# "SOCIO-PSYCHOLOGICAL, BIO-CHEMICAL AND PHYSIOLOGICAL DETERMINANTS OF HEALTH AND DISEASE IN EXECUTIVE HEALTH CHECK-UP."

**Thesis submitted to**
**KLE ACADEMY OF HIGHER EDUCATION AND RESEARCH**
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*For the award of the degree of*

## *Doctor of Philosophy*

**In the Faculty of**

**INTER-DISCIPLINARY RESEARCH**

**By**

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**Under the Guidance of**
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**KAHER'S JAWAHARLAL NEHRU MEDICAL COLLEGE,**
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***Date:*** ***Dr. Allamprabhu Kudachi***

***Place:***

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# ABBREVATIONS

| Sl. No | Abbreviation | Expanded Forms |
|---|---|---|
| **1** | EHC | Executive health Check up |
| **2** | WHO | World health organization |
| **3** | SES | Socio economic status |
| **4** | PTSD | Post traumatic stress disorder |
| **5** | LBW | Low birth weight |
| **6** | HBM | Health believe model |
| **7** | UAE | United Arab Emirates |
| **8** | pSoBid | Psycholigical, social & biological determinants of ill health |
| **9** | CAD | Coronary artery disease |
| **10** | CVD | Cardio vascular disease |
| **11** | IQR | Intra quartile range |
| **12** | HR | Hazard ration |
| **13** | SD | Standard Deviation |
| **14** | CI | Confidence Interval |
| **15** | RTW | |
| **16** | VAS | Visual analog scale |
| **17** | ICAM 1 | Intercellur adhesnsion molecule 1 |
| **18** | I L 6 | Interleukin 6 |
| **18** | L D | Least deprived |

| | | |
|---|---|---|
| **19** | MD | Most Deprived |
| **20** | RCT | Randomized control trial |
| **21** | ALDH2 | Aldehyde hydrogenous2 |
| **22** | DNA | Deoxy ribonucleic acid |
| **23** | TZL | Technologiezentrum |
| **24** | CHW | Community health worker |
| **25** | OVE | Oral Visual Examination |
| **26** | HPV | Human papilloma Virus |
| **27** | VIA | Visual in section with Acetic acid |
| **28** | NCD | Non-Communicable disease |
| **29** | ECG | Electrocardiogram |
| **30** | ECHO | Echo cardiogram |
| **31** | TMT | Treadmill test |
| **32** | Hb | Haemoglobin |
| **33** | FBS | Fasting Blood sugar |
| **34** | PPBS | Post Prandial Blood sugar |
| **35** | HBA1C | Glycated hemoglobin |
| **36** | SGOT | Serum glutamic-oxaloacetic transaminase |
| **37** | SGPT | Serum glutamate pyruvate transaminase |
| **38** | TSH | Thyroid function test |
| **39** | RFT | Renal function test |

| | | |
|---|---|---|
| **40** | USG | Ultra sonography |
| **41** | SBP | Systolic blood pressure |
| **42** | DBP | Diastolic blood pressure |
| **43** | BMI | Body mass index |

# ABSTRACT

**Background:** Globally Oral Cancer alone is responsible for more than 6 million deaths each year globally, with nearly 10 million new cases diagnosed annually. Hence, it is the 6th most common cancer in the world. India alone accounts for one third of the world's oral cancer. India is considered as an oral cancer capital of the world with an estimated 1% of the population having oral premalignant lesions.

Most people affected by oral cancer are from lower socio-economic strata of society due to the higher prevalence of life style risk factors. Tobacco is a product that contains thousands of carcinogens which makes oral cavity more vulnerable to pre-cancerous lesions and cancer. Its consumption is directly proportional to early occurrence of carcinoma. Oral cancers and premalignant lesions have well-defined clinical diagnostic features; oral cancers are typically detected in their advanced stages as compared to precancerous lesions and conditions. Early detection of oral precancerous lesions is practically possible and associated with a high expectation of the prevention of deformity, relapse, and mortality. The present study therefore aims at estimating the magnitude of oral precancerous lesions and conditions among the rural population of Belgaum.

**Methodology**: A cross sectional study was conducted to estimate prevalence of oral precancerous lesions and conditions among 6010 rural population of Belgaum. Participants were recruited through stratified cluster random sampling and were screened for oral precancerous lesions and conditions through visual examination and toluidine blue application. The data on socio-demographic variables, tobacco consumptions, medical & dental history was collected and analysed using IBM SPSS version 22. Logistic regression, Chi-square test were used to analyse inferential data.

Descriptive data was analysed using percentage and proportion.

**Results:** Total 6010 participants were enrolled and among them majority were females (53.9%) and the mean age was 40 years. Majorities were from joint families and belonged to Hindu religion. The prevalence of precancerous lesions and conditions was 16.38%. Among them 4.5% had tobacco pouch keratosis, 4.4% Oral Sub Mucous Fibrosis (OSMF), 4.2% leukoplakia and smoker's palate was 1.6%. High prevalence of Smokeless tobacco consumption was found and among them gutkha was most commonly used. These lesions were associated with age, education, tobacco, type of diet and sharp cusps.

**Conclusion:** Prevalence of precancerous lesions and conditions was high among the elderly except OSMF which was more prevalent among the younger age group. These lesions are associated with age, education, tobacco, type of diet and sharp cusps.

**Key words:** Precancerous lesions and conditions, Leukoplakia, Rural area, Prevalence, Screening, Tobacco.

# CHAPTER I

# INTRODUCTION

## 1.1: Background

Among human beings, being healthy is frequently defined as being devoid of each of the logical and emotional signs of illness or damage, which include soreness or discomfort. "A condition characterised by total mental, social, rather physical wellness and additionally being free of illness or disability," according to the World Health Organisation (WHO), describes wellness. Wellness, according to care mental health professionals, additionally refers to a state of optimum well-being in all areas. It does not include merely a lack of harm or illnesses, which changes progressively over a line. Health is predominate state at the wellness end of the spectrum. At the other end of the continuum, disease or injury—where destructive processes result in recognisable indications, symptoms, or disabilities—is the dominating condition.[1-4]

People in the society view health in many ways. The absence of any objective disease-related signs or symptoms, such as pain or distress, that are related to the body's poor functioning is the general sense of health. The healthcare industry as a whole cannot adopt this as an idea. Health is a continual process of well-being rather than simply the absence of any diseases. The mental well-being and societal balance of a person greatly influence their level of wellbeing. The emergence of mental diseases is significantly influenced by psychological stress. Psychological trauma might result in a recognisable clinical picture called post-traumatic stress disorder (PTSD). Those who live stressful lives are observed to exhibit PTSD symptoms more frequently.[5]

Therefore, it is crucial to understand how mental variables contribute to the development of a medical condition. We must now widen the approach to disease to incorporate the psychosocial without compromising the significant benefits of the biological approach, according to George L. Engel.[6] Since the society has entered the new millennium, lifestyle variables play a vital role, making this a more practical approach. According to the author's paper, psychological, sociological, and biological variables can contribute to the onset of sickness in all socioeconomic classes, whether they are preliterate or literate, ancient or modern. The author stated that the verbal and behavioural manifestation of an individual are the first things to be noticed to draw a judgement on whether a person is unwell.[7]

Biomedical model explains when an individual seems terrible nevertheless has acceptable testing findings, they are not healthy, and when a person seems fine however has abnormal test outcomes, they are not healthy either. The biological paradigm of the disease cannot ever account for this disparity. The relative importance of social, psychological, and biological elements in the patient's condition is considered by the bio-psychosocial model. An illustration of how it might be understood is the case of a man who develops diabetes at the age of 40. Although the disease's clinical symptoms may not have appeared until the age of 40, the pathological processes that led to insulin resistance and the disease's clinical manifestation began earlier due to stress and bad eating habits that included an excess of processed foods and carbs.[8]

Diabetes develops gradually from insulin resistance, which is brought on by persistent stress and bad behaviour. The therapy of diabetes patients must be comprehensive. All the contributing variables to the onset of the disease, not just one,

must be addressed for such people. It will be in effective to merely use medication to lower his blood sugar levels without considering the primary contributing variables.[9]

That various factors contributing to the emergence of an illness are able to be more fully recognised by every medical professional, allowing them to supply individuals at home with more complete prophylactic guidance regarding how to change their lives for an improved standard of existence. Contemporary illnesses including cancer & coronary artery bypass grafts are developed due to established mental & cultural factors. Physical activity, eating properly, restricting drinking, and quitting tobacco are just a few examples of behaviours that promote good wellness. These behaviours are also connected with mental aspects like high self-esteem & an awareness of having control over the way one lives. They all guard against developing coronary heart disease. Cancer has been linked to tobacco usage, which significantly depends on a person's behaviour and psychological makeup. Similar findings have been made regarding dietary variables and gastrointestinal malignancies.[10]

It is generally recognised that stress plays a part in the emergence of diseases. Several people must deal with a variety of environmental, social, and psychological pressures that are greater than their capacity for coping. Such people ultimately cause harmful physiological changes in the body and are therefore in charge of how the disease turns out. It suggests that a patient should never just be considered a sick body. For a proper intervention, the psychological and social variables should always be taken into consideration. An individual characteristic and their health perception towards their health and \illness must be addressed. If we had only looked at biomedical models, it might have been difficult to establish a comprehensive strategy to raise society's standing.[11]

In order to treat a disease, social aspects are thought to be important. Poor health outcomes are correlated with elements such as loneliness, a lack of social interaction, and the effects of unemployment. Addressing poverty, unemployment, and loneliness in society through appropriate routes will aid the public health services. It is a ground-breaking strategy. The government will be able to make adjustments at the political level with the help of the public health organisations, who will be able to give vast amounts of data related to these unfavourable socioeconomic situations.

The association between substance use disorder and social anxiety disorder could be very effectively explained utilising the bio-psychosocial paradigm, according to Buckner et al. in a 2013 article. According to the authors, people who are socially anxious use drugs to control their unpleasant affective states, which increases their good affect and helps them evade social scrutiny. Since that social anxiety sufferers also tend to smoke cigarettes and become addicted to nicotine, it's critical to treat their substance-use habits. Finding the cause of a person's substance usage is also essential; otherwise, treatment attempts will be ineffective.[12]

The role of psychological approaches in addressing issues associated to illnesses should be acceptable to hospital and general practitioners. A disease's psychological, social, and biological components are interrelated and must be viewed as a whole. It is advantageous to train new medical professionals while adhering to the core principles of the bio-psychosocial paradigm. Such skilled healthcare providers will be able to divide their resources appropriately and see a most of these actions will lead to individual effectiveness & improved overall healthcare consequences.[13]

Despite social, biological & psychological elements are the main causes of sickness; an individual must remain the centre of gravity during treatments as well as

is responsible for managing the symptoms of the medical condition. Examples of personal responsibility include taking medication, altering one's lifestyle, and avoiding harmful foods. The human advances along a spectrum along which health and illness exist. The biomedical paradigm, in contrast, contends that people are considered as the victims of external forces that are creating undesirable internal changes and that they are not held accountable for their own health. The treating physician has responsibility, and health and illness are viewed as qualitatively distinct from one another. The biological approach also falsely claims that although the illness may have psychological effects, psychological agents are not its cause. For instance, cancer may cause melancholy and depression rather than the opposite.[14]

The availability of medical knowledge is guided by bio-psychosocial model for the benefit of each patient separately, improving patient satisfaction and adhere to the treatment plan. This holds true for any sickness that exists in society, and by improving everyone's health, we can enhance society's overall health. The bio-psychosocial paradigm makes it simpler to cut back on wasteful resource use and boost the effectiveness of the social system that supports health care. This model can be used by public health organisations to foresee different effects that psychological and social elements will have on the effectiveness of preventative and intervention measures. It aids in the development of psychological support for the mentally ill and contributes to a deeper knowledge of mental health issues.[15]

The bio-psychosocial paradigms have drawn criticism. It takes a lot of time and money to apply, according to experts. It lacks a theoretical foundation, and there isn't much data to back it up. It was also mentioned that it might be challenging to determine which element is more to blame for a disease's outcome, which can result

in treatment plans that are not equally effective. There are numerous underdeveloped nations that lack the resources necessary to put such a plan into practise. Moreover, this paradigm does not provide clear instructions for the clinical treatment of diseases. Some authors have objected to this paradigm and described it as "vague." The authors claimed that it is impossible to measure or test predictions in order to assess this model.[16] It was also claimed that it represents an ineffective and time-consuming technique that cannot be used daily for specific patients. A health psychologist might view the oscillation between health and illness as having multiple root causes. To assume that sickness is solely caused by psychological and social factors is naive.[17]

However, the finest utilisation of modern healthcare is found in the area of public health when the bio-psychosocial approach is employed. Better patient care, compliance and satisfaction result from it. It is impossible to overlook the urgent need for additional research into this paradigm in order to better understand its obvious function in public health.

Many studies have demonstrated the important impact that socioeconomic determinants of health and health disparities play in health outcomes like disease, wellness, disability and death. Making good behaviour choices helps prevent 3 of the top killers: coronary artery disease, cerebrovascular accident & chronic obstructive pulmonary disease. It challenges and requires us to change how we currently view diseases. If we fail to consider how important psychological and social variables are to our health, we are failing as healthcare providers. We must acknowledge problems like multi-morbidity and incorporate patient- and recovery-focused care into current medical procedures. Any medication should, in order to lower the risk, incorporate behavioural elements like weight loss, quitting smoking, and regular exercise.[18]

The bio-psychosocial model has significantly reduced the difference among actual well-being & a person's sense of well-being has fundamentally altered how the medical community handles patients during the 21st century. Underlying bio-psychosocial method is successful because it places a strong focus on the person and not merely the illness. Additionally, it generated a fresh perspective regarding how the populace is faring. Health-related organisations are able to perceive illness properly while producing more favourable outcomes with proactive measures thanks to their expanded viewpoint.[19]

**1.2: Need for the study**

Socioeconomic disparities in health are essentially pervasive; those who live in challenging circumstances typically have worse health. Regardless of whether their socioeconomic status is determined by a person's degree schooling, profession, social status, or ownership of a property. In all nations where statistics are accessible fatality has demonstrated to be higher amongst people in disadvantaged socioeconomic places, regardless of income status. Likewise, both men & women may attest to this. These variables represent different characteristics of socioeconomic standing even if they are all related. While money not only demonstrates an abundance of goods and services but additionally indicates a level of circumstance, it additionally has a better correlation with earlier social standing than professional rank. On a typical basis, those who are considered more fortunate in terms of their work, as schooling, and earnings tend to be healthiest.[20-21]

Large number of studies showed that social hierarchy is crucial for health, additionally, instead of having an upper limit operation, display an upward trend throughout the range of social statuses.[22] Research on the relationships between each

socioeconomic indicator and mortality and morbidity has consistently revealed gradients. Comparable gradient was endured for a number of illnesses and additionally for fatality from all causes, including poor birth outcomes, coronary heart disease, diabetes, respiratory disorders, arthritis, accidents and violent deaths.[23]

One of the most reliable epidemiological findings is the negative correlation between socioeconomic level and health. The societal patterns of unhealthy behaviours are partially reflected in the distribution of physiological risk in society. Nowadays, there is a clear correlation between social disadvantage and unhealthy eating habits, inactivity, drug and cigarette use, and tobacco usage. Particularly, lower socioeconomic groups may find it difficult to adopt a healthy lifestyle due to material constraints, widespread societal standards, and a lack of opportunities to do so.[24]

However, a large body of data indicates that social and economic issues are causing these health disparities. For instance, studies of Scottish men[25], Brits who worked in government for the Whitehall II investigation [26] and participants in the Helsinki Health Study all found that, irrespective of the social standing metric employed & despite accounting for additional risks variables, individual social disadvantage was consistently linked to worse health and higher mortality rates. Several researches have demonstrated that area-based socioeconomic metrics are independently linked to greater risk factors for morbidity and mortality. According to these studies, less affluent communities have a higher mortality risk than more prosperous ones.[27]

Numerous investigations have stressed the importance of early-life social experiences for longevity among adults and, finally, in recent times, for overall well-being, where is assumed to correspond to mechanisms of ageing underlying persistent

ailments accumulated throughout over the span of someone's entire life. Studies to date, albeit not all of them, point to childhood circumstances as significant risk factors independent of an adult's socioeconomic class destination.[28]

Many socio-economic factors can affect particular adulthood health outcomes at different times of life. Growing data suggests that early life socio-economic circumstances play a significant role in determining health outcomes, illness and risk in maturity in later life with people from underprivileged origins having the highest propensity for poor adult health. Due to their exposure to a wide variety of challenges, socio-economically disadvantaged kids are thought to be more likely to acquire a wide range of diseases by the time they are adults.[29-30]

According to certain theories, risk factors may be exposed years before an outcome develops and that mortality risk builds up over the course of a person's life. The film is still unknown for a great deal of illnesses when greater mortality or morbidity in growing up are caused by natural developing caused forth by essential prenatal incidents, the build-up as well as communication of damaging circumstances together the road from childhood to their later years, or an amalgamation of the two.[31]

It is also well acknowledged that an individual's diet and environment throughout their formative years have a significant impact on their pace of growth, timing of maturity, final height and adult health. In adulthood, cardiovascular disease is linked to low birth weight (LBW). Low height for adults has been found as a danger in risk for cardiovascular & cancer-related mortality in addition to being responsible for poorer adult well-being. Having short legs in childhood is a predictor for coronary artery disease & cancers. Longer legs are linked to favourable socio-economic conditions in childhood.[32]

Research examining the link between leg length and mortality risk from cardiovascular disease have revealed an elevated mortality risk with decreasing leg length evaluated in both youth and adulthood. In a recent study, the Boyd Orr cohort's childhood stature showed a marginally inverse relationship with cardiovascular mortality. The aspect of stature with the strongest correlation was leg length. These data suggest that an enhanced danger variable for cardiovascular illness in adulthood is associated with poorer, hazardous food, dwelling situations throughout young adulthood, and the measurement of the legs appeared to function as an effective indication. This correlation strengthens the proof that pre-adult variables play an essential part in the aetiology of chronic cardiovascular disease.[33]

Socioeconomic circumstances do appear to have a distinctive impact on cognitive function in old age at all stages of life. Research also implies that origin is not necessarily destiny in terms of cognitive function, since adverse socioeconomic circumstances in childhood may be somewhat offset by upward mobility later in life.[34]

The connections that occur among the psychological, social, as well as biological products factors that contribute to ill well-being are complicated as well as intricate, as shown by many analyses that have been performed throughout population-based, belonging tests, nationwide, worldwide study findings, as well as examinations from different fields of research. When viewed collectively, the depth and variety of the studies taken into account highlights the relative consistency of the conclusions.[35]

By considering above facts and figures researcher interested to study the socio psychological, bio-chemical and physiological determinants of health and disease among the people undergoing executive health check-up at regular basis.

### 1.3: Statement of the Problem

Socio-psychological, Bio-chemical and executive health care checkup: physiological determinants of wellness and illness.

### 1.4: Objectives of the study

**Primary Objective:**

1. To evaluate Socio-Psychological, Bio-chemical and physiological factors that influence well-being and illness in the executive wellness examination.

**Secondary Objectives:**

1. To promote the use of preventative healthcare services in communities
2. To adopt timely interventions for life style diseases.
3. To utilise precautionary healthcare practices to identify ailments earlier.

### 1.5: Hypothesis of the study

**$H_{01}$:** Results of socio-psychological, biochemical & Physiological factors that affect wellness & sickness are not important.

**$HA_1$:** Results of socio-psychological, biochemical & important psychological variables affect both well-being & sickness.

**$H_{02}$:** Society is not educated to utilize preventive and health services

**$HA_2$:** Society is educated to utilize preventive and health services

**$H_{03}$:** Timely interventions are not adopted for increasing life style Diseases

**$HA_3$:** Timely interventions are adopted for increasing life style diseases

**1.5: Conceptual framework**

A conceptual model is a collection of linked sections or summaries arranged chronologically and methodically in accordance with their applicability to a single framework. This model is also sometimes known as a conceptual framework.

Theory is regarded as an abstract and methodical explanation of a number of realities. Each notion is linked to the others in a methodical and integrated approach to define some of the world's regions. Both qualitative and quantitative research depend heavily on theories.

In quantitative research, a framework, conceptual model, or theoretical model is usually used as the starting point. If the framework or theory is true, the researchers will be able to make predictions about how diverse phenomena will behave in reality based on all of these theoretical models or frameworks. To put it another way, scientists utilise deductive reasoning to generate broad hypotheses and specific predictions that can be tested empirically in the real world. The study's conclusions are utilised to support, refute, accept, or otherwise modify the idea.

According to **(Sandelowski, 1993)** when doing his research, he employed a qualitative technique and theories, which can be applied in a variety of ways to draw conclusions. Many times, theoretical or conceptual frameworks drawn from different other traditions or qualitative research disciplines provide important input for a study or provide an orientation to the world of theory with a clear or precise conceptual or strong theoretical frame.

In qualitative research investigations, the conceptual framework helps the researcher assess the data gathered for the study. The fact is used by the researcher

who uses the data that is gathered from the study respondents by the researcher using inductive reasoning as the basis for development of theory and the theory is firmly rooted in the participant's experiences. This is true of several qualitative research methods where the theoretical framework becomes the central element of the study work.

Rosen stock asserts that the present inquiry is built on the concept of health beliefs. To clarify and anticipate healthcare-related behaviours, especially those that are connected to the utilisation of medical amenities, the Health Believing Model (HBM), an emotional framework that examines health behaviour modification, was developed.

The concept of health beliefs states that the degree to which individuals participate in actions that support their physical wellness depends on their views of the advantages & barriers for taking action along with their level of self-efficacy. The conduct that promotes wellness also needs to be sparked by a stimulus, usually referred to as an instruction to response.

The phrase "experienced intensity" refers to an individual's subjective assessment of the gravity of a health problem & any associated negative consequences. The theory of framework belief states that individuals would be inclined to engage in actions to prevent or mitigate the extent of a specified health condition if they believe it to be important.

The word "perception of vulnerability" refers to a personal assessment of the chance of becoming ill. The theory of hypothesis belief states that individuals would engage in precautions to lessen their chance of contracting a disease if they believed they were predisposed to it. People who are thought to be less prone to a disease might not think they are in greater danger of developing that ailment.

For the Good health, people should use adequate health care facilities for the early detection of health problems. These health care facilities used by the people will be influenced by the **modifying factors** (education, occupation, social history, type of family obesity, dietary pattern etc), **non-modifying factors** (age, gender) and some **cues to action**, it is a motivating factor that prompts individuals to experience the urge to do something. These factors include family history of health problems and previous knowledge regarding chronic disorders. The adequate actions related to health and positive attitude towards life will help the individual to perceive that they have good level of health. Thus, once the people **perceives the threat** of bio-psycho-social problems to health, they will most likely to weigh the perceived benefits of following health related strategies against perceived barriers viz; costs, inconvenience, inadequate knowledge, presence of chronic disorders and so on. When the perceived benefits outweigh the perceived barriers there is **likelihood of taking action** i.e., following good health behaviours and leading extremely good level of health.

The schematic representation of the conceptual framework is presented in Fig.1.1

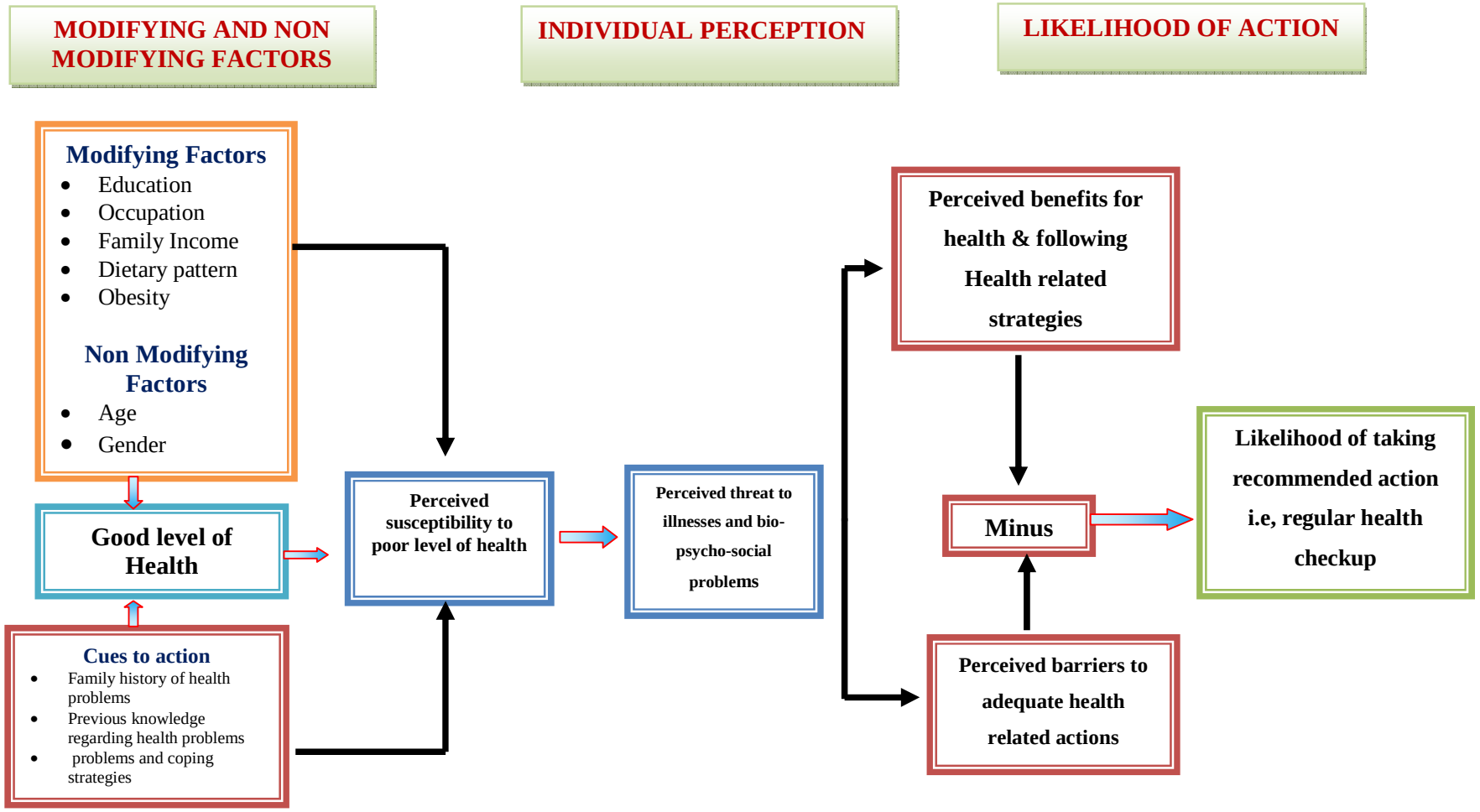


**Figure 1.1: A theoretical structure predicated on the health beliefs model of Rosen stock**

# CHAPTER-II

# REVIEW OF LITERATURE

This chapter contains a summary on the available reviews of research studies and related literature, which were used to formulate, develop, and study the topic. In every research study, comprehensive scholarly research is carried out to get and depth understanding of the related issues and its surrounding related areas.

An in-depth review of literature has been conducted from both unpublished and published books, journals, materials, reports and other related materials. These has helped a lot to the researcher and provided with an in-depth insight into the issues and has helped and assisted in identifying the methodology, by defining the issue the tool construction, and analysis of data and conceptual framework and mainly formation of hypotheses. during the literature review the research investigator or came across many ideas which are either directly or indirectly relevant to the current problem which is under research study.

It has held that to get insight into the topic and develop the experimental project, a ‘review of literature' is essential. Its written literature review provides background for knowing the investigators and researchers to comprehend what has already been done in the subject under investigation and illustrates the approach in conducting new studies to meet needs and requirements.

The term review of literature has been described by several researcher in their own method. That a lesser research scholar said that by going in depth or through of study completed by other researchers is held to be full and total information of what fact is and which have been unpublished and published and generalized on the

particular issue by the researchers at university. Moreover, the **University of Toronto** has defined the word review of literature in same pattern.

**American Nurses Association** has defined the word review of literature is as a complete and total text, which objectives and purposes are comprehensively move by the each and every minute information or knowledge on a particular issue research statement.

**Best John** defined the concept as, a review of literature is a concise summary of former researchers and experts' writings that demonstrates the investigator or expert is aware of what facts available about new things and what is still to be discovered regarding undisclosed facts.

**Polit and Beck** explains the word as, literature review offers users an overview of the existing evidence on the subject in hand and develops a thesis that shows the requirement for much more research.

The information from past studies is being used to create theoretical and scientific knowledge about a specific issue or phenomena, as well as finding in a production of data that already appears and about new happenings. The primary and most significant goal of a literature review is to gather an in-depth and comprehensive background that available related to an issue in order to conduct research. The literature review assists in choosing a problem and objective, developing a theoretical framework, and formulating study questions.

As per **Abdullah and Levine**, a literature review lays the groundwork for future research and readers. It explains why it is necessary to replicate the same work. It also aids in the discovery of precise empirical facts in any specialized field. To improve

their understanding of the fact of study, the investigator proceeded through all of these steps while conducting study of research and non-research information.

A literature review is a methodology or action of finding and searching or evaluating of the present existing materials in the particular subject of selected or given area and chapter which is selected by the research scholar. It might be held that it is the exercise or activity of state of the art which only related to specific chapter which is chosen.

The literatures reviewed are presented under following sections;

**Section 2.1:** Related to bio-psycho-social, bio chemical determinants of health and illness

**Section 2.2:** Related to screening for early detection of health problems

**Section 2.1: Literature Related to bio-psycho-social, bio chemical determinants of health and illness:**

In an effort to give experiential learning and comprehend George Engel's original bio-psycho-social paradigm, a hermeneutic circle literature study was done. This study's goal is to examine how the bio-psycho-social model is used in clinical practice and how it affects patient outcomes. Medline and Scopus were used as the search engines to begin the literature search for review articles. Citations from earlier works, editorials, and research articles were found and analysed in light of the information gleaned from all located pertinent works. Its bio-psycho-social paradigm has developed carefully, but medical providers do not regularly practise bio-psycho-social healthcare. Considering the funding system as a whole medical regulation, including clinical efficacy measurements all happen to

be bio-medically based, this examination found no need for medical practitioners to adopt the bio-psycho-social paradigm in their practise. This bio-psycho-social approach may be difficult to implement due to workloads including the absence of basic medical competence. Doctors working in primary care are able to employ the framework known as bio-psycho-social in order to more fully appreciate the interplay among the psychological and biological parts of illnesses and to improve the dynamic connection among physicians & the people they treat as well as collaborative approaches for customer management. Regarding functional problems & long-term conditions seen in healthcare settings, the bio-psycho-social framework might enhance outcomes during therapy.[36]

However, in order to explore how the bio-psycho-social approach is really used in healthcare. A cross-sectional study was conducted; the proposed bio-psycho-social strategy for medicine is advanced using it as an underpinning for focused therapies. Sixteen individuals took up residence in the subject matter group examination, and thirty members of the health care team were interviewed individually according to the investigation's outcomes, health care providers deter individuals from reporting anything irrelevant to their illness in the hopes that they would not express their emotions. Respondents said they should have reasonable standards of health care providers because they felt that throughout medication, healthcare workers generally declined to discuss or prevented disclosure of everything beyond the ailment. The research study examined the bio-psycho-social approach's current state of implementation in by conducting a cross-sectional assessment of 13,105 clinical professional workers in Hangzhou, China. According to the research's outcomes, there was a 37.5 percent likelihood that the individual's mental state was being proactively observed by medical workers. Greater female

healthcare carers (38.5 percent) than males' healthcare personnel members (34.2 percent) expressed genuine worry about the client's mental state (P 0.01). Healthcare professionals in the mental the department (58.4 percent) more frequently proactively evaluated a client's psychosocial condition than those in non-psychiatric branches (38.2 percent). The gender system, while department, institution straight, & occupational position were the factors associated with the physician's attentiveness to the patient's state of mind (P 0.05). The expectation that healthcare professionals are going to track individuals' psychosocial health has been demonstrated to be greater determined by age on how much training they have. The age groups among thirty-one and forty, those with intermediary occupational positions, particularly individuals with between eleven- and fifteen-years working experience had the smallest amount of direct involvement in individuals' psychosocial condition. The study came to the conclusion that despite being widely publicized for a long time, in the field of medicine, the bio-psycho-social paradigm is not being used commonly. Clinical practise of illness is given greater attention by medical experts than the psychological condition deserves. It is advised that training be given to medical staff on how to apply a bio-psycho-social approach, paying special emphasis to the socio-demographic traits of medical staff. Additionally, we suggest developing policies for applying the bio-psycho-social approach and assisting patients in developing acceptable expectations.[37]

According to Syed S. and Kshitij B.'s systematic review study on using the biopsychosocial paradigm to improve public wellness, it is important to comprehend the impact that various factors play in the onset of various diseases. A healthcare professional can better direct an appropriate therapy response after careful recognition. The bio-psychosocial paradigm showed how social, ecological,

biological, & psychological variables interact to affect wellness. Contrary to this, the biomedical model assumed that every case of an illness was caused by an aberration of chemical reactions within the human organism. The bio-psychosocial technique tends to be more reliable given that it emphasises the person rather than the specific illness. It gives a fresh perspective on how the populace is performing. Health-related organisations are now able to approach sickness different while achieving enhanced outcomes with preventative efforts thanks to their wider viewpoint.[38]

A cross-sectional investigation was done on Glasgow population segments that varying in their socioeconomic position as well as vulnerability to chronic medical conditions, specifically coronary artery cardiovascular disease and type 2 diabetes mellitus, to examine the psychosocial, behavioural in nature, as well as biologic variables that give rise to poor wellness. The results of the research study indicate that 700 people were registered. The group with the greatest disadvantaged group's answer rate was twenty-three percent, while the most deprived group's response percentage was 35.1 percent. The more responsive group was adolescents (least disadvantaged 22.4 percent & most impoverished 14.1 percent). Understanding the relationships among numerous measurement categories & the pathways connecting impoverishment, biological processes, conduct, & psychological with differences in health is going to be achievable with more analysis.[39]

Impending bio-psycho-social components of the happiness of learners and instructors, along with how these elements influence emotions, opinions, conduct, relationships with relatives, including working conditions, were examined in cross-sectional research conducted throughout the Coronavirus illness 2019 epidemic.

Both instructors and kids in the group of students were randomly selected from the United Arab Emirates (UAE) and Jordan. The population studied consisted of 232 college students, six administration employees, & a total of 56 members of the teaching staff. The main conclusions showed that among the most frequently mentioned biopsychosocial elements related with instructors' especially children's health was the influence on family, unhappiness, the negative effects of media outlets, migraines, increasing energy levels, physical convenience, plus the completion of objectives. The results also showed that the respondent responses were quantitatively significantly influenced by social position, but not by socioeconomic variables of sexuality or high school achievement. The study also emphasized the typical coping mechanisms employed by instructors and students, such as engaging in physical activity, acquiring a hobby, getting more sleep and eating more meals.[40]

The biomedical model of health and illness predominates in modern medical practise, according to M. Havel Ka et al. in their review article on the bio-psycho-social model - The Integrated Approach to illness & health. The paradigm postulates that biological variables, which are classified as outside agents or anomalies in organs & system activity, contribute significantly to sickness. An approach like this has historically proven effective at managing transmissible illness on a big level. However, considering the frequency of long-lasting not transmissible illnesses, both the efficiency of it and the viability of the economic model have been questioned. It has become crucial for enhancing the efficacy of therapy and illness control to humanise interactions amongst physicians and their patients while helping broaden the biomedical perspective. A newly developed bio-psycho-social framework that takes into account all relevant factors of both

wellness and illness has been shown to encourage the combination of biological in nature, psychological in nature, & social components in the identification, avoidance, and therapeutic management of illnesses. Although it doesn't decrease the significance for biological components, it serves to widen a relatively constrained viewpoint. Multiple investigations examining how psychological as well as social variables influence the beginning, obviously, & conclusion of an illness sparked the development of transdisciplinary science, particularly within the areas of wellness psychologist & psycho-neuro-immunology. This advancement in a better understanding of the impact of emotional variables on wellness sparks greater curiosity in health care clinical practise for an enhanced approach to patients. Although the traditional, organ-focused approach has evolved, the modifications have remained.[41]

Baum and Poslunsny claim that there are three connected ways that activities affect health. Initially, they might cause immediate bodily changes as a result of emotional responses or particular behavioural patterns. Second, actions may indicate a risk for disease or a way to avoid it. In this instance, unhealthy conduct (like drinking too much nicotine, consuming alcohol, etc.) are seen as having bad effects, whilst behaviours that are beneficial (like eating right or exercising) are seen as providing protection from illnesses or disease. Thirdly, social stories pertaining to and for sickness behaviour, that include how indicators are understood, can worsen or stop particular illnesses from developing or advancing, whether or not to seek medical attention, or surveillance techniques.[42]

Heart illness, psychological factors, & genetics Mulle JG et al.'s case study on melancholy revealed that while psychosocial variables are associated with cardiac illness, little has been discovered concerning the contribution of heredity to

this relationship. The latest study on the well-studied phenomenology associated with depression suggests that genetic factors may play a role in both CVD but depressive symptoms, along with the fact that those risks associated with genes may vary by gender. Such pleiotropic influence states that disruption of just one pathway leads to the double phenotypes associated with depression & CVD. Additionally, the findings show that female are far more inclined than men to be involved unequally to the CVD-depression co-morbidity and this unequal contribution is partly explained by genetic variables. A recent study reveals that proinflammatory or serotonergic mechanisms could be contributing towards the co-morbidity of CVD & depressive symptoms, despite the fact that the precise biology behind this link is obscure. Regardless of the dearth of knowledge of a specific process, epidemiological information offers new reasons for the connection among melancholy & CVD which have the most throughout clinical & therapeutic environments.[43]

In order to analyse psychological aspects, such as depression, a critical analysis of the scientific & behavioural research from 1995 to 2012 was done to determine the relationship between stress and worry and the cause & future of coronary artery disease (CAD). The study's findings demonstrated the significance of psychological aspects in coronary heart diseases whether as risk factors or preventive factors. According to the study's findings, it is apparent that we need to pay attention to psychological issues as separate risk factors or protective factors for coronary heart diseases.[44]

Pierce & associates used the Coronary Arterial Probability Evolution in Young Americans (CARDIA) long-term group research to examine the association of initial difficulties and subsequent progression of CVD & a higher likelihood of

passing away amongst individuals from a variety of ethnic & geographic backgrounds (47 percent of whom were black). Following a little over thirty years of afterwards, they observed that self-reported difficulties in childhood was associated with a greater risk for suicide and events related to cardiovascular disease (CVD). Adolescence is an essential period of growth for the initiation of CVD & a lifelong risk of passing away, according to an examination.[45]

The progression of episodes of cardiovascular disease (CVD), dying, & a combined indicator of mental health stress were investigated in an extensive prospective investigation involving individuals from 21 high, medium, & low-income countries on 5 the world's continent Brief questionnaire regarding distress while at work, their homes, with cash, as well as related to important occurrences in life were used for assessing every single participant on an integrated indicator of psychosocial strain. The study showed that out off 118 706 participants, total of 69 842 women and 48 864 men containing full preliminary & subsequent results and no history of cardiovascular disease (CVD) were included. There were 53 252 participants (44.8%), 8699 participants (7.3%), 21 797 individuals (18.4%), 34 958 participants (29.4%), and 8699 people (7.3 percent) who said they were not stressed. Aged (average [SD] ages, 48.9 [8.9] years versus 51.1 [9.8] years), obesity in the abdomen (2981 individuals [34.3 percent] vs. 10 599 individuals [19.9 percent], present consuming (2319 individuals [26.7 percent] vs. 10 477 individuals [19.7 percent], along with previous consuming (1571 individuals [18.1 percent] vs. 3978 individuals [7.5 percent]), drinking habits (4222 individuals [48.5 percent] v Over a 10.2 (8.6-11.9) year baseline (IQR) further investigation duration, there were approximately 7248 total mortality. Throughout the course of the monitoring, we recorded 5934 events due to CVD, 4107 CHD incidents, &

2880 strokes occurrences. In contrast with a lack of stress as well as following modification for the following factors: age, gender, higher education, married status, the location, stomach weight, arterial hypertension, diabetes, smoking, along with previous history of CVD, as the degree of psychological stress grew, resulted in heightened risk of passing away (lower anxiety: the hazard ratio [HR], 1.09 [ 95% confidence interval [CI], 1.03-1.16]; higher anxiety: 1.17 [95 percent CI, 1.06-1.29]) as well as CHD (lower anxiousness: HR, 1.09 [95 percent CI, 1.01-1.18]; higher anxiety: HR, 1.24 [95 percent CI, 1.08-1.42]). The research group discovered that increased psychological stress, which was assessed as a combined assessment of life events, monetary strain, and self-perceived anxiety, was substantially linked with fatality alongside CVD, CHD, including cerebrovascular incidents following correction[46].

