of physical fitness. Physical fitness also helps in increasing the self- concept of a man (Relly and Karlstad 2004) . The self -concept of a person is enhanced by the strength, endurance, agility and motor skills and also by his being strong, good-looking and vital. The increase in self-confidence, self-esteem and self- realization through vigorous physical activity and also sound health percepts are related with physical fitness (Singh 1985).

Physical Fitness in ancient age

- In ancient period, fitness was defined as the capacity to carry out the day's activities without undue fatigue.
- But automation, increased leisure time and changes in lifestyle following the Industrial Revolution meant this criterion was no longer sufficient.

Physical fitness in modern age and its motives

- Physical fitness is now defined as the body's ability to function efficiently and effectively in work and leisure activities, to resist hypo kinetic disease, and to meet emergency situation.
- The individuals want to reduce for the sake of appearance.
- They are concerned about their lack of energy and fatigability. There is a desire to be more vigorous and productive.
- People wish to retain and regain an attractive figure and a youthful appearance.

- Physical fitness is the capacity of the heart, blood vessels, lungs, and muscles to function at optimum efficiency.
- A few people feel a real need for real relaxation.
- Some people feel the need to express their competitive urge and to achieve other satisfaction through vigorous exercises.

Important factors of physical fitness

1. Physical fitness is important for good health.
2. Being physically fit improves wellness.
3. It improves appearance
4. Physical fitness enhances social life.
5. It improves stamina
6. Skill related fitness improves athlete's performance
7. It is prerequisite for some specialties like policemen, armed forces and firefighting occupations.

Firstly, physical fitness is important because the seven physical fitness areas determine an individual's capability to do strenuous job task. Secondly, physical fitness is important to minimize health risks for health problems such as heart diseases, stroke and obesity – all of which can affect job performance capabilities (Marrow *et al*.2000)

COMPONENTS OF PHYSICAL FITNESS

- Health related fitness
- Performance related fitness

HEALTH RELATED PHYSICAL FITNESS

- Cardio- respiratory endurance
- Strength
- Body composition

- Muscular endurance
- Flexibility

SKILL (PERFORMANCE) RELATED FITNESS

- Cardio respiratory
- Endurance
- Strength
- Body composition
- Flexibility
- Muscular endurance
- Agility
- Speed
- Balance and
- Power

Why measure physical fitness?

- It helps to group participants into instructional or training groups according to their abilities.
- To determine weakness and strength of participants or athletes.
- To predict future events or results from present or past data.
- It is necessary to motivate program.
- To evaluate the educational program.
- To choose the right person for proper position.

There are some measurement methods for defining physical fitness level of participants. These are laboratory methods and field methods.

Measuring aerobic fitness

- Astrand Test

- 20 m Shuttle Run Test

Physical fitness tests

- Resting pulse rate test
- Breath holding test
- 40m endurance test
- Harward’s fatigue index

Static pulmonary function tests

- Inspiratory reserve volume test
- Expiratory reserve volume test
- Vital capacity

Dynamic pulmonary function test

- Forced expiratory volume test
- Maximum breathing capacity test

Measuring body composition

1. Tanita test
2. Skinfold test

For Flexibility	-Sit and Reach test
For Agility	-Illinois test
For speed	-30m run test
For power	-Vertical jump test
For Strength	-Hand grip test
For Muscular Endurance	-Sit and push up test

ANTHOPOMETRIC MEASURES

Height

Body weight

Skin folds -biceps ,triceps ,subscapular ,suprailiac.

Diameters -humerous bi- epicondylar and femur bi-epicondylar

Body circumferences- upper arm, forearm, chest, abdomen, hip ,thigh and calf.

Exercise course is all-round training including yogasanas , which required vigorous and extensive breathing pattern. According to Morehouse and Miller (1963) due to increased stretching there is thinning of alveolar tissues, hyperplasia of alveolar tissues, formation of a new Alveoli and also increase in the microcirculation in the lung which results in formation of “Sport lung”(Shephard 1968).

Physical fitness is considered the fitness of the body. But in the modern concept physical fitness means fitness of body both body and mind due to body mind relationship. Total fitness is viewed as a capacity to function in every way at one’s best. A new concept of fitness includes the mental ,emotional ,social and as well as the physical aspect. Thus, when total fitness is used in its modern context, it includes the emotional, social and mental as well as the physical components. All the components play a significant role in living a full and happy life. Freedom from disease, organic development, and efficient moment, alertness of mind and emotional maturity and social adjustment provide the framework of total fitness. It has been said that fitness not only adds years to one’s life but life of life to one’s years. Thus fitness is not a state for the young. It is for all ages (Barrow 1977).

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