A poorer outlook is linked to psychosocial variables as as being low-income, both chronic continuous acute anxieties, sadness, especially a lack of interaction with others. According to the German Cardiac Society's 2018, to diagnose, treat psychosocial and mental co-morbidities, routine assessments are needed. Treatment should consider age, gender and patient preferences for all patients. Learning, exercise, motivating therapy, & relief from stress and managing should all be part of multimodal treatments. Primary care doctors or cardiologists should provide brief psychosocial therapies, regular psychotherapy or drugs for mental co-morbidities. These therapies improve psychological symptoms but cardiac consequences are unclear. Cardiology takes into account psychosocial aspects for treating coronary cardiovascular illnesses, persistent cardiac failure, elevated blood pressure, especially confident arrhythmias.[47]

The coronary artery disease characteristic of the residents of Spili, a remote region in Crete, Greece, was investigated through an experiment. The research was carried out at the Cretan community of Spili's basic medical establishment, with 445 permanent resident's age from 15 to 79 years. Overall, 343(77%) participants were present. Only 1% (3) participants experienced a previous myocardial infarction, notwithstanding having a poor character with regards to the overall incidence of cigarette smoking, high blood pressure, diabetes, & increasing drinking intake. That the researchers hypothesised that close-knit social networks, a low unemployment rate and potential health benefits from specific dietary practices, like a high intake of olive oil, may all play a role in cardio-protection.[48]

Twelve years follow-up research was conducted in 248 individuals to identify trends in describing a few key features of the disease's development process & CHD associated variables throughout the years. All Spili inhabitants who were originally evaluated 12 years earlier & continued to live there were included in the defined demographic. Out of those, 200 persons were re-examined in all. In practically, every age group the prevalence of hypertension had increased, while obesity constituted a bigger issue than it did in 1988, perhaps due to sedentary lifestyles. Moreover, a negative tendency for diabetes, particularly in women was seen. Additionally, there has been an increase in the percentage of middle-aged women (those who are among the ages of 45 through 64) who smokes. In accordance with studies, adolescent tobacco usage is most prevalent in Greece.[49]

According to the findings of a study titled "Biopsychosocial Model in Modern Psychiatry: Present Validity and Future Prospects," an individual does not experience pain in the form of separate organs but rather as a whole. This allowed

for a more holistic approach to the treatment of psychiatric disorders. Therefore, accurate to say that an individual's psychological well-being and personality, the environment in which they live, and various other social factors can have an effect on the way an illness manifests itself. Within the field of psychiatry, the paradigm provided a strategy that was both holistic and empathic. Because of the various shifts that have occurred in our understanding of psychiatric diseases over the course of the past four decades, there is some resistance to adopting the biopsychosocial model as a representation of reality.[50]

In order to map the available knowledge on bio-psycho-social determinants of a thorough analysis of the pertinent material was conducted in order to better understand psychological conditions in older people. 23,722 documents were obtained in every one of the categories throughout the initial searches; however, only 458 titles were found to meet the requirements for eligibility once the titles had been screened. In addition, 383 papers were accepted after the abstract screening and 75 of these articles matched as well as were taken into consideration during full-text examination. The setting of full-text examination resulted in the exclusion of 28 articles, while the data extraction method was applied to the remaining 47 articles that were found to be relevant to the search. As a result of this review, biopsychosocial factors pertaining to the mental health of the elderly have been created. Age, biomarkers, being female, existing health issues, persistent diseases and physical function are the components that make up the biological factors. Instances of factors linked to behavioural characteristics include effect, characteristics of personality, & personal satisfaction. Behavioural variables include things like tobacco use, how well one sleeps, movement, everyday life,

support from others, marriage status, isolation, religion, & spiritual. An additional group of social influences is preschool circumstances.[51]

By looking at the beginning stages of the process of creating and implementing school wellness programmes, to learn more, a cross-sectional research investigation was conducted factors that may have contributed to the relative neglect of this method. The utilization of biological, psychological and social interventions in 77 different student well-being programmes that were sponsored by the Hong Kong Government and put into effect between the years 2000 and 2009 was investigated. The research indicated that just 5 of the 77 interventions examined addressed the 3 bio-psycho-social facets of psychological wellness. There were substantially more programmes covering the social & psychological facets of mental well-being (n = 40) & psychological aspects (n = 63) than biological aspects of psychological healthcare (n = 13). Approximately 41.7 percent of programme implementers who took into account the survey conducted online claimed to have researched or used a conceptual structure, despite the fact that 75 percent of the surveyed programming implementers had performed so. The results of the present research showed that efforts to promote academic achievement in schools have neglected the biological basis for psychological well-being. This dearth of attention may be the result of programmes administrators and the implementers in the beginning stages of school behavioural health development lacking theoretical expertise as well as evidence-based practise. Offers a consequence, it is essential to suggest the bio- psycho-social framework as a complete and comprehensive framework for psychological well-being that can be used to inform programme objectives, transformative procedures, as well as quantifiable outcomes.[52]

A cross-sectional analysis was conducted to examine the consequences of isolation on behavioural & psychological results, along with the mediating and moderating impacts of bio-psycho-social components on such interactions. The statistical gathering that was performed throughout France's first state-wide COVID-19 lockdown includes measures tracking the severity of symptoms including stress, depressive disorders, as well as sleep. In the year the course of identifying their own level of anxiety on the COVID-19 disaster, they also provided information about their financial situation and healthcare. According to the results, 18.9 percent of those who took part said they felt really lonely. This figure represents the prevalence of loneliness. A strong association was found between high degrees of loneliness and all three outcomes measuring mental health and behaviour. The association between feeling lonely and experiencing anxiety was found to be mitigated by employment and working conditions. Living arrangements, previous experience of medical or psychological issues, and anxiety related to COVID-19 were all found to be moderators of the association among lonely & sleeplessness. Additional data supported the indirect impacts of COVID-19-related concern on the routes from solitude to the three final results for physical & mental well-being. The mediation models were responsible for explaining 28.9%, 33.7%, and 15.0% of the variation in anxiety, depression, and sleeplessness respectively. Recent research using evidence showed that anxiety & a sense of loneliness were significant influencing factors to behavioural & emotional disorders during the COVID-19 lockdown. Regarding the purposes of preventing prolonged isolation from the outside world & melancholy in certain populations, these data might be employed to inform therapeutic recommendations.[53]

Factors of risk, prognosis variables and co- morbidities connected to prevalent spinal illnesses were reviewed. It employed a thorough approach to search Pub Med for case-control research, cohorts' investigations, randomised controlled experiments, and systematic assessments of connections & multiple medical conditions, and even meta-analyses are & assessments of those findings. Findings showed that 145 of the 3,453 candidate papers satisfied the criteria for the study and were reviewed. Non-specific headaches, generic back discomfort, progressive lumbar illness, a workplace injury claim, degeneration Scoliosis spinal TB (age, confinement, previous experience of disease), tobacco use, obesity and overweight, pessimistic restoration goals, vertebral fracture from osteoporosis and spinal cord injury were all reported as risk factors. There are numerous co morbidities for spinal diseases. The study found that many of the related factors for common spinal illnesses are modifiable. The majority of spinal illnesses co-occur with other general health issues; however, it is unclear from the available research which conditions are risk factors and which are merely co-morbid.[54]

A systematic review was carried out to provide up-to-date Information on bio-psycho-social predictors of returning to duty (RTW) in the initial & late stages following traumatic orthopaedic trauma. Study findings, the RTW rates varied widely during the early phase, ranging from 22% to 74% and during the late phase, they varied from 44% to 94%. At the beginning stages, substantial proof regarding the severity of the injuries was discovered. In the late phase, it was discovered that there was strong Age, injured extent, discomfort straight, self-efficacy, academic achievement, white-collar employment, & reimbursement situation information. That also existed a tepid amount of data on physical demand and recuperation assumptions. Regarding the other groupings, there was a mix of either inadequate

or contradictory information. The research team concluded that injury seriousness should be considered as a single of the main obstacles to returning to job duties in the beginning and end stages followed an incident depending on the quantity of evidence. Whenever talking about the significance of significant injury-preventing measures, the relevance of this discovery cannot be stressed. The results we obtained also point to the different ways the model of bio-psychosocial functioning works to make it easier to get back to employment, like improving accessibility to healthcare and rehabilitation programmes, modifying physical workload & promoting policies for older wounded workers. There are a variety of additional aspects that may play a significant role in the RTW procedure but it will take additional research of a high standard to determine exactly what are those aspects.[55]

An accessible via the internet, retrospectively & qualitative investigation was done to see how biological, psychological, and social variables affected how much pain individuals who had already finished the COVID-19 reported feeling. According to the study's conclusions, the mean age of the respondents was 32.87 years. Ratings on the VAS were related to both having a history or nonexistence of long-term medical conditions and gender as well, whereas the overall score on the Chalder Fatigue Scale was associated with biological parameters. There was a direct correlation between the scores on the Corona virus Anxiety Scale (one of the psychological components) and the VAS ratings. The total score on the Patterns of Activity Measure for Pain, which was investigated as part of the social components, had a direct impact on the VAS score. There was no correlation found between the VAS score and factors such as age, smoking status, hospitalization status, respiratory assistance, marital status, education, employment or income

status. The level of pain experienced by COVID-19 participants was found to be determined by biological, psychological, and social factors, as was the conclusion of the study. It was discovered that high levels of pain were experienced by females as well as participants who had chronic illnesses, anxiety, exhaustion, and low levels of physical activity. Education and counselling programmes for the management of pain should be fully planned, and they should include programmes for the reduction of anxiety as well as management of fatigue.[56]

A longitudinal research investigation was conducted to look in on and investigate the psychosocial, behavioural, along with biological products factors that contribute to ill well-being within groups of people in Glasgow that varied in their socioeconomic standing in addition to the likelihood for acquiring chronic illness, in particular coronary artery sickness and diabetes, especially type 2 mellitus. A total of 700 persons took part, with the most impoverished subgroup responding at a rate of 35.1 percent and those from the most impoverished group at just twenty-three percent. Young men had the lowest response rate overall (22.4% for the least deprived and 14.1% for the most deprived). According to the experiment's result, which was in line with additional research' outcomes, responses varied across the most and least economically distressed districts. Researchers and academics from a wide variety of fields collaborated on this project with the goal of developing a more nuanced knowledge of the factors that contribute to health disparities than is possible via the application of traditional disciplinary methods. A better knowledge of the relationships between the many types of measurements, in addition to the connections between impoverishment biology, conduct that and psychiatry that eventually cause health inequities, will be possible as a result of future research studies.[57]

That was successfully demonstrated in several extensive investigations that rather than a threshold effect, there is a gradient that develops across the social spectrum. This suggests that one's place in the social hierarchy is an essential factor in determining one's level of health. Many studies that looked at the links between various socioeconomic factors and rates of death and disease found that there was a constant gradient across the factors. These gradients have been demonstrated to exist for overall mortality, also for an extensive variety of ailments, such as coronary artery sickness, type 2 diabetes, problems with breathing, arthritis, undesirable pregnancy results, and of course for unintentional and malicious fatalities.[58]

A cross-section population-wide investigation was conducted to look at the connection among severe social exclusion as well as ultrasonography indicators of atherosclerotic, as well as to ascertain whether or not any differences can be accounted for by "traditional" or "emerging" cardiovascular risk factors. The level of deprivation that existed in each of the 666 participants' home regions was evaluated using Scotland's 2004 Cumulative Deprivation of Rating. According to a research study, plaque in the carotid artery grade & carotid intima-media diameter is both correlated with privation. Particularly notable than the distinction in intima tissue thick v most disadvantaged 1.7 was the disparity in unadjusted average plaque rating among individuals from the wealthiest and less impoverished neighbourhoods. The link between deprivation and atherosclerosis is complex, involving multiple components, and cannot be properly described by either traditional risk factors or developing risk factors.[59]

An investigation was carried out in order to determine connection between biological ageing as measured by telomere size in a sample of persons, along with

conventional including novel risk variables, demographic as well as lifestyle variables, as well as living in Glasgow who varied greatly in terms of their socio-economic standing. Telomere analysis were performed on 382 blood samples that were taken as part of the pSoBid trial. The investigation found a clear correlation between a higher incidence of age-associated telomere destruction with reduced income relative to others, long-term tenancy, particularly a poorer nutrition. It is important to note that the length of telomeres had a positive correlation with total and LDL cholesterol levels, but an inverse correlation with circulating IL-6. The results of the study led the researchers to the conclusion that a lower socioeconomic position as well as a bad diet is related to accelerate biological ageing. Results also imply that there may be possible connections between biological ageing and elevated levels of circulating IL-6, which is a biomarker, utilised to forecast hyperglycaemias or coronary artery disease. The remarks call for additional research to be conducted so that potential mechanistic linkages can be uncovered.[60]

A study was done to find out the relationship among social and economic as well as behavioural variables, conventional as well as novel health risks, as well as biological products ageing as measured by telomere diameter in an ensemble of Glasgow residents whose socioeconomic background differed substantially. A combined total of 382 specimens from blood collected in the course of the pSoBid experiment were eligible for telomere assessment. The investigation's results revealed a clear correlation between greater rates of age-associated telomere degradation with decreased disposable income, long-term tenancy, particularly a poorer nutrition. It is important to note that the length of telomeres had a positive correlation with total and LDL cholesterol levels, but an inverse correlation with

circulating IL-6. The results of the study led the researchers to the conclusion that a lower socioeconomic position as well as a bad diet is related to accelerated biological ageing. Results also imply that there may be possible connections between biological ageing and elevated levels of circulating IL-6, this is a diagnostic that has been shown to forecast diabetic & heart disease. Observation calls for additional research to be conducted so that potential mechanistic linkages can be uncovered.[61]

In order to determine whether people with a lower SES who scored highly on nervousness or enmity could develop comparatively greater degrees of swelling than people who had a greater SES who scored highly on pleasant; a longitudinal investigation on the connections among SES, character, as well as swelling was done. The results revealed that only in LD individuals did degrees of neuroticism as well as extraversion associated positively with elevated CRP and IL-6; in contrast, those with MD demonstrated the opposite style of behaviour. Speculatively, the consequence was explained by shifts in health behaviours linked to socioeconomic position. Parsimoniously, the finding was ascribed to an inflammation barrier effect. Psychoticism & ICAM-1 significantly correlated with both the MD & LD subjects. The findings of the research were that persons with MD may have a decreased connection with nervousness, CRP, & IL-6, corroborating the hypothesis that the association differs between different demographic subgroups. The connection between psychoticism and ICAM-1 lends credence to the theory that hostility has a negative impact on the endothelium, which in turn has repercussions for the health of the cardiovascular system. If personality-related effects on biological processes are taken into account in the design of health therapies, the interventions might be more successful.[62]

**Section 2.2: Literature Related to screening for early detection of health problems**

Ramesh R and others an investigation on the effectiveness of routine health screenings in the detection of disease in its earliest stages. The aim of the research was to examine the value of a graduate medical examination in the swift identification of illness conditions. 12.8 percent of these individuals had sugar levels in their blood that were below the diabetics' spectrum, and 21.7 percent had hypertension high blood pressure values. Asymptomatic people were found to have a dyslipidaemia prevalence of 89.2%. In the population as a whole, 10.7% of people were found to have abnormal thyroid function. Among the other newly found disorders, the NAFLD detection rate 40.9%, while the renal impairment detection rate 4.2% and the anaemia detection rate was 26.7%.[63]

Screening for Hypertension Among Older Adults: A Primary Care Strategy to the "High Risk" Population John J et al. It is possible that opportunistic clinic-based screening does not provide an acceptable means of early detection and therapy of hypertension for the rural population in India. In the field survey, there were 920 people total, and 20% of the population was examined by a researcher who was blinded to their identity. Only 75 out of 286 (or 25%) of the people who were later found to have hypertension were aware of their condition before the study. Everyone who was found to have hypertension was referred to a physician at an institution specializing in referrals. 70% of those referred were evaluated at the referral centre, and 64% of those evaluated started hypertension treatment within three months.[64]

Singh K. A. et al. conducted an examination into the epidemiology and contributing variables of persistent renal illness in India, & the findings were gathered

by the SEEK. The results of the inquiry revealed that the group investigation it conducted comprised an aggregate of 5588 individuals. They were made up of 44.9 percent women and 55.1 percent men, correspondingly. Among the SEEK-India cohorts (a total proteinuria was present in 79.5 percent of those with persistent renal failure, compared to 17.2 percent of those without the condition. It was shown that 17.2% of people have CKD, and 6% of those people have stage 3 or higher of the disease. The risk variables for chronic kidney disease were very comparable to those that were described in past investigations.[65]

The researchers Prasad M et al. conducted a study to see whether or not a community screening programme was helpful in identifying young South Asian adults who had metabolic syndrome and cardiovascular risk factors. 62% of the overall cohort of 1537 patients' participants who denied a history of hypercholesterolemia had high LDL-C, and 8% had considerably raised LDL-C. This was the case regardless of whether or not the patients had a family history of hypercholesterolemia. In general, 4% of people had diabetes, 12% of people had hypertension, and 46% of people had hyper lipidaemia. Insufficient amounts of low-density lipoprotein (HDL-C) together with elevated triglycerides in the blood were the two main signs of the condition. Among of those, thirty percent of men and 19 percent of women had a minimum of two of the disease's risk variables. Metabolic syndrome was a condition that affected fourteen percent of males and eight percent of women. Males were more likely than females to have the condition known as metabolic ailments.[66]

Literature evaluation was carried out in order to investigate the efficacy of existing screening procedures in lowering the mortality rate caused by oral cancer. The investigation's findings demonstrated that a total of 3239 citations were located as

a consequence of the searches. Regarding diversity, only a single randomised managed experiment (RCT) with a 15-year further investigation duration was taken into account. According to the calculated relative risk (RR), there was definitely no statistically significant variance within the screening control or the controls sample in the number of fatalities related to cancer of the oral cavity. For vulnerable people who consumed cigarettes, alcohol, etc both, there was also a statistically significant disparity in the rate of death among the testing category, which had thirty fatalities per 100,000 person-years, and the unaffected category, which's had 39 fatalities per 100,000 person years. The screening group had a relative risk of 0.76with a 95% confidence interval ranging from 0.60 to 0.97. There was no discovery of any changes in incidence rates that were statistically significant. Those who participated in the screening were shown to have a significantly lower risk of being diagnosed with oral cancer at stages III or above. This finding was supported by statistical analysis. The results of this research provide some evidence in favour of the concept that integrating a visual examination as a component of a nationwide screening programme can reduce the incidence of cancer-related oral cavity deaths in people at increased risk. Additionally, there have been a change in staging and a decrease in the population's life expectancy statistics.[67]

Longitudinal research collated the data addressing the impact of examination, whether it be screenings for vulnerabilities or testing for ahead of time illness being identified, on health behaviour, which includes nicotine consumption, dietary habits, physical activity, alcohol use, including conformity to recommendations for living a healthy life. The aim of this investigation was to summarise the available data. The results of this research revealed that seven trials were incorporated, five of which focused on factors linked to risk screenings (4 cardiovascular; 1 ALDH2), & the

remaining two which focused on early disease identification (being able to impairment & colon cancer). When risk variables are screened in research studies, those who were screened had considerably more positive health behaviours on average than those who were not examined. Because of the limited number of studies conducted, Considering the influence of screenings for earlier illness of illness on health behaviour, not any inferences can be drawn. There haven't been many clinical trials to look into how screening systems affect the well-being of individuals behaviour. The findings of the research that looked for risk variables indicated a positive impact on following behaviours related to health. There wasn't enough additional research that looked for early identification of diseases to make any inferences about how it would affect later health behaviours.[68]

A study conducted a comprehensive search of the published literature to analyse the most recent cost-effectiveness studies on screening technologies. Our goal was to identify the current issues that are being faced and potential solutions to these challenges. The findings of the study showed that, the 4 major groups that have been identified included diagnostic routes, symptomatic but not illness, intervention of treatment, & non-health advantages. Treatment outcomes were not included in every study; in fact, 22% of studies (or 15) did not even consider treatment after the diagnosis. 35 out of 51.4% of the studies employed quality-adjusted life years as the primary measure of success. Research that adopted a social viewpoint did not consistently disclose the costs and benefits that were not related to health. The interval among the juncture during which the individual can be detected by screenings procedures and the subsequent position at that they might have been found as a result of indications is known as the sojourn duration, and it can be estimated. 2 significant issues that are currently highlighted are the evaluation of the therapy effectiveness as

well as the advancement rates of individuals who were discovered earlier. The results show that to be able to effectively encompass all of the pertinent expenses and consequences associated with using an examination device, modelling screen routes that involve treating patients is required. Furthermore, both false positives and false negatives in individuals need to be taken into consideration in the investigation because they are going to have considerable expenses and consequences.[69]

Around 1,23,115 healthy individuals participated in an ongoing trial in which they provided specimens of plasma for ongoing preservation & were thereafter monitored for the emergence of malignancy. A simple test for blood called PanSeer depends on the methylation of circulatory cancer DNA. The current research presents the PanSeer first findings on TZL plasma specimens from 605 asymptomatic subjects. Following a four-year period following their blood draw, 191 of those people received an intestine, oesophageal, colorectal, lungs, or malignancy of the liver diagnosis. Together with original cancer specimens & healthy tissues from 200 people, extra 223 cancer individuals' blood cells are also examined. The investigation also shows that PanSeer accurately diagnoses malignancy in ninety-five percent of asymptomatic patients; nevertheless, additional long-term investigations are needed to corroborate this finding. Researchers demonstrate that PanSeer has an accuracy rate of 96 percent and identifies 5 prevalent cancer types in 88 percent of post-diagnosis individuals. The results of this study show that cancer can be detected for a maximum of four years earlier than the usual method treatment starts minus the need of invasive tests.[70]

Pilot research was carried out to investigate the practicability and usefulness of giving NCD screening services in the comfort of one's own home by community health professionals who have received appropriate training. The screening was

directed towards rural residents of India who were between the ages of 30 and 60 years old, men and women. Throughout the span of 6 months, the rejection percentage was under ten percent among the 1999 men & 4997 women the CHWs evaluated from 20 distinct communities' 32.6 percent of the respondents had high levels of blood pressure and 7.5 percent had high sugar levels, whereas 42.3 percent and 35 percent of people had diabetic that had been confirmed, respectively, who were having follow-up. There was only a 2.4% prevalence of obesity. Chewers of tobacco made up more than half of the male population. Although 2.6% of the total participants tested positive for OVE, none of them were found to have oral cancer in the course of the study. 8.6% of women had a positive HPV test, and those women underwent a visual inspection after acetic acid application test in order to determine whether they should have treatment with thermal ablation either looping deletion (in the course of a single trip) or. fourteen percent of the females who screened tested for HPV & 56.5 percent of those females had VIA underwent ablative treatment on the same day. Women who tested negative for VIA were given instructions to follow up in a year. There was no evidence of breast cancer in any of the 0.6% of women who reported having breast complaints. The study's findings indicate that it is feasible and popular by the population under study for skilled community health professionals to provide NCD examinations at homes.[71]

Meta-analytic research was conducted with the objective to conduct a comprehensive evaluation & meta-analysis of the research related to screen practises. The study examined 15 publications covering 47,137 distinct sportsmen. During meta-analyses, it was discovered that the ECG had sensitivity as well as specificity of 94 percent and 93 percent, compared to 20 percent & 94 percent for histories & PE. ECG had an approximate 6% average negative rate, that's much lower than the

physiological exam's 10 percent and the world's 8 percent rates. The ratio of likelihood for the ECG was 14.8, whereas the probability ratios for the past record was 3.22, whereas the probability ratios for the PE was 2.93. ECG had an unfavourable probability ratio that was 0.055, history had a negatively probability proportion of 0.85, and PE had a negatively probability rating of 0.93. A combined total of 160 possible fatal cardiovascular conditions were identified, resulting in a rate of 0.3%, or 1 in 294 cases. The syndrome Wolff-Parkinson-White (67, 42 percent) was among the most prevalent pathologists, subsequently followed by a while QT Syndromes (18, 11 percent), hypertrophic cardiomyopathy of the heart (18, 11 percent), cardiomyopathy with dilation (11, 7 percent), cardiovascular disease as well as ischemia of the heart (9, 6 percent), and arrhythmogenic cardiomyopathy of the right ventricle (4, 3%). Based to an investigation, the electrocardiogram (ECG) is a particularly effective screening tool for cardiovascular illness in sportsmen. It's approximately five periods greater in sensitivity then the physical examination and has a better affirmative probability proportion, a smaller negatives probability proportion, as well as a lower percentage of false positives than the past record. Additionally, the chances ratio is more favourable. The acceptance of a medical history mechanical physical exam alone as a screening technique for heart disease in sportsmen might need to be reconsidered; instead, the addition of an electrocardiogram (ECG) with 12 leads which can be assessed following contemporary guidelines ought to be thought of as the most appropriate practise.[72]

A realist review with an implementation science focus was carried out with the intention of evaluating the behavioural components and techniques that are linked with efficacy of ischemic heart disease and type 2 diabetes monitoring. The study findings showed that a variety of evidence-based approaches and intervention designs

were investigated in a total of 12 papers that were eligible for the analysis. The most important topics discussed were the effects of feedback on behaviour modification and the benefits for wellness conversations above straightforward comments. The positive effects of these therapy components, and they are supposed to be situation- & design-specific, are supported by a mixed body of research. In broad terms, it encourages their usage while raising questions regarding the accuracy of providing interventions and the proper application of implementing sciences. In every one of those three investigations that examined the implications of knowledge of the option or losses against return framing invites, there was absolutely no influence on testing acceptance. Opportunistic examination, on the other hand, was demonstrated to be superior than letters of inquiry in drawing individuals with a greater chance for both diabetes although heart attacks, whereas there were no distinctions in the results of such individuals after recruitment. Two studies looked at the differences between people who attended the study and those who did not, and they found that those who did not attend the study had danger indicators were more prevalent while individuals who left the trial afterwards exhibited a greater number of them of diagnosed cardiovascular disease and diabetes.[73]

This microsimulation as research was conducted in order to contrast widespread testing with other workable solutions including evaluating the possible effects of ubiquitous scanning for the main preventive measure of heart attack and stroke on burden of disease & disparities in socioeconomic status concerning health in UK. The study was carried out on a synthetic population that was designed to be as realistic as possible. The conclusions of this investigation indicate that population-wide procedures combined with other techniques appear to be better than general screening, when primary prevention measures for lowering the burden of

cardiovascular disease and disparities are compared to one another. The ideal mix of population-wide & risk-targeted therapy for heart failure needs to be determined in order to maximise efficiency of expenditure & minimise disparities.[74]

The test provided at a neighbourhood pharmacy for risk variables linked to Type 2 diabetes and for people that are at an elevated risk of heart attack or stroke was the subject of a meta-synthesis evaluation systematic a meta- analysis that was designed to compile and analyse the literature on the subject. The findings of the investigation showed that sixteen studies, a total of 108,414 individuals, fulfilled the inclusion criteria of the research project. There was a considerable amount of variation across all of the outcomes that were included. As a result, we have not published any summary data, rather, to illustrate the variance, we presented forest diagrams alongside the I2 and p numbers. A substantial number of respondent departures during the initial interview and the next phase of study were found in all of the examined trials. In addition, we have noticed an obvious pattern in more recent studies that points to an upward tendency towards higher referral rates. According to the findings of the study, pharmacies have the potential to serve as screening locations for people with diabetes and others they have a coronary artery bypass danger. There have been a considerable number of previously unreported cases with cardiac diseases risks with the value as obesity, diabetes, or elevated cholesterol. Even this, a sizable portion of individuals who were referred by their medical clinician as well as identified as being at an elevated risk fail to show up on their subsequent studies appointment. The most important studies should focus on methods to boost acceptance of additional examination along with early interventions to maximise the efficacy of prevention programmes established in local drug stores.[75]

# CHAPTER – III

# MATERIAL AND METHODS

The material in this chapter will serve to provide an explanation of the approach taken in the current research study, this chapter assists and guides the fundamental methodological systems that are used to complete the current research study in the most appropriate manner. Detailed descriptions of all of the methods, are also including data collection and processing techniques, as well as methods for analysing the data gathered during the course of primary and secondary investigation.

In research, this term refers to a collection of specific techniques and procedures that are used to identify research methods, select samples and tools, process and analyse data collected about the current research topic, among other things. The methodology of research encompasses all the techniques and procedures that are used to identify research methods, select samples and tools, process and analyse data collected about the current research topic, and to conduct the research. According to this section of the current study, it will help to critically evaluate the overall validity of the study as well as the dependability.

Included in this chapter are the study's overall approach, the research design employed in its execution, the location and population of study participants as well as sample selection methods employed in its execution, the formulation and description of research tools and instruments, the implementation of the information gathering & statistical examination methodologies used in the initial investigation, along with a strategy to carry out an evaluation’s evaluation of the research's findings.

The purpose of this investigation was to determine the **"Socio-psychological, Bio-chemical and Physiological Determinants of Health and Disease in Executive Health Check-up"**

### 3.1 Research Approach

The term "research approach" refers to all of the fundamental procedures that are used in the course of conducting a research project. It was determined that the quantitative research approach would be appropriate for this study according to the goals & scope of the investigation**.**

An empirical **quantitative research approach** makes use of deductive reasoning techniques to develop predictions and evaluate them in the real world. This technique is used by the researcher to develop predictions and evaluate them in the real world.

### 3.2 Research Design

In general, research design can be defined as a structure of techniques and systems that an analyst employs to integrate diverse segments of research in a logically lawful manner with the goal of effectively addressing the examination issue under consideration. It is necessary to direct the research with the help of a specific technique, and this technique provides bits of knowledge about "how" to do so.

The present study adopted **Hospital based Cross sectional descriptive study design** for the assessing the Socio-psychological, Bio-chemical and Executive Wellness Check-up: Physiological the Determinant of Wellness & Illness.

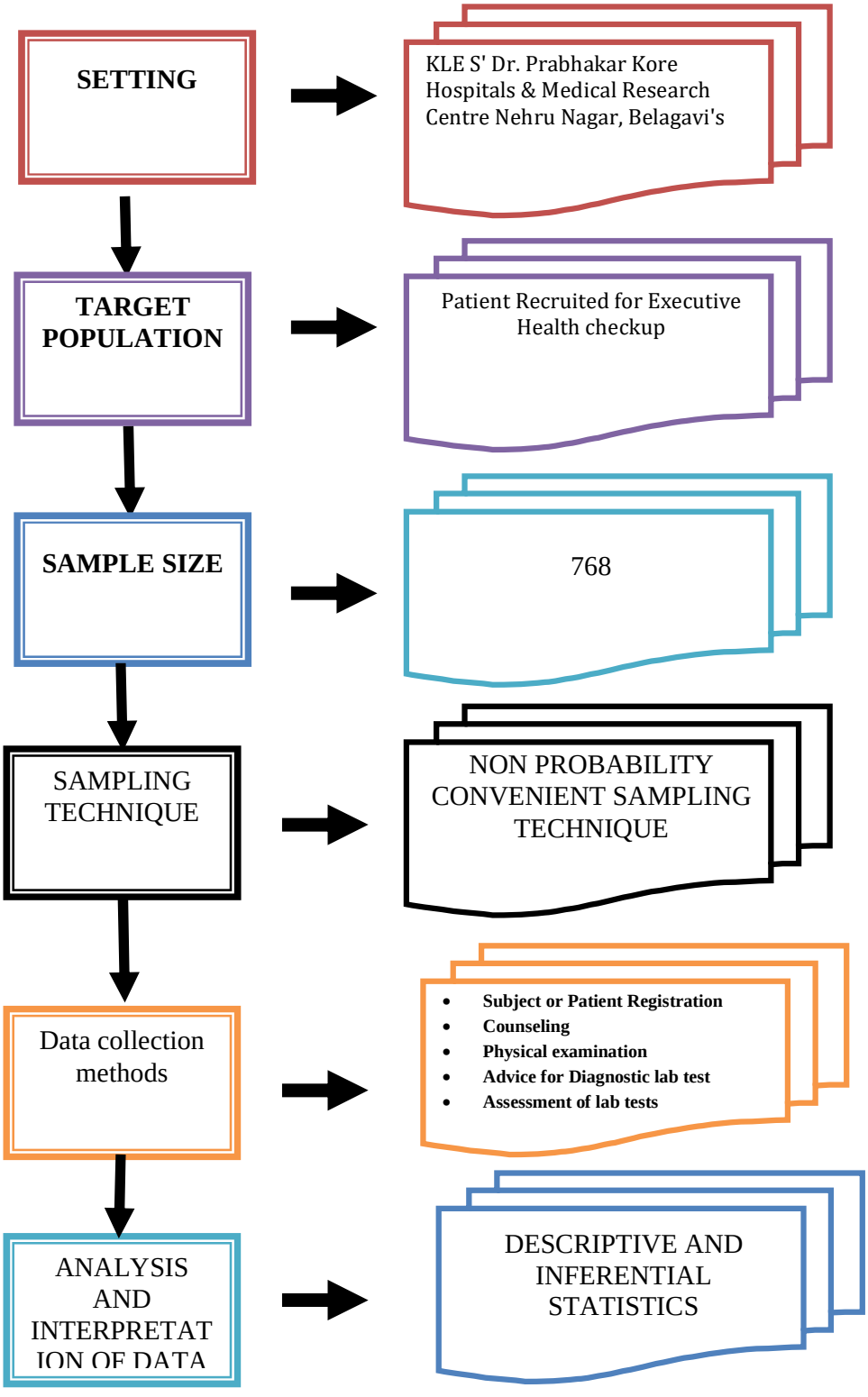


**Figure 3.1: Schematic Representation of Research Design**

### 3.3 Variables of the Study

The term variables are commonly used when conducting quantitative research, and they are referred to as variables of the research. It is possible for variables in research to be any attributes or characteristics of an individual or subject, singular qualities or properties, conditions or circumstances, and things that can shift or take on a variety of characteristics depending on how they are estimated to be variables in research.

**The variables included in the present study were** –

- **Socio-demographic variables:** Demographic characteristics included in the study are Gender, Age group and type of family, diet, Socio economic status (SES)
- **Biological variables:** Hemoglobin, urine, FBS, PPBS, HBA1C, Cholesterol, HDL, LDL, Triglyceride, SGPT, SGOT, Renal FT, TSH
- **Physiological variables:** X-ray chest, ECG, USG, TMT, obesity, Systolic and diastolic blood pressure
- **Psychological Variables:** Psychological well being
- **Social variables:** Social history

### 3.4 SETTING OF THE STUDY

Setting of the research study is the place where researcher conducts the study. The setting which is taken for the conduct of present study is **The Medical Research Centre & Hospital KLE S' Dr Prabhakar Kore, Nehru Nagar, the Belagavi.**

**3.4.1: Brief Introduction of study setting:**

KLES Dr Prabhakar Kore Hospital & Medical Research Centre collaborates with the respected Jawaharlal Nehru A medical College (JNMC) in order to bring collectively a dedicated team of physicians, Surgeons, and allied health alongside healthcare professionals that offer medical services as well as tourism according to one roof, thus producing an optimal educational and occupational fusion.

This hospital, whose founding stones were placed back in 1996, is currently situated on a sprawling 16 acres of land on the outskirts of the city and is endowed with amenities that may meet the needs of any field within the health sciences.

This hospital has progressed since it has upgraded to the latest technology and adjusted to the needs of the moment. The Goa government (under its many schemes), industries in Maharashtra, and Karnataka have recognised this hospital as one of the greatest in the world of healthcare, demonstrating the hospital's advancement in terms of standard, speciality services, and financial gains.

Twelve fundamental clinical divisions, i.e. The PKCH houses three paraclinical departments, namely Pathology, Microbiology, and Biochemistry, together with divisions of the field of psych skin disease, ophthalmology, pulmonology, orthopaedics, OBG, & paediatrics. There are eleven large operating rooms and four minor operating rooms, all of which are completely furnished with laparoscopic surgical sets. Along with to the primary clinical specialisations, the medical facility provides a wide range of specialist tertiary level solutions, such as the Kangaroo Mother Care programme, the mother & Child Institute, which was the NICU, PICU, & OICU, as well as paediatric nephrology, which includes dialysis, paediatric

physical therapy, an arthroscopy & GI Endoscopic. To manage children who are severely acutely malnourished (SAM), the paediatrics department built the Nutrition Rehabilitation Centre. Pharmacovigilance efforts are overseen by the pharmacy faculty. Another distinctive institution run by the Forensic Medicine division is the Poison Detection Centre. There is a clinical skills lab in the PKCH as well. The fundamental investigations are carried out in a central laboratory. The cost of USG and X-rays is covered by insurance, but CT and MRI are subsidised.

The PHCs and UHCs connected to JNMC regularly host a number of camps. The students will have the chance to familiarise themselves with primary level healthcare thanks to this. During a component of JNMC's Gold Anniversary Celebration in 2012–2013, 12 Giant Health Centres were hosted in every one of the 10 talukas of the Belgaum Municipality and 2 neighbouring districts of Maharashtra; approximately 35000 sufferers were seen, tested, and evaluated simultaneously. These camps have enhanced the hospital's reputation, which has increased patient flow.

The Karnataka government has authorised the PKCH to treat BPL children as part of the Bala sajeevini and District Blindness Control Organization (DBCS).

In all wards and OPDs, there are a suitable variety of classrooms equipped with AV tools & diagrams. The classrooms in operating theatres are connected to the operating rooms through CCTV. The departments of radiology and anaesthesia have excellent museums. A digital library is available that offers online journals and other reference materials. The school of medicine's section of medical professionals' development provides workshops and other training programmes like EBM, Patient Safety, and Clinical Audit in addition to its usual teaching activities. Every year, the Clinical Skills Lab offers more than 60 workshops on basic surgical techniques, Endo

trainers, models, and manikins for undergraduate and graduate health science students. The hospital has lecture halls with AV tools and connections to operating rooms; live surgical workshops and worldwide video conferences are frequently scheduled.

For researchers, a wealth of clinical data is a valuable source of information. A sizable patient population is also fed at the three PHCs and UHCs. Several community-based research projects supported by the NIH and other foreign universities have been completed, while others are still in progress. The national and international periodicals frequently publish a large number of research papers. Moreover, clinical trials financed by pharmaceutical corporations are carried out. The clinical material has also been the focus of research for PG dissertations and PhD-level post-doctoral theses.

The 1,000-bed the highest level of care healthcare facilities, the PKHMRC provides medical treatment in super speciality domains like. Organ transplant i.e., heart transplant, liver & kidney transplant. CVTS, neurology, neurological surgery, interventional neuro radiology, urology, and paediatric and Paediatric surgery, endocrinology-diabetology centre, cosmetic-plastic surgery, cardiac anaesthesia, gastrointestinal and GI Surgery, nephrology, oncology, onco-surgery, radiation oncology, respiratory medicine as well as additional disciplines. Ambulance assistance, CSSD, washing clothes, kitchen area, electrical supply, AC plants, STP, heating system, & cremation are just a few of the shared facilities between the PKCH and PKHMRC. The KLE Dr. Prabhakar Kore Institutions was some of India's biggest hospitals under the same roof, with an overall capacity of 4000+ healthcare beds,15 hospital locations. 3000 professional staffs,970+ doctors, the hospital's laboratory has

NABL certification. The hospitals are applying to become NABH accredited. Ranked at 14th in the top 15 best hospitals in India 2018.

Dr Prabhakar Kore maintains the "Saptarishis" of the KLE societal "Truth, Love, which is Service, which is and Sacrifices" tenets—has a special place in his heart for the hospital. The PKCH is expanding rapidly under his leadership, both in terms of number and quality.

Within five years of its founding, KLE University attained the distinctions of an NAAC "A" grade and an MHRD "A" category Dr (Prof) C K Kokate, the initially appointed Vice-Chancellor, provided competent oversight. This accomplishment of university was made possible in large part by the Hospitals. Six crores of rupees have been set aside by the university for the purpose of PKCH service expansion. Several HODs have been cordially invited by Dr. Prabhakar Kore, the power source inspirational Chairman of the KLE Society as well as Chancellor of KLE University, to submit their suggestions for enhancing administrative offerings at the medical centre as part of a "Vision" Document that has been accepted by the university. Without a doubt, the hospital will rank among the best in the world and in India when the plans come to fruition.

**3.4.2: The rationale behind for selection of above setting for research study is as follows**:

- The researcher's familiarity with the setting;
- The availability of study participants; and
- The expected co-operation of participants from the previously mentioned setting.

## 3.5 POPULATION

An individual or group of people who are passionate about taking advantage of an investigation project is referred a population by the researcher. People or non-human the population being studied could consist of animals, thus it is not simply restricted to people.

The term "target population" describes the aggregate number of instances on which findings of a research study can be applied in a broad sense by the researcher.

The population selected for the present study is **Patients Recruited for Executive Health check-up.**

## 3.6 SAMPLE AND SAMPLING METHOD

The term "sample" refers to a selection of examples that are included in a research study and these are the cases that were chosen for the exploration research that is currently being investigated by the investigators. When conducting research, sampling refers to the method of choosing an assortment of the general public that is appropriate and comparing it that of the entire research population to ensure that the conclusions reached are based on the findings of the investigation about the entire population.

A sampling strategy involves selecting a subset of a population that has characteristics that are comparable to those of the entire population in order to conduct research on the facts of the situation. Sampling is also known as sampling technique.

As the smallest and most fundamental component of the exploration process, samples are where the vast majority of the information is gathered, and they are also the most expensive. In nursing research studies, individuals are frequently used as case studies to illustrate points.

The representativeness of a sample is a critical consideration in any quantitative research study, and this is especially true when surveying a sample of people as an illustration. Example of this type of example is when the key characteristics of a population are clearly associated with the entire population, which is known as an agent test.

The sample of present study includes the **Patients Recruited for Executive Health check-up.**

### 3.7 SAMPLING TECHNIQUE

The process of selection of a small part of the elements from the total number of populations that have the feature of all original population is known as method of sample.

The current research investigation employed a **non-probability suitable sampling approach** to select specimens from all of the participants.

### 3.7 CRITERIA FOR SAMPLING

Among the all-out research population whom is selected for the exploratory study is to be determined by particular criteria by analyst is known as sampling criteria for determination of the examples.

The aforementioned variables had been taken into consideration when choosing the research project specimens for this time.

**Criteria of Inclusion –**

- Individuals with an age group between 20-80 years.
- Individuals attaining the executive health checkup department will be included.

**Exclusion criteria –**

- Individuals with less than 20 age group
- Individuals who are not willing to participate in the study

**3.9: SIZE OF SAMPLE**

The calculated sample size for the present investigation is: **664**

**The data was collected from 664 patients recruited for executive health check-up for the study.**

**Sample size determination:** Based on this article Ramesh R et al A research project on the effectiveness of routine health checks in detecting illness symptoms upfront. The World's Journal of Health Sciences Investigation.2016 Sep;4(9):4022-4025

Prevalence of Hypertension= 52%

$$n= \frac{Z^2 P^Q}{d^2} = 664$$

- Z= Factors of Normal Standard (99% Confidence) = 2.25
- P= 52%

- Q=100-52= 48%
- d= Acceptable Errors= 5%

**Total Samples required= 664**

**Total samples recruited in the study: 768**

### 3.10: DATA COLLECTION TECHNIQUES AND INSTRUMENT

**Data collection Technique:** History collection and laboratory investigations

### 3.10.1: The structured tools of data collection are divided in to three sections as following

- Patient Information Leaflet (PIL).
- Patient Profile Form.
- Initial Assessment Form.

### 3.10.2: CONTENT VALIDITY AND RELIABILITY OF TOOLS

**Content validity of tools:**

All structured tools were subjected to content validation by being distributed to expert medical practitioners. All of the experts were completely in agreement on all of the items on the list. However, a few suggestions for changes to some of the components were made, and these were incorporated into the final tool.

**Reliability of the tool:**

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**Conclusion drawn from results of the pilot study is as follows –**

- The viability of the investigation's instruments & methodology was determined.
- There was good cooperation from the participants of pilot study and all the participants were participated with their own interest and they have given genuine responses for each item which was asked to them.
- It helped the researcher to decide about the statistical methods for the analysis of the data.

### 3.12: DATA COLLECTION PROCEDURE

**Step 1:** Information regarding target population was collected from Individuals attending the Executive Health Check-up Department and those who satisfied the eligibility criteria participants eager to take advantage of the research were gathered.

**Step 2: Informed consent:**

Participation questionnaire (PIS) and a written authorization form (ICF) in English or in other patient preferred local languages like Kannada, Marathi and Hindi was provided for the eligible patients. Detailed details concerning the goal of the research, hazards and rewards of engagement, and length of the investigation, Hospital based cross sectional study, monitoring, confidentiality, rights of the participants to withdraw from the study was informed to patient. The Patient understanding of the study was cross verified. Concerns and queries regarding the study were addressed.

**Step 3: Collection of information:**

The individual being treated can sign both copies of this ICF as soon as they have accepted to take up their place in the trial, out of which one was given to the patient reference and one was taken by the investigator for documentation. Following are the steps followed for collection of information-

- Subject or Patient Registration
- Counselling
- Physical examination
- Advice for Diagnostic lab test
- Assessment of lab tests

**Determinants demographic**

Everyone who took part provided a thorough past times, which included socio-demographic factors containing their age, gender, social connections (such as alcoholic overall/or smoke habits), home category, eating habits, & their socioeconomic standing (SES).

**Determinants biochemical**

Individuals underwent venepuncture according to strictly hygienic conditions, alongside specimens of their blood were taken and appointed to an accredited lab for biological analysis, which includes measurement of glycated haemoglobin (HbA1c), not eating glucose level (FBS), postprandial glucose (PPBS), cholesterol, it high dense lipoprotein (HDL), medium density lipoprotein (LDL), lipid (TG), serum glutamic pyruvic transaminase (SGPT), The analysis of urine & a urine functioning tests additionally were carried out.

**Determinants Physiological:** X-ray chest, ECG, USG, TMT, obesity, Systolic and diastolic blood pressure

**Determinants Socio psychological**

An evaluation of each participant's emotional health, covering its elements like independence situational competence, growth in oneself, meaningful relationships among others, a sense of meaning in life, & confidence in oneself, was conducted. greater scores indicated psychological health at higher values.

## 3.13 PLAN OF DATA ANALYSIS

It was planned to use both during the statistical evaluation of the data, descriptive and inferential statistics are used.

- Initially master data sheet will be prepared according to personal variables and scores obtained for all laboratory investigations.
- The information provided will be analysed with regard to its research goals.
- Statistics descriptive Frequency distribution and percentage distribution is calculated to find out the selected socio demographic variables.
- A chart of frequencies was used to present variables that were categorical.
- Continuous data points are presented to be correlated with standard deviations.
- Utilising Karl Pearson's correlated coefficient approach, information were statistically analysed utilising associations between various factors.
- It was statistically significant if $P < 0.05$. Statistics were deemed meaningful at $P < 0.05$.

# CHAPTER – III

# MATERIAL AND METHODS

The material in this chapter will serve to provide an explanation of the approach taken in the current research study, this chapter assists and guides the fundamental methodological systems that are used to complete the current research study in the most appropriate manner. Detailed descriptions of all of the methods, are also including data collection and processing techniques, as well as methods for analysing the data gathered during the course of primary and secondary investigation.

In research, this term refers to a collection of specific techniques and procedures that are used to identify research methods, select samples and tools, process and analyse data collected about the current research topic, among other things. The methodology of research encompasses all the techniques and procedures that are used to identify research methods, select samples and tools, process and analyse data collected about the current research topic, and to conduct the research. According to this section of the current study, it will help to critically evaluate the overall validity of the study as well as the dependability.

Included in this chapter are the study's overall approach, the research design employed in its execution, the location and population of study participants as well as sample selection methods employed in its execution, the formulation and description of research tools and instruments, the implementation of the information gathering & statistical examination methodologies used in the initial investigation, along with a strategy to carry out an evaluation’s evaluation of the research's findings.

The purpose of this investigation was to determine the **"Socio-psychological, Bio-chemical and Physiological Determinants of Health and Disease in Executive Health Check-up"**

### 3.1 Research Approach

The term "research approach" refers to all of the fundamental procedures that are used in the course of conducting a research project. It was determined that the quantitative research approach would be appropriate for this study according to the goals & scope of the investigation**.**

An empirical **quantitative research approach** makes use of deductive reasoning techniques to develop predictions and evaluate them in the real world. This technique is used by the researcher to develop predictions and evaluate them in the real world.

### 3.2 Research Design

In general, research design can be defined as a structure of techniques and systems that an analyst employs to integrate diverse segments of research in a logically lawful manner with the goal of effectively addressing the examination issue under consideration. It is necessary to direct the research with the help of a specific technique, and this technique provides bits of knowledge about "how" to do so.

The present study adopted **Hospital based Cross sectional descriptive study design** for the assessing the Socio-psychological, Bio-chemical and Executive Wellness Check-up: Physiological the Determinant of Wellness & Illness.

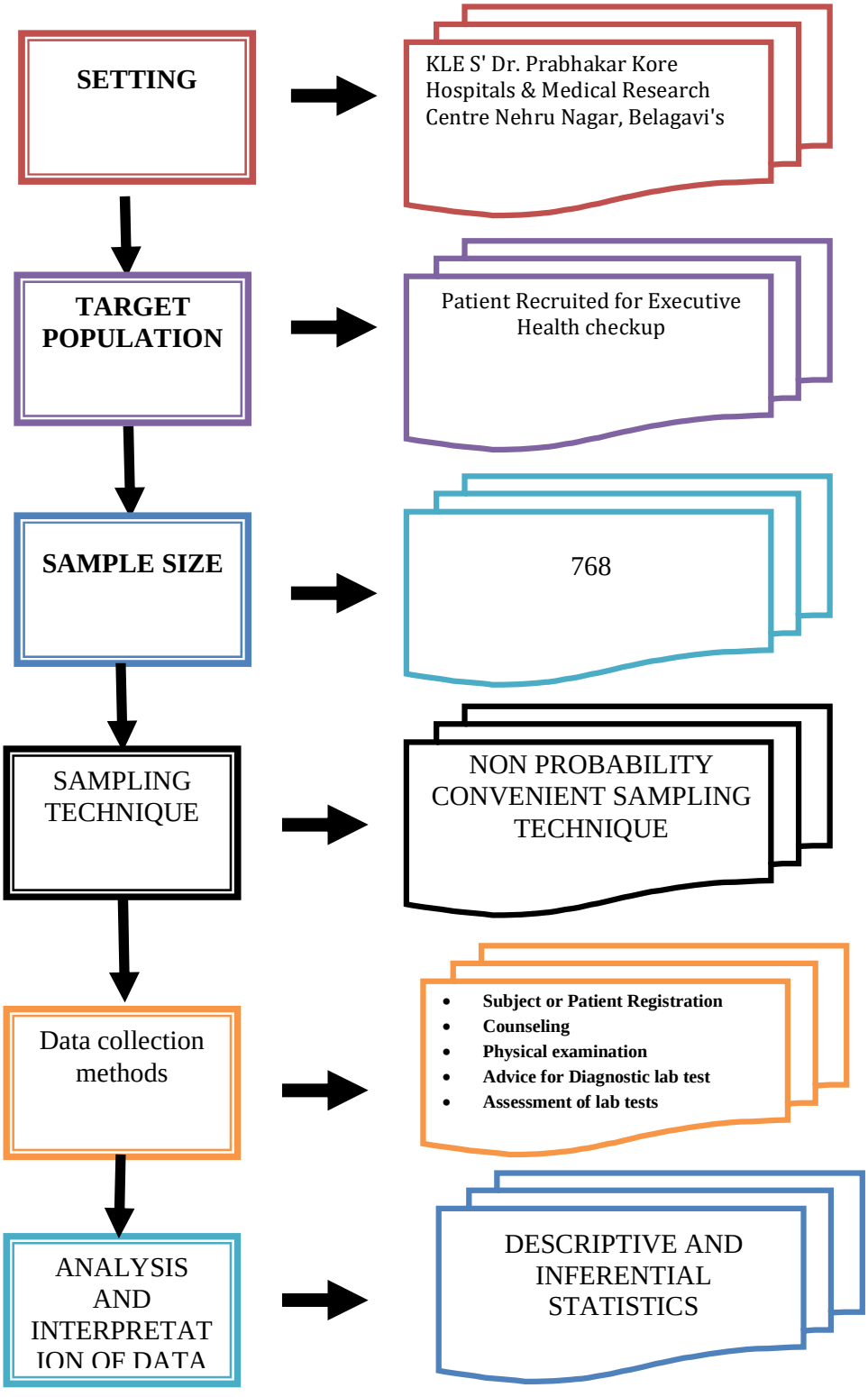


**Figure 3.1: Schematic Representation of Research Design**

### 3.3 Variables of the Study

The term variables are commonly used when conducting quantitative research, and they are referred to as variables of the research. It is possible for variables in research to be any attributes or characteristics of an individual or subject, singular qualities or properties, conditions or circumstances, and things that can shift or take on a variety of characteristics depending on how they are estimated to be variables in research.

**The variables included in the present study were** –

- **Socio-demographic variables:** Demographic characteristics included in the study are Gender, Age group and type of family, diet, Socio economic status (SES)
- **Biological variables:** Hemoglobin, urine, FBS, PPBS, HBA1C, Cholesterol, HDL, LDL, Triglyceride, SGPT, SGOT, Renal FT, TSH
- **Physiological variables:** X-ray chest, ECG, USG, TMT, obesity, Systolic and diastolic blood pressure
- **Psychological Variables:** Psychological well being
- **Social variables:** Social history

### 3.4 SETTING OF THE STUDY

Setting of the research study is the place where researcher conducts the study. The setting which is taken for the conduct of present study is **The Medical Research Centre & Hospital KLE S' Dr Prabhakar Kore, Nehru Nagar, the Belagavi.**

**3.4.1: Brief Introduction of study setting:**

KLES Dr Prabhakar Kore Hospital & Medical Research Centre collaborates with the respected Jawaharlal Nehru A medical College (JNMC) in order to bring collectively a dedicated team of physicians, Surgeons, and allied health alongside healthcare professionals that offer medical services as well as tourism according to one roof, thus producing an optimal educational and occupational fusion.

This hospital, whose founding stones were placed back in 1996, is currently situated on a sprawling 16 acres of land on the outskirts of the city and is endowed with amenities that may meet the needs of any field within the health sciences.

This hospital has progressed since it has upgraded to the latest technology and adjusted to the needs of the moment. The Goa government (under its many schemes), industries in Maharashtra, and Karnataka have recognised this hospital as one of the greatest in the world of healthcare, demonstrating the hospital's advancement in terms of standard, speciality services, and financial gains.

Twelve fundamental clinical divisions, i.e. The PKCH houses three paraclinical departments, namely Pathology, Microbiology, and Biochemistry, together with divisions of the field of psych skin disease, ophthalmology, pulmonology, orthopaedics, OBG, & paediatrics. There are eleven large operating rooms and four minor operating rooms, all of which are completely furnished with laparoscopic surgical sets. Along with to the primary clinical specialisations, the medical facility provides a wide range of specialist tertiary level solutions, such as the Kangaroo Mother Care programme, the mother & Child Institute, which was the NICU, PICU, & OICU, as well as paediatric nephrology, which includes dialysis, paediatric

physical therapy, an arthroscopy & GI Endoscopic. To manage children who are severely acutely malnourished (SAM), the paediatrics department built the Nutrition Rehabilitation Centre. Pharmacovigilance efforts are overseen by the pharmacy faculty. Another distinctive institution run by the Forensic Medicine division is the Poison Detection Centre. There is a clinical skills lab in the PKCH as well. The fundamental investigations are carried out in a central laboratory. The cost of USG and X-rays is covered by insurance, but CT and MRI are subsidised.

The PHCs and UHCs connected to JNMC regularly host a number of camps. The students will have the chance to familiarise themselves with primary level healthcare thanks to this. During a component of JNMC's Gold Anniversary Celebration in 2012–2013, 12 Giant Health Centres were hosted in every one of the 10 talukas of the Belgaum Municipality and 2 neighbouring districts of Maharashtra; approximately 35000 sufferers were seen, tested, and evaluated simultaneously. These camps have enhanced the hospital's reputation, which has increased patient flow.

The Karnataka government has authorised the PKCH to treat BPL children as part of the Bala sajeevini and District Blindness Control Organization (DBCS).

In all wards and OPDs, there are a suitable variety of classrooms equipped with AV tools & diagrams. The classrooms in operating theatres are connected to the operating rooms through CCTV. The departments of radiology and anaesthesia have excellent museums. A digital library is available that offers online journals and other reference materials. The school of medicine's section of medical professionals' development provides workshops and other training programmes like EBM, Patient Safety, and Clinical Audit in addition to its usual teaching activities. Every year, the Clinical Skills Lab offers more than 60 workshops on basic surgical techniques, Endo

trainers, models, and manikins for undergraduate and graduate health science students. The hospital has lecture halls with AV tools and connections to operating rooms; live surgical workshops and worldwide video conferences are frequently scheduled.

For researchers, a wealth of clinical data is a valuable source of information. A sizable patient population is also fed at the three PHCs and UHCs. Several community-based research projects supported by the NIH and other foreign universities have been completed, while others are still in progress. The national and international periodicals frequently publish a large number of research papers. Moreover, clinical trials financed by pharmaceutical corporations are carried out. The clinical material has also been the focus of research for PG dissertations and PhD-level post-doctoral theses.

The 1,000-bed the highest level of care healthcare facilities, the PKHMRC provides medical treatment in super speciality domains like. Organ transplant i.e., heart transplant, liver & kidney transplant. CVTS, neurology, neurological surgery, interventional neuro radiology, urology, and paediatric and Paediatric surgery, endocrinology-diabetology centre, cosmetic-plastic surgery, cardiac anaesthesia, gastrointestinal and GI Surgery, nephrology, oncology, onco-surgery, radiation oncology, respiratory medicine as well as additional disciplines. Ambulance assistance, CSSD, washing clothes, kitchen area, electrical supply, AC plants, STP, heating system, & cremation are just a few of the shared facilities between the PKCH and PKHMRC. The KLE Dr. Prabhakar Kore Institutions was some of India's biggest hospitals under the same roof, with an overall capacity of 4000+ healthcare beds,15 hospital locations. 3000 professional staffs,970+ doctors, the hospital's laboratory has

NABL certification. The hospitals are applying to become NABH accredited. Ranked at 14th in the top 15 best hospitals in India 2018.

Dr Prabhakar Kore maintains the "Saptarishis" of the KLE societal "Truth, Love, which is Service, which is and Sacrifices" tenets—has a special place in his heart for the hospital. The PKCH is expanding rapidly under his leadership, both in terms of number and quality.

Within five years of its founding, KLE University attained the distinctions of an NAAC "A" grade and an MHRD "A" category Dr (Prof) C K Kokate, the initially appointed Vice-Chancellor, provided competent oversight. This accomplishment of university was made possible in large part by the Hospitals. Six crores of rupees have been set aside by the university for the purpose of PKCH service expansion. Several HODs have been cordially invited by Dr. Prabhakar Kore, the power source inspirational Chairman of the KLE Society as well as Chancellor of KLE University, to submit their suggestions for enhancing administrative offerings at the medical centre as part of a "Vision" Document that has been accepted by the university. Without a doubt, the hospital will rank among the best in the world and in India when the plans come to fruition.

**3.4.2: The rationale behind for selection of above setting for research study is as follows**:

- The researcher's familiarity with the setting;
- The availability of study participants; and
- The expected co-operation of participants from the previously mentioned setting.

## 3.5 POPULATION

An individual or group of people who are passionate about taking advantage of an investigation project is referred a population by the researcher. People or non-human the population being studied could consist of animals, thus it is not simply restricted to people.

The term "target population" describes the aggregate number of instances on which findings of a research study can be applied in a broad sense by the researcher.

The population selected for the present study is **Patients Recruited for Executive Health check-up.**

## 3.6 SAMPLE AND SAMPLING METHOD

The term "sample" refers to a selection of examples that are included in a research study and these are the cases that were chosen for the exploration research that is currently being investigated by the investigators. When conducting research, sampling refers to the method of choosing an assortment of the general public that is appropriate and comparing it that of the entire research population to ensure that the conclusions reached are based on the findings of the investigation about the entire population.

A sampling strategy involves selecting a subset of a population that has characteristics that are comparable to those of the entire population in order to conduct research on the facts of the situation. Sampling is also known as sampling technique.

As the smallest and most fundamental component of the exploration process, samples are where the vast majority of the information is gathered, and they are also the most expensive. In nursing research studies, individuals are frequently used as case studies to illustrate points.

The representativeness of a sample is a critical consideration in any quantitative research study, and this is especially true when surveying a sample of people as an illustration. Example of this type of example is when the key characteristics of a population are clearly associated with the entire population, which is known as an agent test.

The sample of present study includes the **Patients Recruited for Executive Health check-up.**

### 3.7 SAMPLING TECHNIQUE

The process of selection of a small part of the elements from the total number of populations that have the feature of all original population is known as method of sample.

The current research investigation employed a **non-probability suitable sampling approach** to select specimens from all of the participants.

### 3.7 CRITERIA FOR SAMPLING

Among the all-out research population whom is selected for the exploratory study is to be determined by particular criteria by analyst is known as sampling criteria for determination of the examples.

The aforementioned variables had been taken into consideration when choosing the research project specimens for this time.

**Criteria of Inclusion –**

- Individuals with an age group between 20-80 years.
- Individuals attaining the executive health checkup department will be included.

**Exclusion criteria –**

- Individuals with less than 20 age group
- Individuals who are not willing to participate in the study

**3.9: SIZE OF SAMPLE**

The calculated sample size for the present investigation is: **664**

**The data was collected from 664 patients recruited for executive health check-up for the study.**

**Sample size determination:** Based on this article Ramesh R et al A research project on the effectiveness of routine health checks in detecting illness symptoms upfront. The World's Journal of Health Sciences Investigation.2016 Sep;4(9):4022-4025

Prevalence of Hypertension= 52%

$$n= \frac{Z^2 P^Q}{d^2} = 664$$

- Z= Factors of Normal Standard (99% Confidence) = 2.25
- P= 52%

- Q=100-52= 48%
- d= Acceptable Errors= 5%

**Total Samples required= 664**

**Total samples recruited in the study: 768**

### 3.10: DATA COLLECTION TECHNIQUES AND INSTRUMENT

**Data collection Technique:** History collection and laboratory investigations

### 3.10.1: The structured tools of data collection are divided in to three sections as following

- Patient Information Leaflet (PIL).
- Patient Profile Form.
- Initial Assessment Form.

### 3.10.2: CONTENT VALIDITY AND RELIABILITY OF TOOLS

**Content validity of tools:**

All structured tools were subjected to content validation by being distributed to expert medical practitioners. All of the experts were completely in agreement on all of the items on the list. However, a few suggestions for changes to some of the components were made, and these were incorporated into the final tool.

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**Determinants demographic**

Everyone who took part provided a thorough past times, which included socio-demographic factors containing their age, gender, social connections (such as alcoholic overall/or smoke habits), home category, eating habits, & their socioeconomic standing (SES).

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An evaluation of each participant's emotional health, covering its elements like independence situational competence, growth in oneself, meaningful relationships among others, a sense of meaning in life, & confidence in oneself, was conducted. greater scores indicated psychological health at higher values.

## 3.13 PLAN OF DATA ANALYSIS

It was planned to use both during the statistical evaluation of the data, descriptive and inferential statistics are used.

- Initially master data sheet will be prepared according to personal variables and scores obtained for all laboratory investigations.
- The information provided will be analysed with regard to its research goals.
- Statistics descriptive Frequency distribution and percentage distribution is calculated to find out the selected socio demographic variables.
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- Continuous data points are presented to be correlated with standard deviations.
- Utilising Karl Pearson's correlated coefficient approach, information were statistically analysed utilising associations between various factors.
- It was statistically significant if $P < 0.05$. Statistics were deemed meaningful at $P < 0.05$.

# CHAPTER - IV

# RESULTS

Quantitative results of the explanation analysis and interpretation from the research investigation on the socio-psychological, biochemical, & biological factors affecting well-being and illness in Executive Wellness Check-up are presented in the current section. Based on the goals and conclusions developed for the research project, the information was gathered.

## ORGANIZATION OF FINDINGS

Analysis of the data is arranged & displayed under the sections listed below;

4.1: Section I –Socio - demographic profiles of participants.

4.2: Section II- Findings related to comparison of demographic profiles of patients with their mean Psychological Wellbeing scores

4.3: Section III- Research regarding the correlation among sufferers' demographic information and with Psychological Wellbeing scores and biological parameter scores

4.4: Section IV –Findings related to co-relation between demographic variables of patients with Charles Pearson's relationship value approach compares many elements

## 4.1: SECTION 1: DESCRIPTION OF SELECTED SOCIO DEMOGRAPHIC VARIABLES OF PARTICIPANTS

### a. Dispersion of responses from participants by amount and frequency based on their chosen unique factors

The samples of the study comprised of total 768 patients recruited for executive health check-up. The selected personal variables are tabulated in master sheet and descriptive statistics was calculated. The findings are presented as below-

**Table 4.1: Respondents' dispersion based on their socio-demographic characteristics N=768**

| Category of factors | Factors | Sub-category | Participants number (percent) (n=768) |
|---|---|---|---|
| Demographic details | Age (in years) | **20-29** | 42 (5.47%) |
| | | **30-39** | 145 (18.88%) |
| | | **40-49** | 239 (31.12%) |
| | | **50-59** | 207 (26.95%) |
| | | **≥ 60** | 135 (17.58%) |
| | Gender | **Male** | 515 (67.06%) |
| | | **Female** | 253 (32.94%) |
| | Social History | **Nil** | 384 (50%) |
| | | **Alcohol** | 77 (10.03%) |
| | | **Smoking** | 77 (10.03%) |

| | | | |
|---|---|---|---|
| | | **Both** | 230 (29.95%) |
| | **Family kind** | **Joint/coupled** | 538 (70.05%) |
| | | **Nuclear** | 230 (29.95%) |
| | **Diet** | **Vegetarian** | 88 (11.46%) |
| | | **Combined** | 680 (88.54%) |

**(*Source: primary investigation final data October – December 2018).**

The data presented in table 4.1 and figure 4.1 to 4.6 reveals the distribution of participants according to their socio demographic variables, it reveals that,

**Age group:** With respect to age group of participants, it shows that, majority 239(31.12%) of participants were belonged to age group of 40-49 years, 207(29.95%) were belonged to age group of 50-59 years, 145(18.88%) were belonged to of 30-39 years age group, 135(17.58%) were belonged to 60 years and more age group and 42(5.47%) of participants were fell to the 20- to 29-year-old group of people.

**Gender:** With respect to gender of participants, it shows that, majority 515(67.06%) of participants were males and remaining 253(32.94%) of participants were females.

**Social history:** With respect to social history of participants, it shows that, majority 384(50%) of participants were not had history of smoking or alcohol, 230(29.95%) were had history of both smoking and alcohol and each 77(10.03%) were had history of smoking and alcohol consumption.

**Type of family:** With respect to type of family of participants, it shows that, majority 538(70.05%) of participants were belonged to joint family and remaining 230(29.95%) were belonged to nuclear family.

**Socio Economic Status:** with respect to socio economic status of participants, majority 651(84.77%) were belonged to class II category, 77(10.03%) were belonged to Class III category and remaining 40(5.21%) were belonged to class I category.

**Diet:** With respect to diet of participants, majority 680(88.54%) were taking mixed diet and remaining 88(11.46%) were taking vegetarian diet.

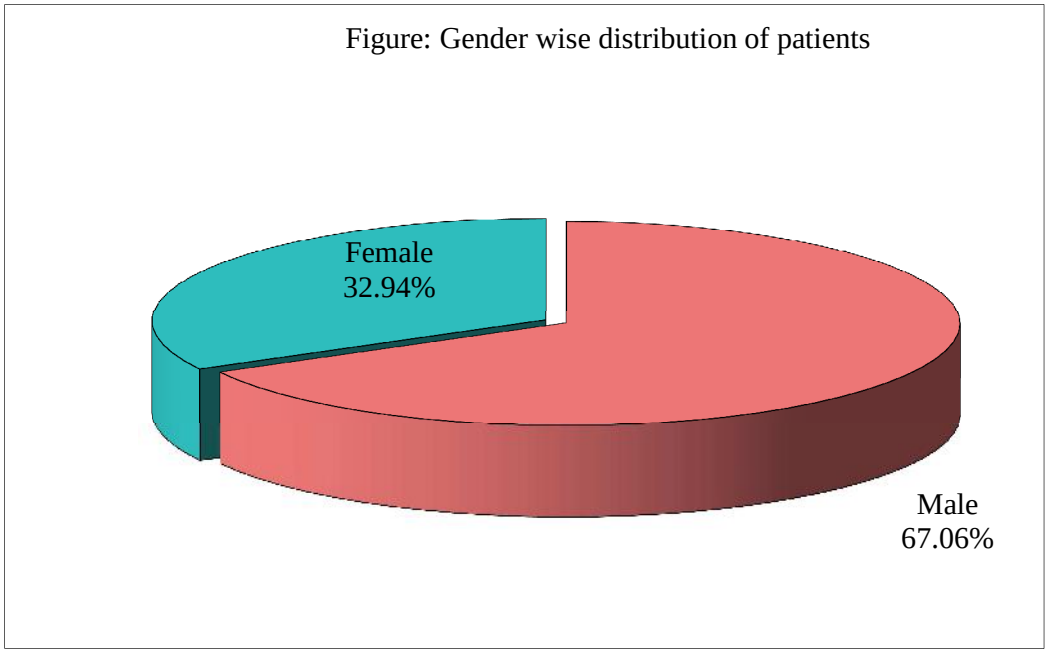


**Fig 4.1: Gender wise allocation of the participants**

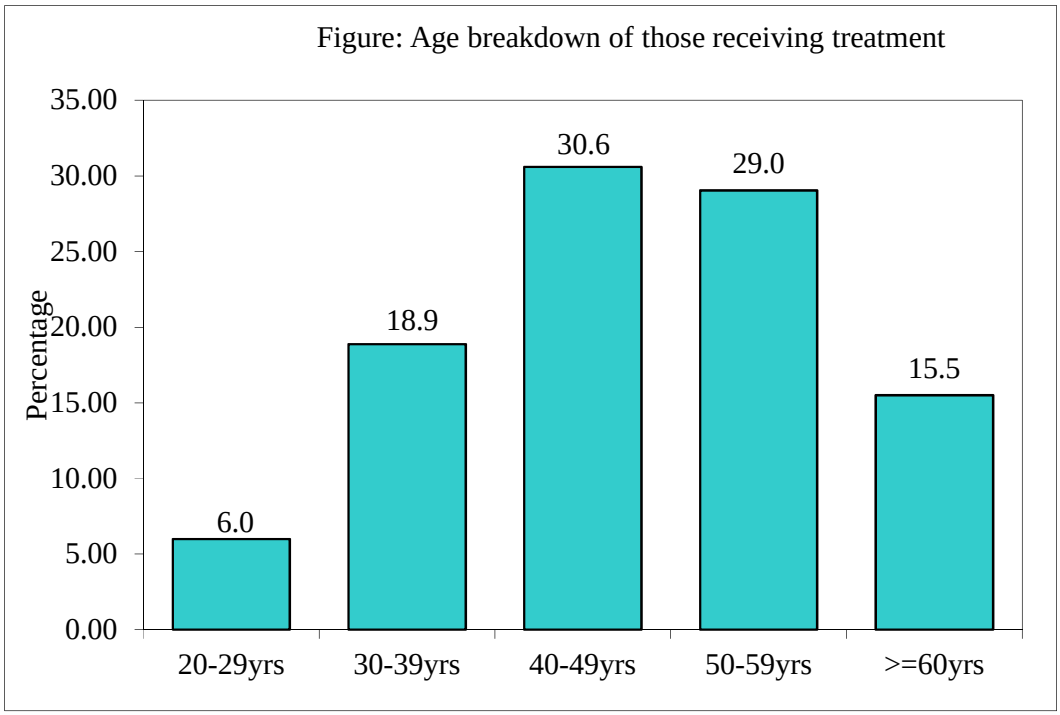


**Fig 4.2: Percentage distribution of participants according their age**

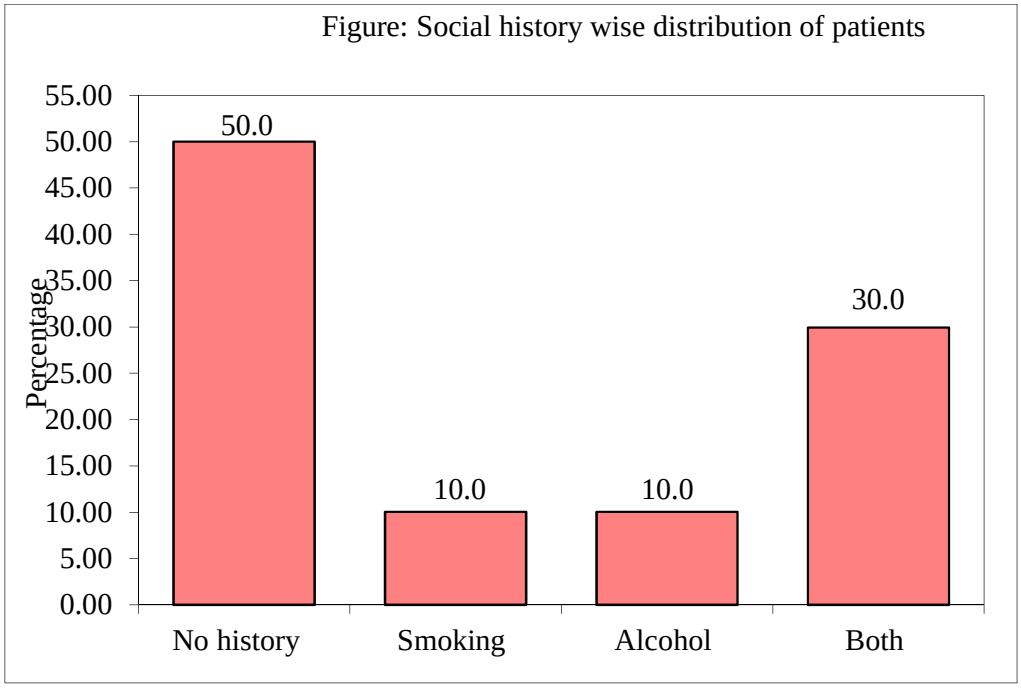


**Fig 4.3: Respondents' proportion dispersion related to their socioeconomic background**

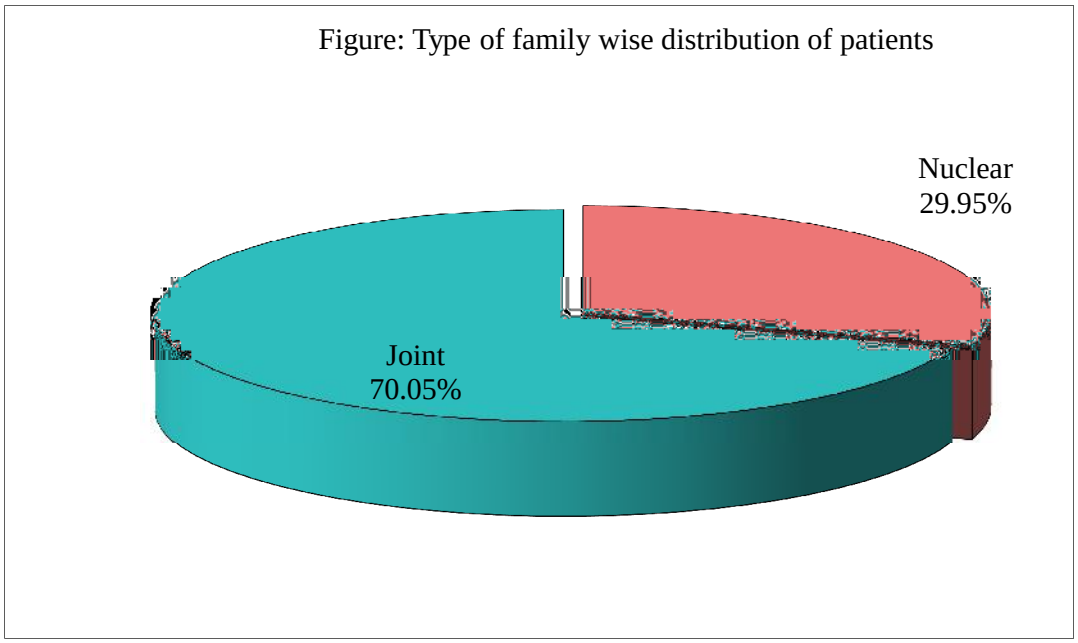


**Fig 4.4: Respondents' percentages distributed according to the kind of family**

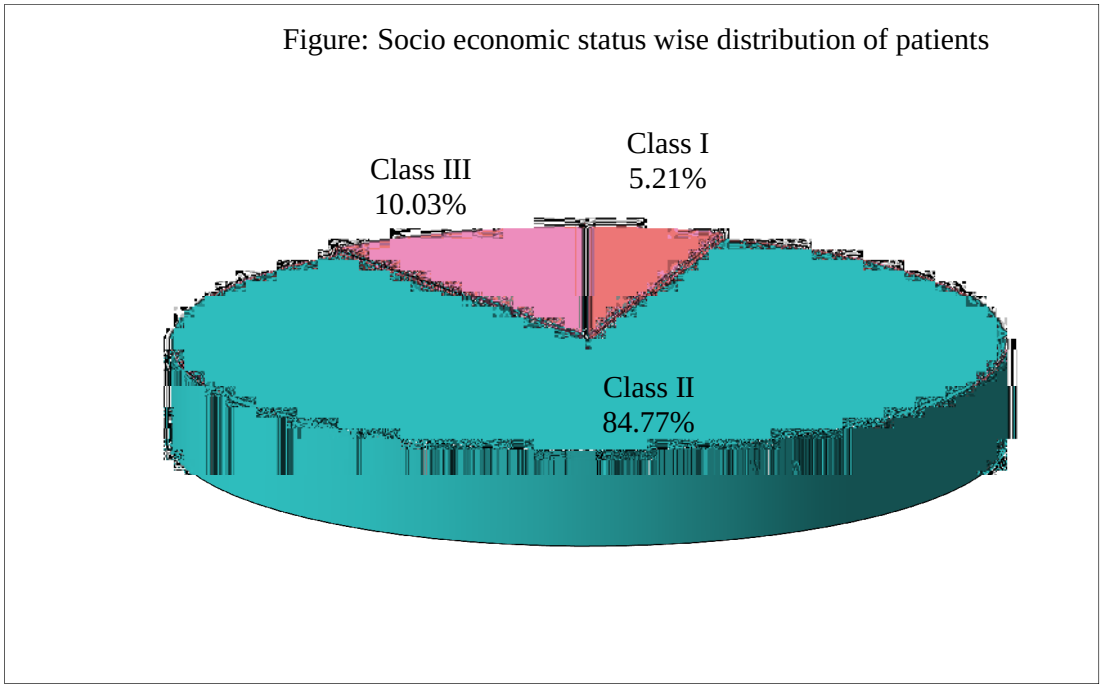


**Fig 4.5: Respondents' percentages distributed based on their socioeconomic position**

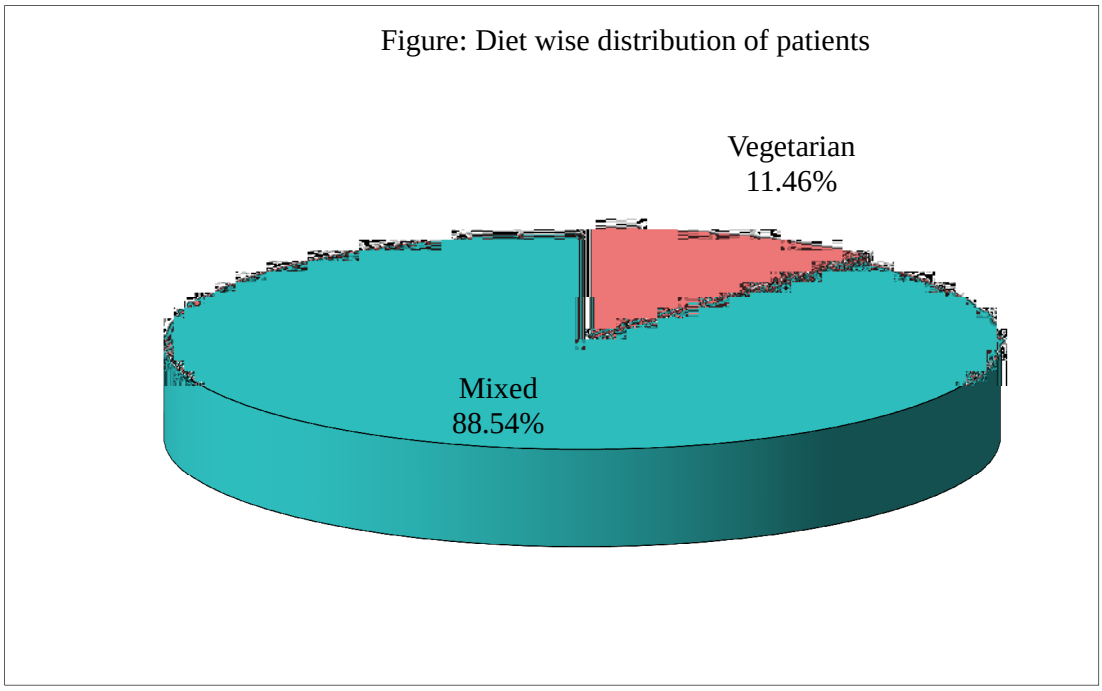


**Fig 4.6: Participants percentage distribution according their diet**

**b. Based to each participant's systemically variables, the incidence & percentages allocation of their rating becomes**

**Table 4.2: Distribution of patients by systemic parameters N=768**

| Systemic parameters | No of patients | % of patients |
|---|---|---|
| **Obesity** | | |
| Underweight | 36 | 4.69 |
| Normal Weight | 340 | 44.27 |
| Overweight | 362 | 47.14 |
| Obesity (Class 1) | 30 | 3.91 |
| **SBP** | | |
| Less than 120 | 342 | 44.53 |
| 120-129 | 15 | 1.95 |
| 130-139 | 1 | 0.13 |
| 140 or Higher | 371 | 48.31 |
| Higher than 180 | 39 | 5.08 |
| **DBP** | | |
| Less than 80 | 407 | 52.99 |
| 80-89 | 31 | 4.04 |
| 90 or higher | 320 | 41.67 |
| Higher than 120 | 10 | 1.30 |

| **Psychological Wellbeing** | | |
|---|---|---|
| Low | 136 | 17.71 |
| Medium | 497 | 64.71 |
| High | 135 | 17.58 |
| Total | 768 | 100.00 |

The data presented in table 4.2 and figure 4.7 to 4.10 reveals the distribution of participants according to their systemic parameters, it reveals that,

**Obesity:** With respect to obesity of participants, it shows that, majority 362(47.14%) of participants were had overweight, 340(44.27%) were had normal weight, 36(4.69%) were had underweight and remaining 30(3.91%) were had class 1 obesity.

**Systemic blood pressure:** With respect to SBP of participants, it shows that, majority 371(48.31%) of participants were had SBP 140 or higher, 342(44.53%) were had SBP less than 120, 39(5.08%) were had SBP higher than 180, 15(1.95%) were had SBP 120-129 and remaining 1(0.13%) was had SBP 130-139 mm of Hg.

**Blood pressure diastolic:** With respect to DBP of participants, it shows that, majority 407(52.99%) of participants were had DBP less than 80, 320(41.67%) were had DBP 90 or higher, 31(4.04%) were had DBP 80-89 and remaining 10(1.30%) was had DBP higher than 120 mm of Hg.

**Psychological wellbeing:** With respect to psychological wellbeing of participants, it shows that, majority 497(64.71%) of participants were had medium level, 136(17.71%) were had low level and remaining 135(17.58%) were had high level of psychological well-being.

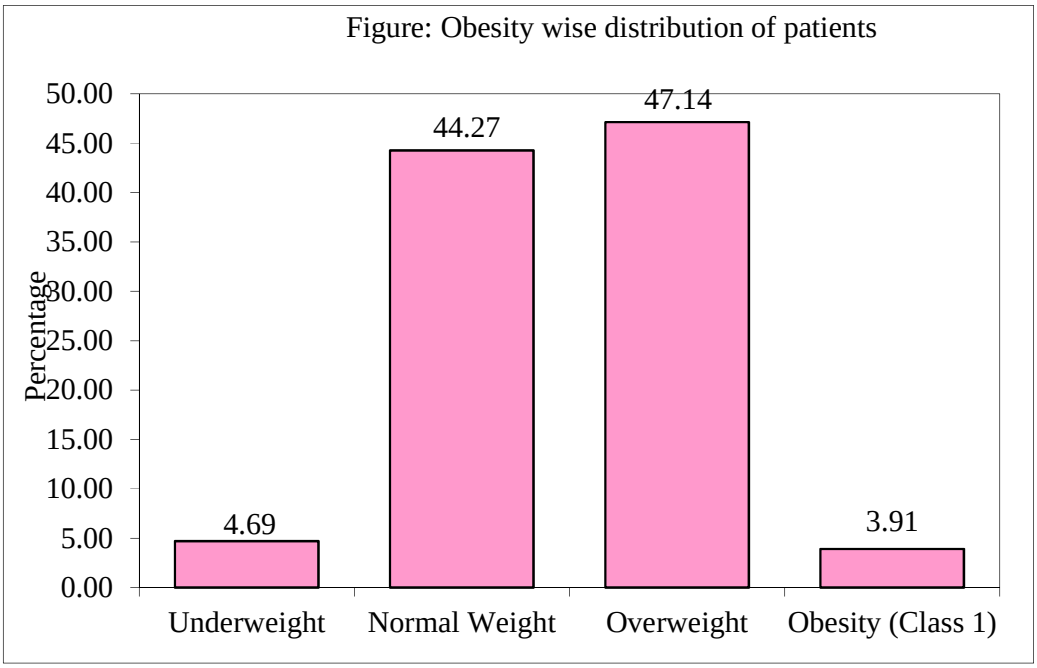


**Fig 4.7: Frequency of allocation of respondent as per their obesity**

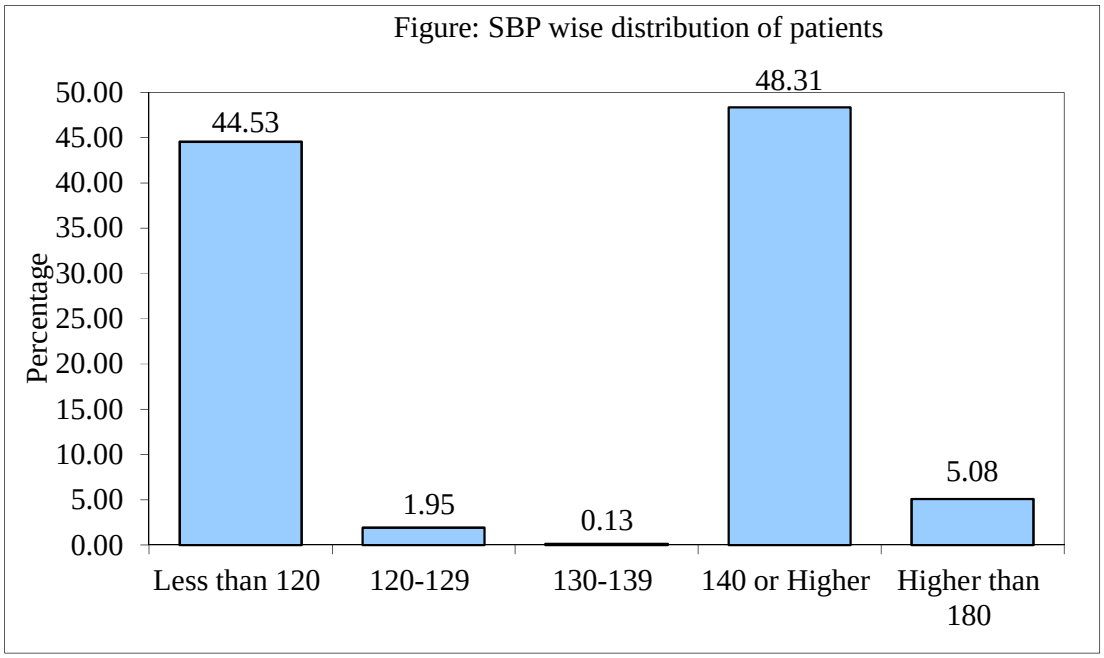


**Fig 4.8: Frequency of allocation of respondent as per their SBP**

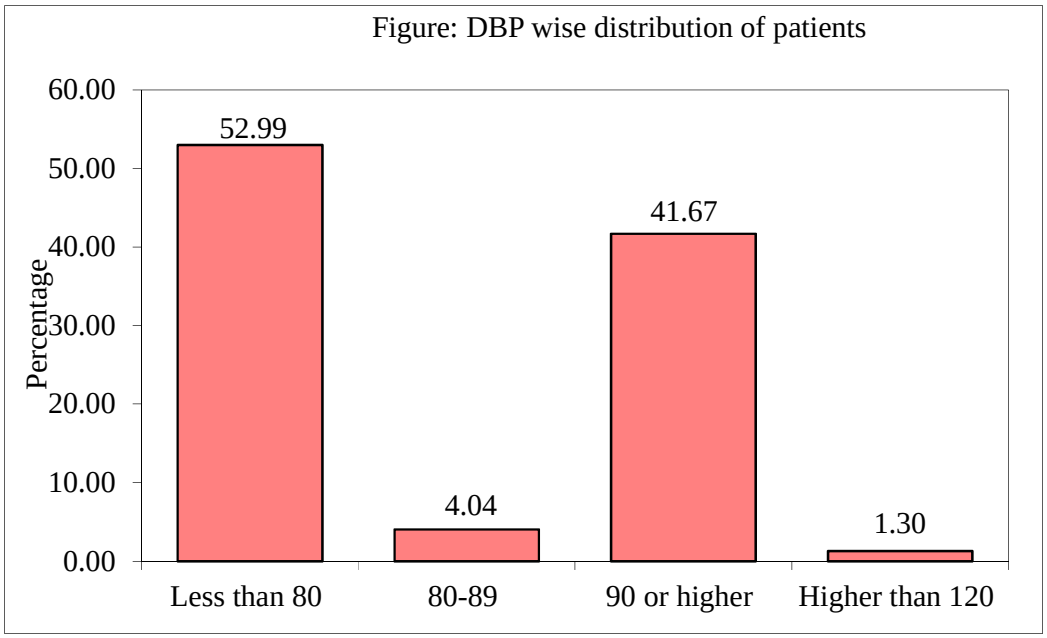


**Fig 4.9: Frequency of allocation of respondent as per their DBP**

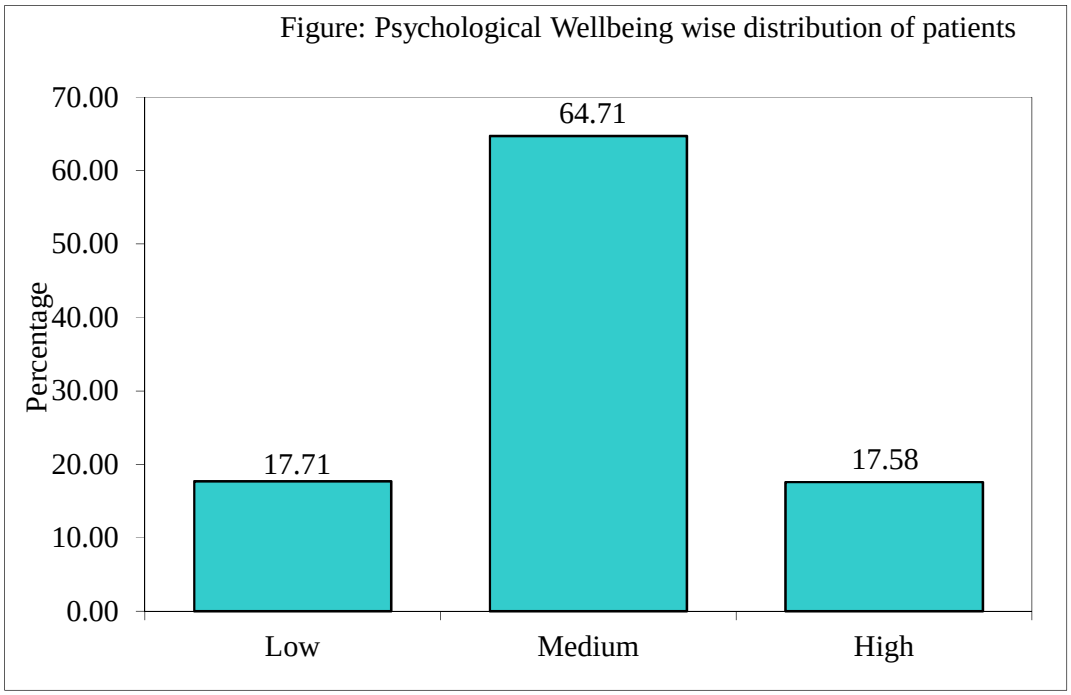


**Fig 4.10: Frequency of allocation of respondent as per their psychological wellbeing**

**c. Percentage and Frequency allocation of respondent rate as per their radiological findings**

**Table 4.3: Distribution of patients by radiological findings N=768**

| Radiological findings | No of patients | % of patients |
|---|---|---|
| **X ray chest** | | |
| Normal | 443 | 57.68 |
| Abnormal | 25 | 3.26 |
| **USG** | | |
| WNL | 574 | 74.74 |
| Others | 194 | 25.26 |
| **ECG** | | |
| Normal | 746 | 97.14 |
| Abnormal | 22 | 2.86 |
| **TMT** | | |
| Not conducted | 264 | 34.38 |
| Negative | 459 | 59.77 |
| Positive/Affirmative | 45 | 5.86 |
| ECHO | | |
| Not conducted | 511 | 66.54 |
| EF60 | 234 | 30.47 |
| EF40 | 23 | 2.99 |

The data presented in table 4.3 and figure 4.11 reveals the distribution of participants according to their radiological findings, it reveals that,

**X ray chest:** With respect to X-ray chest of participants, it shows that, majority 443(57.68%) of participants were had normal chest X ray and remaining 25(3.26%) were had abnormal Chest X-ray.

**USG:** With respect to USG of participants, it shows that, majority 574(74.74%) of participants were had USG findings within normal limits and remaining 194(25.26%) were had USG findings changes.

**ECG:** With respect to ECG of participants, it shows that, majority 746(97.14%) of participants were normal had ECG findings and remaining 22(2.86%) were had abnormal ECG findings.

**TMT:** With respect to TMT of participants, it shows that, majority 459(59.77%) of participants were had negative findings, 45(5.86%) were had positive findings and remaining 264(34.38%) of participants TMT was not conducted.

**ECHO:** With respect to ECHO of participants, it shows that, majority 234(30.47%) of participants were had EF60 findings, 23(2.99%) were had EF40 findings and remaining 511(66.54%) of participants ECHO was not conducted.

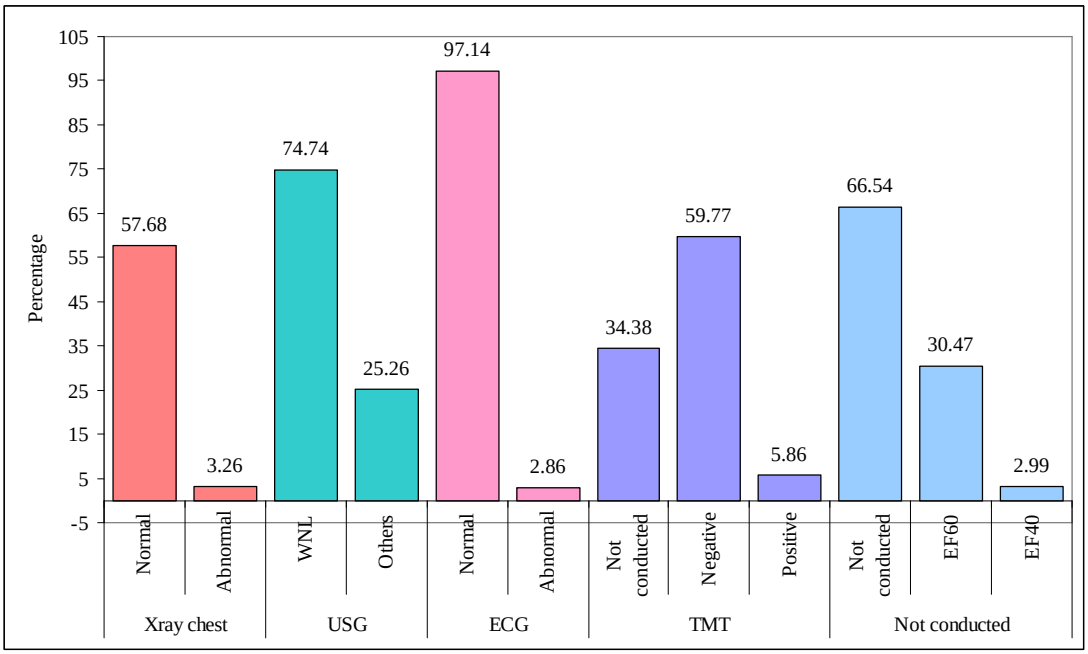


**Fig 4.11: Frequency of allocation of respondent as per their radiological findings**

**d. Percentage and frequency of allocation of respondents rates as per their radiological findings**

**Table 4.4: Distribution of patients by morbidity profile N=768**

| Morbidity profile | No of patients | % of patients |
|---|---|---|
| **Hb** | | |
| Normal | 684 | 89.06 |
| Mild | 69 | 8.98 |
| Moderate | 15 | 1.95 |
| **Urine** | | |
| Normal | 614 | 79.95 |
| Abnormal | 154 | 20.05 |
| **Fasting blood sugar** | | |
| 1st Grade | 461 | 60.03 |
| 2nd Grade | 230 | 29.95 |
| 3rd Grade | 77 | 10.03 |
| **Post prandial blood sugar** | | |
| 1st Grade | 441 | 57.42 |
| 2nd Grade | 153 | 19.92 |
| 3rd Grade | 174 | 22.66 |
| **HBA1C** | | |
| Normal | 15 | 1.95 |
| Pre-Diabetic | 524 | 68.23 |
| Diabetic | 229 | 29.82 |

| | | |
|---|---|---|
| **Cholesterol** | | |
| Desirable | 520 | 67.71 |
| Borderline | 73 | 9.51 |
| High | 175 | 22.79 |
| **HDL** | | |
| Desirable | 349 | 45.44 |
| Borderline | 210 | 27.34 |
| High | 209 | 27.21 |
| **LDL** | | |
| Desirable | 381 | 49.61 |
| Borderline | 194 | 25.26 |
| High | 193 | 25.13 |
| **Triglyceride** | | |
| Desirable | 65 | 8.46 |
| Borderline | 350 | 45.57 |
| High | 353 | 45.96 |
| **SGPT** | | |
| Normal | 435 | 56.64 |
| Abnormal | 333 | 43.36 |
| **SGOT** | | |
| Normal | 374 | 48.70 |
| Abnormal | 394 | 51.30 |
| **Renal Function Test** | | |
| 0.60-1.20 | 565 | 73.57 |

| | | |
|---|---|---|
| >1.20 | 203 | 26.43 |
| **TSH** | | |
| 4.2 | 649 | 84.51 |
| >4.3 | 119 | 15.49 |
| Total | 768 | 100.00 |

The data presented in table 4.4 reveals the distribution of participants according to their morbidity profile, it reveals that,

**Haemoglobin:** With respect to haemoglobin level of participants, it shows that, majority 684(89.06%) of participants were had normal level, 69(8.98%) were had mild level and remaining 15(1.95%) were had moderate level decrease of haemoglobin.

**Urine:** With respect to Urine finding of participants, it shows that, majority 614(79.95%) of participants were had normal findings and remaining 154(20.05%) were had abnormal findings.

**FBS:** With respect to FBS of participants, it shows that, majority 461(60.03%) of participants were normal level of FBS, 230(29.95%) were had slight increase of FBS and remaining 77(10.03%) were had high level of FBS.

**PPBS:** With respect to PPBS of participants, it shows that, majority 441(57.42%) of participants were normal level of PPBS, 153(19.92%) were had slight increase of PPBS and remaining 174(22.66%) were had high level of PPBS.

**HBA1C:** With respect to HBA1C of participants, it shows that, majority 524(68.23%) of participants were pre diabetic, 229(29.82%) were diabetic and remaining 15(1.95%) were had normal HBA1C.

**Cholesterol:** With respect to cholesterol of participants, it shows that, majority 520(67.71%) of participants were had desirable level of cholesterol, 175(22.79%) were had high level of cholesterol and remaining 73(9.51%) were had borderline cholesterol.

**HDL:** With respect to HDL of participants, it shows that, majority 349(45.44%) of participants were had desirable level of HDL, 210(27.34%) were had borderline level of HDL and remaining 209(27.21%) were had high level HDL.

**LDL:** With respect to LDL of participants, it shows that, majority 381(49.61%) of participants were had desirable level of LDL, 194(25.26%) were had borderline level of LDL and remaining 193(25.13%) were had high level LDL.

**Triglyceride:** With respect to Triglyceride of participants, it shows that, majority 353(45.06%) of participants were had high level of triglyceride, 350(45.57%) were had borderline level of triglycerides and remaining 65(8.46%) were had desirable level triglycerides.

**SGPT:** With respect to SGPT of participants, it shows that, majority 435(56.64%) of participants were had normal level of SGPT and remaining 333(43.36%) were had Abnormal SGPT.

**SGOT:** With respect to SGOT of participants, it shows that, majority 394(51.30%) of participants were had abnormal level of SGOT and remaining 374(48.70%) were had normal SGOT.

**Renal function test:** With respect to RFT of participants, it shows that, majority 565(73.57%) of participants were had 0.60-1.20 level of creatine and remaining 203(26.43%) were had >1.20 level of creatine.

**Thyroid function test:** With respect to TFT of participants, it shows that, majority 649(84.51%) of participants were had 4.2 level of TSH and remaining 119(15.49%) were had >4.3 level of TSH.

## 4.2: Section II- Findings related to comparison of demographic profiles of patients with their mean Psychological Wellbeing scores

Comparison of demographic profiles of patients with their mean Psychological Wellbeing results using standalone tests of t & one-way analysis of variance

**Table 4.5: Comparison of demographic profile and psychological well-being scores** **N=768**

| Demographic profiles | Mean | SD | F/t-test | P-value |
|---|---|---|---|---|
| **Gender** | | | | |
| Male | 65.75 | 21.20 | -0.1586 | 0.8740 |
| Female | 66.01 | 21.73 | | |
| **Age groups** | | | | |
| 20-29yrs | 69.52 | 24.19 | 0.6116 | 0.6544 |
| 30-39yrs | 64.34 | 19.93 | | |
| 40-49yrs | 66.46 | 21.43 | | |
| 50-59yrs | 65.82 | 21.67 | | |
| >=60yrs | 65.03 | 21.32 | | |

| | | | | |
|---|---|---|---|---|
| **Social history** | | | | |
| Nil | 65.86 | 21.34 | 0.0220 | 0.9956 |
| Smoking | 66.03 | 20.97 | | |
| Alcohol | 65.26 | 21.20 | | |
| Both | 65.92 | 21.71 | | |
| **Type of family** | | | | |
| Nuclear | 65.87 | 21.30 | 0.0307 | 0.9755 |
| Joint | 65.82 | 21.41 | | |
| **SES** | | | | |
| Class I | 68.83 | 23.53 | 0.4355 | 0.6471 |
| Class II | 65.73 | 21.28 | | |
| Class III | 65.18 | 21.06 | | |
| **Diet** | | | | |
| Vegetarian | 65.59 | 19.84 | -0.1131 | 0.9100 |
| Mixed | 65.86 | 21.57 | | |
| Total | 65.83 | 21.36 | | |

Data presented in table 4.5 depicts the comparison of demographic profiles with mean psychological wellbeing scores and their components. Using one-way ANOVA and the average of the psychological happiness ratings as well as their constituent parts did not differ significantly across demographic factors such as sex,

age, social background, structure of family, socioeconomic status & nutrition, according to an independently conducted t-test.

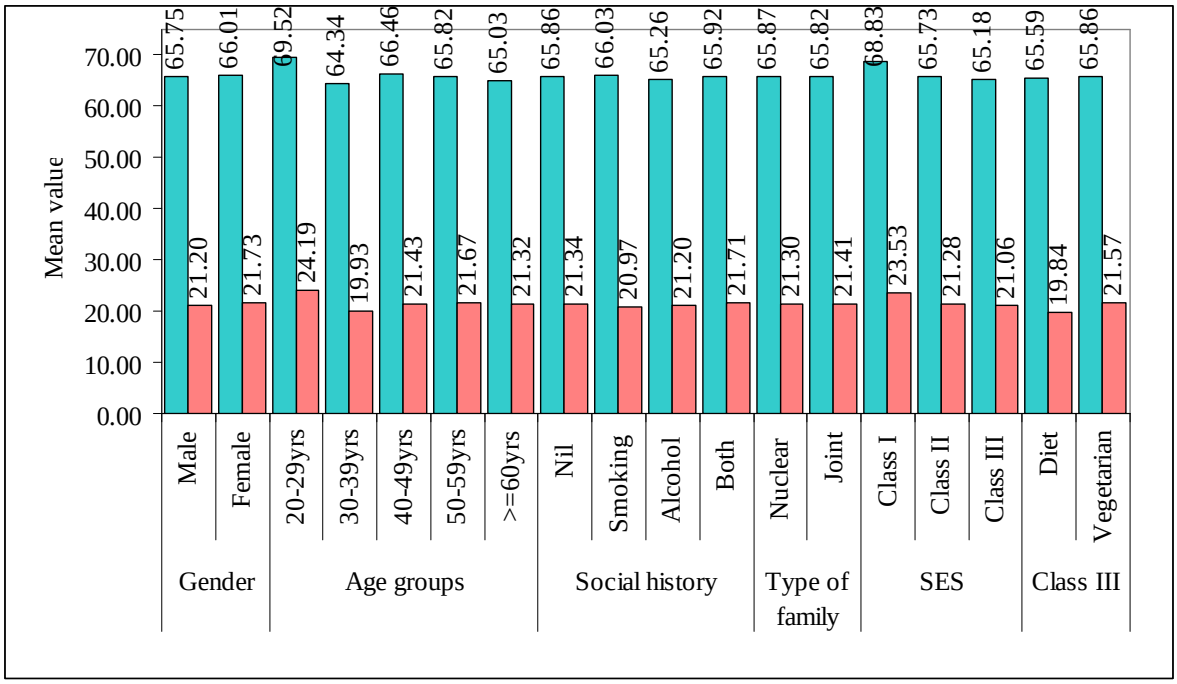


**Fig 4.12: Comparison of demographic profiles of patients with their mean Psychological Wellbeing scores**

**Table 4.6: Comparison of demographic profile with component of Psychological Wellbeing i.e.**

**Grades for independence using one-way ANOVA and an autonomous test of significance N=768**

| Demographic profiles | Mean | SD | F/t-test | P-value |
|---|---|---|---|---|
| **Gender** | | | | |
| Male | 9.93 | 4.08 | -0.1157 | 0.9079 |
| Female | 9.96 | 4.08 | | |
| **Age groups** | | | | |
| 20-29yrs | 10.61 | 4.50 | 0.8068 | 0.5210 |
| 30-39yrs | 9.85 | 3.91 | | |
| 40-49yrs | 10.05 | 4.12 | | |
| 50-59yrs | 10.00 | 4.21 | | |
| >=60yrs | 9.45 | 3.78 | | |
| **Social history** | | | | |
| Nil | 9.94 | 4.09 | 0.0255 | 0.9945 |
| Smoking | 9.84 | 4.03 | | |
| Alcohol | 9.90 | 3.97 | | |
| Both | 9.98 | 4.13 | | |

| | | | | |
|---|---|---|---|---|
| **Type of family** | | | | |
| Nuclear | 9.90 | 4.09 | -0.1587 | 0.8739 |
| Joint | 9.96 | 4.08 | | |
| **SES** | | | | |
| Class I | 10.48 | 4.39 | 0.3910 | 0.6765 |
| Class II | 9.92 | 4.06 | | |
| Class III | 9.81 | 4.07 | | |
| **Diet** | | | | |
| Vegetarian | 9.88 | 3.60 | -0.1590 | 0.8737 |
| Mixed | 9.95 | 4.14 | | |
| Total | 9.94 | 4.08 | | |

Data presented in table 4.6 depicts the comparison of demographic profiles with mean psychological wellbeing in the area of autonomy. Using one-way ANOVA and independent t-test, the average mental health autonomous ratings & the associated variables did not change significantly across demographic characteristics such age, sex, social background, family structure, SES, & nutrition.

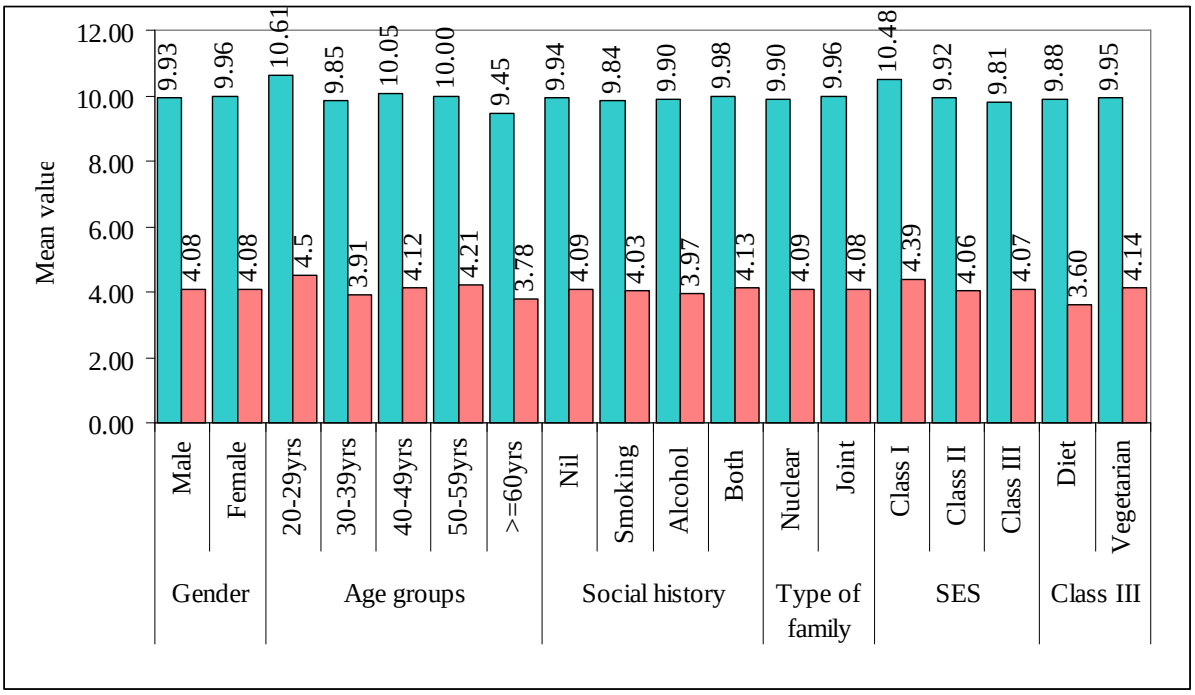


**Fig 4.13: Comparison of demographic profiles of patients with their mean Psychological Wellbeing scores in the area of autonomy**

**Table 4.7: Comparison of demographic profile with component of Psychological Wellbeing i.e., Environmental Mastery rates by way single ANOVA and test of t autonomous N=768**

| Demographic profiles | Mean | SD | F/t-test | P-value |
|---|---|---|---|---|
| **Gender** | | | | |
| Male | 10.52 | 5.34 | 0.0545 | 0.9565 |
| Female | 10.50 | 5.35 | | |
| **Age groups** | | | | |
| 20-29yrs | 11.65 | 5.45 | 0.7406 | 0.5644 |
| 30-39yrs | 10.14 | 5.21 | | |
| 40-49yrs | 10.63 | 5.47 | | |
| 50-59yrs | 10.42 | 5.24 | | |
| >=60yrs | 10.48 | 5.39 | | |
| **Social history** | | | | |
| Nil | 10.51 | 5.32 | 0.0419 | 0.9886 |
| Smoking | 10.65 | 5.36 | | |
| Alcohol | 10.35 | 5.44 | | |
| Both | 10.53 | 5.36 | | |
| **Type of family** | | | | |
| Nuclear | 10.55 | 5.34 | 0.1328 | 0.8944 |
| Joint | 10.50 | 5.34 | | |

| | | | | |
|---|---|---|---|---|
| **SES** | | | | |
| Class I | 10.15 | 5.75 | 0.3120 | 0.7321 |
| Class II | 10.58 | 5.31 | | |
| Class III | 10.16 | 5.36 | | |
| **Diet** | | | | |
| Vegetarian | 10.26 | 5.18 | -0.4698 | 0.6386 |
| Mixed | 10.55 | 5.36 | | |
| Total | 10.51 | 5.34 | | |

Data presented in table 4.7 depicts the comparison of demographic profiles with mean psychological wellbeing in the area of environmental mastery. The average of psychologically healthy environment ratings and their parts did not significantly vary across demographic variables such as gender, age, social background, type of family members, SES, as well as eating habits, according to one-way ANOVA and a t-test administered independently.

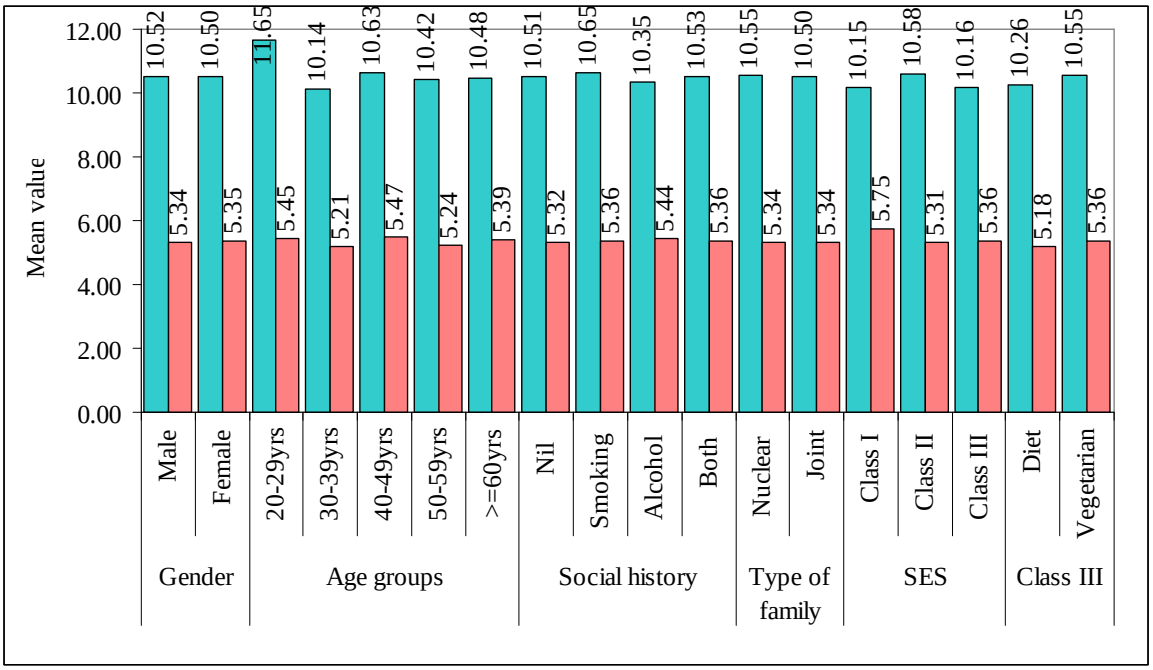


**Fig 4.14: Comparison of demographic profiles of patients with their mean Psychological Wellbeing scores in the area of environmental mastery**

**Table 4.8: Comparison of demographic profile with component of Psychological Wellbeing i.e. personal growth rates by way single ANOVA and t test autonomous N=768**

| Demographic profiles | Mean | SD | F/t-test | P-value |
|---|---|---|---|---|
| **Gender** | | | | |
| Male | 10.47 | 5.10 | -0.3631 | 0.7167 |
| Female | 10.62 | 5.37 | | |
| **Age groups** | | | | |
| 20-29yrs | 11.11 | 5.61 | 0.4825 | 0.7486 |
| 30-39yrs | 10.21 | 4.89 | | |
| 40-49yrs | 10.75 | 5.16 | | |
| 50-59yrs | 10.51 | 5.24 | | |
| >=60yrs | 10.24 | 5.40 | | |
| **Social history** | | | | |
| Nil | 10.53 | 5.18 | 0.0116 | 0.9983 |
| Smoking | 10.52 | 5.08 | | |
| Alcohol | 10.42 | 5.23 | | |
| Both | 10.53 | 5.26 | | |
| **Type of family** | | | | |
| Nuclear | 10.48 | 5.13 | -0.1288 | 0.8975 |
| Joint | 10.54 | 5.22 | | |

| | | | | |
|---|---|---|---|---|
| **SES** | | | | |
| Class I | 11.80 | 5.78 | 1.2907 | 0.2757 |
| Class II | 10.46 | 5.15 | | |
| Class III | 10.39 | 5.19 | | |
| **Diet** | | | | |
| Vegetarian | 10.68 | 5.03 | 0.3115 | 0.7555 |
| Mixed | 10.50 | 5.21 | | |
| Total | 10.52 | 5.19 | | |

Data presented in table 4.8 depicts the comparison of demographic profiles with mean psychological wellbeing in the area of personal growth. No statistically notable variations were found in the median mental health personal development ratings as well as its elements across demographic parameters such as age, gender, social background, kind of family members, SES, as well as nutrition utilising an ANOVA with a one-way design as well as an autonomous t-test.

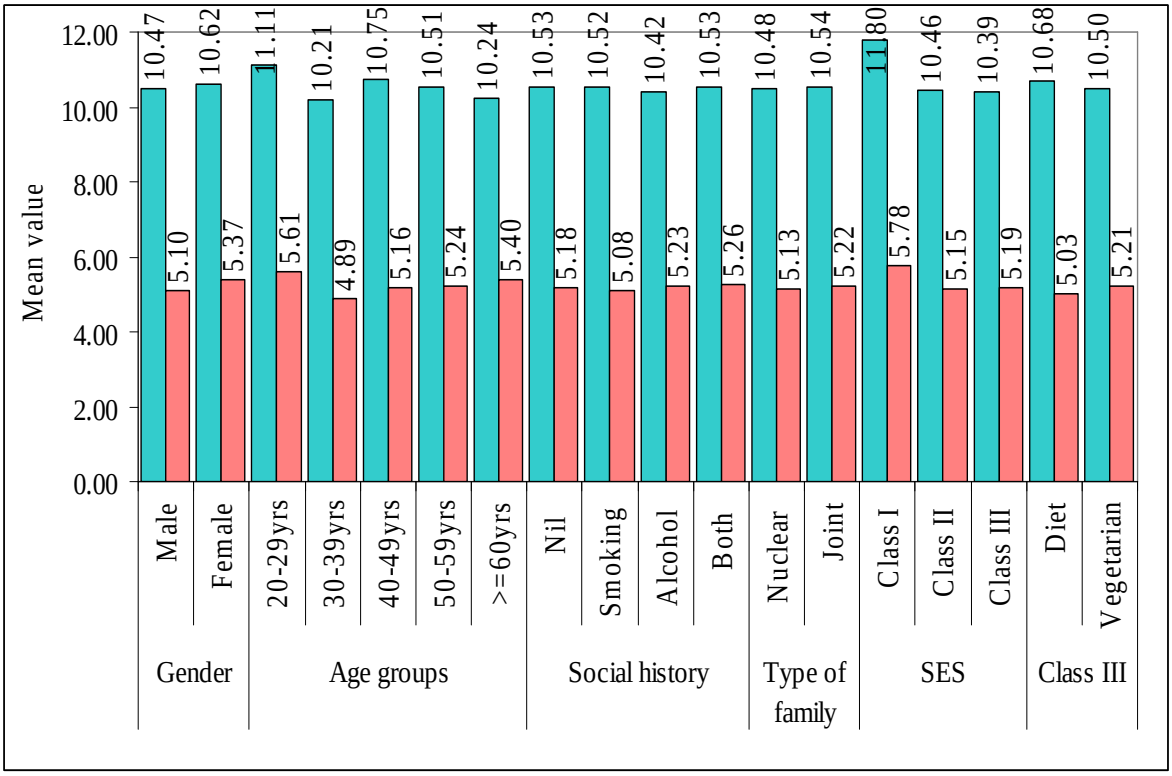


**Fig 4.15: Comparison of demographic profiles of patients with their mean Psychological Wellbeing scores in the area of personal growth**

**Table 4.9: Comparison of demographic profile with component of Psychological Wellbeing i.e., Positive Relations with Others rates by way single ANOVA and t test autonomous N=768**

| Demographic profiles | Mean | SD | F/t-test | P-value |
|---|---|---|---|---|
| **Gender** | | | | |
| Male | 12.15 | 2.94 | 0.4717 | 0.6373 |
| Female | 12.05 | 2.89 | | |
| **Age groups** | | | | |
| 20-29yrs | 12.30 | 3.49 | 0.0864 | 0.9866 |
| 30-39yrs | 12.03 | 2.61 | | |
| 40-49yrs | 12.10 | 2.94 | | |
| 50-59yrs | 12.13 | 3.01 | | |
| >=60yrs | 12.16 | 2.91 | | |
| **Social history** | | | | |
| Nil | 12.11 | 2.93 | 0.0536 | 0.9836 |
| Smoking | 12.10 | 2.95 | | |
| Alcohol | 12.01 | 2.85 | | |
| Both | 12.17 | 2.95 | | |
| **Type of family** | | | | |
| Nuclear | 12.14 | 2.94 | 0.1547 | 0.8771 |
| Joint | 12.11 | 2.92 | | |

| | | | | |
|---|---|---|---|---|
| **SES** | | | | |
| Class I | 12.50 | 2.77 | 0.6810 | 0.5064 |
| Class II | 12.07 | 2.94 | | |
| Class III | 12.35 | 2.90 | | |
| **Diet** | | | | |
| Vegetarian | 11.88 | 2.82 | -0.8298 | 0.4069 |
| Mixed | 12.15 | 2.94 | | |
| Total | 12.12 | 2.92 | | |

Data presented in table 4.9 depicts the comparison of demographic profiles with mean psychological wellbeing in the area of positive relations with others. Using one-way ANOVA and autonomy t-test, no discernible difference in average was found psychological wellbeing positive relations with others scores and their components over demographic parameters like Age, gender, age-related social background, familial composition, SES, & nutrition.

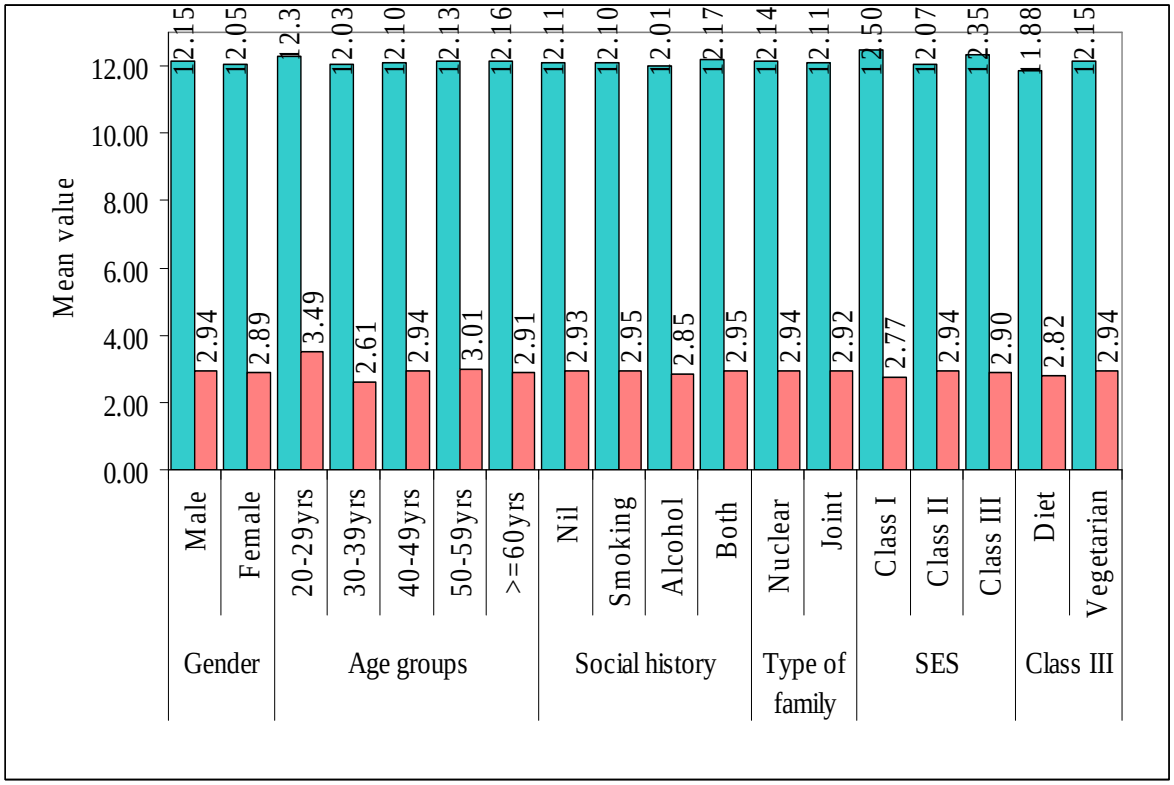


**Fig 4.16: Comparison of demographic profiles of patients with their mean Psychological Wellbeing scores in the area of positive relations with others**

**Table 4.10: Comparison of demographic profile with component of Psychological Wellbeing i.e., Purpose in Life rates by way single ANOVA and t test autonomous N=768**

| Demographic profiles | Mean | SD | F/t-test | P-value |
|---|---|---|---|---|
| **Gender** | | | | |
| Male | 10.59 | 4.79 | 0.0898 | 0.9285 |
| Female | 10.55 | 4.82 | | |
| **Age groups** | | | | |
| 20-29yrs | 11.54 | 5.25 | 0.5664 | 0.6871 |
| 30-39yrs | 10.35 | 4.58 | | |
| 40-49yrs | 10.62 | 4.82 | | |
| 50-59yrs | 10.51 | 4.78 | | |
| >=60yrs | 10.51 | 4.88 | | |
| **Social history** | | | | |
| Nil | 10.58 | 4.77 | 0.1014 | 0.9592 |
| Smoking | 10.74 | 4.78 | | |
| Alcohol | 10.32 | 4.86 | | |
| Both | 10.59 | 4.84 | | |
| **Type of family** | | | | |
| Nuclear | 10.65 | 4.81 | 0.2896 | 0.7722 |
| Joint | 10.54 | 4.79 | | |

| | | | | |
|---|---|---|---|---|
| **SES** | | | | |
| Class I | 10.42 | 5.03 | 0.2172 | 0.8048 |
| Class II | 10.62 | 4.79 | | |
| Class III | 10.26 | 4.74 | | |
| **Diet** | | | | |
| Vegetarian | 10.44 | 4.79 | -0.2751 | 0.7833 |
| Mixed | 10.59 | 4.80 | | |
| Total | 10.58 | 4.79 | | |

Data presented in table 4.10 depicts the comparison of demographic profiles with mean psychological wellbeing in the area of purpose in life score. No statistically significant differences were found in the average mental health meaning in life ratings and their constituents across demographic parameters such age, sex, social status, type of family, SES, and nutrition applying a one-way analysis of variance and the independent t-test.

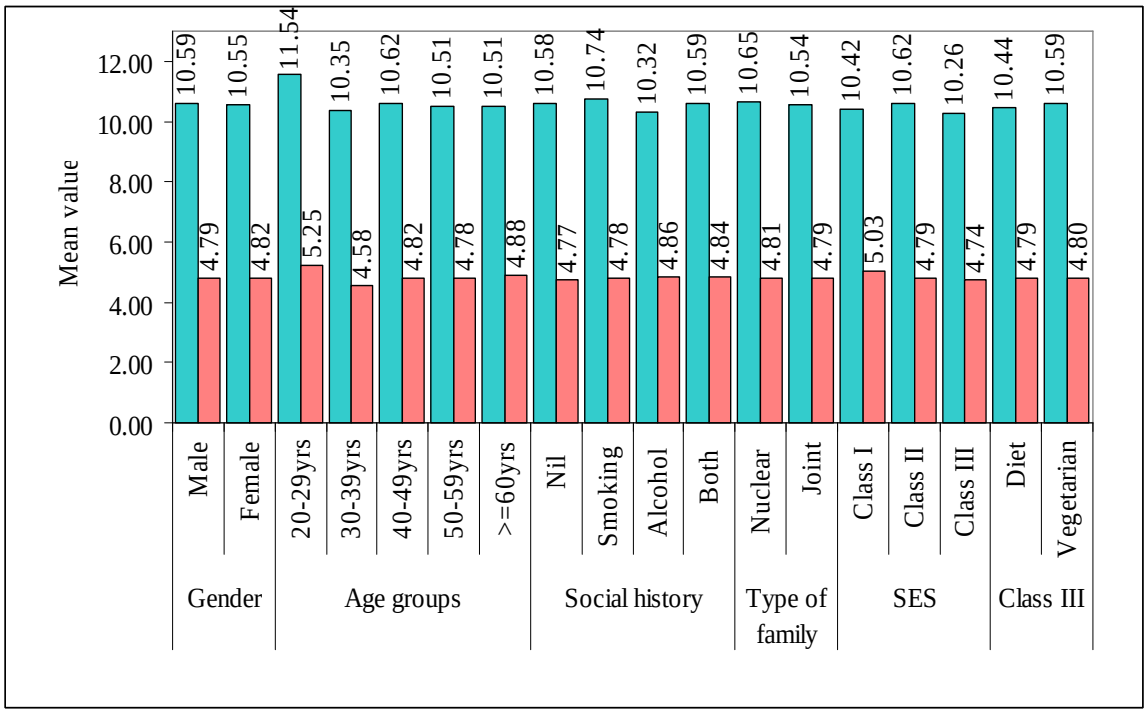


**Fig 4.17: Comparison of demographic profiles of patients with their mean Psychological Wellbeing scores in the area of purpose in life**

**Table 4.11: Comparison of demographic profile with component of Psychological Wellbeing i.e., Self-Acceptance rates by way single ANOVA and t test autonomous N=768**

| Demographic profiles | Mean | SD | F/t-test | P-value |
|---|---|---|---|---|
| **Gender** | | | | |
| Male | 12.09 | 3.85 | -0.8070 | 0.4199 |
| Female | 12.33 | 3.96 | | |
| **Age groups** | | | | |
| 20-29yrs | 12.30 | 4.04 | 0.5343 | 0.7106 |
| 30-39yrs | 11.75 | 3.87 | | |
| 40-49yrs | 12.31 | 3.81 | | |
| 50-59yrs | 12.24 | 3.94 | | |
| >=60yrs | 12.18 | 3.91 | | |
| **Social history** | | | | |
| Nil | 12.18 | 3.90 | 0.0307 | 0.9928 |
| Smoking | 12.17 | 3.81 | | |
| Alcohol | 12.26 | 3.84 | | |
| Both | 12.11 | 3.93 | | |
| **Type of family** | | | | |
| Nuclear | 12.13 | 3.85 | -0.1487 | 0.8819 |
| Joint | 12.18 | 3.90 | | |

| | | | | |
|---|---|---|---|---|
| **SES** | | | | |
| Class I | 13.48 | 3.95 | 2.4490 | 0.0871 |
| Class II | 12.08 | 3.85 | | |
| Class III | 12.22 | 4.06 | | |
| **Diet** | | | | |
| Vegetarian | 12.45 | 3.57 | 0.7388 | 0.4603 |
| Mixed | 12.13 | 3.92 | | |
| Total | 12.17 | 3.88 | | |

Data presented in table 4.11 depicts the comparison of demographic profiles with mean psychological wellbeing in the area of self-acceptance score. The average mental health acceptability ratings as well as their elements were compared to demographic data such as gender, age, socioeconomic status, type of family, SES, as well as diet, but no substantial variations were found using the one-way ANOVA method and an autonomous t-test.

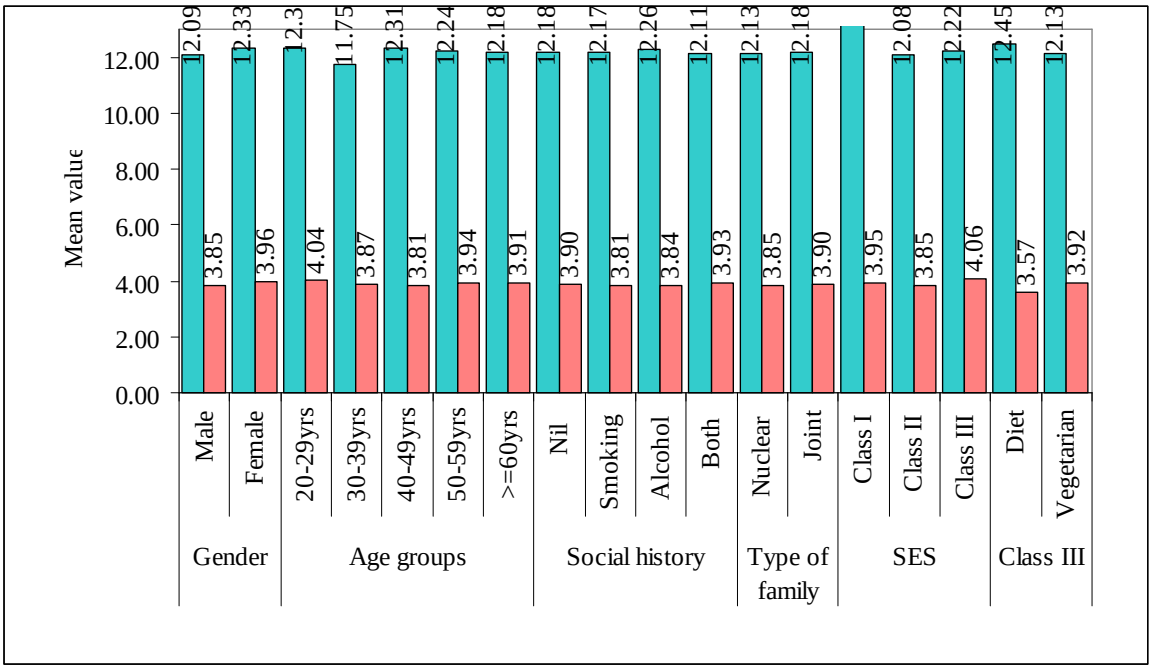


**Fig 4.18: Comparison of demographic profiles of patients with their mean Psychological Wellbeing scores in the area of self-acceptance**

## 4.3: Section III- Research regarding the correlation among individuals' demographic information with Psychological Wellbeing scores and biological parameter scores.

Discovering the relationship among population characteristics and emotional health ratings and biological parameters scores Chi square test was done. Findings are presented in following tables and graphs.

**Table 4.12: Association between demographic variables and psychological well-being scores** **N=768**

| Profile | Levels of Psychological Wellbeing | | | | | | | Chi-square | p-value |
|---|---|---|---|---|---|---|---|---|---|
| | Low level | % | Moderate level | % | High level | % | Total | | |
| **Gender** | | | | | | | | | |
| Male | 91 | 17.67 | 336 | 65.24 | 88 | 17.09 | 515 | 0.2830 | 0.8680 |
| Female | 45 | 17.79 | 161 | 63.64 | 47 | 18.58 | 253 | | |
| **Age groups** | | | | | | | | | |
| 20-29yrs | 7 | 15.22 | 27 | 58.70 | 12 | 26.09 | 46 | 4.4720 | 0.8120 |
| 30-39yrs | 24 | 16.55 | 100 | 68.97 | 21 | 14.48 | 145 | | |
| 40-49yrs | 39 | 16.60 | 153 | 65.11 | 43 | 18.30 | 235 | | |
| 50-59yrs | 43 | 19.28 | 142 | 63.68 | 38 | 17.04 | 223 | | |
| >=60yrs | 23 | 19.33 | 75 | 63.03 | 21 | 17.65 | 119 | | |
| **Social history** | | | | | | | | | |
| Nil | 67 | 17.45 | 250 | 65.10 | 67 | 17.45 | 384 | 0.3630 | 0.9990 |
| Smoking | 13 | 16.88 | 51 | 66.23 | 13 | 16.88 | 77 | | |
| Alcohol | 15 | 19.48 | 49 | 63.64 | 13 | 16.88 | 77 | | |
| Both | 41 | 17.83 | 147 | 63.91 | 42 | 18.26 | 230 | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Type of family** | | | | | | | | | |
| Nuclear | 40 | 17.39 | 150 | 65.22 | 40 | 17.39 | 230 | 0.0380 | 0.9810 |
| Joint | 96 | 17.84 | 347 | 64.50 | 95 | 17.66 | 538 | | |
| **SES** | | | | | | | | | |
| Class I | 8 | 20.00 | 22 | 55.00 | 10 | 25.00 | 40 | 2.3620 | 0.6690 |
| Class II | 113 | 17.36 | 425 | 65.28 | 113 | 17.36 | 651 | | |
| Class III | 15 | 19.48 | 50 | 64.94 | 12 | 15.58 | 77 | | |
| **Diet** | | | | | | | | | |
| Vegetarian | 17 | 19.32 | 57 | 64.77 | 14 | 15.91 | 88 | 0.3030 | 0.8590 |
| Mixed | 119 | 17.50 | 440 | 64.71 | 121 | 17.79 | 680 | | |
| Total | 136 | 17.71 | 497 | 64.71 | 135 | 17.58 | 768 | | |

The results showed in table 4.12 shows the association between levels of psychological well being scores and demographic profile of participants. The levels of psychological well being were not significantly associated with any of the selected socio demographic variables.

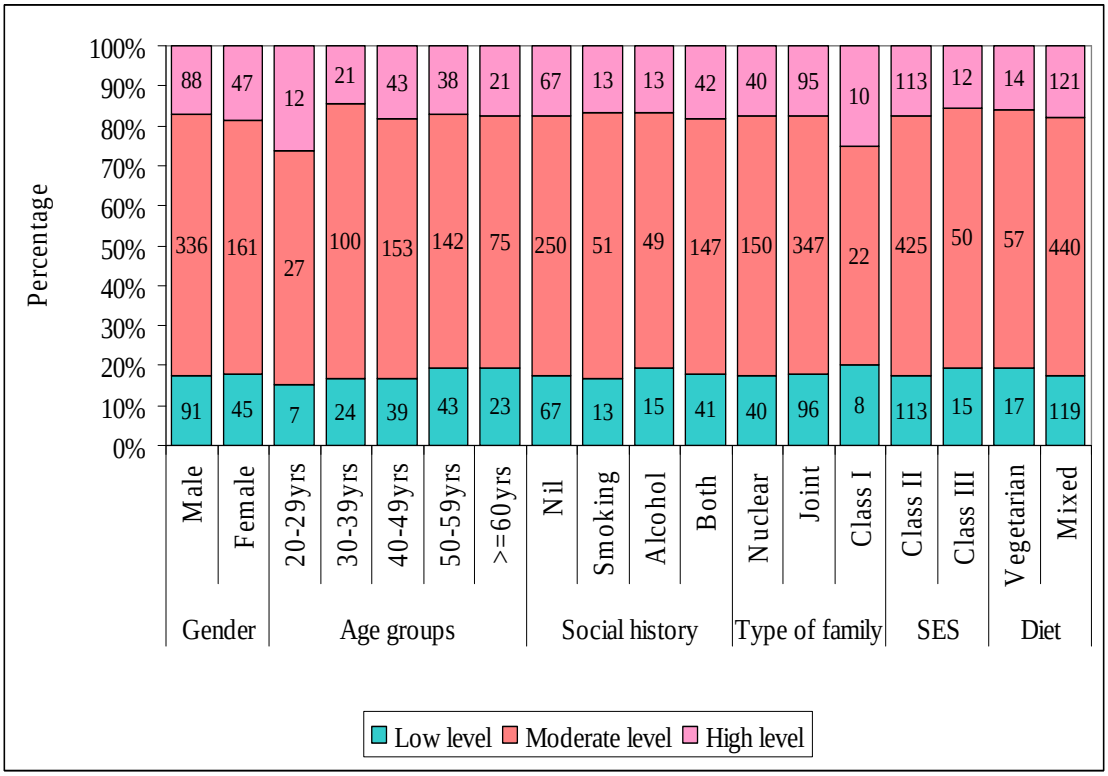


**Fig 4.19: Association between demographic profile and levels of Psychological Wellbeing**

**Table 4.13: Association between demographic variables and obesity scores**

**N=768**

| Profile | UW | % | Normal | % | OW | % | Obese | % | Chi-square | p-value |
|---|---|---|---|---|---|---|---|---|---|---|
| **Gender** | | | | | | | | | | |
| Male | 23 | 4.47 | 222 | 43.11 | 250 | 48.54 | 20 | 3.88 | 1.30 | 0.7290 |
| Female | 13 | 5.14 | 118 | 46.64 | 112 | 44.27 | 10 | 3.95 | | |
| **Age groups** | | | | | | | | | | |
| 20-29yrs | 5 | 10.87 | 21 | 45.65 | 20 | 43.48 | 0 | 0.00 | 21.5 | 0.0430* |
| 30-39yrs | 10 | 6.90 | 67 | 46.21 | 61 | 42.07 | 7 | 4.83 | | |
| 40-49yrs | 12 | 5.11 | 106 | 45.11 | 106 | 45.11 | 11 | 4.68 | | |
| 50-59yrs | 6 | 2.69 | 87 | 39.01 | 125 | 56.05 | 5 | 2.24 | | |
| >=60yrs | 3 | 2.52 | 59 | 49.58 | 50 | 42.02 | 7 | 5.88 | | |
| **Social history** | | | | | | | | | | |
| Nil | 16 | 4.17 | 179 | 46.61 | 172 | 44.79 | 17 | 4.43 | 6.73 | 0.6650 |
| Smoking | 6 | 7.79 | 27 | 35.06 | 42 | 54.55 | 2 | 2.60 | | |
| Alcohol | 4 | 5.19 | 33 | 42.86 | 36 | 46.75 | 4 | 5.19 | | |
| Both | 10 | 4.35 | 101 | 43.91 | 112 | 48.70 | 7 | 3.04 | | |
| **Type of family** | | | | | | | | | | |
| Nuclear | 14 | 6.09 | 92 | 40.00 | 113 | 49.13 | 11 | 4.78 | 3.64 | 0.3020 |
| Joint | 22 | 4.09 | 248 | 46.10 | 249 | 46.28 | 19 | 3.53 | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **SES** | | | | | | | | | | |
| Class I | 2 | 5.00 | 19 | 47.50 | 17 | 42.50 | 2 | 5.00 | 3.46 | 0.7480 |
| Class II | 31 | 4.76 | 280 | 43.01 | 315 | 48.39 | 25 | 3.84 | | |
| Class III | 3 | 3.90 | 41 | 53.25 | 30 | 38.96 | 3 | 3.90 | | |
| **Diet** | | | | | | | | | | |
| Vegetarian | 1 | 1.14 | 30 | 34.09 | 50 | 56.82 | 7 | 7.95 | 11.14 | 0.0110* |
| Mixed | 35 | 5.15 | 310 | 45.59 | 312 | 45.88 | 23 | 3.38 | | |
| Total | 36 | 4.69 | 340 | 44.27 | 362 | 47.14 | 30 | 3.91 | | |

The result showed in table 4.13 demonstrates the relationship among characteristics of participants & the degree of overweight. The levels of obesity were statistically significantly associated with age group and diet of the participants at 0.05 levels of significant.

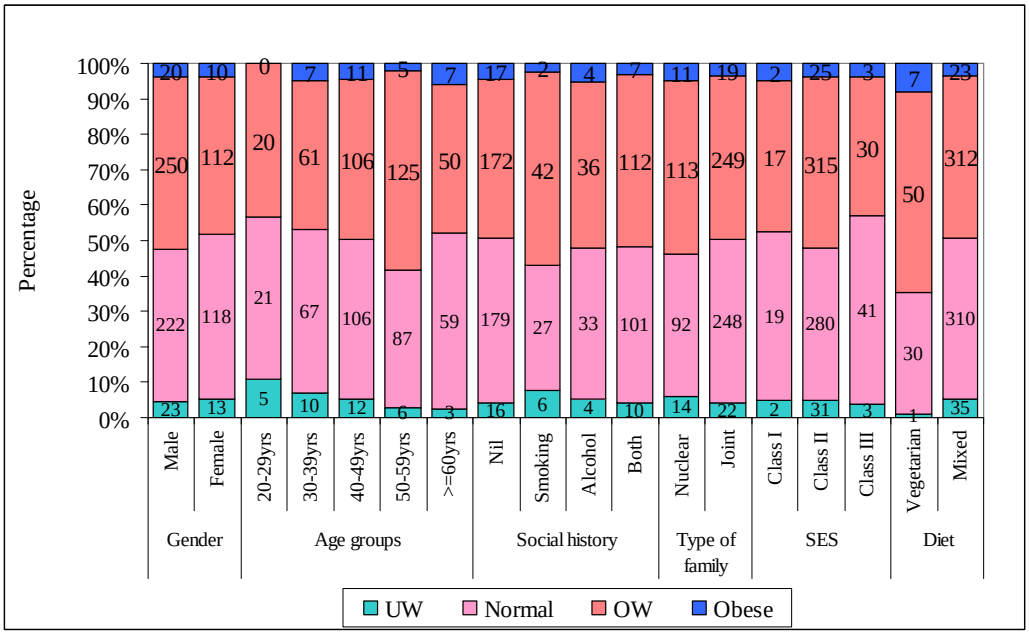


**Fig 4.20: Association between demographic profile and levels of obesity**

**Table 4.14: Association between demographic variables and diastolic blood pressure N=768**

| Profile | <80 | % | 80-89 | % | 90 or more | % | >120 | % | Chi-square | p-value |
|---|---|---|---|---|---|---|---|---|---|---|
| **Gender** | | | | | | | | | | |
| Male | 262 | 50.87 | 20 | 3.88 | 226 | 43.88 | 7 | 1.36 | 3.3010 | 0.3480 |
| Female | 145 | 57.31 | 11 | 4.35 | 94 | 37.15 | 3 | 1.19 | | |
| **Age groups** | | | | | | | | | | |
| 20-29yrs | 30 | 65.22 | 4 | 8.70 | 12 | 26.09 | 0 | 0.00 | 17.6570 | 0.1270 |
| 30-39yrs | 88 | 60.69 | 6 | 4.14 | 50 | 34.48 | 1 | 0.69 | | |
| 40-49yrs | 120 | 51.06 | 9 | 3.83 | 101 | 42.98 | 5 | 2.13 | | |
| 50-59yrs | 104 | 46.64 | 8 | 3.59 | 109 | 48.88 | 2 | 0.90 | | |
| >=60yrs | 65 | 54.62 | 4 | 3.36 | 48 | 40.34 | 2 | 1.68 | | |
| **Social history** | | | | | | | | | | |
| Nil | 204 | 53.13 | 16 | 4.17 | 156 | 40.63 | 8 | 2.08 | 7.3100 | 0.6050 |
| Smoking | 42 | 54.55 | 1 | 1.30 | 34 | 44.16 | 0 | 0.00 | | |
| Alcohol | 38 | 49.35 | 5 | 6.49 | 34 | 44.16 | 0 | 0.00 | | |
| Both | 123 | 53.48 | 9 | 3.91 | 96 | 41.74 | 2 | 0.87 | | |
| **Type of family** | | | | | | | | | | |
| Nuclear | 125 | 54.35 | 9 | 3.91 | 94 | 40.87 | 2 | 0.87 | 0.6480 | 0.8850 |
| Joint | 282 | 52.42 | 22 | 4.09 | 226 | 42.01 | 8 | 1.49 | | |
| **SES** | | | | | | | | | | |
| Class I | 18 | 45.00 | 2 | 5.00 | 19 | 47.50 | 1 | 2.50 | 6.7030 | 0.3490 |
| Class II | 346 | 53.15 | 26 | 3.99 | 273 | 41.94 | 6 | 0.92 | | |
| Class III | 43 | 55.84 | 3 | 3.90 | 28 | 36.36 | 3 | 3.90 | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Diet** | | | | | | | | | | |
| Vegetarian | 47 | 53.41 | 6 | 6.82 | 35 | 39.77 | 0 | 0.00 | 3.2880 | 0.3490 |
| Mixed | 360 | 52.94 | 25 | 3.68 | 285 | 41.91 | 10 | 1.47 | | |
| Total | 407 | 52.99 | 31 | 4.04 | 320 | 41.67 | 10 | 1.30 | | |

The result showed in table 4.14 demonstrates the relationship among characteristics of the participants & diastolic blood strain values. At 0.05 thresholds of significance, none of the individuals' chosen socio demographic characteristics and diastolic arterial pressure values was substantially correlated.

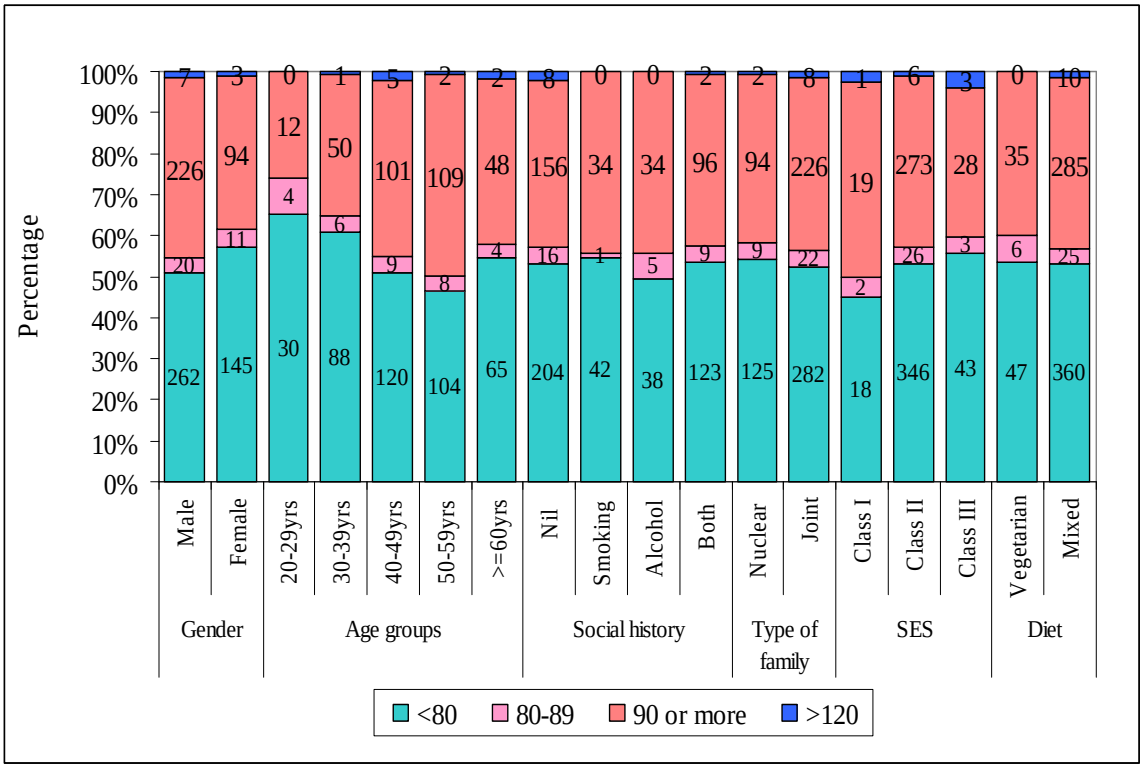


**Fig 4.21: Association between demographic profile and levels of diastolic blood pressure**

**Table 4.15: Association between demographic variables and status of X-ray chest**

**N=768**

| Profile | Normal | % | Abnormal | % | Total | Chi-square | p-value |
|---|---|---|---|---|---|---|---|
| **Gender** | | | | | | | |
| Male | 499 | 96.89 | 16 | 3.11 | 515 | 0.1090 | 0.7410 |
| Female | 244 | 96.44 | 9 | 3.56 | 253 | | |
| **Age groups** | | | | | | | |
| 20-29yrs | 44 | 95.65 | 2 | 4.35 | 46 | 5.5090 | 0.2390 |
| 30-39yrs | 137 | 94.48 | 8 | 5.52 | 145 | | |
| 40-49yrs | 228 | 97.02 | 7 | 2.98 | 235 | | |
| 50-59yrs | 220 | 98.65 | 3 | 1.35 | 223 | | |
| >=60yrs | 114 | 95.80 | 5 | 4.20 | 119 | | |
| **Social history** | | | | | | | |
| Nil | 368 | 95.83 | 16 | 4.17 | 384 | 2.9180 | 0.4050 |
| Smoking | 76 | 98.70 | 1 | 1.30 | 77 | | |
| Alcohol | 76 | 98.70 | 1 | 1.30 | 77 | | |
| Both | 223 | 96.96 | 7 | 3.04 | 230 | | |
| **Family kind** | | | | | | | |
| Nuclear | 227 | 98.70 | 3 | 1.30 | 230 | 3.9680 | 0.0460* |
| Joint | 516 | 95.91 | 22 | 4.09 | 538 | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **SES** | | | | | | | |
| Class I | 40 | 100.00 | 0 | 0.00 | 40 | 1.6110 | 0.4470 |
| Class II | 628 | 96.47 | 23 | 3.53 | 651 | | |
| Class III | 75 | 97.40 | 2 | 2.60 | 77 | | |
| **Diet** | | | | | | | |
| Vegetarian | 84 | 95.45 | 4 | 4.55 | 88 | 0.5250 | 0.4690 |
| Mixed | 659 | 96.91 | 21 | 3.09 | 680 | | |
| Total | 743 | 96.74 | 25 | 3.26 | 768 | | |

The results showed in table 4.15 shows the association between levels of status of x ray of chest and demographic profile of participants. The levels of X-ray of chest were not significantly associated with associated with any of the selected socio demographic variables of the participants at 0.05 levels of significant.

**Table 4.16: Association between demographic variables and status of USG findings N=768**

| Profile | WNL | % | Others | % | Total | Chi-square | p-value |
|---|---|---|---|---|---|---|---|
| **Gender** | | | | | | | |
| Male | 378 | 73.40 | 137 | 26.60 | 515 | 1.4900 | 0.2220 |
| Female | 196 | 77.47 | 57 | 22.53 | 253 | | |
| **Age groups** | | | | | | | |
| 20-29yrs | 30 | 65.22 | 16 | 34.78 | 46 | 3.8030 | 0.4330 |
| 30-39yrs | 111 | 76.55 | 34 | 23.45 | 145 | | |
| 40-49yrs | 181 | 77.02 | 54 | 22.98 | 235 | | |
| 50-59yrs | 167 | 74.89 | 56 | 25.11 | 223 | | |
| >=60yrs | 85 | 71.43 | 34 | 28.57 | 119 | | |
| **Social history** | | | | | | | |
| Nil | 384 | 100.00 | 0 | 0.00 | 384 | 393.0190 | 0.0001* |
| Smoking | 0 | 0.00 | 77 | 100.00 | 77 | | |
| Alcohol | 38 | 49.35 | 39 | 50.65 | 77 | | |
| Both | 152 | 66.09 | 78 | 33.91 | 230 | | |
| **Type of family** | | | | | | | |
| Nuclear | 115 | 50.00 | 115 | 50.00 | 230 | 106.4390 | 0.0001* |
| Joint | 459 | 85.32 | 79 | 14.68 | 538 | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **SES** | | | | | | | |
| Class I | 30 | 75.00 | 10 | 25.00 | 40 | 0.1840 | 0.9120 |
| Class II | 488 | 74.96 | 163 | 25.04 | 651 | | |
| Class III | 56 | 72.73 | 21 | 27.27 | 77 | | |
| **Diet** | | | | | | | |
| Vegetarian | 60 | 68.18 | 28 | 31.82 | 88 | 2.2640 | 0.1320 |
| Mixed | 514 | 75.59 | 166 | 24.41 | 680 | | |
| Total | 574 | 74.74 | 194 | 25.26 | 768 | | |

The results showed in table 4.16 shows the association between levels of status of USG findings and demographic profile of participants. The levels of USG findings were statistically significantly associated with associated with social history and type of family of the participants at 0.05 levels of significant.

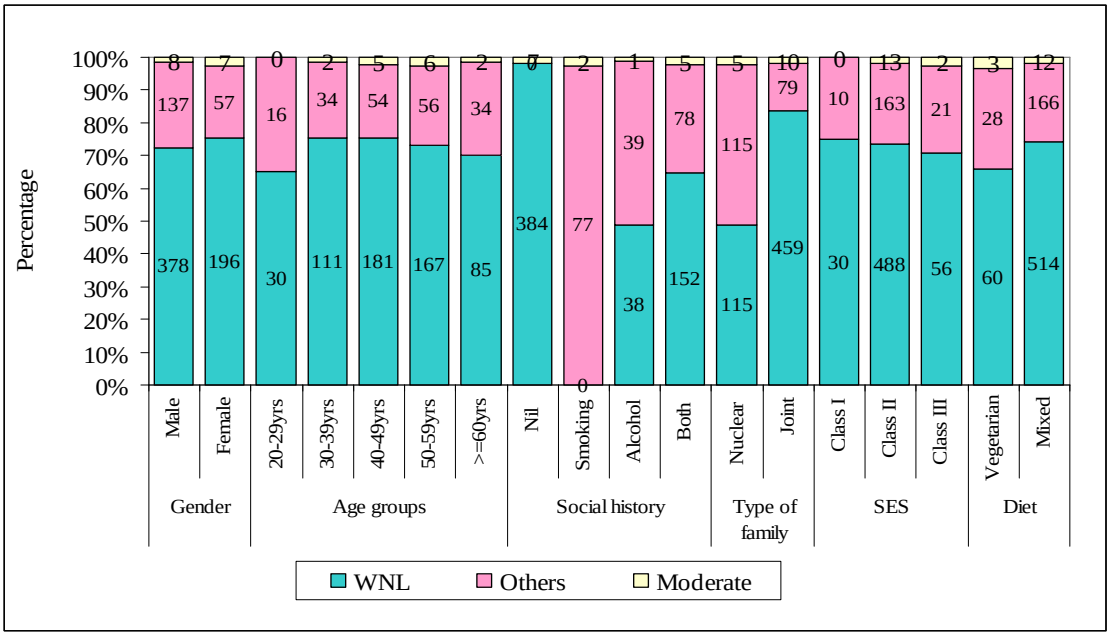


**Fig 4.22: Association between demographic profile and levels of USG findings**

**Table 4.17: Association between demographic variables and status of ECG**

**N=768**

| Profile | Normal | % | Abnormal | % | Total | Chi-square | p-value |
|---|---|---|---|---|---|---|---|
| **Gender** | | | | | | | |
| Male | 500 | 97.09 | 15 | 2.91 | 515 | 0.0130 | 0.9090 |
| Female | 246 | 97.23 | 7 | 2.77 | 253 | | |
| **Age groups** | | | | | | | |
| 20-29yrs | 46 | 100.00 | 0 | 0.00 | 46 | 21.1500 | 0.0001* |
| 30-39yrs | 142 | 97.93 | 3 | 2.07 | 145 | | |
| 40-49yrs | 231 | 98.30 | 4 | 1.70 | 235 | | |
| 50-59yrs | 219 | 98.21 | 4 | 1.79 | 223 | | |
| >=60yrs | 108 | 90.76 | 11 | 9.24 | 119 | | |
| **Social history** | | | | | | | |
| Nil | 377 | 98.18 | 7 | 1.82 | 384 | 3.6060 | 0.3070 |
| Smoking | 74 | 96.10 | 3 | 3.90 | 77 | | |
| Alcohol | 73 | 94.81 | 4 | 5.19 | 77 | | |
| Both | 222 | 96.52 | 8 | 3.48 | 230 | | |
| **Type of family** | | | | | | | |
| Nuclear | 222 | 96.52 | 8 | 3.48 | 230 | 0.4440 | 0.5050 |
| Joint | 524 | 97.40 | 14 | 2.60 | 538 | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **SES** | | | | | | | |
| Class I | 39 | 97.50 | 1 | 2.50 | 40 | 4.0510 | 0.1320 |
| Class II | 635 | 97.54 | 16 | 2.46 | 651 | | |
| Class III | 72 | 93.51 | 5 | 6.49 | 77 | | |
| **Diet** | | | | | | | |
| Vegetarian | 87 | 98.86 | 1 | 1.14 | 88 | 1.0670 | 0.3020 |
| Mixed | 659 | 96.91 | 21 | 3.09 | 680 | | |
| Total | 746 | 97.14 | 22 | 2.86 | 768 | | |

The results showed in table 4.17 shows the association between levels of status of ECG findings and demographic profile of participants. The levels of ECG findings were statistically significantly associated with associated with age group of the participants at 0.05 levels of significant.

**Table 4.18: Association between demographic variables and status of TMT findings N=768**

| Profile | NR | % | Negative | % | Positive | % | >120 | Chi-square | p-value |
|---|---|---|---|---|---|---|---|---|---|
| **Gender** | | | | | | | | | |
| Male | 154 | 29.90 | 332 | 64.47 | 29 | 5.63 | 515 | 15.0140 | 0.0010* |
| Female | 110 | 43.48 | 127 | 50.20 | 16 | 6.32 | 253 | | |
| **Age groups** | | | | | | | | | |
| 20-29yrs | 24 | 52.17 | 22 | 47.83 | 0 | 0.00 | 46 | 92.0030 | 0.0001* |
| 30-39yrs | 39 | 26.90 | 97 | 66.90 | 9 | 6.21 | 145 | | |
| 40-49yrs | 58 | 24.68 | 172 | 73.19 | 5 | 2.13 | 235 | | |
| 50-59yrs | 82 | 36.77 | 132 | 59.19 | 9 | 4.04 | 223 | | |
| >=60yrs | 61 | 51.26 | 36 | 30.25 | 22 | 18.49 | 119 | | |
| **Social history** | | | | | | | | | |
| Nil | 140 | 36.46 | 224 | 58.33 | 20 | 5.21 | 384 | 4.5080 | 0.6080 |
| Smoking | 22 | 28.57 | 49 | 63.64 | 6 | 7.79 | 77 | | |
| Alcohol | 27 | 35.06 | 43 | 55.84 | 7 | 9.09 | 77 | | |
| Both | 75 | 32.61 | 143 | 62.17 | 12 | 5.22 | 230 | | |
| **Type of family** | | | | | | | | | |
| Nuclear | 78 | 33.91 | 137 | 59.57 | 15 | 6.52 | 230 | 0.2680 | 0.8740 |
| Joint | 186 | 34.57 | 322 | 59.85 | 30 | 5.58 | 538 | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **SES** | | | | | | | | | |
| Class I | 14 | 35.00 | 24 | 60.00 | 2 | 5.00 | 40 | 1.2910 | 0.8630 |
| Class II | 226 | 34.72 | 385 | 59.14 | 40 | 6.14 | 651 | | |
| Class III | 24 | 31.17 | 50 | 64.94 | 3 | 3.90 | 77 | | |
| **Diet** | | | | | | | | | |
| Vegetarian | 32 | 36.36 | 47 | 53.41 | 9 | 10.23 | 88 | 4.0220 | 0.1340 |
| Mixed | 232 | 34.12 | 412 | 60.59 | 36 | 5.29 | 680 | | |
| Total | 264 | 34.38 | 459 | 59.77 | 45 | 5.86 | 768 | | |

The results showed in table 4.18 shows the association between levels of status of TMT findings and demographic profile of participants. The levels of TMT findings were statistically significantly associated with associated with gender and age group of the participants at 0.05 levels of significant.

**Table 4.19: Association between demographic variables and status of status of Hb%** **N=768**

| Profile | Normal | % | Mild | % | Moderate | % | >120 | Chi-square | p-value |
|---|---|---|---|---|---|---|---|---|---|
| **Gender** | | | | | | | | | |
| Male | 459 | 89.13 | 48 | 9.32 | 8 | 1.55 | 515 | 1.4760 | 0.4780 |
| Female | 225 | 88.93 | 21 | 8.30 | 7 | 2.77 | 253 | | |
| **Age groups** | | | | | | | | | |
| 20-29yrs | 42 | 91.30 | 4 | 8.70 | 0 | 0.00 | 46 | 5.5720 | 0.6950 |
| 30-39yrs | 135 | 93.10 | 8 | 5.52 | 2 | 1.38 | 145 | | |
| 40-49yrs | 204 | 86.81 | 26 | 11.06 | 5 | 2.13 | 235 | | |
| 50-59yrs | 198 | 88.79 | 19 | 8.52 | 6 | 2.69 | 223 | | |
| >=60yrs | 105 | 88.24 | 12 | 10.08 | 2 | 1.68 | 119 | | |
| **Social history** | | | | | | | | | |
| Nil | 351 | 91.41 | 26 | 6.77 | 7 | 1.82 | 384 | 6.5200 | 0.3680 |
| Smoking | 69 | 89.61 | 6 | 7.79 | 2 | 2.60 | 77 | | |
| Alcohol | 66 | 85.71 | 10 | 12.99 | 1 | 1.30 | 77 | | |
| Both | 198 | 86.09 | 27 | 11.74 | 5 | 2.17 | 230 | | |
| **Type of family** | | | | | | | | | |
| Nuclear | 205 | 89.13 | 20 | 8.70 | 5 | 2.17 | 230 | 0.1130 | 0.9450 |
| Joint | 479 | 89.03 | 49 | 9.11 | 10 | 1.86 | 538 | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **SES** | | | | | | | | | |
| Class I | 35 | 87.50 | 5 | 12.50 | 0 | 0.00 | 40 | 1.6410 | 0.8010 |
| Class II | 580 | 89.09 | 58 | 8.91 | 13 | 2.00 | 651 | | |
| Class III | 69 | 89.61 | 6 | 7.79 | 2 | 2.60 | 77 | | |
| **Diet** | | | | | | | | | |
| Vegetarian | 77 | 87.50 | 8 | 9.09 | 3 | 3.41 | 88 | 1.1070 | 0.5750 |
| Mixed | 607 | 89.26 | 61 | 8.97 | 12 | 1.76 | 680 | | |
| Total | 684 | 89.06 | 69 | 8.98 | 15 | 1.95 | 768 | | |

The results showed in table 4.19 shows the association between levels of status of HB% findings and demographic profile of participants. The levels of HB% findings were not statistically significantly associated with any of the selected socio demographic variables of the participants at 0.05 levels of significant.

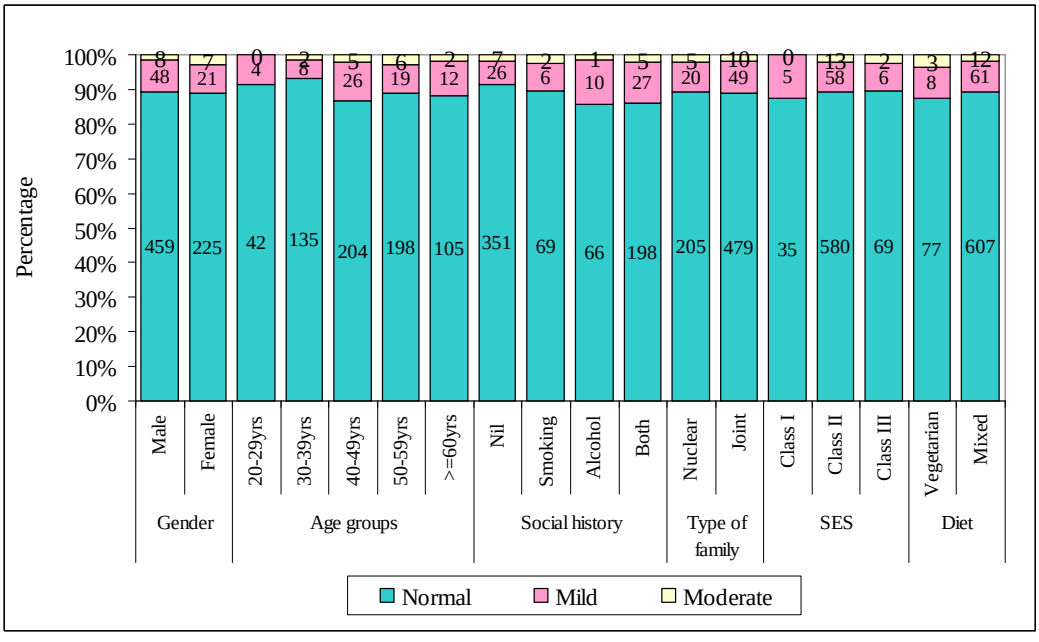


**Fig 4.23: Association between demographic profile and levels of HB% findings**

**Table 4.20: Association between demographic variables and status of status of HBA1C N=768**

| Profile | Normal | % | Pre-Diabetic | % | Diabetic | % | Total | Chi-square | p-value |
|---|---|---|---|---|---|---|---|---|---|
| **Gender** | | | | | | | | | |
| Male | 8 | 1.55 | 352 | 68.35 | 155 | 30.10 | 515 | 1.3230 | 0.5160 |
| Female | 7 | 2.77 | 172 | 67.98 | 74 | 29.25 | 253 | | |
| **Age groups** | | | | | | | | | |
| 20-29yrs | 2 | 4.35 | 31 | 67.39 | 13 | 28.26 | 46 | 3.9650 | 0.8600 |
| 30-39yrs | 3 | 2.07 | 96 | 66.21 | 46 | 31.72 | 145 | | |
| 40-49yrs | 5 | 2.13 | 162 | 68.94 | 68 | 28.94 | 235 | | |
| 50-59yrs | 4 | 1.79 | 148 | 66.37 | 71 | 31.84 | 223 | | |
| >=60yrs | 1 | 0.84 | 87 | 73.11 | 31 | 26.05 | 119 | | |
| **Social history** | | | | | | | | | |
| Nil | 15 | 3.91 | 293 | 76.30 | 76 | 19.79 | 384 | 246.554 | 0.0001* |
| Smoking | 0 | 0.00 | 0 | 0.00 | 77 | 100.0 | 77 | | |
| Alcohol | 0 | 0.00 | 77 | 100.0 | 0 | 0.00 | 77 | | |
| Both | 0 | 0.00 | 154 | 66.96 | 76 | 33.04 | 230 | | |
| **Type of family** | | | | | | | | | |
| Nuclear | 14 | 6.09 | 140 | 60.87 | 76 | 33.04 | 230 | 32.4790 | 0.0001* |
| Joint | 1 | 0.19 | 384 | 71.38 | 153 | 28.44 | 538 | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **SES** | | | | | | | | | |
| Class I | 1 | 2.50 | 36 | 90.00 | 3 | 7.50 | 40 | 40.3730 | 0.0001* |
| Class II | 12 | 1.84 | 416 | 63.90 | 223 | 34.25 | 651 | | |
| Class III | 2 | 2.60 | 72 | 93.51 | 3 | 3.90 | 77 | | |
| **Diet** | | | | | | | | | |
| Vegetarian | 1 | 1.14 | 58 | 65.91 | 29 | 32.95 | 88 | 0.7460 | 0.6890 |
| Mixed | 14 | 2.06 | 466 | 68.53 | 200 | 29.41 | 680 | | |
| Total | 15 | 1.95 | 524 | 68.23 | 229 | 29.82 | 768 | | |

The results showed in table 4.20 shows the association between levels of status of HBA1C findings and demographic profile of participants. The levels of HBA1C findings were statistically significantly associated with social history, type of family and socio-economic status of the participants at 0.05 levels of significant.

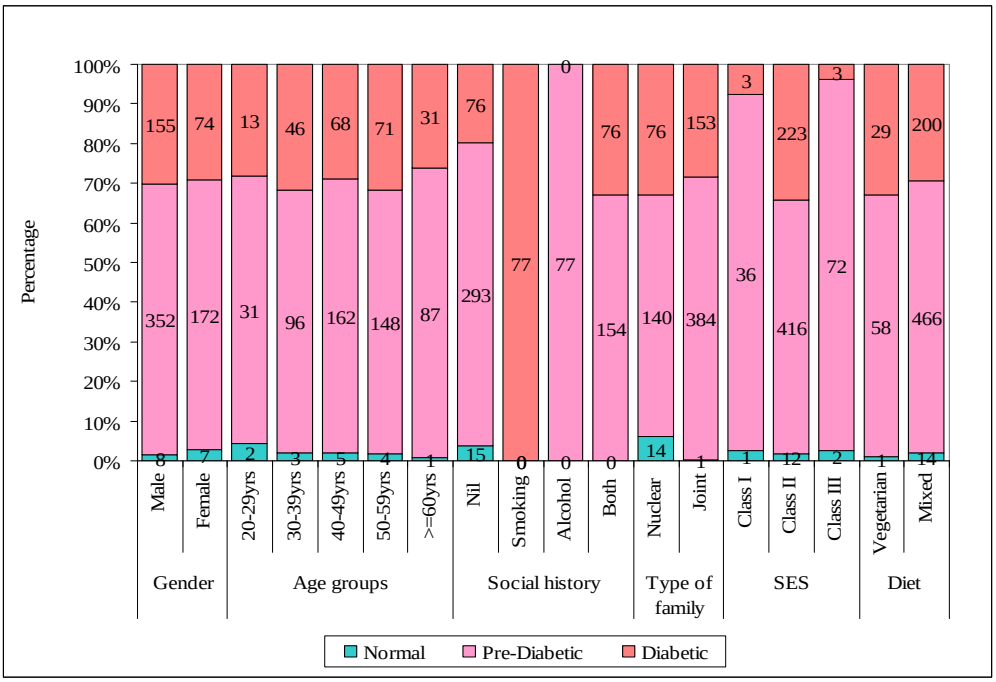


**Fig 4.24: Association between demographic profile and levels of HBA1C findings**

**Table 4.21: Association between demographic variables and status of status of cholesterol N=768**

| Profile | Desirable | % | Borderline | % | High | % | Total | Chi-square | p-value |
|---|---|---|---|---|---|---|---|---|---|
| **Gender** | | | | | | | | | |
| Male | 343 | 66.60 | 51 | 9.90 | 121 | 23.50 | 515 | 0.8870 | 0.6420 |
| Female | 177 | 69.96 | 22 | 8.70 | 54 | 21.34 | 253 | | |
| **Age groups** | | | | | | | | | |
| 20-29yrs | 33 | 71.74 | 5 | 10.87 | 8 | 17.39 | 46 | 8.4650 | 0.3890 |
| 30-39yrs | 98 | 67.59 | 13 | 8.97 | 34 | 23.45 | 145 | | |
| 40-49yrs | 160 | 68.09 | 25 | 10.64 | 50 | 21.28 | 235 | | |
| 50-59yrs | 155 | 69.51 | 13 | 5.83 | 55 | 24.66 | 223 | | |
| >=60yrs | 74 | 62.18 | 17 | 14.29 | 28 | 23.53 | 119 | | |
| **Social history** | | | | | | | | | |
| Nil | 259 | 67.45 | 40 | 10.42 | 85 | 22.14 | 384 | 5.3040 | 0.5060 |
| Smoking | 50 | 64.94 | 7 | 9.09 | 20 | 25.97 | 77 | | |
| Alcohol | 60 | 77.92 | 5 | 6.49 | 12 | 15.58 | 77 | | |
| Both | 151 | 65.65 | 21 | 9.13 | 58 | 25.22 | 230 | | |
| **Type of family** | | | | | | | | | |
| Nuclear | 159 | 69.13 | 22 | 9.57 | 49 | 21.30 | 230 | 0.4160 | 0.8120 |
| Joint | 361 | 67.10 | 51 | 9.48 | 126 | 23.42 | 538 | | |
| **SES** | | | | | | | | | |
| Class I | 25 | 62.50 | 4 | 10.00 | 11 | 27.50 | 40 | 1.1060 | 0.8930 |
| Class II | 440 | 67.59 | 62 | 9.52 | 149 | 22.89 | 651 | | |
| Class III | 55 | 71.43 | 7 | 9.09 | 15 | 19.48 | 77 | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Diet** | | | | | | | | | |
| Vegetarian | 55 | 62.50 | 9 | 10.23 | 24 | 27.27 | 88 | 1.3310 | 0.5140 |
| Mixed | 465 | 68.38 | 64 | 9.41 | 151 | 22.21 | 680 | | |
| Total | 520 | 67.71 | 73 | 9.51 | 175 | 22.79 | 768 | | |

The results showed in table 4.21 shows the association between levels of status of cholesterol findings and demographic profile of participants. The levels of cholesterol findings were not statistically significantly associated with any of the selected socio demographic variables of the participants at 0.05 levels of significant.

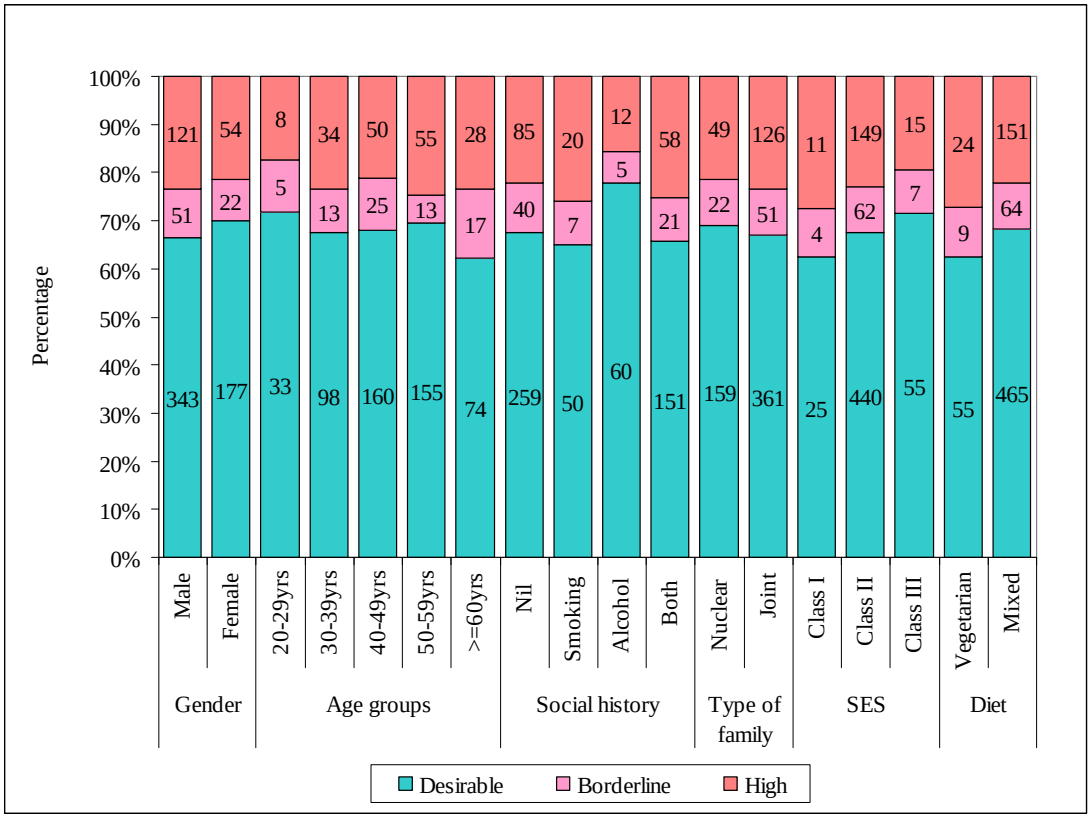


**Fig 4.25: Association between demographic profile and levels of cholesterol**

**Table 4.22: Association between demographic variables and status of status of HDL N=768**

| Profile | Desirable | % | Borderline | % | High | % | Total | Chi-square | p-value |
|---|---|---|---|---|---|---|---|---|---|
| **Gender** | | | | | | | | | |
| Male | 239 | 46.41 | 144 | 27.96 | 132 | 25.63 | 515 | 1.9770 | 0.3720 |
| Female | 110 | 43.48 | 66 | 26.09 | 77 | 30.43 | 253 | | |
| **Age groups** | | | | | | | | | |
| 20-29yrs | 20 | 43.48 | 10 | 21.74 | 16 | 34.78 | 46 | 11.9520 | 0.1530 |
| 30-39yrs | 65 | 44.83 | 48 | 33.10 | 32 | 22.07 | 145 | | |
| 40-49yrs | 110 | 46.81 | 65 | 27.66 | 60 | 25.53 | 235 | | |
| 50-59yrs | 90 | 40.36 | 63 | 28.25 | 70 | 31.39 | 223 | | |
| >=60yrs | 64 | 53.78 | 24 | 20.17 | 31 | 26.05 | 119 | | |
| **Social history** | | | | | | | | | |
| Nil | 176 | 45.83 | 103 | 26.82 | 105 | 27.34 | 384 | 0.2670 | 1.0000 |
| Smoking | 34 | 44.16 | 22 | 28.57 | 21 | 27.27 | 77 | | |
| Alcohol | 34 | 44.16 | 21 | 27.27 | 22 | 28.57 | 77 | | |
| Both | 105 | 45.65 | 64 | 27.83 | 61 | 26.52 | 230 | | |
| **Type of family** | | | | | | | | | |
| Nuclear | 101 | 43.91 | 64 | 27.83 | 65 | 28.26 | 230 | 0.3290 | 0.8480 |
| Joint | 248 | 46.10 | 146 | 27.14 | 144 | 26.77 | 538 | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **SES** | | | | | | | | | |
| Class I | 18 | 45.00 | 9 | 22.50 | 13 | 32.50 | 40 | 2.1700 | 0.7040 |
| Class II | 298 | 45.78 | 182 | 27.96 | 171 | 26.27 | 651 | | |
| Class III | 33 | 42.86 | 19 | 24.68 | 25 | 32.47 | 77 | | |
| **Diet** | | | | | | | | | |
| Vegetarian | 41 | 46.59 | 22 | 25.00 | 25 | 28.41 | 88 | 0.2810 | 0.8690 |
| Mixed | 308 | 45.29 | 188 | 27.65 | 184 | 27.06 | 680 | | |
| Total | 349 | 45.44 | 210 | 27.34 | 209 | 27.21 | 768 | | |

The results showed in table 4.22 shows the association between levels of status of HDL findings and demographic profile of participants. The levels of HDL findings were not statistically significantly associated with any of the selected socio demographic variables of the participants at 0.05 levels of significant.

**Table 4.23: Association between demographic variables and status of status of LDL** **N=768**

| Profile | Desirable | % | Borderline | % | High | % | Total | Chi-square | p-value |
|---|---|---|---|---|---|---|---|---|---|
| **Gender** | | | | | | | | | |
| Male | 241 | 46.80 | 139 | 26.99 | 135 | 26.21 | 515 | 5.0760 | 0.0790 |
| Female | 140 | 55.34 | 55 | 21.74 | 58 | 22.92 | 253 | | |
| **Age groups** | | | | | | | | | |
| 20-29yrs | 21 | 45.65 | 11 | 23.91 | 14 | 30.43 | 46 | 10.0340 | 0.2630 |
| 30-39yrs | 82 | 56.55 | 28 | 19.31 | 35 | 24.14 | 145 | | |
| 40-49yrs | 124 | 52.77 | 60 | 25.53 | 51 | 21.70 | 235 | | |
| 50-59yrs | 101 | 45.29 | 58 | 26.01 | 64 | 28.70 | 223 | | |
| >=60yrs | 53 | 44.54 | 37 | 31.09 | 29 | 24.37 | 119 | | |
| **Social history** | | | | | | | | | |
| Nil | 194 | 50.52 | 93 | 24.22 | 97 | 25.26 | 384 | 3.4240 | 0.7540 |
| Smoking | 42 | 54.55 | 18 | 23.38 | 17 | 22.08 | 77 | | |
| Alcohol | 33 | 42.86 | 25 | 32.47 | 19 | 24.68 | 77 | | |
| Both | 112 | 48.70 | 58 | 25.22 | 60 | 26.09 | 230 | | |
| **Type of family** | | | | | | | | | |
| Nuclear | 112 | 48.70 | 62 | 26.96 | 56 | 24.35 | 230 | 0.5090 | 0.7750 |
| Joint | 269 | 50.00 | 132 | 24.54 | 137 | 25.46 | 538 | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **SES** | | | | | | | | | |
| Class I | 23 | 57.50 | 11 | 27.50 | 6 | 15.00 | 40 | 3.6010 | 0.4630 |
| Class II | 319 | 49.00 | 161 | 24.73 | 171 | 26.27 | 651 | | |
| Class III | 39 | 50.65 | 22 | 28.57 | 16 | 20.78 | 77 | | |
| **Diet** | | | | | | | | | |
| Vegetarian | 40 | 45.45 | 25 | 28.41 | 23 | 26.14 | 88 | 0.7760 | 0.6780 |
| Mixed | 341 | 50.15 | 169 | 24.85 | 170 | 25.00 | 680 | | |
| Total | 381 | 49.61 | 194 | 25.26 | 193 | 25.13 | 768 | | |

The results showed in table 4.23 shows the association between levels of status of LDL findings and demographic profile of participants. The levels of LDL findings were not statistically significantly associated with any of the selected socio demographic variables of the participants at 0.05 levels of significant.

**Table 4.24: Association between demographic variables and status of status of triglyceride N=768**

| Profile | Desirable | % | Borderline | % | High | % | Total | Chi-square | p-value |
|---|---|---|---|---|---|---|---|---|---|
| **Gender** | | | | | | | | | |
| Male | 42 | 8.16 | 245 | 47.57 | 228 | 44.27 | 515 | 2.5210 | 0.2840 |
| Female | 23 | 9.09 | 105 | 41.50 | 125 | 49.41 | 253 | | |
| **Age groups** | | | | | | | | | |
| 20-29yrs | 2 | 4.35 | 21 | 45.65 | 23 | 50.00 | 46 | 7.6870 | 0.4650 |
| 30-39yrs | 12 | 8.28 | 66 | 45.52 | 67 | 46.21 | 145 | | |
| 40-49yrs | 18 | 7.66 | 119 | 50.64 | 98 | 41.70 | 235 | | |
| 50-59yrs | 22 | 9.87 | 100 | 44.84 | 101 | 45.29 | 223 | | |
| >=60yrs | 11 | 9.24 | 44 | 36.97 | 64 | 53.78 | 119 | | |
| **Social history** | | | | | | | | | |
| Nil | 34 | 8.85 | 169 | 44.01 | 181 | 47.14 | 384 | 1.3370 | 0.9700 |
| Smoking | 7 | 9.09 | 36 | 46.75 | 34 | 44.16 | 77 | | |
| Alcohol | 6 | 7.79 | 34 | 44.16 | 37 | 48.05 | 77 | | |
| Both | 18 | 7.83 | 111 | 48.26 | 101 | 43.91 | 230 | | |
| **Type of family** | | | | | | | | | |
| Nuclear | 21 | 9.13 | 101 | 43.91 | 108 | 46.96 | 230 | 0.4410 | 0.8020 |
| Joint | 44 | 8.18 | 249 | 46.28 | 245 | 45.54 | 538 | | |
| **SES** | | | | | | | | | |
| Class I | 4 | 10.00 | 16 | 40.00 | 20 | 50.00 | 40 | 0.7260 | 0.9480 |
| Class II | 55 | 8.45 | 297 | 45.62 | 299 | 45.93 | 651 | | |
| Class III | 6 | 7.79 | 37 | 48.05 | 34 | 44.16 | 77 | | |

| **Diet** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Vegetarian | 6 | 6.82 | 46 | 52.27 | 36 | 40.91 | 88 | 1.8490 | 0.3970 |
| Mixed | 59 | 8.68 | 304 | 44.71 | 317 | 46.62 | 680 | | |
| Total | 65 | 8.46 | 350 | 45.57 | 353 | 45.96 | 768 | | |

The results showed in table 4.24 shows the association between levels of status of triglyceride findings and demographic profile of participants. The levels of triglyceride findings were not statistically significantly associated with any of the selected socio demographic variables of the participants at 0.05 levels of significant.

**Table 4.25: Association between demographic variables and status of status of Renal FT** **N=768**

| Profile | 0.60-1.20 | % | >1.20 | % | Total | Chi-square | p-value |
|---|---|---|---|---|---|---|---|
| **Gender** | | | | | | | |
| Male | 371 | 72.04 | 144 | 27.96 | 515 | 1.8790 | 0.1700 |
| Female | 194 | 76.68 | 59 | 23.32 | 253 | | |
| **Age groups** | | | | | | | |
| 20-29yrs | 36 | 78.26 | 10 | 21.74 | 46 | 8.6470 | 0.0710 |
| 30-39yrs | 117 | 80.69 | 28 | 19.31 | 145 | | |
| 40-49yrs | 174 | 74.04 | 61 | 25.96 | 235 | | |
| 50-59yrs | 160 | 71.75 | 63 | 28.25 | 223 | | |
| >=60yrs | 78 | 65.55 | 41 | 34.45 | 119 | | |
| **Social history** | | | | | | | |
| Nil | 275 | 71.61 | 109 | 28.39 | 384 | 3.1700 | 0.3660 |
| Smoking | 55 | 71.43 | 22 | 28.57 | 77 | | |
| Alcohol | 62 | 80.52 | 15 | 19.48 | 77 | | |
| Both | 173 | 75.22 | 57 | 24.78 | 230 | | |
| **Type of family** | | | | | | | |
| Nuclear | 172 | 74.78 | 58 | 25.22 | 230 | 0.2490 | 0.6180 |
| Joint | 393 | 73.05 | 145 | 26.95 | 538 | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **SES** | | | | | | | |
| Class I | 28 | 70.00 | 12 | 30.00 | 40 | 0.3840 | 0.8250 |
| Class II | 479 | 73.58 | 172 | 26.42 | 651 | | |
| Class III | 58 | 75.32 | 19 | 24.68 | 77 | | |
| **Diet** | | | | | | | |
| Vegetarian | 56 | 63.64 | 32 | 36.36 | 88 | 5.0410 | 0.0250* |
| Mixed | 509 | 74.85 | 171 | 25.15 | 680 | | |
| Total | 565 | 73.57 | 203 | 26.43 | 768 | | |

The results showed in table 4.25 shows the association between levels of status of Renal FT findings and demographic profile of participants. The levels of Renal FT findings were statistically significantly associated with diet of the participants at 0.05 levels of significant.

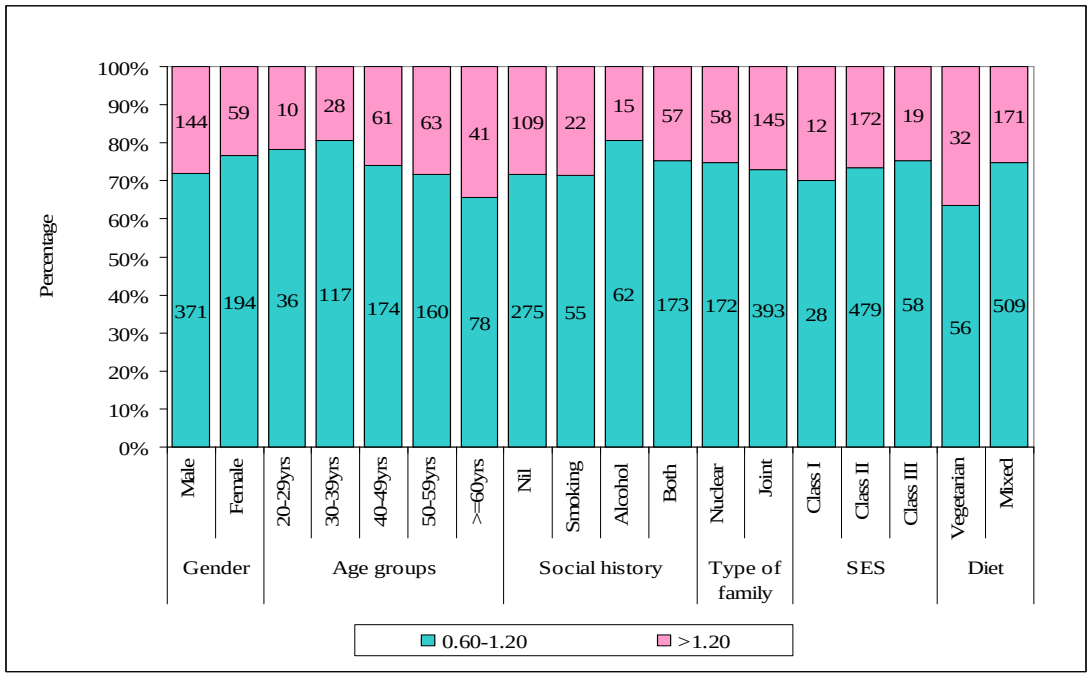


**Fig 4.26: Association between demographic profile and levels of renal function test**

**Table 4.26: Association between demographic variables and status of TSH**

**N=768**

| Profile | 4.2 | % | >4.3 | % | Total | Chi-square | p-value |
|---|---|---|---|---|---|---|---|
| **Gender** | | | | | | | |
| Male | 436 | 84.66 | 79 | 15.34 | 515 | 0.0290 | 0.8660 |
| Female | 213 | 84.19 | 40 | 15.81 | 253 | | |
| **Age groups** | | | | | | | |
| 20-29yrs | 40 | 86.96 | 6 | 13.04 | 46 | 8.9790 | 0.0620 |
| 30-39yrs | 122 | 84.14 | 23 | 15.86 | 145 | | |
| 40-49yrs | 208 | 88.51 | 27 | 11.49 | 235 | | |
| 50-59yrs | 188 | 84.30 | 35 | 15.70 | 223 | | |
| >=60yrs | 91 | 76.47 | 28 | 23.53 | 119 | | |
| **Social history** | | | | | | | |
| Nil | 318 | 82.81 | 66 | 17.19 | 384 | 4.8590 | 0.1820 |
| Smoking | 62 | 80.52 | 15 | 19.48 | 77 | | |
| Alcohol | 65 | 84.42 | 12 | 15.58 | 77 | | |
| Both | 204 | 88.70 | 26 | 11.30 | 230 | | |
| **Type of family** | | | | | | | |
| Nuclear | 190 | 82.61 | 40 | 17.39 | 230 | 0.9020 | 0.3420 |
| Joint | 459 | 85.32 | 79 | 14.68 | 538 | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **SES** | | | | | | | |
| Class I | 30 | 75.00 | 10 | 25.00 | 40 | 3.5890 | 0.1660 |
| Class II | 556 | 85.41 | 95 | 14.59 | 651 | | |
| Class III | 63 | 81.82 | 14 | 18.18 | 77 | | |
| **Diet** | | | | | | | |
| Vegetarian | 70 | 79.55 | 18 | 20.45 | 88 | 1.8670 | 0.1720 |
| Mixed | 579 | 85.15 | 101 | 14.85 | 680 | | |
| Total | 649 | 84.51 | 119 | 15.49 | 768 | | |

The results showed in table 4.26 shows the association between levels of status of TSH findings and demographic profile of participants. The levels of TSH findings were not statistically significantly associated with selected socio demographic variables of participants at 0.05 levels of significant.

**4.4: Section IV- Findings related to co-relation between demographic variables of patients with other factors of Karl Pearson's technique of correlation coefficient**

In order to find out the co-relation between demographic variables with demographic variables scores and different variables Karl Pearson's test was done. Findings are presented in following table-.

**Table 4.27: Correlations between other factors of Karl Pearson's technique of correlation coefficient N=768**

| Variables | Age | BMI | Systolic BP | Diastolic BP | Hb | FBS | PPBS | HBA1C | cholesterol | HDL | LDL | Triglyceride | SGPT | SGOT | Renal FT | TSH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | - | | | | | | | | | | | | | | | |
| BMI | .082* | - | | | | | | | | | | | | | | |
| Systolic BP | .284** | 0.0330 | - | | | | | | | | | | | | | |
| Diastolic BP | 0.0160 | .078* | .490** | - | | | | | | | | | | | | |
| Hb | -0.0350 | -0.0320 | 0.0100 | -0.0200 | - | | | | | | | | | | | |
| FBS | 0.0670 | 0.0110 | 0.0110 | -0.0120 | -0.0240 | - | | | | | | | | | | |
| PPBS | .075* | -0.0020 | -0.0220 | -0.0240 | 0.0470 | .829** | - | | | | | | | | | |
| HBA1C | 0.0570 | 0.0170 | 0.0060 | -0.0070 | -0.0160 | .949** | .813** | - | | | | | | | | |
| Cholesterol | 0.0540 | -0.0040 | -0.0110 | -0.0270 | 0.0590 | 0.0050 | -0.0140 | -0.0160 | - | | | | | | | |
| HDL | -0.0120 | -0.0100 | 0.0470 | 0.0050 | -0.0580 | 0.0040 | 0.0060 | 0.0010 | -0.0160 | - | | | | | | |
| LDL | 0.0290 | -0.0090 | -0.0240 | -0.0240 | -0.0290 | -0.0370 | -0.0540 | -0.0530 | 0.0480 | -0.0090 | - | | | | | |
| Triglyceride | 0.0560 | 0.0540 | 0.0700 | 0.0620 | 0.0170 | - | -0.0280 | -0.0210 | -0.0340 | 0.0060 | - | - | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 0.0140 | | | | | 0.0040 | | | | | |
| SGPT | -0.0640 | 0.0380 | 0.0480 | .100** | -0.0060 | 0.0030 | -0.0240 | -0.0160 | 0.0220 | -0.0460 | 0.0430 | 0.0030 | - | | | |
| SGOT | -0.0590 | -0.0130 | 0.0440 | 0.0340 | -0.0360 | -0.0690 | -.076* | -0.0540 | -0.0070 | -0.0480 | 0.0150 | 0.0420 | .161** | - | | |
| Renal FT | .177** | -0.0380 | 0.0450 | -0.0660 | -0.0400 | 0.0090 | -0.0210 | 0.0250 | 0.0040 | -0.0400 | -0.0250 | -0.0520 | -0.0370 | -.082* | - | |
| TSH | -0.0420 | 0.0410 | -0.0090 | 0.0130 | -0.0030 | 0.0080 | -0.0050 | 0.0100 | -0.0320 | -0.0540 | -0.0570 | -0.0310 | 0.0130 | -0.0160 | -0.0290 | - |

*p<0.05, **p<0.01

Data presented in table 4.27 summarises the relationships between multiple parameters (using the correlated coefficients approach developed by Karl Pearson). Significantly, there was a favourable connection among BMI & age (p<0.05), SBP & age (p<0.01), PPBS and age (p<0.05), RFT & age (p<0.01), BMI and DBP (p<0.05), SBP and DBP (p<0.01), DBP and SGPT (p<0.01), FBS and PPBS (p<0.01), FBS and HbA1c (p<0.01), PPBS & HbA1c (p<0.01), SGPT and SGOT (p<0.01), as well as SGOT and RFT (p<0.05). A significant incorrect/negative correlation was observed among PPBS and SGOT (p<0.05). A significant correlation was also noted among psychological wellbeing and its various dimensions (p<0.01).

**Table 4.28: Correlations among Psychological Wellbeing and its dimensions** **N=768**

| Variables | Psychological Wellbeing | Autonomy | Environmental Mastery | Personal Growth | Positive Relations with Others | Purpose in Life | Self-Acceptance |
|---|---|---|---|---|---|---|---|
| Psychological Wellbeing | - | .827** | .808** | .943** | .612** | .879** | .715** |
| Autonomy | .827** | - | .573** | .740** | .527** | .597** | .589** |
| Environmental Mastery | .808** | .573** | - | .674** | .176** | .908** | .314** |
| Personal Growth | .943** | .740** | .674** | - | .560** | .804** | .735** |
| Positive Relations with Others | .612** | .527** | .176** | .560** | - | .380** | .597** |
| Purpose in Life | .879** | .597** | .908** | .804** | .380** | - | .367** |
| Self-Acceptance | .715** | .589** | .314** | .735** | .597** | .367** | - |

**p<0.01

Data presented in table 4.28 summarizes the correlations between psychological well-being and its different dimensions. It reveals that, a significant correlation was noted among psychological wellbeing and its various dimensions (p<0.01).

# CHAPTER 5

# DISCUSSION

The purpose of the research was to look at the sociopsychological, biochemical, and physiologic factors that affect well-being and illness between individuals receiving executive medical evaluations in a particular environment. The total number of respondents who took part in this study are from the Belagavi district in Karnataka, and there were 768 of them. Each aspect was evaluated separately using the chi-square test, the Karl Pearson's relationship coefficients, multivariate logistics regression analysis, the incremental exponential regression investigation and compare them with total psychological well- being scores, physiological parameter scores, and demographic profiles of patients undergoing executive health check-ups. This was done in order to gain a deeper comprehension of the elements that influence health in patients who were undergoing executive health check-ups.

Subsequently is well known that basic healthcare facilities contribute significantly to lower rates of sickness, death, including monetary expenditures connected to a wide range of illnesses, especially long-lasting illnesses that develop slowly as time goes by. Despite this, they are not used to their full potential because there is much debate about how effective and efficient, they are. With the objective to examine the socio-psychological, biochemical, as well as pharmacological factors that affect well-being and illness in executive wellness screenings as well as to use the results as a tool to motivate participants to use preventative medical services, an investigation was conducted.

**Results relating to individual demographics and socioeconomic characteristics:**

The investigation had 768 those involved, with a M: F proportion of roughly 2:1 and a median length of 48.24 ± 12.84 years. The greatest numbers of those surveyed (31.12 percent) were in the 40–49-year age range, with 20 & 88 years being the shortest and longest ages, respectfully.

Present study discovered similar patterns of response while recruiting participants for the current study to those shown in past polls. The age group of 16 to 24 had the lowest response obtained from the 2003 Scottish Health Questionnaire (SHS 2003), cooperating homes. Men over the age of 65 had the highest response rates, whereas women over the age of 24 consistently had high response rate. Men under the age of 35 were slightly underrepresented at both the nurse visit and the interview in SHS 2003 in contrast to their percentages in the populace, as a whole, men around the age of 55 was slightly overrepresented. Women under the age of 25 were underrepresented in both periods, but women between the ages of 45 and 74 were overrepresented.[76]

Present study included participants with history of alcohol and smoking i.e. 39.98%, most of the participants were belonged to joint family and majority of participants belonged to class II category of socio economic status.

Longevity has been found to be greater amongst individuals in disadvantaged socio-political circumstances across all nations where statistics are available. This is regardless of where their socioeconomic situation corresponds by level of schooling, occupation social strata, owning a home or revenue status.[77,78] Among everyone men & women, it's essential. Despite their connections, all of these characteristics reveals a

different socioeconomic standing. Because money likewise shows the affordability of goods and services but additionally indicates a state of circumstance, there's a better correlation with initial social standing than vocational rank. Upon an average, persons who have a higher status are wealthier, better educated, and employed.[79]

One of the most reliable epidemiological findings is the negative correlation between socioeconomic level and health. The societal patterns of unhealthy behaviours are partially reflected in the distribution of physiological risk in society. Nowadays, there is a clear correlation between social disadvantage and unhealthy eating habits, inactivity, drug and cigarette use, and tobacco usage. Particularly, lower socioeconomic groups may find it difficult to adopt a healthy lifestyle due to material constraints, prevailing social standards, and a lack of opportunities to make healthy decisions.[80,81]

However, a large body of data indicates that social and economic issues are what are causing these health disparities. For instance, individual social disadvantage has consistently been linked to During examinations of Scottish men,[79] British public servants from the Whitehall II research, & irrespective of the class gauge applied & following correcting for additional risks, there were inferior illnesses and higher instances of deaths., and participants in the Helsinki Health Study.[82] Several research have revealed that area-based socioeconomic indicators are independently linked to greater risk factors for morbidity and mortality. According to these studies, less affluent communities have a higher mortality risk than more prosperous ones.[83,84]

**Findings related to comparison of demographic profiles of patients with their mean Psychological Wellbeing scores:**

Throughout the current investigation, characteristics of the population were compared with regards to psychological wellness measures and those measures' constituent parts. No statistically significant disparity was found between the standard deviation of psychological wellness scores plus each of their elements across demographic data such as age, sex, social context, what kind of family members, SES, the nutrition employing an ANOVA with a one-way design plus an autonomous t-test.

As per Chi-square test, degree of psychological wellbeing indicated no importance association in favour demographic parameters ($p>0.05$).

The essential characteristics of a person, such as their cognition and personality, have an impact on their chances and results in life.[85] Adults can change their personality features as well as these modifications could have a big impact on their lives and death.[86]

Personality's (predictive) power is commonly known that personality, mental health, social status, and health are all related.[87] Personality, defined as Persistent variances in mental and emotional states & behaviour are essential for the development of the psychological elements that have an impact on health. It serves as the foundation for our ability to consistently think, behave, and feel over time and in various contexts. It is believed that early temperamental differences, they affect how social events are exposed therefore are largely determined by genetics, are the origin of adult personality traits.[88] With some regularity, these personality qualities can predict a variety of outcomes, such as the calibre of social and familial ties, marital

happiness, career decisions, political stances, and criminal behaviour. Additionally, research has shown that certain personality traits can predict significant life events including mortality, divorce, and career success.[84] Longitudinal research have shown Personalities identified in adolescence might anticipate future health implications, for instance becoming overweight as well as obese, suffering an accident, developing metabolic syndrome, and living longer.[89]

It is now widely known that personality traits or characteristics are related to a variety of healthy behaviours, both adaptive (good) and maladaptive (negative), and that these relationships affect morbidity and mortality. The term "positive impact" refers to emotions that show a degree of enjoyable interaction with the surroundings, like happiness, joy, excitement, and contentment was linked to higher social connectedness, optimism, adaptive coping mechanisms, and a lower risk of depression in a study of 716 men and women over the age of 58.[88] On the other hand, "negative affect," which Cohen and Pressman (2006) defined as "the feelings and negative mood states of anger, anxiety, contempt, fear, or guilt," was linked to unfavourable relationships, a higher risk of contracting chronic illnesses, a depressed mood, poorer mental health, and pessimism. Positive affect was not associated with chronic stress exposure, although it was with protective social and psychological resources. In contrast to experiencing less chronic hardship, happier people also have better mental health and more protective resources that allow them to deal with issues in a flexible and effective manner.[89]

**Observations regarding the correlation among sufferers' characteristics and demographic information with Psychological Wellbeing scores and biological parameter scores**

Employing Using the Chi-square examination, there is a substantial relationship among BMI (p=0.0430), diet and BMI (p=0.0110), family type and CXR (0.0460), social history and USG (p=0.0001), family type & USG (p=0.0001), age & ECG (p=0.0001), gender and TMT (p=0.001), as well as age and TMT (p=0.0001).

The association between demographic profile and levels of biochemical parameters. The Chi-square experiment revealed a substantial correlation among social background & HbA1c (p=0.0001), family type andHbA1c (p=0.0001), SES and HbA1c (p=0.0001), as well as diet and RFT (0.0250).

The findings of the current study are consistent with those of Vellupillai et al., who also found that psychological, social, and biological variables (pSoBid) (p0.05) had an impact on health. 23 According to their research, environmental factors, interpersonal and professional connections, knowledge, lifestyle decisions, and altered mental processes all had an impact on socioeconomic gradients in health and predisposed participants to engage in either health-promoting or health-damaging behaviours.[23]

The levels of psychological wellness and the demographic factors, however, did not appear to be significantly related in the current study (p>0.05). Contrary with studies conducted by Dorji et al. & Lincoln et al., who asserted that a number of factors, including gender, age, marital status, level of schooling, SES, and spirituality,

showed an effect on one's psychological health.[24,25] Regional variations between the research populations may be able to explain this.

The study conducted by Bijlsma-Rutte et al. showed a negative association among SES and HbA1c stages, ranging a finding that was in line with the significant association among HbA1c as well as demographic variables. In terms of schooling, the aggregated average variance in HbA1c concentrations among people with moderate and elevated SES was 0.26 percent with a 95% confidence interval [CI], 0.09 to 0.43] or 3.12 mmol/mol (95% confidence interval [CI], 1.21 to 5.04) and with regard to income, it was a percentage of 0.20 (95 percent CI, 0.05 to 0.46] or 2.36 mmol/mol (95 percent CI, -0.61 to 5.33). A blood glucose level of 6.5 percent was significantly associated with an increased risk for acquiring liver fibrosis, according to research by Tanaka et al. ($p=0.017$, odds ratio = 1.7). The number of cases of non-alcoholic obese liver syndrome (NAFLD) associated liver fibrosis resulting from NAFLD increased to eight percent HbA1c, as determined by glycemia. Measurements of HbA1c as well as the Fibrosis-4(FIB4) index can be utilised in medical tests to identify potential cases of cirrhosis of the liver brought on by NAFLD. The presence of hepatic fibrosis in those people must be further confirmed by other examination methods.[27]

The research by Dua et al., which found that pre hypotension is more prevalent in corpulent or overweight adults, indicated earlier medical recognition of pre hypotension and management that includes living adjustment, especially managing weight, since they are cardiovascular risk factors are supported by the correlation between BMI and SBP.[28]

There might also be links among elevated threat levels of variables in adolescents for cholesterol in old life, according to the results of a number of investigations. In the Heart Disease Risk in Young Finns Learn, and metrics of arterial hypertension, low-density lipoprotein cholesterol, smoking, and BMI (body mass index) among the ages of 12 and 18 have been related to increased grown-up carotid intima-media the thickness (cIMT), no matter adult level of the aforementioned risk factors. It is also established that the one of the biggest indicators of grown-up smoking habit is childhood social and economic status. Individuals who had elevated adolescent BMI & reduced-density lipoprotein cholesterol concentrations additionally developed greater cIMTs, according to the teens and young adults Bogalusa Cardiovascular Research. A thorough analysis of forty research articles conducted on the on an individual basis revealed an overwhelming negative connection among early experiences and heart disease in 31 of the investigations evaluated. Independent of their circumstances in adulthood, this review's findings supported the idea that people who had worse socioeconomic conditions as children were more likely to acquire cardiovascular disease and pass away from it.[78, 86, 88]

**Findings related to co-relation between demographic variables of patients with different variables**

In addition to raising awareness of the importance of using preventive health services, the current study establishes linkages between socio-psychological, biochemical and physiological factors in well-being & illness are examined in executive healthcare exams. The following provides a fact-based basis for a fundamental reconsidering of distributive justice in order to enhance the health of

people who are least in a better position relative to the overall social wellness differential. Additionally, this work serves as a teaching tool to promote early detection and prompt intervention, particularly for diseases linked to lifestyle.

# CHAPTER -VII
# CONCLUSION

As far as the writer of the paper is aware, the present investigation is the initial attempt to look at the socio psychological, biochemical, and physiological factors that influence health and disease in the context of an executive health check-up.

Physiological variables like as age and gender were related with aberrant ECG and TMT results of the study. In the present-day context of hidden deadly illnesses, executive tests are crucial to maintaining wellbeing. Assistance for preventing illness lowers the likelihood that people would need medical treatment down the road, increasing cost efficiency.

The findings show that a sizable fraction of illness conditions was newly discovered through preventative health examinations. In this era of rising lifestyle diseases, people might be urged to use preventative healthcare programmes for identifying an illness beforehand and implementing treatments on deadline.

**Study's implications**

- **To create awareness**

The study will help to create awareness among patients, community people regarding early detection of health problems and their preventive strategy.

- **Guidelines for policymakers**

The study can help policymakers to understand the bio psycho social burden among the people and their health and can make necessary arrangements for the early detection of health problems and necessary actions.

- **Promotion of health among general population**

To provide evidence for the periodical health check-up programs in preventing and promoting psychological and physiological health among the population.

**Actions taken**

- The details of executive health checkup were provided to general public through various modes like health education, health camps, printed media etc and for early detection of health problems and necessary actions it was suggested to go for periodical health checkup.
- It was also suggested regarding health checkup camps at rural areas.

# RECOMMMANDATIONS

- Active participation of the government is the need of the urge hour because prevention is always better cure. Government must plane appreciate legislation to proves the health of the middle aged and senior citizens of the country.
- In government hospitals health check-up mechanism has to be started before it will become alarming.
- The researcher suggests for quarterly health check-up for senior citizen and half yearly check-up for the age group 40-60yrs group.
- Obesity awareness and dietary education has to be spread through CSR (Corporation social responsibility) initiations of industrial concern.
- Voluntarily participation of citizens in health check-up is urgently required. Citizen of the country have to be educated through media for regular health check-up of to protect health of the citizen.
- The findings of the study suggest adopting yoga and meditation for psychological elements and appreciating fitness mechanism including diet for physiological care.

**Study's limitations**

- Research is performed on small number of samples. This limits generalization of findings on other groups of population.
- Study is conducted in small geographical area limits the generalization of the findings
- Parametric research using surveys methodology was employed in the present investigation is the weak design as compared to experimental design
- Data collected from the participants is only one time limits the generalization of the findings.

# CHAPTER -VI

# SUMMARY

The purpose of the present investigation was to assess the socio-psychological, biochemical, and physiological factors that affect health and disease among patients who had signed up for an executive health check-up. The current study's 768 volunteers over the age of 20 were selected from the Belagavi district of Karnataka to represent the district's population.

This Rosenstock health belief framework is the foundation of the present inquiry. A mental model for healthcare changes in behaviour called the Health Belief Model, also known as HBM, was created to clarify and anticipate healthcare-related behaviours, especially those connected to the consumption of healthcare facilities.

The theory of health beliefs holds that an individual's readiness to try out practises that promote good health is influenced by their perceptions of the benefits and difficulties that come with doing so, and also their level of self-assurance. The action-inducing stimulus, sometimes referenced to as an invitation to do something, is also necessary for the activity that improves health.

Pilot study was carried out in Belagavi from December 2018 at selected hospital. The tool was developed as part of a larger study and it turned out to be plausible, comprehensible, & agreeable.

Information collecting for the primary investigation got underway on January 2019, after obtaining permission from the relevant authorities of the selected hospital in Belagavi. The results of the main study were published on September 2022. The

researcher physically gathered the data and informed the respondents that the answers they gave would be kept confidential would remain confidential.

**Outcome of major research:**

**Conclusions relating to socio-demographic factors:**

- (67.06%) of participants are male
- (30.60%) of participants were belonged to age group of 40-49 years
- (50%) of participants were not had history of smoking or alcohol
- (70.05%) of participants were belonged to joint family
- (84.77%) were belonged to class II category
- (88.54%) were taking mixed diet

**Findings related to systemic parameters:**

- (47.14%) of participants were had overweight
- (48.31%) of participants were had SBP 140 or higher
- (52.99%) of participants were had DBP less than 80,
- (64.71%) of participants were had medium level psychological well being

**Findings related to comparison of demographic profiles of patients with their mean Psychological Wellbeing scores:**

In the current study, demographic profiles were compared to mean psychological wellbeing scores and those scores' constituent parts. The mean psychological wellbeing ratings and their components did not differ significantly across demographic factors such aged, gender, socioeconomic background, family structure, SES, & nutrition according to one-way ANOVA and an independent t-test.

The levels of psychological wellbeing did not significantly correlate with the demographic factors according to the test of Chi-square ($p>0.05$).

**Conclusions about the correlation among demographic factors of participants with Psychological Wellbeing scores and biological parameter scores**

This Chi-square test revealed a strong correlation between age & BMI ($p=0.0430$), diet and BMI ($p=0.0110$), family type and CXR ($p=0.0460$), family type and USG ($p=0.0001$), social history and USG ($p=0.0001$), age and ECG ($p=0.0001$), gender and TMT ($p=0.001$), and age and TMT ($p=0.0001$).

Biophysical degree of markers and demographic characteristics. Using the Chi-square test, a significant relationship between social history and HbA1c, family type and HbA1c, SES and HbA1c, as well as diet and RFT, was observed (0.0250).

**Findings related to co-relation between demographic variables of patients with different variables**

The current study demonstrates connections between socio-psychological, biochemical and physiological factors in executive health screening that affect health and disease. In order to improve the health of those who are least fortunate in terms of the social health gradient, additionally, it offers a based-on evidence basis for a critical re-examination of the principle of equitable distribution. This research also provides a framework for teaching to encourage swift detection & prompt action, particularly for illnesses connected to a specific lifestyle.

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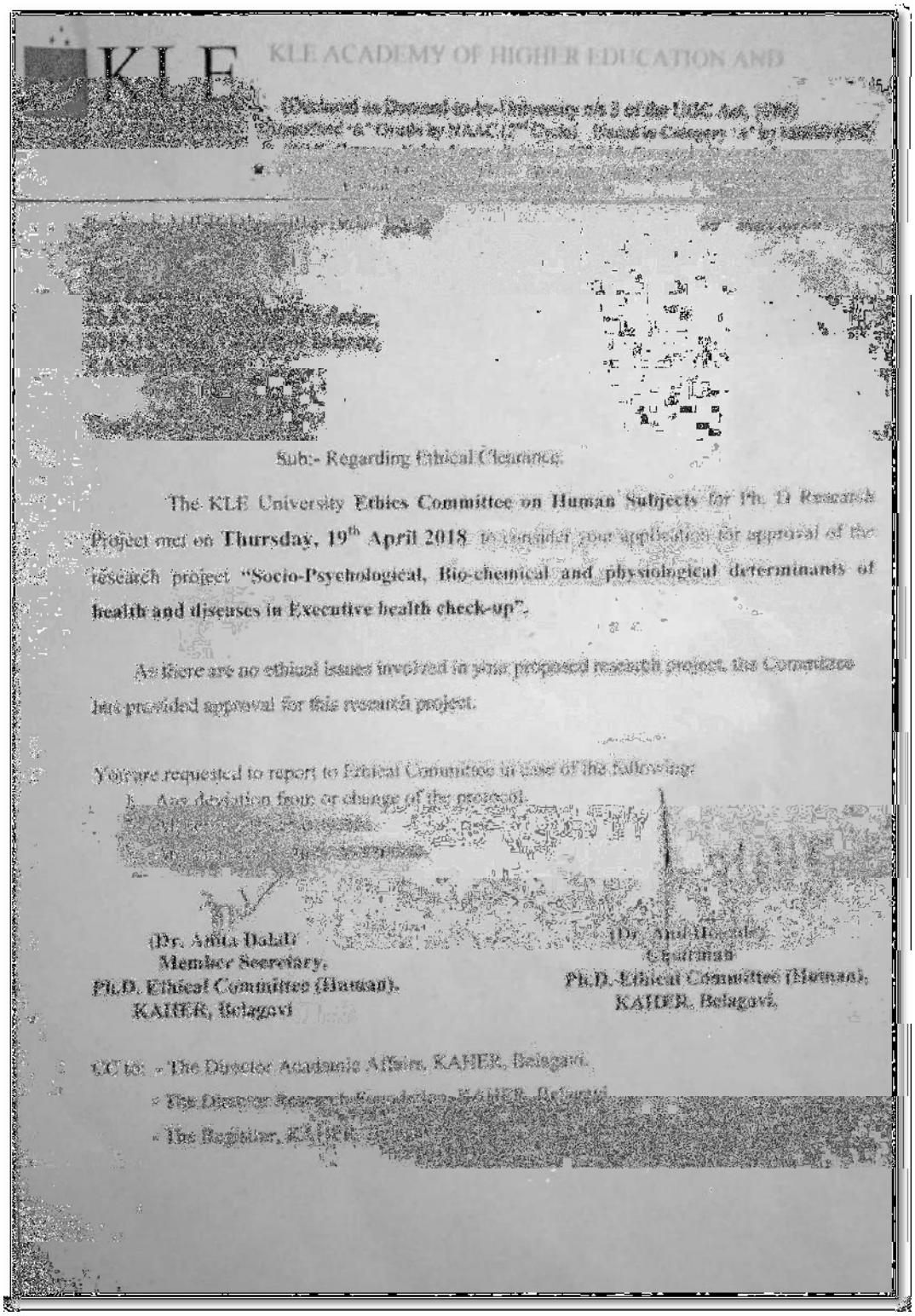
# ANNEXURES

## ANNEXURE -I - ETHICAL CLEARANCE CERTIFICATE



KLE ACADEMY OF HIGHER EDUCATION AND

Subt:- Regarding Ethical Clearance.

The KLE University **Ethics Committee on Human Subjects** for Ph. D Research Project met on **Thursday, 19th April 2018** to consider your application for approval of the research project **"Socio-Psychological, Bio-chemical and physiological determinants of health and diseases in Executive health check-up".**

As there are no ethical issues involved in your proposed research project, the Committee has provided approval for this research project.

You are requested to report to Ethical Committee in case of the following:

1. Any deviation from or change of the protocol.

(Dr. Anita Dalali)
Member Secretary,
Ph.D. Ethical Committee (Human),
KAHER, Belagavi

(Dr. Anil Hosmani)
Chairman
Ph.D. Ethical Committee (Human),
KAHER, Belagavi.

CC to: - The Director Academic Affairs, KAHER, Belagavi.
- The Director Research Foundation, KAHER, Belagavi.
- The Registrar, KAHER.

# ANNEXURE - II - QUESTIONAIRE

**Procedure:** The study was conducted as a cross sectional study. Individuals attending the executive health check-up section of the hospital fulfilling the inclusion and exclusion criteria were included in the study. The inclusion criteria were apparently healthy individuals and patients with known medical conditions without significant symptoms. Exclusion criterion was patients presenting with specific symptoms. The sample size of the study population was 664. The data of the patients, their results, and their final reports were collected from the executive health check-up section records. The procedure of executive health check-up performed was as follows: after recording comprehensive medical history and performing thorough physical examination, the individuals were subjected to a set of investigations according to the package selected based on their age (child health check-up, senior citizen health check-up), pre-existing diseases (executive diabetic health check-up, cardiology health check-up) or their preference (primary health check-up, executive health check-up, whole body health check-up).

The packages included investigations out of the following: complete hemogram, urine analysis, fasting and postprandial blood sugar, HbA1c, blood urea, serum creatinine, serum uric acid, lipid profile, liver profile, thyroid profile, chest X-ray, ECG, echocardiography, Tread mill test(TMT) ultrasound abdomen, PSA (for men) and pap smear (for women). The study was approved by the KLE university Belagavi ethics committee of human subject (ref.No KAHER/ethics/2018-19/D-128) institute. The data was analysed using SPSS software. Descriptive analysis was used in the processing and analysis of data.

**Questioners:**

**Sociological**

1. Name of the Individual as per case sheet : 123ABC
2. Address: Xyz
3. contact No:1234
4. Age:
5. Sex: male/female/other
6. Religion: Hindu/muslim/chrisician/jain/sikh/other
7. Marital status: Married/Unmarried/Divorced/other
8. Education: Primary (1)/High School (2)/ PUC (3)/Degree (4)/
   Adult Education (5)/ Illiterate (6)
9. annual income: Total Monthly income (SES): 3000-3999(1)/4000-4999(2)/5000 5999(3)/6000-6999(4)/7000-7999(5)/8000+
10. Occupation: moderate skill (1) Agriculture (2) pvt Employee (3) Govt Employee
11. habits: No habit (1) Alcohol (2) Tobacco (3) both (4)
12. Type of Food: veg (1) non-veg (2) Both (3)
13. Type of family: joint (1) Nuclear family (2)
14. Family members:
15. Why you come for health check-up?

Routine check-up (1) history of complaints (2) on medication (3)

# ANNEXURE – III - CONSENT FORM

**Topic**: **Socio-psychological, bio-chemical and physiological determinants of health and disease in executive health checkup**

**Participant Information Sheet**

**Version 1.0 Dated March 2017**

**Study Site:** KLES Dr. Prabhakar Kore Hospital and MRC, Belagavi – 590010

**Investigator's name:** Mr. Kudachi. A. B.

Department of Hospital Administartion

KLES Dr. Prabhakar Kore Hospital and MRC, Belagavi – 590010

Mob – 8722851234, email id – contacts.allam@gmail.com

**Introduction:** I am Mr. Kudachi. A. B, working for the Socio-psychological, bio-chemical and physiological determinants of health and disease in executive health checkup. We are doing research on The Current lifestyle and food habits, people are becoming more vulnerable to many diseases like diabetes, hypertension, dyslipidaemia and coronary artery disease. I am going to give you information and invite you to be part of this research. You do not have to decide today whether or not you will participate in the research. Before you decide, you can talk to anyone you feel comfortable with about the research. There may be some words that you do not understand. Please ask me to stop as we go through the information and I will take time to explain. If you have questions later, you can ask them to me or, the study supervisor Dr. R.S.Mudhol. Professor of Dept. ENT& Director Hospital Administration & Vice Principal J N Medical college, KLE Academy of Higher Education & Research, Belagavi.

Early detection of disease in its latent phase helps in timely therapeutic interventions, thereby significantly reducing the morbidity and mortality. Preventive health check-up is widely adopted by many hospitals towards this goal.

**Purpose:** Health is commonly neglected. Also, because of the current life style, food habits, lack of exercise, and stress, people are becoming more vulnerable to many diseases. Many illnesses remain largely undetected in the population until checked because they are silent till they cause complications. Because of the changes in lifestyle of the society, many chronic diseases are on the rise. Requires to analyze the utility of master health check-up in early detection of disease states.

**Research intervention:** Hospital based cross-sectional study

**Participant Selection:** Information regarding target population will be collected from individuals attending the executive health check-up department will be conducted and those who satisfy the eligibility criteria and willing to participate in the study will be recruited.

**Voluntary participation :** Your participation in this research is entirely voluntary. It is your choice whether to participate or not. Whether you choose to participate or not, all the services you receive at this and from this hospital will continue and nothing will change. You may change your mind later and stop participating even if you agreed earlier, even without giving any reason.

Socio-psychological, bio-chemical and physiological determinants of health and disease in executive health checkup. People can be encouraged to utilize preventive health services for early detection of disease status.

To adopt timely interventions in this era of increasing life style diseases. To educate the people to utilize preventive health services.

**Study procedure :** At KLES Dr. Prabhakar kore Hospital and medical research centre, Belgaum, we continue to emphasize the old saying that 'prevention is better than cure'. It is a fact that almost every symptoms, which are often not observed and hence neglected. A proper prevention health checkup helps in the assessment of your health conditions. Even if you have chronic disease like Diabetes, Hypertension, I.H.D etc, health checkup packages will help you in assessment of their clinical state and also if any modifications in treatment and management is required.

The most of people tend to take good health for granted. You may never known when your present lifestyle could adversely effect your health in future. The irregular food habits, lack of exercise and constant stress may be main culprits. K.L.E.S Dr. Prabhakar kore health checkup packages are a set of comprehensive and result oriented set of investigations and clinical examinations by various consultants like Ophthalmologist, Gynaecologist, Paediatrician and Physician. While undergoing the health check-ups we ensure that you are comfortable and well taken care of. This is coupled with our smooth, swift and systematic procedures which will indeed prove to be pleasant expertise expectance. The regular health check-ups ensures that you enjoy the benefits of long term good health. The following tests will be included according to age, gender, disease conditions and patient convenient.

- Executives health check-up
- General health check up
- Senior citizen Health check-up
- Diabetes Health check-up

- Women Health check-up
- Basic child health check-up

**Duration of the study :** The research takes place over 3years in total. During that time, it will be necessary for you to preventive health check-ups and in follow up further days it requires at assess check-ups according patient severity of disease.

**Risk involved participating in the study:** By participating in this study, we don't expect that you will come across any dangerous event because of the study. Study don't have any potential intervention, study involves patient education sessions and other interventions if any will be made through your treating doctor.

**Benefits involved participating in the study:** By the education sessions provided by the hospital administrator, you may have good amount of knowledge regarding the use of early preventive health check ups. By participating in the study, we believe that the services provided by hospital administrator.

**Incentives:** Your Participation in this study will not incur any expenditure and it is purely academic research, hence you will not be paid any incentive for participation in this study.

**Confidentiality:** It is possible that if others in the community are aware that you are participating in this research, they may ask you questions. We will not be sharing the identity of those participating in the research with anyone. The information that we collect from this research project will be kept confidential. Information about you that will be collected during the research will not be identified by your name but by a number. Only the researchers will know what your number is and they will not misuse

any of your details. It will not be shared with or given to anyone except your clinician, only if required.

**Sharing the Results**: The knowledge that we get from doing this research will be shared with you if you are interested before it is made widely available to the public. Confidential information will not be shared. There will be small meetings in the university research committee and these will be announced. After these meetings, we will publish the results in scientific journal in order that other interested people may learn from our research.

Right to Refuse or Withdraw You do not have to take part in this research if you do not wish to do so and refusing to participate will not affect your treatment at this hospital in any way. You will still have all the benefits that you would otherwise have at this hospital. You may stop participating in the research at any time that you wish without losing any of your rights as a patient here. Your treatment at this clinic will not be affected in any way OR you do not have to take part in this research if you do not wish to do so. You may also stop participating in the research at any time you choose. It is your choice and all of your rights will still be respected.

**Who to Contact:** If you have any questions, you may ask them now or later, even after the study has started. If you wish to ask questions later, you may contact any of the following Dr. R.S.Mudhol. Professor of Dept.ENT& Director Hospital Administration & Vice Principal J N Medical college, KLE Academy of Higher Education & Research, Belagavi.

This proposal has been reviewed and approved by local institutional ethics committee of Academic affairs department, KLE Academy of higher education and

research, Belagavi –590010, which is a committee whose task it is to make sure that research participants are protected from harm. If you wish to find about more about the IRB, contact local institutional ethics committee of Academic affairs department, KLE Academy of higher education and research, Nehru Nagar, Belagavi – 590010

## Certificate of consent

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction. I consent voluntarily to participate as a participant in this research and understand that I have the right to withdraw from the research at any time without in any way affecting my medical care.

**Name of Participant_____**

**Signature of Participant _____**

**Date _____**

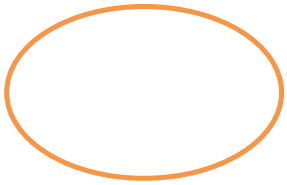
**(Day/month/year)**

Impartial Witness (if participant is illiterate)

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

**Name of witness_____ And Thumb print of participant -**

**Signature of witness _____**



**Date _____**

**Day/month/year**

I have accurately read or witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

**Print Name of Researcher_____**

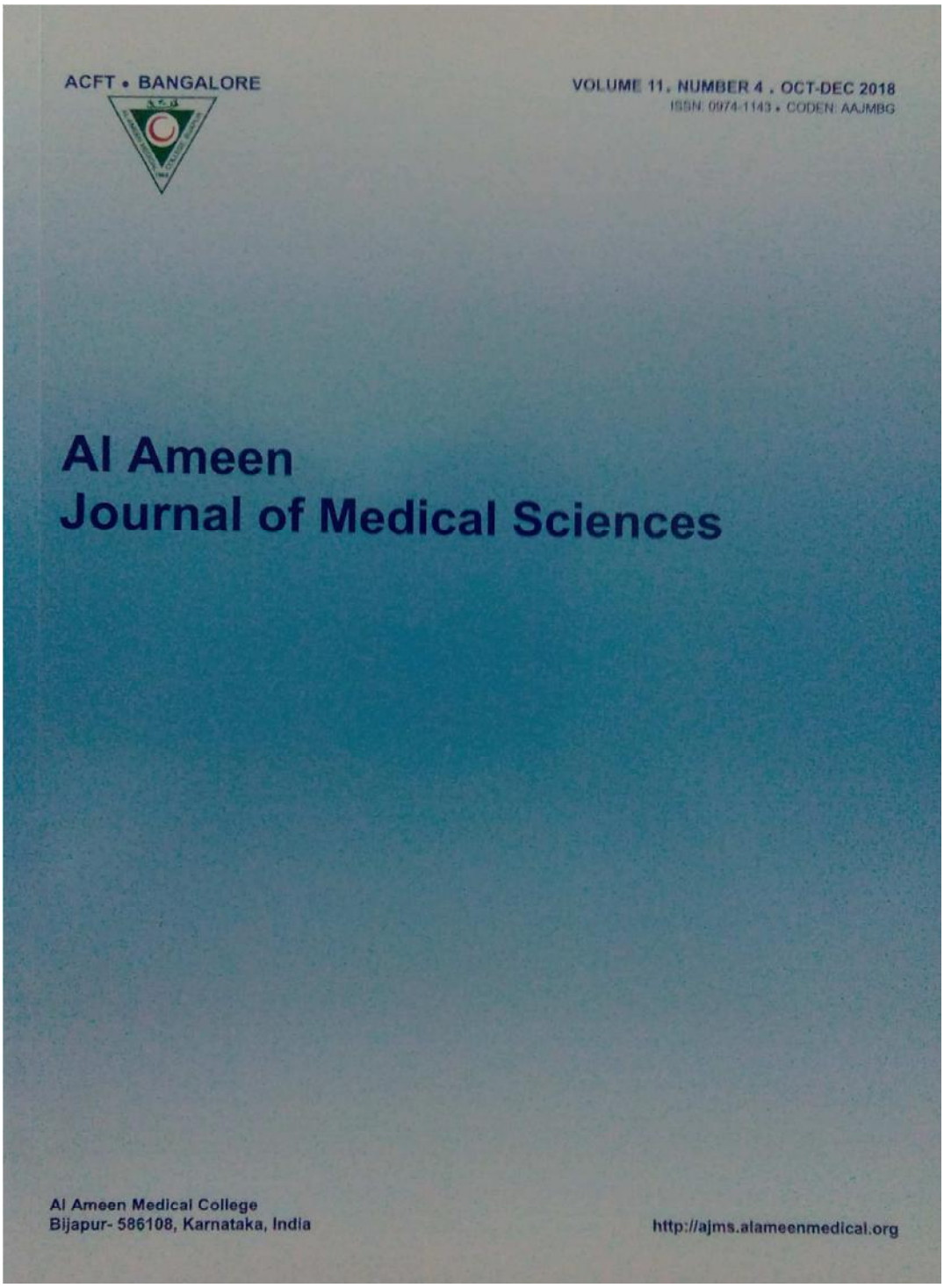
**Signature of Researcher _____**

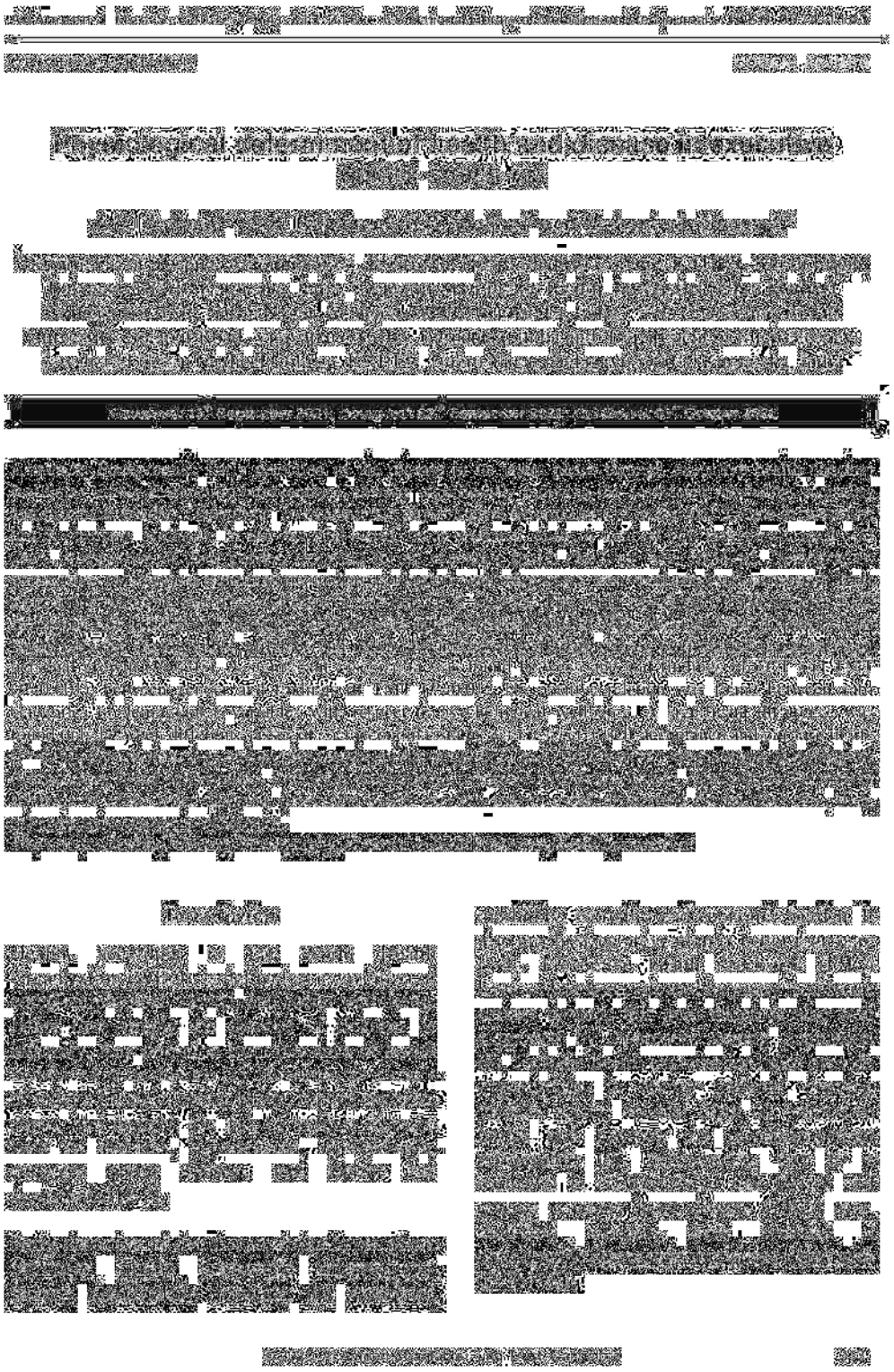
**Date _____**

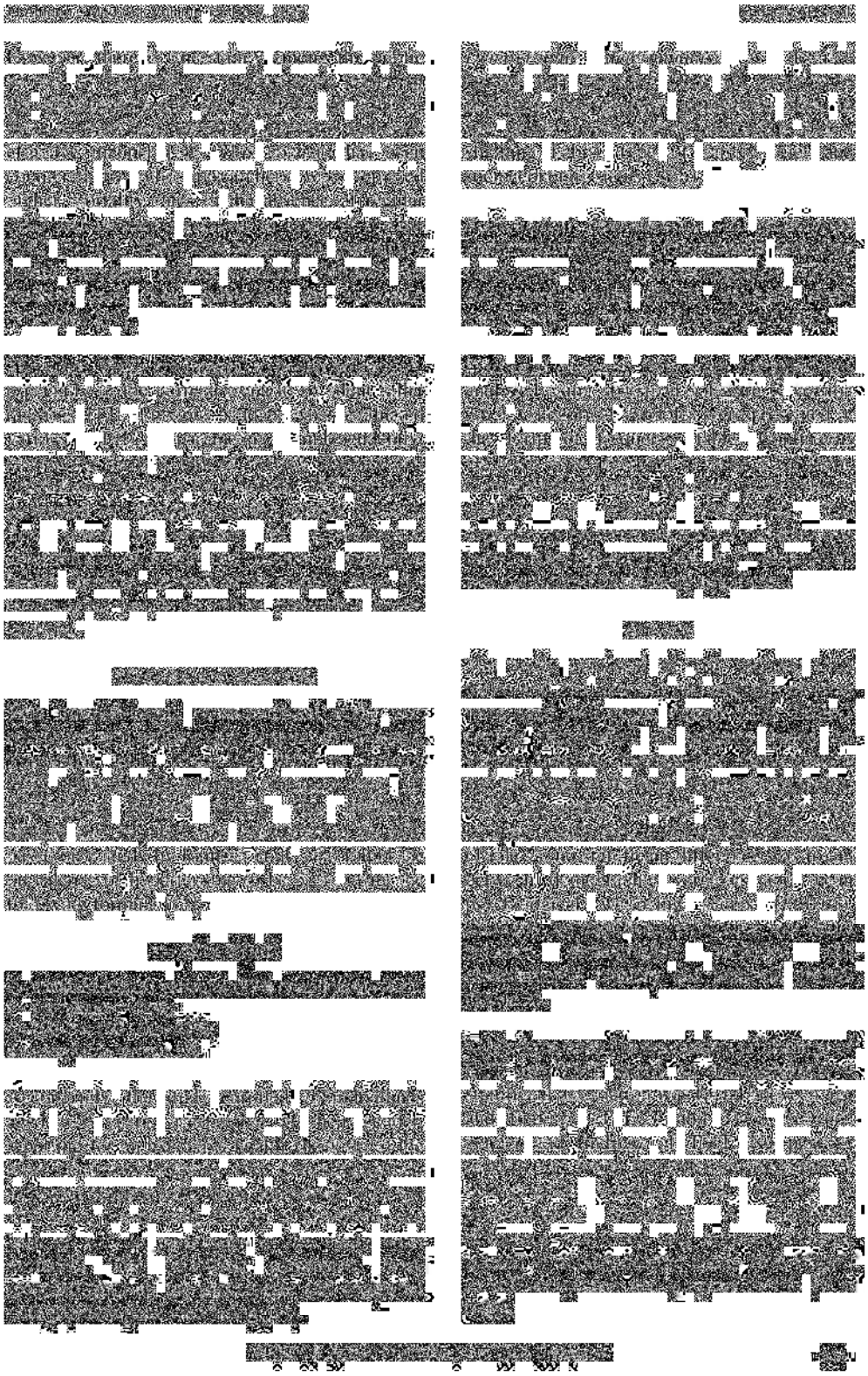
**(Day/month/year)**

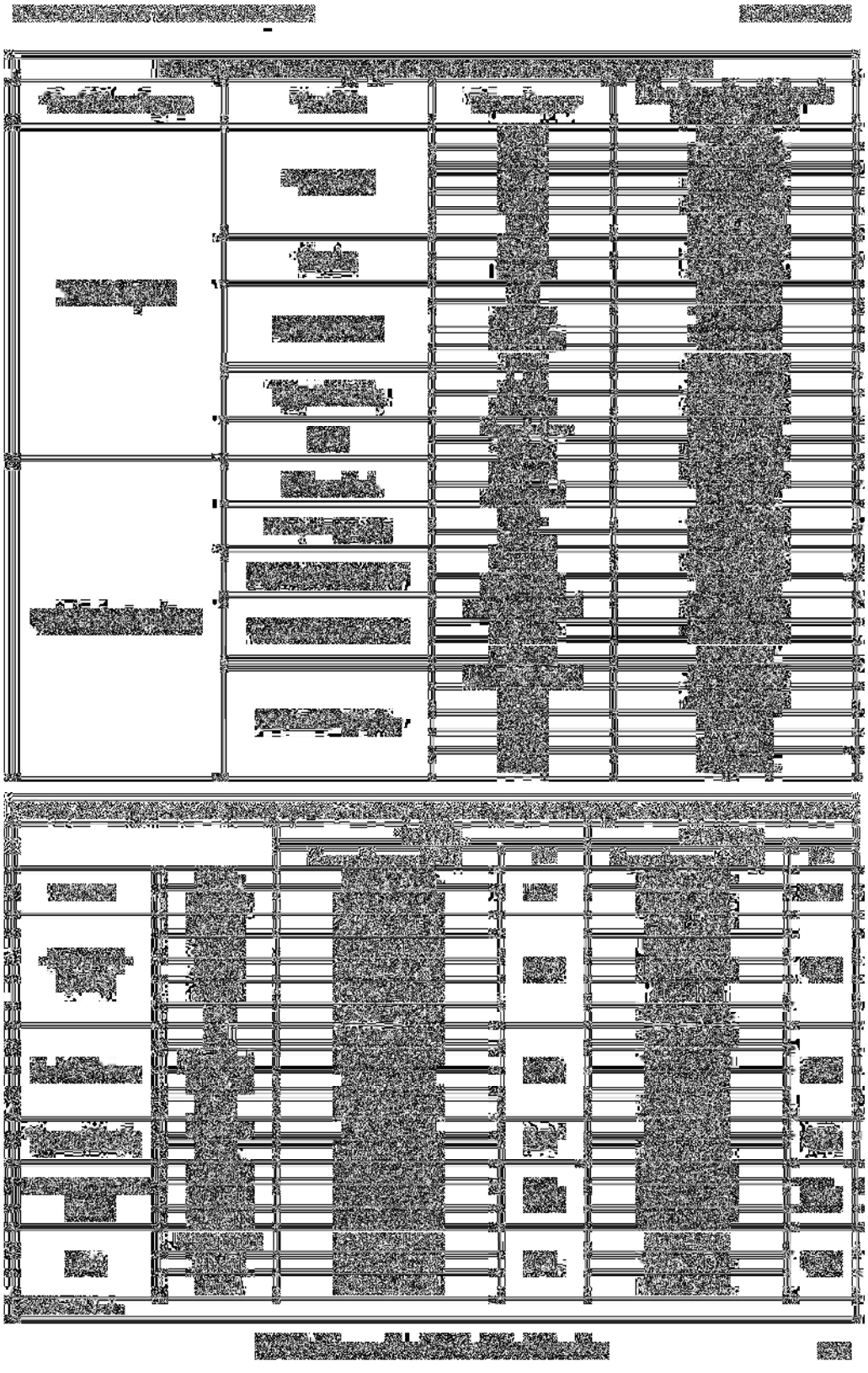
A copy of this Informed Consent Form has been provided to participant _____ (initialled by the researcher/assistant)

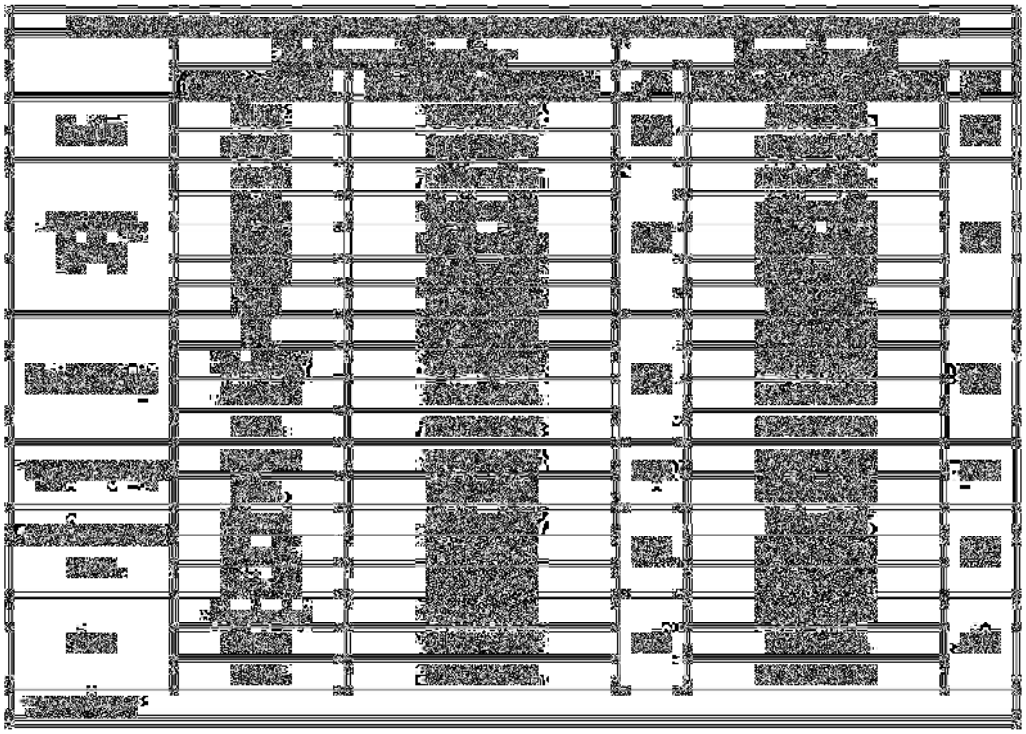
# ANNEXURE -IV- PUBLICATIONS

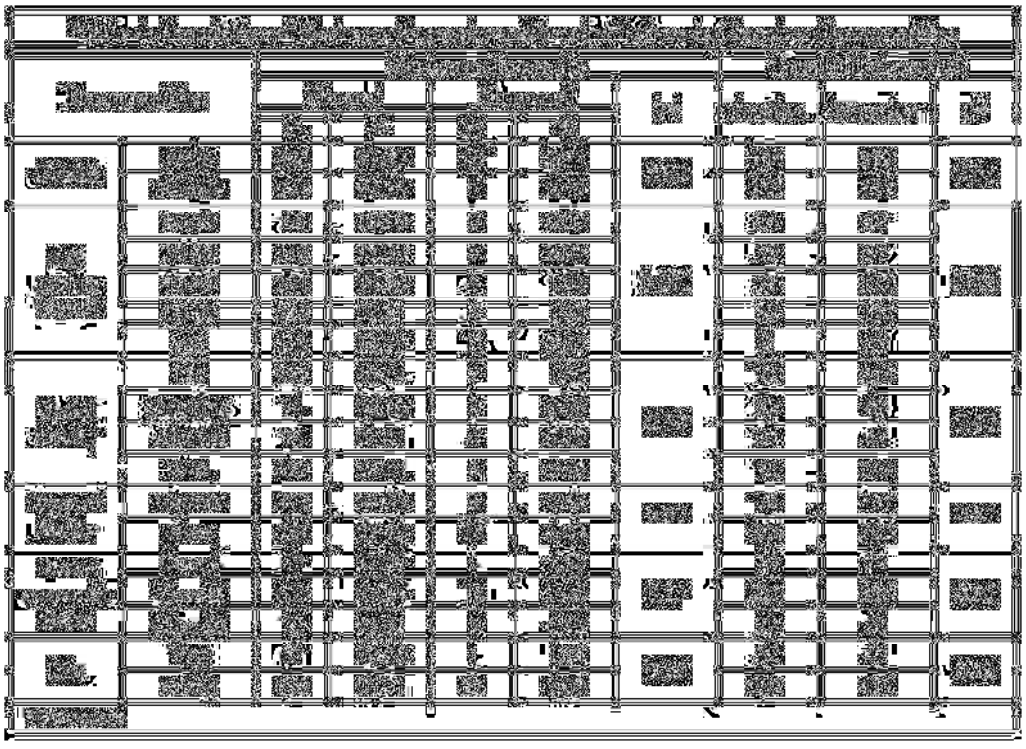


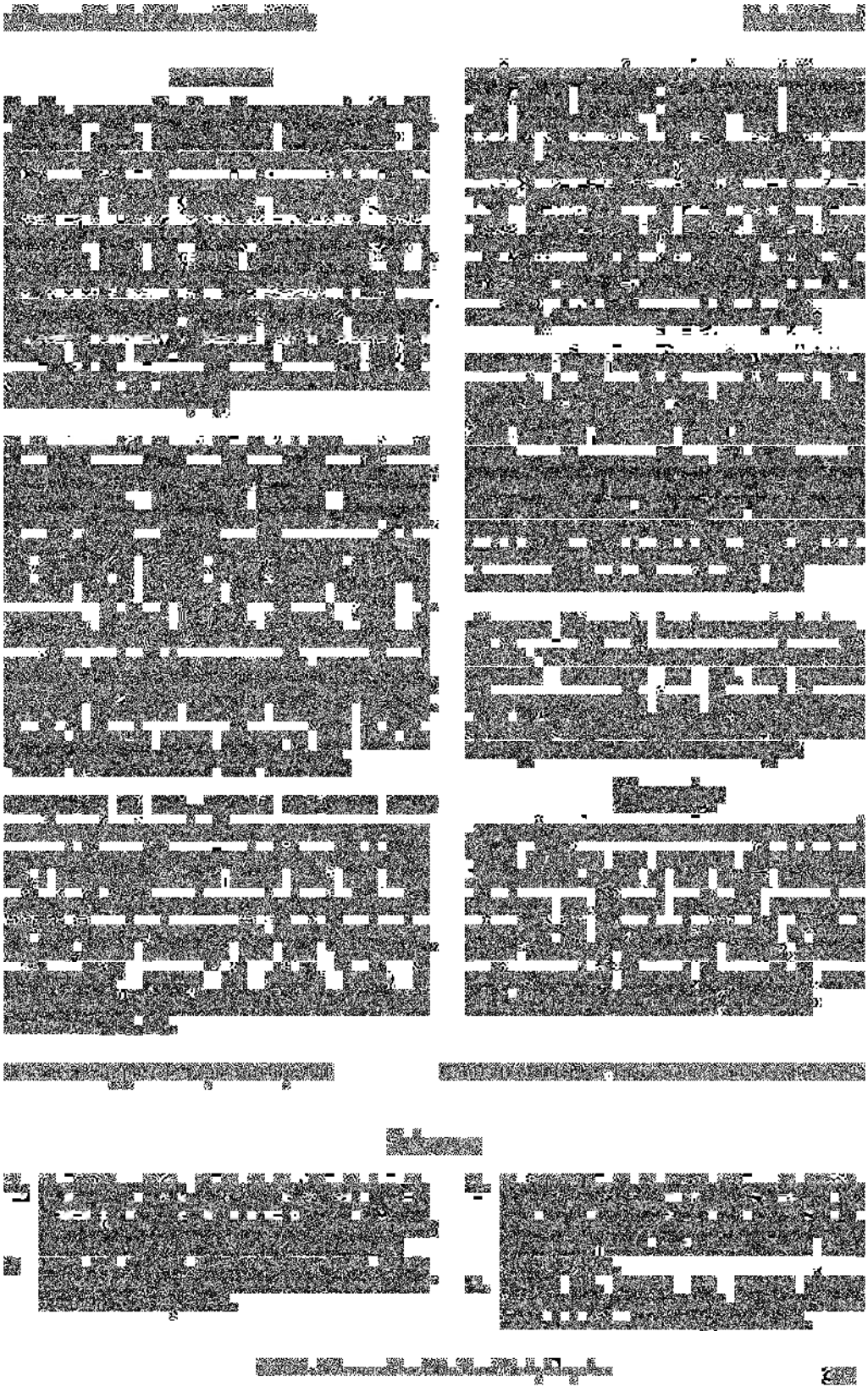










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Original Article

# Correlation Between Psychological Well-Being of People with Chronic Diseases in Executive Health Checkup

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## Abstract

**Objective:** Preventive/regular health checkups have gained prominence over the past decade due to lifestyle-associated risks. The association of physical health checkups and mental health with "well-being," remains unclear. Most of the time less attention is given to psychological health and its importance in physical health and disease. Patients with chronic illness may encounter irreversible changes in health status and may lead to mortality. This is closely related to psychological distress and approximately 6%–34% of the patients with chronic illness developed depression. The objective of the present study is to find the correlation between the psychological well-being and chronic disease of people attending the executive health checkup. **Materials and Methods:** A cross-sectional study was conducted in tertiary care hospital at Belagavi. The study enrolled 768 individuals based on 52% prevalence of hypertension reporting for an executive health checkup and evaluated their demographic profile and adapted "The Scales of Psychological Well-Being" SPARQ tool of (18 items) questionnaire. **Results:** The mean age of the participants was 67.06 ± 32.94 years and a M: F ratio was 2:1. Multiple linear regression equation of psychological wellbeing of patients (Y) in terms of parameters of chronic diseases was found to be under psychological wellbeing (Y) =331.1862-0.1378 BMI-0.0368SBP-0.7161DBP-0.2030 FBS + 0.2727 PPBS-30.8144 HBA1C-0.0682 cholesterol. **Conclusions:** There is a significant and negative relationship between psychological well-being with parameters of chronic diseases.

**Keywords:** *Chronic disease, correlation, mental health, psychological problems, psychological well-being*

## Introduction

Most of the time clinicians treat the patients for their illness/disease, overlooking their psychological health and its importance in well-being. It is known that mental health directly or indirectly influences the well-being condition, irrespective of the severity of the disease. Mental health is "a state of well-being in which an individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community" World Health Organization.[1]

Patients with chronic illness might encounter permanent changes in health status and there is a possibility that it may lead to mortality. This is closely related to psychological stress, impacting the family and society. Approximately 6%–34% of the patients with chronic illnesses developed the symptoms of depression. Previous studies indicated that psychological stress may create crises to individuals, further affecting the family leading to increase in the health cost.[2]

Psychological well-being is a very complex personal phenomenon that comprises personal, cognitive, communicative, and other psychological and nonpsychological factors. It is described as a "feeling of life satisfaction, quality of life, personal self-fulfillment, and creation of objective and subjective values."[3]

Power is a person's ability to influence their environment, other people, and their own outcomes. Autonomy is a person's ability to act according to their own decisions rather than according to others' decisions. Many studies of middle-class white people in the United States (US) show that people with greater power and autonomy feel happier, persevere longer, perform better on cognitive tasks and in the workplace, and live longer and healthier lives than do people with less power and autonomy.[4] The executive health package



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**Quick Response Code:**

includes routine investigations that are extremely important for people with working busy schedules in a stressful environment.

To assess the psychological problems of patients is challenging for health professionals. Professionals should proactively provide emotional assessments to patients with chronic illnesses. Depending on the primary screening, they can be referred to professional counseling, psychological, or mental clinics for treatment. Therefore, the objective of this study is to understand the psychological well-being of patients with chronic diseases and to study the correlation of psychological well-being in people with chronic diseases attending the executive health checkup.

## Materials and Methods

A cross-sectional study was conducted in tertiary care hospital at Belagavi. The sample size was calculated based on the article by Ramesh *et al*.[5] The present study was conducted among executive health checkup participants. The study enrolled 768 individuals aged >20 years. In an executive health checkup, they were evaluated for their demographic profile and psychological well-being. Ethical committee approval was obtained for the stuck. Participants provided with detailed information regarding the study procedures and written consent were obtained.

This questionnaire was used to collect basic information, including physiological indices body mass index (BMI) and biochemical tests (blood pressure [BP], blood lipid, and blood glucose). SPARQ tool of "The Scales of Psychological Well-Being" (18 items) questionnaire [Annexure] was used. The scale consists of six factors such as autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. It has been designed as self-report scales to assess individual's well-being. The participants were evaluated for their level of desolation using a scale rate 1 = strongly agree; 2 = somewhat agree; 3 = a little agree; 4 = neither agree nor disagree; 5 = a little disagree; 6 = somewhat disagree; and 7 = strongly disagree.

Research data were processed statistically; descriptive statistics and Karl Pearson's correlation coefficient test were performed. All calculations were performed in the SPSS.20 (Developer: Norman H Nie,Dale H.Bent , c Hadlaj Hull). (IBM Corporation New Orchard Road Armonk, NY 10504 Produced in the United States of America May 2021 IBM).

## Results

The present study deals with 768 participants with a mean age of 67.06 ± 32.94 years and a M: F ratio of 2:1. Many of the participants were in the age group 40–49 years (31%) and the majority (70.00%) of them belongs to joint family. The level of psychological well-being and total psychological well-being score in the age group, diet, socioeconomic class, family type, and gender is shown in Table 1.

Table 2 shows a significant and negative relationship between psychological well-being with parameters of chronic diseases, i.e. (BMI, $r = 0.4168$, $P = 0.0001$), (systolic BP, $r = -0.1274$, $P = 0.0001$), (diastolic BP, $r = -0.1863$, $P = 0.0001$), (fasting blood sugar [FBS], $r = -0.5663$, $P = 0.0001$), (postprandial blood sugar [PPBS], $r = -0.5302$, $P = 0.0001$), (glycated hemoglobin [HBA1C], $r = -0.6362$, $P = 0.0001$), and (cholesterol, $r = -0.2560$, $P = 0.0001$) at 5% level. It is evident that psychological well-being with parameters of chronic diseases is dependent on each other. Similar findings were obtained on the relationships between components of psychological well-being, i.e. autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance with parameters of chronic diseases except for diastolic BP with purpose in life ($P > 0.05$).

The combined effects of all parameters of chronic diseases except systolic BP on psychological well-being of patients are found to be negative and statistically significant [Table 3].

The multiple linear regression equation of psychological well-being of patients (Y) in terms of parameters of chronic diseases was found to be under: psychological well-being (Y) =331.1862-0.1378 BMI-0.0368SBP-0.7161DBP-0.2030 FBS + 0.2727 PPBS-30.8144 HBA1C-0.0682 cholesterol.

The multiple R of the linear regression equation was 0.7624. For testing R, the F-ratio (150.75) was found to be statistically significant. Significant R suggests that the estimation of psychological well-being of patients is possible based on the predictors, i.e. all parameters of chronic diseases. Further, the regression equation shows that parameters of chronic diseases can be used to prediction of psychological well-being of patients. Based on the coefficient of multiple determinations, nearly 58.13% of the variation in psychological well-being of patients. The relative contributions of all parameters of chronic diseases on psychological well-being of patients in terms of proportions of variance predicted by each were determined [Table 4].

As many as 54.31% of the variance in the criterion variable is accounted for variance, in which 53.1% in HBA1C, 29.69% in PPBS, 17.42% in FBS, and least, i.e. 0.45% in the variable systolic BP on psychological well-being of patients. The normal probability curve of residuals of psychological well-being scores of patients is also presented in the following Figure 1 and the correlation between predicted versus observed psychological well-being scores is highly correlated, no significant difference between them, and presented in Figure 2.

## Discussion

In recent years, there is an increase in lifestyle-related chronic disorders. People are living with chronic diseases

**Table 1: Comparison of demographic profile with psychological well-being and its components by *F* and *t*-test**

| Profile | Psychological wellbeing | | | Autonomy | | | Environmental mastery | | | Personal growth | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean±SD | *F*/*t*-test | *P* | Mean±SD | *F*/*t*-test | *P* | Mean±SD | *F*/*t*-test | *P* | Mean±SD | *F*/*t*-test | *P* |
| Gender | | | | | | | | | | | | |
| Male | 65.75±21.20 | −0.1586 | 0.8740 | 9.93±4.08 | −0.1157 | 0.9079 | 10.52±5.34 | 0.0545 | 0.9565 | 10.47±5.10 | −0.3631 | 0.7167 |
| Female | 66.01±21.73 | | | 9.96±4.08 | | | 10.50±5.35 | | | 10.62±5.37 | | |
| Age groups (years) | | | | | | | | | | | | |
| 20-29 | 69.52±24.19 | 0.6116 | 0.6544 | 10.61±4.50 | 0.8068 | 0.5210 | 11.65±5.45 | 0.7406 | 0.5644 | 11.11±5.61 | 0.4825 | 0.7486 |
| 30-39 | 64.34±19.93 | | | 9.85±3.91 | | | 10.14±5.21 | | | 10.21±4.89 | | |
| 40-49 | 66.46±21.43 | | | 10.05±4.12 | | | 10.63±5.47 | | | 10.75±5.16 | | |
| 50-59 | 65.82±21.67 | | | 10.00±4.21 | | | 10.42±5.24 | | | 10.51±5.24 | | |
| ≥60 | 65.03±21.32 | | | 9.45±3.78 | | | 10.48±5.39 | | | 10.24±5.40 | | |
| Social history | | | | | | | | | | | | |
| Nil | 65.86±21.34 | 0.0220 | 0.9956 | 9.94±4.09 | 0.0255 | 0.9945 | 10.51±5.32 | 0.0419 | 0.9886 | 10.53±5.18 | 0.0116 | 0.9983 |
| Smoking | 66.03±20.97 | | | 9.84±4.03 | | | 10.65±5.36 | | | 10.52±5.08 | | |
| Alcohol | 65.26±21.20 | | | 9.90±3.97 | | | 10.35±5.44 | | | 10.42±5.23 | | |
| Both | 65.92±21.71 | | | 9.98±4.13 | | | 10.53±5.36 | | | 10.53±5.26 | | |
| Type of family | | | | | | | | | | | | |
| Nuclear | 65.87±21.30 | 0.0307 | 0.9755 | 9.90±4.09 | −0.1587 | 0.8739 | 10.55±5.34 | 0.1328 | 0.8944 | 10.48±5.13 | −0.1288 | 0.8975 |
| Joint | 65.82±21.41 | | | 9.96±4.08 | | | 10.50±5.34 | | | 10.54±5.22 | | |
| SES | | | | | | | | | | | | |
| Class I | 68.83±23.53 | 0.4355 | 0.6471 | 10.48±4.39 | 0.3910 | 0.6765 | 10.15±5.75 | 0.3120 | 0.7321 | 11.80±5.78 | 1.2907 | 0.2757 |
| Class II | 65.73±21.28 | | | 9.92±4.06 | | | 10.58±5.31 | | | 10.46±5.15 | | |
| Class III | 65.18±21.06 | | | 9.81±4.07 | | | 10.16±5.36 | | | 10.39±5.19 | | |
| Diet | | | | | | | | | | | | |
| Veg | 65.59±19.84 | −0.1131 | 0.9100 | 9.88±3.60 | −0.1590 | 0.8737 | 10.26±5.18 | −0.4698 | 0.6386 | 10.68±5.03 | 0.3115 | 0.7555 |
| Mixed | 65.86±21.57 | | | 9.95±4.14 | | | 10.55±5.36 | | | 10.50±5.21 | | |
| Total | 65.83±21.36 | | | 9.94±4.08 | | | 10.51±5.34 | | | 10.52±5.19 | | |

SD=Standard deviation, SES=Socioeconomic status

**Table 2: Relationships between psychological well-being and its components with chronic diseases parameters by Karl Pearson's correlation coefficient**

| Variables | Summary | BMI | SBP | DBP | FBS | PPBS | HBA1C | Cholesterol |
|---|---|---|---|---|---|---|---|---|
| Psychological well-being | *r* | −0.41 | −0.12 | −0.18 | −0.56 | −0.53 | −0.63 | −0.25 |
| | *P* | 0.001* | 0.001* | 0.001* | 0.001* | 0.0001* | 0.0001* | 0.0001* |
| Autonomy | *r* | −0.39 | −0.16 | −0.27 | −0.56 | −0.53 | −0.63 | −0.31 |
| | *P* | 0.001* | 0.001* | 0.001* | 0.001* | 0.0001* | 0.0001* | 0.0001* |
| Environmental mastery | *r* | −0.21 | −0.13 | −0.50 | −0.31 | −0.29 | −0.38 | −0.24 |
| | *P* | 0.001* | 0.001* | 0.001* | 0.001* | 0.001* | 0.0001* | 0.0001* |
| Personal growth | *r* | −0.26 | −0.14 | −0.20 | −0.46 | −0.42 | −0.50 | −0.33 |
| | *P* | 0.001* | 0.001* | 0.001* | 0.001* | 0.0001* | 0.0001* | 0.0001* |
| Positive relations with others | *r* | −0.39 | −0.16 | −0.28 | −0.57 | −0.52 | −0.60 | −0.26 |
| | *P* | 0.001* | 0.001* | 0.001* | 0.001* | 0.0001* | 0.0001* | 0.0001* |
| Purpose in life | *r* | −0.34 | −0.08 | 0.01 | −0.28 | −0.30 | −0.43 | −0.16 |
| | *P* | 0.001* | 0.02* | 0.64 | 0.001* | 0.0001* | 0.0001* | 0.0001* |
| Self-acceptance | *r* | −0.35 | −0.16 | −0.17 | −0.59 | −0.53 | −0.59 | −0.31 |
| | *P* | 0.001* | 0.001* | 0.001* | 0.001* | 0.0001* | 0.0001* | 0.0001* |

**P*<0.05. SBP=Systolic blood pressure, DBP=Diastolic blood pressure, BMI=Body mass index, FBS=Fasting blood sugar, PPBS=Postprandial blood sugar, HBA1C=Glycated hemoglobin

due to, better management of the same, with improvements in medical technology. However, these conditions can adversely affect their quality of life. The majority of chronic diseases hold the potential to worsen the overall health of patients by limiting their capacity to live well by psychologically and are a major contributor to health care costs.

Psychological well-being in chronic disease people is a complex personal phenomenon formed in the process of

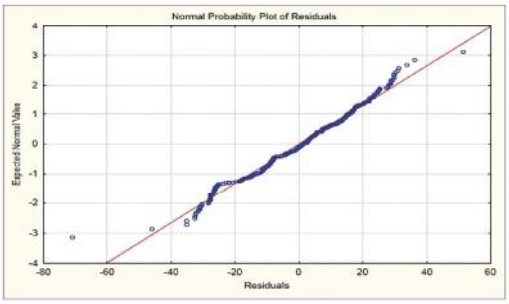


**Figure 1: Normal probability curve of residuals of psychological well-being scores**

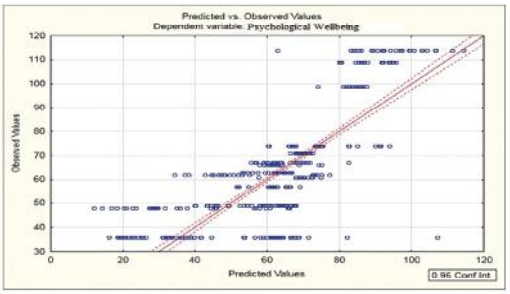


**Figure 2: Correlation between predicted versus observed psychological well-being scores**

life activity and in the system of real relationships with others. Our study showed that the mean psychological well-being score was significantly higher in the 20–29 age group (69.52 ± 24.19) and in females (66.01 ± 21.73). The comparative study conducted in Haripur district also has showed that the mean Ryff psychological well-being measurement scale (RPWMS) score was significantly higher (197.41 ± 42.09) for children from the joint family system than from the single-family system (175.80 ± 40.53).[6]

Validation study for a self-report measure of well-being conducted in Tokyo city, Japan, in 2008, revealed some significant differences among variables such as high autonomy in males and high personal growth in workers.[7]

The study showed a significant and negative relationship between psychological well-being with parameters of chronic diseases. Psychological well-being with parameters of chronic diseases is dependent on each other. Similarly, similar findings have obtained the relationships between components of psychological well-being, i.e. autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance with parameters of chronic diseases, except diastolic BP with purpose in life.

## Conclusions

The present study shows that there is a significant and negative relationship between psychological well-being with parameters of chronic diseases. HBA1C and PPBS contribute better toward a psychological well-being of patients than other parameters of chronic diseases. Chronic diseases are affecting the psychological well-being of people who are attending executive health checkups. This finding emphasizes the need for screening for psychological well-being of people with chronic disease and identifying people who need further intervention. Hence, efforts should be made to provide regular counseling by professional counselors at the hospital and support from family for the promotion of their overall health.

**Table 3: Multiple linear regression analysis of psychological well-being by chronic diseases parameters**

| Independent variables | Estimates | SE estimate | *t* | *P* |
|---|---|---|---|---|
| Intercept | 331.1862 | 12.0701 | 27.4385 | 0.0001* |
| BMI | −0.1378 | 0.0499 | −2.7626 | 0.0059* |
| SBP | −0.0368 | 0.0249 | −1.4810 | 0.1390 |
| DBP | −0.7161 | 0.0535 | −13.3744 | 0.0001* |
| FBS | −0.2030 | 0.0353 | −5.7437 | 0.0001* |
| PPBS | 0.2727 | 0.0348 | 7.8398 | 0.0001* |
| HBA1C | −30.8144 | 2.3087 | −13.3469 | 0.0001* |
| Cholesterol | −0.0682 | 0.0111 | −6.1437 | 0.0001* |

*$P$<0.05. $R$=0.7624, $R^2$=0.5813, Adjusted $R^2$=0.5774, $F$ (7.760)=150.75 $P$<0.05, SE of estimate: 14.976. SE=Standard error, SBP=Systolic blood pressure, DBP=Diastolic blood pressure, BMI=Body mass index, FBS=Fasting blood sugar, PPBS=Postprandial blood sugar, HBA1C=Glycated hemoglobin

**Table 4: Relative contribution of chronic diseases parameters on psychological well-being**

| Chronic parameters | Beta coefficients | *r* | Beta×*r* | Percentage of contribution |
|---|---|---|---|---|
| BMI | −0.0769 | −0.4168 | 0.03 | 3.21 |
| SBP | −0.0356 | −0.1274 | 0.00 | 0.45 |
| DBP | −0.3186 | −0.1863 | 0.06 | 5.93 |
| FBS | −0.3076 | −0.5663 | 0.17 | 17.42 |
| PPBS | 0.5600 | −0.5302 | −0.30 | −29.69 |
| HBA1C | −0.8351 | −0.6362 | 0.53 | 53.13 |
| Cholesterol | −0.1506 | −0.2560 | 0.04 | 3.86 |
| Total | | | 0.54 | 54.31 |

SBP=Systolic blood pressure, DBP=Diastolic blood pressure, BMI=Body mass index, FBS=Fasting blood sugar, PPBS=Postprandial blood sugar, HBA1C=Glycated hemoglobin

## Limitation

In the present hospital-based study, therefore findings are not to be generalized to the community. The study focused on the correlation between pathological well-being and chronic diseases in executive health checkup unit and interventions were not mentioned.

**Financial support and sponsorship**

Nil.

**Conflicts of interest**

There are no conflicts of interest.

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## Annexure

1. "I like most parts of my personality."
   Strongly agree. Somewhat agree. A little agree. Neither agree nor disagree.
   A little disagree. Somewhat disagree. Strongly disagree.
2. "When I look at the story of my life, I am pleased with how things have turned out so far."
   Strongly agree. Somewhat agree. A little agree. Neither agree nor disagree.
   A little disagree. Somewhat disagree. Strongly disagree.
3. "Some people wander aimlessly through life, but I am not one of them."
   Strongly agree. Somewhat agree. A little agree. Neither agree nor disagree.
   A little disagree. Somewhat disagree. Strongly disagree.
4. "The demands of everyday life often get me down."
   Strongly agree. Somewhat agree. A little agree. Neither agree nor disagree.
   A little disagree. Somewhat disagree. Strongly disagree.
5. "In many ways I feel disappointed about my achievements in life."
   Strongly agree. Somewhat agree. A little agree. Neither agree nor disagree.
   A little disagree. Somewhat disagree. Strongly disagree.
6. "Maintaining close relationships has been difficult and frustrating for me."
   Strongly agree. Somewhat agree. A little agree. Neither agree nor disagree.
   A little disagree. Somewhat disagree. Strongly disagree.
7. "I live life one day at a time and don't really think about the future."
   Strongly agree. Somewhat agree. A little agree. Neither agree nor disagree.
   A little disagree. Somewhat disagree. Strongly disagree.
8. "In general, I feel I am in charge of the situation in which I live."
   Strongly agree. Somewhat agree. A little agree. Neither agree nor disagree.
   A little disagree. Somewhat disagree. Strongly disagree.
9. "I am good at managing the responsibilities of daily life."
   Strongly agree. Somewhat agree. A little agree. Neither agree nor disagree.
   A little disagree. Somewhat disagree. Strongly disagree.
10. "I sometimes feel as if I've done all there is to do in life."
    Strongly agree. Somewhat agree. A little agree. Neither agree nor disagree.
    A little disagree. Somewhat disagree. Strongly disagree.
11. "For me, life has been a continuous process of learning, changing, and growth."
    Strongly agree. Somewhat agree. A little agree. Neither agree nor disagree.
    A little disagree. Somewhat disagree. Strongly disagree.
12. "I think it is important to have new experiences that challenge how I think about myself and the world."
    Strongly agree. Somewhat agree. A little agree. Neither agree nor disagree.
    A little disagree. Somewhat disagree. Strongly disagree.
13. "People would describe me as a giving person, willing to share my time with others.
    Strongly agree. Somewhat agree. A little agree. Neither agree nor disagree.
    A little disagree. Somewhat disagree. Strongly disagree.
14. "I gave up trying to make big improvements or changes in my life a long time ago"
    Strongly agree. Somewhat agree. A little agree. Neither agree nor disagree.
    A little disagree. Somewhat disagree. Strongly disagree.
15. "I tend to be influenced by people with strong opinions"
    Strongly agree. Somewhat agree. A little agree. Neither agree nor disagree.
    A little disagree. Somewhat disagree. Strongly disagree.
16. "I have not experienced many warm and trusting relationships with others."
    Strongly agree. Somewhat agree. A little agree. Neither agree nor disagree.
    A little disagree. Somewhat disagree. Strongly disagree.
17. "I have confidence in my own opinions, even if they are different from the way most other people think."
    Strongly agree. Somewhat agree. A little agree. Neither agree nor disagree.
    A little disagree. Somewhat disagree. Strongly disagree.
18. "I judge myself by what I think is important, not by the values of what others think is important."
    Strongly agree. Somewhat agree. A little agree. Neither agree nor disagree.
    A little disagree. Somewhat disagree. Strongly disagree.


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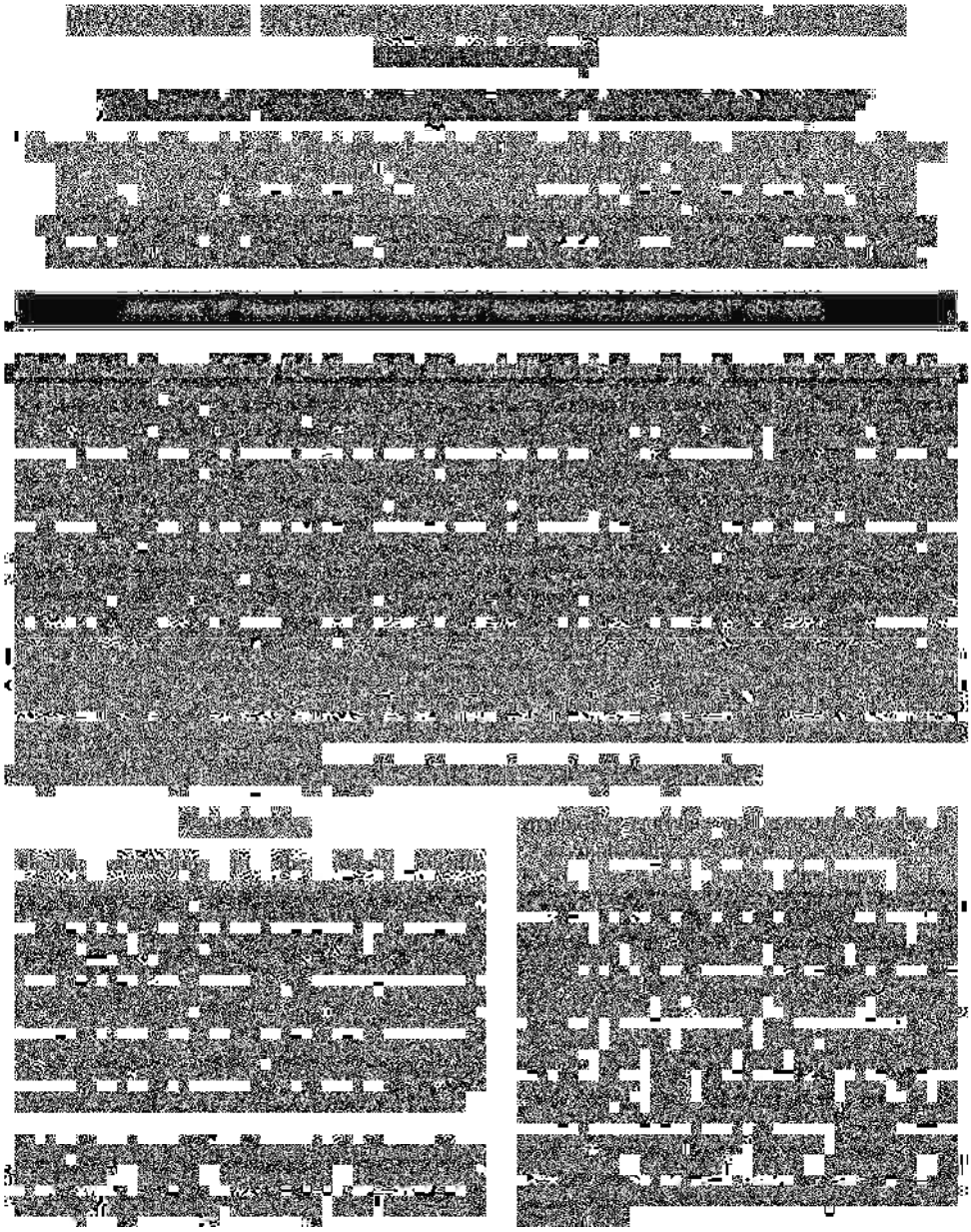
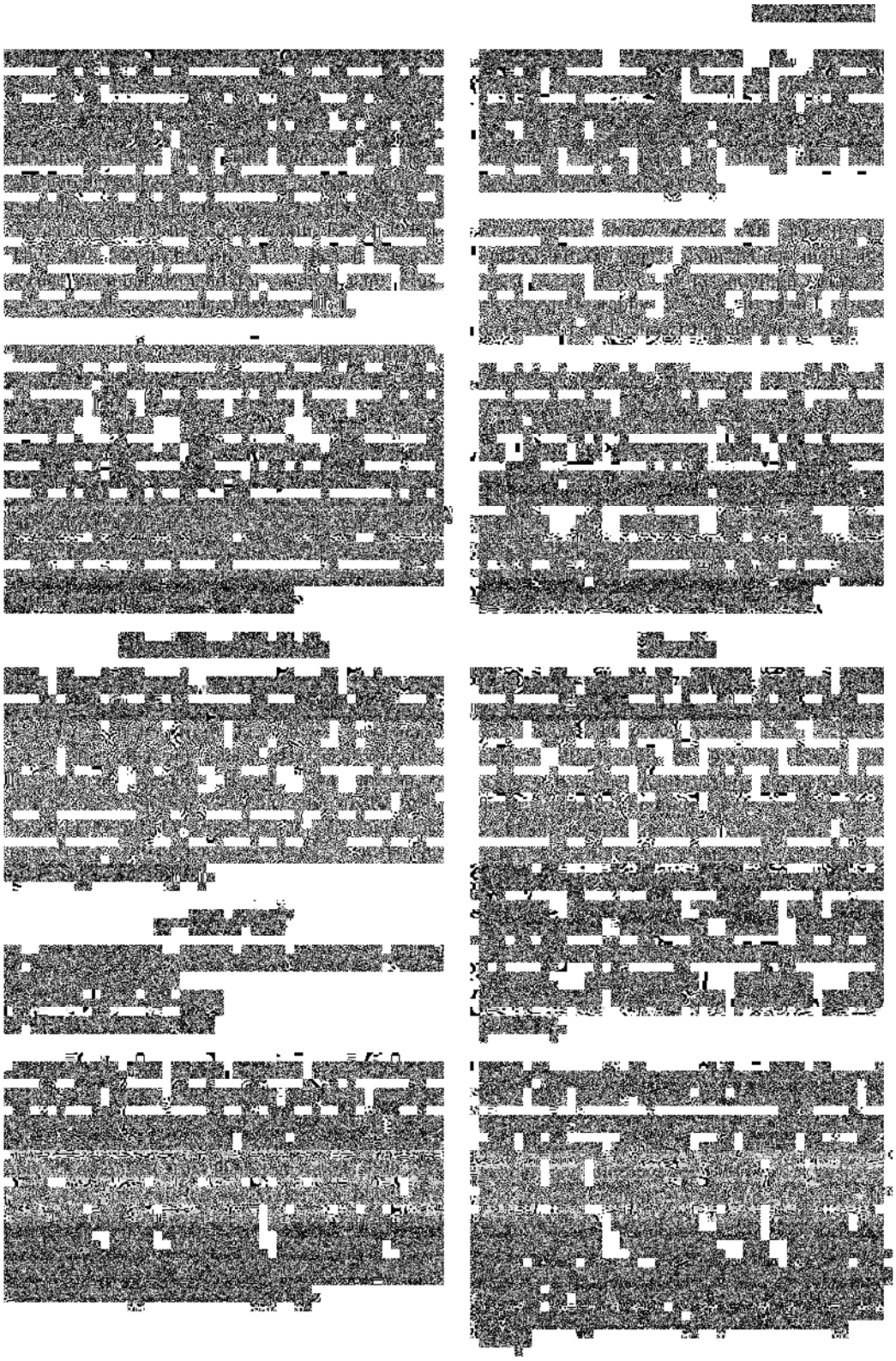
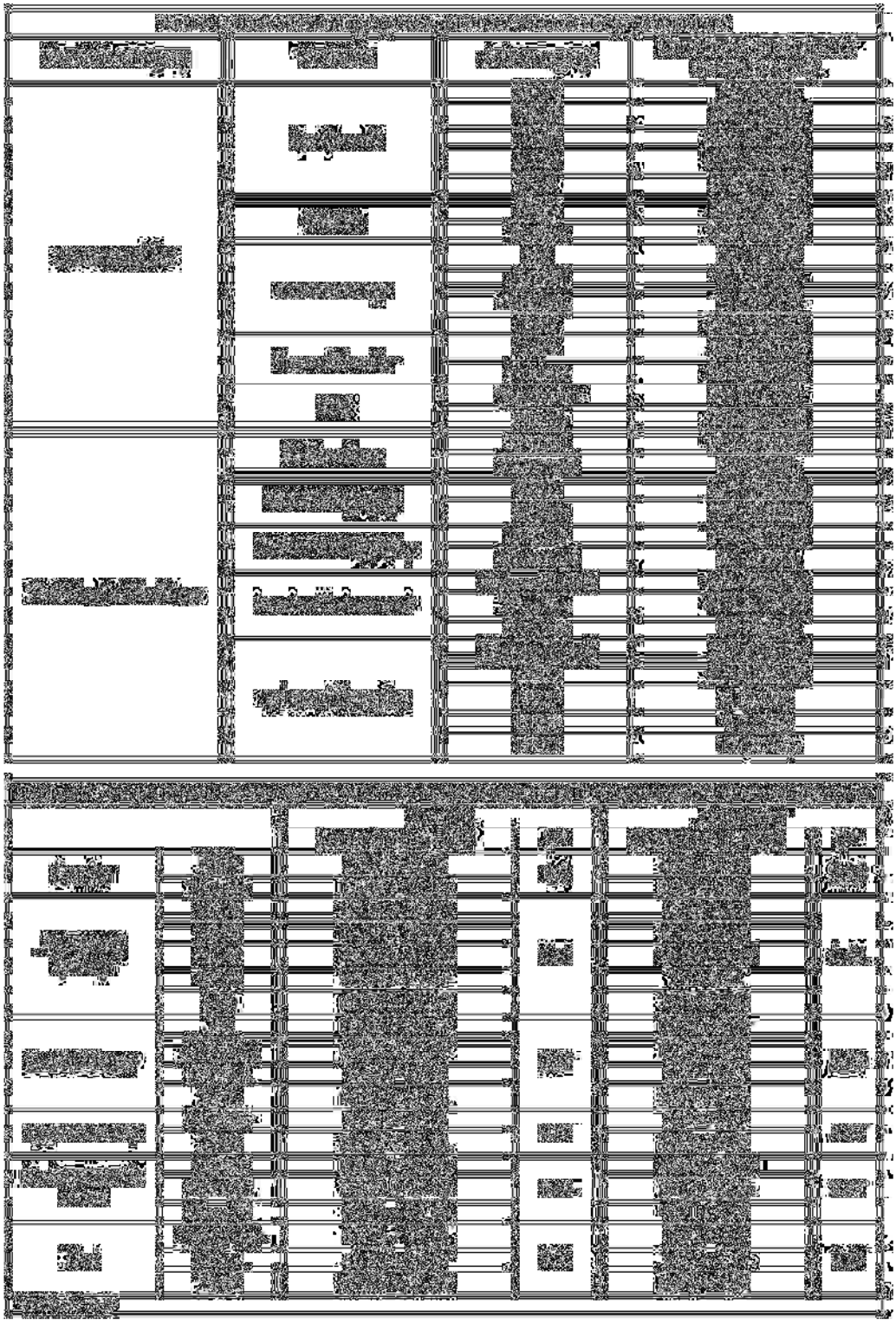
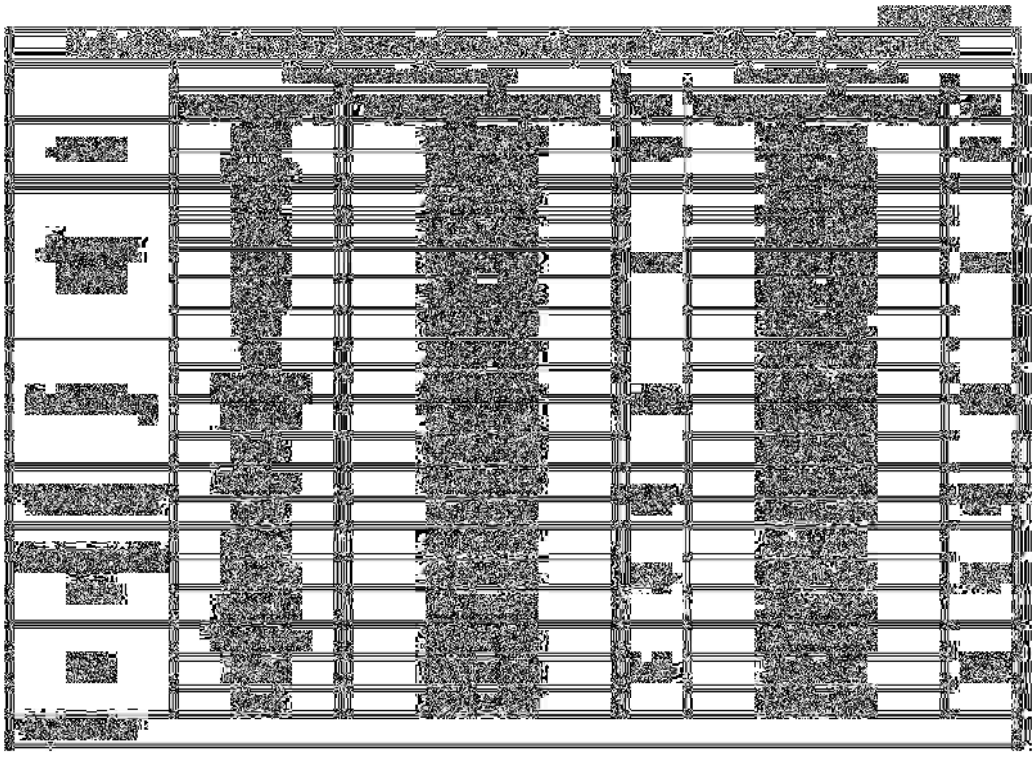
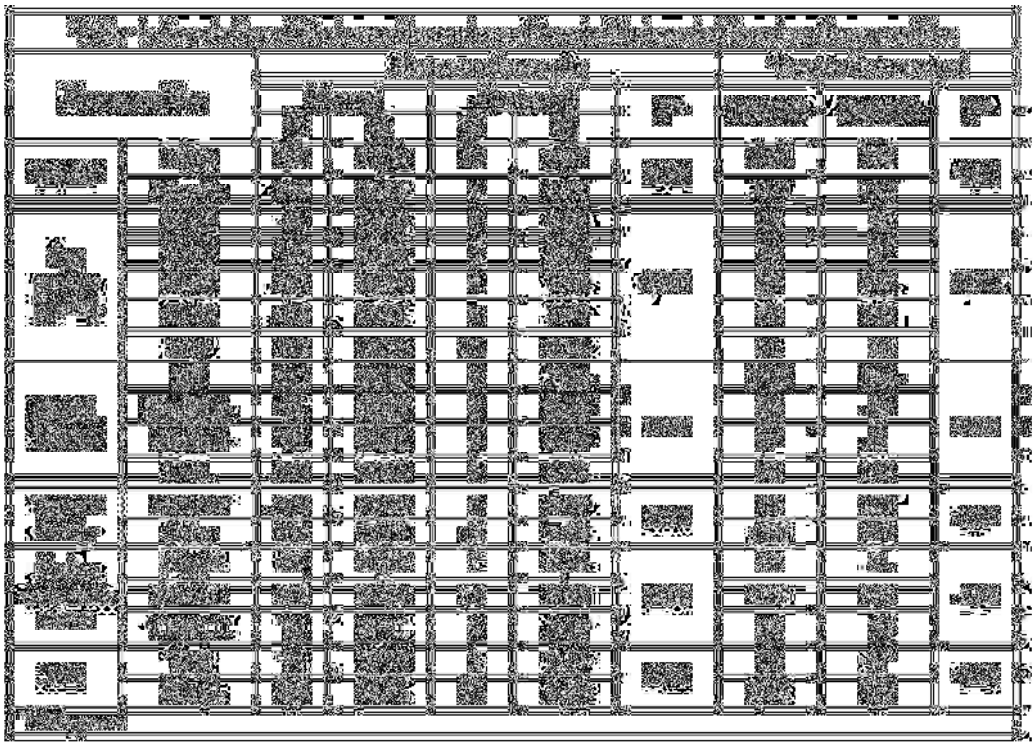
ORIGINAL ARTICLE

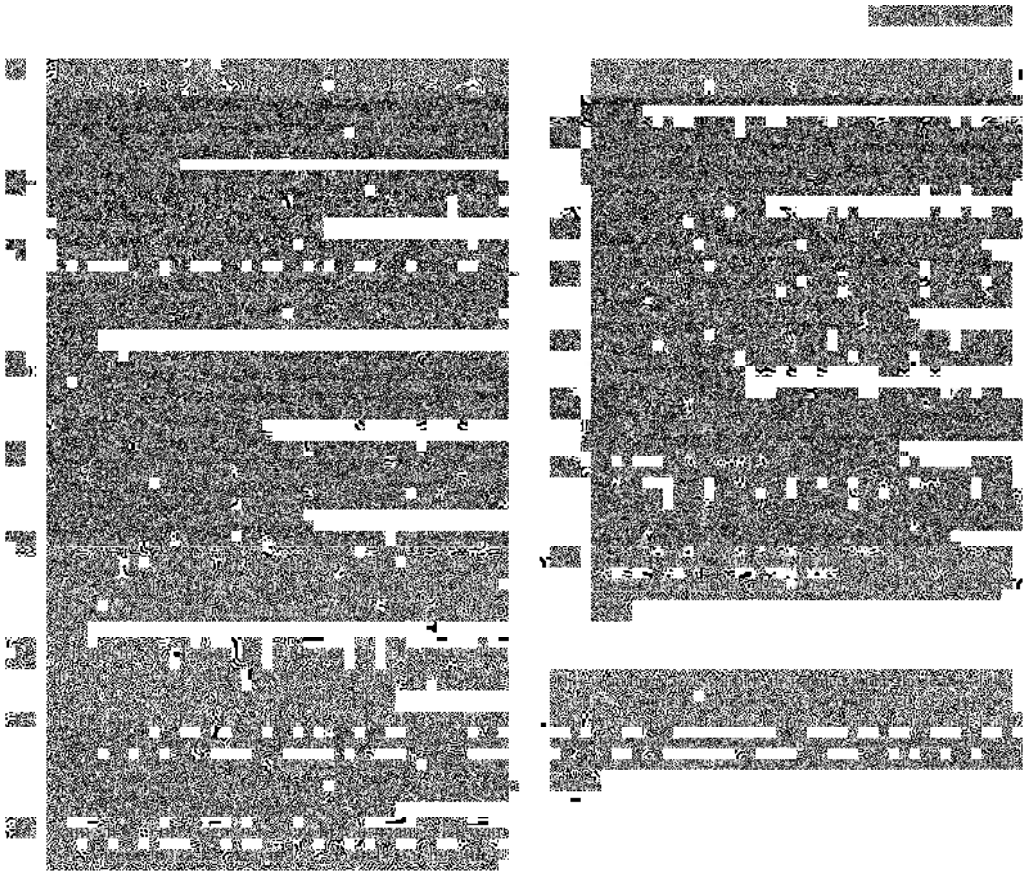










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# Sociopsychological and biochemical determinants of health and disease in executive health check-up

A. B. Kudachi, M. B. Nagmoti[1], S. K. Rajshree[2], R. S. Mudhol[3]

**Abstract:**

**BACKGROUND:** Preventive health check-ups are known to be associated with significant reductions in morbidity, mortality, and economic costs related to various diseases, especially chronic lifestyle diseases that progress silently.

**OBJECTIVE:** The objective is to evaluate the sociopsychological and biochemical issues of health and disease in executive health check-up as well as to employ them for encouraging people to utilize the available preventive health services.

**MATERIALS AND METHODS:** This cross-sectional study enrolled 768 individuals aged >20 years, irrespective of their gender, reporting for an executive health check-up and evaluated their demographic profile, morbidity, type of family, diet and socioeconomic status, biochemical profiling, and sociopsychological features. The data were statistically analyzed using correlations among different variables by Karl Pearson's correlation coefficient method. $P < 0.05$ and 0.001 indicated statistical significance.

**RESULTS:** The participants had a mean age of 48.24 ± 12.84 years and a Male and Female ratio of nearly 2:1. The demographic parameters showed a significant association with the different levels of biochemical parameters ($P < 0.05/0.001$).

**CONCLUSION:** There exist significant correlations between sociopsychological, and biochemical determinants of health and disease in executive health check-up. These incite the need for utilizing preventive/precautionary health services and early detection of disease status is speculative. There is uncertainty among the public and health-care professionals in utilizing these preventive health-care services in a beneficial, judicious, as well as in cost-effective manner.

**Keywords:**

Demography, disease, health promotion, health, preventive health services, psychology

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## Introduction

The World Health Organization defines health as a state of complete, mental and social well-being and not merely the absence of disease or infirmity.[1,2] Any deviation from this state of health is referred to as disease/illness/sickness.[3] Every human has the fundamental right to enjoy the highest attainable standard of health.[4] However, owing to the current lifestyle, food habits, lack of exercise, stress and neglect, vulnerability to many diseases like diabetes, hypertension, dyslipidemia, coronary artery disease, and malignancy have increased tremendously.[5-8]

Early detection of the disease in its latent phase facilitates timely therapeutic interventions, thereby significantly reducing the associated morbidity, mortality, and economic burden.[5-8] Preventive health check-ups (PHC) have widely been adopted by many health-care centers toward this



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goal.[6,7] Periodic health examinations also provide opportunities to review patients' ongoing medical issues, counsel them on preventive health and improve the physician–patient relationship.[9] Moreover, modeling analyses have shown a significant decline in mortality associated with coronary heart disease (CHD) due to a reduction in cardiovascular risk factors and timely CHD management.[10-13]

However, there is uncertainty among the public as well as the health-care professionals regarding the effectiveness and the feasibility of utilizing these services in a beneficial, judicious, and cost-effective manner.[14,15] This concern has been countered by other researchers who reported higher mortality rates in the absence of regular PHC and increased survival in cases of routine PHC.[16,17] They also assert that preventive health services reduce eventual demand for medical care, thus, enhancing the economic efficiency.[17]

Therefore, PHCs are integral to health promotion, especially in the current scenario of silent killer diseases.[18] Previous studies have evaluated various PHC parameters independently; correlating them to risk of various diseases and conditions. The need for a holistic PHC protocol motivated the designing of the present research that aimed to evaluate the socio-psychological, biochemical profiling of health and disease in executive health check-up, as well as to employ them for encouraging people to utilize preventive health services.

## Materials and Methods

This hospital-based, cross-sectional study was conducted at a tertiary care hospital in Belagavi, Karnataka, India, from July 2019 to January 2020, after obtaining ethical clearance from the Institutional Review Board Ethical committee (Humans) KAHER, Belagavi. Ref. No.KAHER/ Ehtics/2018-19/ D-128 dated 29.5.2018. The minimum sample size required was calculated to be 664, based on a study by Ramesh *et al*., who found the prevalence of hypertension to be 52%, using the following formula $n = (Z^2 \times PQ)/d^2$ [where, Z = standard normal variables (99% confidence) =2.25; *P* = prevalence = 52%; Q = 100-P = 100-52 = 48%; and d = acceptable errors = 0 5%].[19]

Accordingly, the study enrolled 768 individuals aged >20 years, irrespective of their gender, reporting for an executive health check-up to the afore-mentioned hospital, after obtaining written informed consent from them. Individuals with age <20 years, pre-existing disease or condition and with lack of will to participate in the study were excluded. The following parameters were recorded from all the participants. Executive health check-up was conducted on demand of the patient.

### Demographic determinants

A detailed history was recorded from all participants including demographic parameters such as age, gender, social history (alcoholism and/or smoking habit), type of family, diet, and socioeconomic status (SES).[20]

### Biochemical determinants

Venipuncture was performed on the participants under complete aseptic conditions and the collected blood samples were sent to the laboratory for biochemical investigations including assessment of hemoglobin (Hb), fasting blood sugar (FBS), postprandial blood sugar (PPBS), glycated hemoglobin (HbA1c), cholesterol, high-density lipoprotein (HDL), low-density lipoprotein (LDL), triglyceride (TG), serum glutamic pyruvic transaminase (SGPT), serum glutamic-oxaloacetic transaminase (SGOT), and thyroid-stimulating hormone (TSH) levels. Renal function test and urine analysis were also performed.

### Sociopsychological determinants

All participants underwent an assessment of their psychological wellbeing along with its components including autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. Higher scores implied higher levels of psychological wellbeing.[21,22]

### Statistical analysis

Data were compiled and analyzed using statistical software R version 3.6.3 (R foundation for statistical computing Vienna, Austria) and Microsoft Excel. Categorical variables were presented in the form of frequency table. Continuous variables were presented in mean ± SD form. The data were statistically analyzed using correlations among different variables by Karl Pearson's correlation coefficient method. $P < 0.05$ indicated statistical significance. $P < 0.05$ was considered statistically significant.

## Results

The study included 768 participants with a mean age of 67.06 ± 32.94 years and a M:F ratio of nearly 2:1. Table 1 presents the descriptive statistics/frequency distribution of the various study parameters. Majority of the participants were aged between 40 and 59 years (31.12%), with the minimum and maximum ages observed to be 20 years and 60 years, respectively. Table 2 summarizes the mean values of the various study parameters.

Further tables present the comparative analysis between the demographic profile and the biochemical parameters which included gender (M:F), age (>20), social history (smoking, alcohol, both), type of family (nuclear,

**Table 1: Demographic profile of patients**

| Demographic profile | Number of patients, *n* (%) |
|---|---|
| Gender | |
| Male | 515 (67.06) |
| Female | 253 (32.94) |
| Age groups (years) | |
| 20-29 | 46 (5.99) |
| 30-39 | 145 (18.88) |
| 40-49 | 235 (30.60) |
| 50-59 | 223 (29.04) |
| ≥60 | 119 (15.49) |
| Social history | |
| Nil | 384 (50.00) |
| Smoking | 77 (10.03) |
| Alcohol | 77 (10.03) |
| Both | 230 (29.95) |
| Type of family | |
| Nuclear | 230 (29.95) |
| Joint | 538 (70.05) |
| SES | |
| Class I | 40 (5.21) |
| Class II | 651 (84.77) |
| Class III | 77 (10.03) |
| Diet | |
| Vegetarian | 88 (11.46) |
| Mixed | 680 (88.54) |
| Total | 768 (100.00) |

SES: Socioeconomic status

joint), SES (Class I, II, and III), and diet (vegetarian, mixed). Table 3 depicts the comparison of demographic profiles with Hb%. Using one-way ANOVA and Chi-square test, no significant difference was noted in the mean of Hb% and their components over demographic parameters such as gender, age, and social history, type of family, SES, and diet. The demographic profile and the status of HBA1C (normal: Prediabetic: Diabetic) showed significant association ($P < 0.05$) [Table 4].

The demographic profile and the status of cholesterol, HDL, LDL, and TG as shown in Tables 5-8, respectively, showed no significant association when Chi-square test and *P* value test were employed.

Table 9 shows the association of demographic profile and status of renal FT. Participants with vegetarian diet showed a significant positive association ($P < 0.05$) and Table 10 shows the association of demographic profile and status of TSH with no significant association between different profiles.

Table 11 summarizes the correlations among different variables (Karl Pearson's correlation coefficient method). A significant positive correlation was observed between FBS and PPBS ($P < 0.01$), HBA1C and FBS and also PPBS ($P < 0.01$), SGOT and SGPT ($P < 0.01$), Renal FT and SGOT ($P < 0.005$).

**Table 2: Morbidity profile of patients**

| Morbidity profile | Number of patients, *n* (%) |
|---|---|
| Hb | |
| Normal | 684 (89.06) |
| Mild | 69 (8.98) |
| Moderate | 15 (1.95) |
| Urine | |
| Normal | 614 (79.95) |
| Abnormal | 154 (20.05) |
| FBS | |
| 1 | 461 (60.03) |
| 2 | 230 (29.95) |
| 3 | 77 (10.03) |
| PPBS | |
| 1 | 441 (57.42) |
| 2 | 153 (19.92) |
| 3 | 174 (22.66) |
| HbA1c | |
| Normal | 15 (1.95) |
| Prediabetic | 524 (68.23) |
| Diabetic | 229 (29.82) |
| Cholesterol | |
| Desirable | 520 (67.71) |
| Borderline | 73 (9.51) |
| High | 175 (22.79) |
| HDL | |
| Desirable | 349 (45.44) |
| Borderline | 210 (27.34) |
| High | 209 (27.21) |
| LDL | |
| Desirable | 381 (49.61) |
| Borderline | 194 (25.26) |
| High | 193 (25.13) |
| TG | |
| Desirable | 65 (8.46) |
| Borderline | 350 (45.57) |
| High | 353 (45.96) |
| SGPT | |
| Normal | 435 (56.64) |
| Not normal | 333 (43.36) |
| SGOT | |
| Normal | 374 (48.70) |
| Not normal | 394 (51.30) |
| RFT | |
| 0.60-1.20 | 565 (73.57) |
| >1.20 | 203 (26.43) |
| TSH | |
| 4.2 | 649 (84.51) |
| >4.3 | 119 (15.49) |
| Total | 768 (100.00) |

Hb: Hemoglobin, FBS: Fasting blood sugar, PPBS: Postprandial blood sugar, HbA1c: Glycated hemoglobin, HDL: High-density lipoprotein, LDL: Low density lipoprotein, SGPT: Serum glutamic pyruvic transaminase, SGOT: Serum glutamic-oxaloacetic transaminase, RFT: Renal function test, TSH: Thyroid-stimulating hormone, TG: Triglyceride

## Discussion

Preventive health check-ups are known to be associated

**Table 3: Association between demographic profile and status of hemoglobin percentage**

| Profile | Normal (%) | Mild (%) | Moderate (%) | >120 | $\chi^2$ | *P* |
|---|---|---|---|---|---|---|
| Gender | | | | | | |
| Male | 459 (89.13) | 48 (9.3) | 8 (1.5) | 515 | 1.4760 | 0.4780 |
| Female | 225 (88.93) | 21 (8.3) | 7 (5.7) | 253 | | |
| Age groups (years) | | | | | | |
| 20-29 | 42 (91.3) | 4 (8.7) | 0 | 46 | 5.5720 | 0.6950 |
| 30-39 | 135 (93.1) | 8 (5.5) | 2 (1.4) | 145 | | |
| 40-49 | 204 (86.1) | 26 (11.1) | 5 (2.1) | 235 | | |
| 50-59 | 198 (88.8) | 19 (8.5) | 6 (2.7) | 223 | | |
| ≥60 | 105 (88.24) | 12 (10.1) | 2 (1.7) | 119 | | |
| Social history | | | | | | |
| Nil | 351 (91.4) | 26 (6.8) | 7 (1.8) | 384 | 6.5200 | 0.3680 |
| Smoking | 69 (89.6) | 6 (7.8) | 2 (2.6) | 77 | | |
| Alcohol | 66 (85.7) | 10 (12.9) | 1 (1.3) | 77 | | |
| Both | 198 (86.1) | 27 (11.7) | 5 (2.2) | 230 | | |
| Type of family | | | | | | |
| Nuclear | 205 (89.1) | 20 (8.7) | 5 (2.2) | 230 | 0.1130 | 0.9450 |
| Joint | 479 (89.0) | 49 (9.1) | 10 (1.9) | 538 | | |
| SES | | | | | | |
| Class I | 35 (87.5) | 5 (12.5) | 0 | 40 | 1.6410 | 0.8010 |
| Class II | 580 (89.1) | 58 (8.9) | 13 (2) | 651 | | |
| Class III | 69 (89.6) | 6 (7.8) | 2 (2.6) | 77 | | |
| Diet | | | | | | |
| Vegetarian | 77 (87.5) | 8 (9.1) | 3 (3.4) | 88 | 1.1070 | 0.5750 |
| Mixed | 607 (89.3) | 61 (8.9) | 12 (1.8) | 680 | | |
| Total | 684 (89.1) | 69 (8.9) | 15 (1.9) | 768 | | |

SES: Socioeconomic status

**Table 4: Association between demographic profile and status of glycated hemoglobin**

| Profile | Normal (%) | Prediabetic (%) | Diabetic (%) | Total | $\chi^2$ | *P* |
|---|---|---|---|---|---|---|
| Gender | | | | | | |
| Male | 8 (1.5) | 352 (68.4) | 155 (30.1) | 515 | 1.3230 | 0.5160 |
| Female | 7 (2.8) | 172 (67.9) | 74 (29.2) | 253 | | |
| Age groups (years) | | | | | | |
| 20-29 | 2 (4.4) | 31 (67.4) | 13 (28.2) | 46 | 3.9650 | 0.8600 |
| 30-39 | 3 (2.1) | 96 (66.2) | 46 (31.8) | 145 | | |
| 40-49 | 5 (2.1) | 162 (68.9) | 68 (28.9) | 235 | | |
| 50-59 | 4 (1.8) | 148 (66.4) | 71 (31.8) | 223 | | |
| ≥60 | 1 (0.8) | 87 (73.1) | 31 (26.0) | 119 | | |
| Social history | | | | | | |
| Nil | 15 (3.9) | 293 (76.3) | 76 (19.8) | 384 | 246.554 | 0.0001* |
| Smoking | 0 | 0 | 77 (100) | 77 | | |
| Alcohol | 0 | 77 (100) | 0 | 77 | | |
| Both | 0 | 154 (66.9) | 76 (33.0) | 230 | | |
| Type of family | | | | | | |
| Nuclear | 14 (6.1) | 140 (60.9) | 76 (33.0) | 230 | 32.4790 | 0.0001* |
| Joint | 1 (0.2) | 384 (71.4) | 153 (28.4) | 538 | | |
| SES | | | | | | |
| Class I | 1 (2.5) | 36 (90) | 3 (7.5) | 40 | 40.3730 | 0.0001* |
| Class II | 12 (1.8) | 416 (63.9) | 223 (34.3) | 651 | | |
| Class III | 2 (2.6) | 72 (93.5) | 3 (3.9) | 77 | | |
| Diet | | | | | | |
| Vegetarian | 1 (1.1) | 58 (65.9) | 29 (32.9) | 88 | 0.7460 | 0.6890 |
| Mixed | 14 (2.1) | 466 (68.5) | 200 (29.4) | 680 | | |
| Total | 15 (1.9) | 524 (68.2) | 229 (29.8) | 768 | | |

*$P<0.05$. SES: Socioeconomic status

**Table 5: Association between demographic profile and status of cholesterol**

| Profile | Desirable (%) | Borderline (%) | High (%) | Total | $\chi^2$ | *P* |
|---|---|---|---|---|---|---|
| Gender | | | | | | |
| Male | 343 (66.6) | 51 (9.90) | 121 (23.50) | 515 | 0.8870 | 0.6 |
| Female | 177 (69.9) | 22 (8.70) | 54 (21.34) | 253 | | |
| Age groups (years) | | | | | | |
| 20-29 | 33 (71.74) | 5 (10.87) | 8 (17.39) | 46 | 8.4650 | 0.3 |
| 30-39 | 98 (67.59) | 13 (8.97) | 34 (23.45) | 145 | | |
| 40-49 | 160 (68.09) | 25 (10.64) | 50 (21.28) | 235 | | |
| 50-59 | 155 (69.51) | 13 (5.83) | 55 (24.66) | 223 | | |
| ≥60 | 74 (62.18) | 17 (14.29) | 28 (23.53) | 119 | | |
| Social history | | | | | | |
| Nil | 259 (67.45) | 40 (10.42) | 85 (22.14) | 384 | 5.3040 | 0.5 |
| Smoking | 50 (64.94) | 7 (9.09) | 20 (25.97) | 77 | | |
| Alcohol | 60 (77.92) | 5 (6.49) | 12 (15.58) | 77 | | |
| Both | 151 (65.65) | 21 (9.13) | 58 (25.22) | 230 | | |
| Type of family | | | | | | |
| Nuclear | 159 (69.13) | 22 (9.57) | 49 (21.30) | 230 | 0.4160 | 0.8 |
| Joint | 361 (67.10) | 51 (9.48) | 126 (23.42) | 538 | | |
| SES | | | | | | |
| Class I | 25 (62.50) | 4 (10.00) | 11 (27.50) | 40 | 1.1060 | 0.8 |
| Class II | 440 (67.59) | 62 (9.52) | 149 (22.89) | 651 | | |
| Class III | 55 (71.43) | 7 (9.09) | 15 (19.48) | 77 | | |
| Diet | | | | | | |
| Vegetarian | 55 (62.50) | 9 (10.23) | 24 (27.27) | 88 | 1.3310 | 0.5 |
| Mixed | 465 (68.38) | 64 (9.41) | 151 (22.21) | 680 | | |
| Total | 520 (67.71) | 73 (9.51) | 175 (22.79) | 768 | | |

SES: Socioeconomic status

**Table 6: Association between demographic profile and status of high-density lipoprotein**

| Profile | Desirable (%) | Borderline (%) | High (%) | Total | $\chi^2$ | *P* |
|---|---|---|---|---|---|---|
| Gender | | | | | | |
| Male | 239 (46.41) | 144 (27.96) | 132 (25.63) | 515 | 1.9770 | 0.37 |
| Female | 110 (43.48) | 66 (26.09) | 77 (30.43) | 253 | | |
| Age groups (years) | | | | | | |
| 20-29 | 20 (43.48) | 10 (21.74) | 16 (34.78) | 46 | 11.9520 | 0.15 |
| 30-39 | 65 (44.83) | 48 (33.10) | 32 (22.07) | 145 | | |
| 40-49 | 110 (46.81) | 65 (27.66) | 60 (25.53) | 235 | | |
| 50-59 | 90 (40.36) | 63 (28.25) | 70 (31.39) | 223 | | |
| ≥60 | 64 (53.78) | 24 (20.17) | 31 (26.05) | 119 | | |
| Social history | | | | | | |
| Nil | 176 (45.83) | 103 (26.82) | 105 (27.34) | 384 | 0.2670 | 1.0 |
| Smoking | 34 (44.16) | 22 (28.57) | 21 (27.27) | 77 | | |
| Alcohol | 34 (44.16) | 21 (27.27) | 22 (28.57) | 77 | | |
| Both | 105 (45.65) | 64 (27.83) | 61 (26.52) | 230 | | |
| Type of family | | | | | | |
| Nuclear | 101 (43.91) | 64 (27.83) | 65 (28.26) | 230 | 0.3290 | 0.84 |
| Joint | 248 (46.10) | 146 (27.14) | 144 (26.77) | 538 | | |
| SES | | | | | | |
| Class I | 18 (45.00) | 9 (22.50) | 13 (32.50) | 40 | 2.1700 | 0.70 |
| Class II | 298 (45.78) | 182 (27.96) | 171 (26.27) | 651 | | |
| Class III | 33 (42.86) | 19 (24.68) | 25 (32.47) | 77 | | |
| Diet | | | | | | |
| Vegetarian | 41 (46.59) | 22 (25.00) | 25 (28.41) | 88 | 0.2810 | 0.86 |
| Mixed | 308 (45.29) | 188 (27.65) | 184 (27.06) | 680 | | |
| Total | 349 (45.44) | 210 (27.34) | 209 (27.21) | 768 | | |

SES: Socioeconomic status

**Table 7: Association between demographic profile and status of low-density lipoprotein**

| Profile | Desirable (%) | Borderline (%) | High (%) | Total | $\chi^2$ | *P* |
|---|---|---|---|---|---|---|
| Gender | | | | | | |
| Male | 241 (46.80) | 139 (26.99) | 135 (26.21) | 515 | 5.076 | 0.07 |
| Female | 140 (55.34) | 55 (21.74) | 58 (22.92) | 253 | | |
| Age groups (years) | | | | | | |
| 20-29 | 21 (45.65) | 11 (23.91) | 14 (30.43) | 46 | 10.034 | 0.26 |
| 30-39 | 82 (56.55) | 28 (19.31) | 35 (24.14) | 145 | | |
| 40-49 | 124 (52.77) | 60 (25.53) | 51 (21.70) | 235 | | |
| 50-59 | 101 (45.29) | 58 (26.01) | 64 (28.70) | 223 | | |
| ≥60 | 53 (44.54) | 37 (31.09) | 29 (24.37) | 119 | | |
| Social history | | | | | | |
| Nil | 194 (50.52) | 93 (24.22) | 97 (25.26) | 384 | 3.424 | 0.75 |
| Smoking | 42 (54.55) | 18 (23.38) | 17 (22.08) | 77 | | |
| Alcohol | 33 (42.86) | 25 (32.47) | 19 (24.68) | 77 | | |
| Both | 112 (48.70) | 58 (25.22) | 60 (26.09) | 230 | | |
| Type of family | | | | | | |
| Nuclear | 112 (48.70) | 62 (26.96) | 56 (24.35) | 230 | 0.509 | 0.77 |
| Joint | 269 (50.00) | 132 (24.54) | 137 (25.46) | 538 | | |
| SES | | | | | | |
| Class I | 23 (57.50) | 11 (27.50) | 6 (15.00) | 40 | 3.601 | 0.46 |
| Class II | 319 (49.00) | 161 (24.73) | 171 (26.27) | 651 | | |
| Class III | 39 (50.65) | 22 (28.57) | 16 (20.78) | 77 | | |
| Diet | | | | | | |
| Vegetarian | 40 (45.45) | 25 (28.41) | 23 (26.14) | 88 | 0.776 | 0.67 |
| Mixed | 341 (50.15) | 169 (24.85) | 170 (25.00) | 680 | | |
| Total | 381 (49.61) | 194 (25.26) | 193 (25.13) | 768 | | |

SES: Socioeconomic status

**Table 8: Association between demographic profile and status of triglyceride**

| Profile | Desirable (%) | Borderline (%) | High (%) | Total | $\chi^2$ | *P* |
|---|---|---|---|---|---|---|
| Gender | | | | | | |
| Male | 42 (8.16) | 245 (47.57) | 228 (44.27) | 515 | 2.5210 | 0.28 |
| Female | 23 (9.09) | 105 (41.50) | 125 (49.41) | 253 | | |
| Age groups (years) | | | | | | |
| 20-29 | 2 (4.35) | 21 (45.65) | 23 (50.00) | 46 | 7.6870 | 0.46 |
| 30-39 | 12 (8.28) | 66 (45.52) | 67 (46.21) | 145 | | |
| 40-49 | 18 (7.66) | 119 (50.64) | 98 (41.70) | 235 | | |
| 50-59 | 22 (9.87) | 100 (44.84) | 101 (45.29) | 223 | | |
| ≥60 | 11 (9.24) | 44 (36.97) | 64 (53.78) | 119 | | |
| Social history | | | | | | |
| Nil | 34 (8.85) | 169 (44.01) | 181 (47.14) | 384 | 1.3370 | 0.97 |
| Smoking | 7 (9.09) | 36 (46.75) | 34 (44.16) | 77 | | |
| Alcohol | 6 (7.79) | 34 (44.16) | 37 (48.05) | 77 | | |
| Both | 18 (7.83) | 111 (48.26) | 101 (43.91) | 230 | | |
| Type of family | | | | | | |
| Nuclear | 21 (9.13) | 101 (43.91) | 108 (46.96) | 230 | 0.4410 | 0.80 |
| Joint | 44 (8.18) | 249 (46.28) | 245 (45.54) | 538 | | |
| SES | | | | | | |
| Class I | 4 (10.00) | 16 (40.00) | 20 (50.00) | 40 | 0.7260 | 0.94 |
| Class II | 55 (8.45) | 297 (45.62) | 299 (45.93) | 651 | | |
| Class III | 6 (7.79) | 37 (48.05) | 34 (44.16) | 77 | | |
| Diet | | | | | | |
| Vegetarian | 6 (6.82) | 46 (52.27) | 36 (40.91) | 88 | 1.8490 | 0.39 |
| Mixed | 59 (8.68) | 304 (44.71) | 317 (46.62) | 680 | | |
| Total | 65 (8.46) | 350 (45.57) | 353 (45.96) | 768 | | |

SES: Socioeconomic status

**Table 9: Association between demographic profile and status of renal function test**

| Profile | 0.60-1.20 (%) | >1.20 (%) | Total | $\chi^2$ | P |
|---|---|---|---|---|---|
| Gender | | | | | |
| Male | 371 (72.04) | 144 (27.96) | 515 | 1.8790 | 0.17 |
| Female | 194 (76.68) | 59 (23.32) | 253 | | |
| Age groups (years) | | | | | |
| 20-29 | 36 (78.26) | 10 (21.74) | 46 | 8.6470 | 0.07 |
| 30-39 | 117 (80.69) | 28 (19.31) | 145 | | |
| 40-49 | 174 (74.04) | 61 (25.96) | 235 | | |
| 50-59 | 160 (71.75) | 63 (28.25) | 223 | | |
| ≥60 | 78 (65.55) | 41 (34.45) | 119 | | |
| Social history | | | | | |
| Nil | 275 (71.61) | 109 (28.39) | 384 | 3.1700 | 0.36 |
| Smoking | 55 (71.43) | 22 (28.57) | 77 | | |
| Alcohol | 62 (80.52) | 15 (19.48) | 77 | | |
| Both | 173 (75.22) | 57 (24.78) | 230 | | |
| Type of family | | | | | |
| Nuclear | 172 (74.78) | 58 (25.22) | 230 | 0.2490 | 0.61 |
| Joint | 393 (73.05) | 145 (26.95) | 538 | | |
| SES | | | | | |
| Class I | 28 (70.00) | 12 (30.0) | 40 | 0.3840 | 0.82 |
| Class II | 479 (73.58) | 172 (26.42) | 651 | | |
| Class III | 58 (75.32) | 19 (24.68) | 77 | | |
| Diet | | | | | |
| Vegetarian | 56 (63.64) | 32 (36.36) | 88 | 5.0410 | 0.02* |
| Mixed | 509 (74.85) | 171 (25.15) | 680 | | |
| Total | 565 (73.57) | 203 (26.43) | 768 | | |

SES: Socioeconomic status. *Statistically significant

**Table 10: Association between demographic profile and status of thyroid-stimulating hormone**

| Profile | 4.2 (%) | >4.3 (%) | Total | $\chi^2$ | P |
|---|---|---|---|---|---|
| Gender | | | | | |
| Male | 436 (84.66) | 79 (15.34) | 515 | 0.0290 | 0.86 |
| Female | 213 (84.19) | 40 (15.81) | 253 | | |
| Age groups (years) | | | | | |
| 20-29 | 40 (86.96) | 6 (13.04) | 46 | 8.9790 | 0.06 |
| 30-39 | 122 (84.14) | 23 (15.86) | 145 | | |
| 40-49 | 208 (88.51) | 27 (11.49) | 235 | | |
| 50-59 | 188 (84.30) | 35 (15.70) | 223 | | |
| ≥60 | 91 (76.47) | 28 (23.53) | 119 | | |
| Social history | | | | | |
| Nil | 318 (82.81) | 66 (17.19) | 384 | 4.8590 | 0.18 |
| Smoking | 62 (80.52) | 15 (19.48) | 77 | | |
| Alcohol | 65 (84.42) | 12 (15.58) | 77 | | |
| Both | 204 (88.70) | 26 (11.30) | 230 | | |
| Type of family | | | | | |
| Nuclear | 190 (82.61) | 40 (17.39) | 230 | 0.9020 | 0.34 |
| Joint | 459 (85.32) | 79 (14.68) | 538 | | |
| SES | | | | | |
| Class I | 30 (75.00) | 10 (25.00) | 40 | 3.5890 | 0.16 |
| Class II | 556 (85.41) | 95 (14.59) | 651 | | |
| Class III | 63 (81.82) | 14 (18.18) | 77 | | |
| Diet | | | | | |
| Vegetarian | 70 (79.55) | 18 (20.45) | 88 | 1.8670 | 0.17 |
| Mixed | 579 (85.15) | 101 (14.85) | 680 | | |
| Total | 649 (84.51) | 119 (15.49) | 768 | | |

SES: Socioeconomic status

with significant reductions in morbidity, mortality, and economic costs related to various diseases, especially chronic lifestyle diseases that progress silently.[16-18] Despite this, they are under-utilized due to the speculation regarding their efficacy and efficiency.[14,15] Hence, this study was conducted to evaluate the sociopsychological and biochemical determinants of health and disease in executive health check-up, as well as to employ them for encouraging people to utilize preventive health services the observation made in the present research are in concordance with Velupillai *et al.*, who also determined that health is influenced by psychological, social, and biological determinants ($P < 0.05$).[23] They found that socio-economic gradients in health were influenced by environmental conditions, personal and professional relationships, knowledge, lifestyle choices and altered mental functions, that predisposed the participants toward the practice of health-promoting or health damaging behaviors.[23]

However, the present study demonstrated no significant association between the levels of psychological wellbeing and the demographic parameters ($P > 0.05$). This is in contrast to the works of Dorji *et al.*, and Lincoln *et al.*, who reported that psychological wellbeing was influenced by many factors including gender, age, marital status, education, SES, and spirituality.[24,25] This could perhaps be accounted for by regional differences between the study populations, marital status, education, occupation and income, religion and spirituality, and health marital status, education, occupation and income, religion and spirituality, and health.

The significant association seen between HbA1c and demographic parameters was also reflected in the study done by Bijlsma-Rutte *et al.*, who showed that there was an association between SES and HbA1c levels.[26]

Hence, the present study establishes the correlations between sociopsychological, and biochemical determinants of health and disease in executive health check-up, besides creating awareness regarding the need for utilizing preventive health services. This also provides an evidence based foundation for deep rethinking of distributive justice so as to improve the health status of those least advantaged on the social health gradient. Moreover, this study serves as an education platform for encouraging early detection and timely intervention, especially for lifestyle-associated diseases.

However, this research has its limitations in being a single-center study with a limited sample size. These

**Table 11: Correlations among different variables by Karl Pearson's correlation coefficient method**

| Variables | Hb | FBS | PPBS | HbA1c | Cholesterol | HDL | LDL | TG | SGPT | SGOT | RFT | TSH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hb | - | | | | | | | | | | | |
| FBS | −0.0240 | - | | | | | | | | | | |
| PPBS | 0.0470 | 0.829** | - | | | | | | | | | |
| HbA1c | −0.0160 | 0.949** | 0.813** | - | | | | | | | | |
| Cholestrol | 0.0590 | 0.0050 | −0.0140 | −0.0160 | - | | | | | | | |
| HDL | −0.0580 | 0.0040 | 0.0060 | 0.0010 | −0.0160 | - | | | | | | |
| LDL | −0.0290 | −0.0370 | −0.0540 | −0.0530 | 0.0480 | −0.0090 | - | | | | | |
| TG | 0.0170 | −0.0140 | −0.0280 | −0.0210 | −0.0340 | 0.0060 | −0.0040 | - | | | | |
| SGPT | −0.0060 | 0.0030 | −0.0240 | −0.0160 | 0.0220 | −0.0460 | 0.0430 | 0.0030 | - | | | |
| SGOT | −0.0360 | −0.0690 | −0.076* | −0.0540 | −0.0070 | −0.0480 | 0.0150 | 0.0420 | 0.161** | - | | |
| RFT | −0.0400 | 0.0090 | −0.0210 | 0.0250 | 0.0040 | −0.0400 | −0.0250 | −0.0520 | −0.0370 | −0.082* | - | |
| TSH | −0.0030 | 0.0080 | −0.0050 | 0.0100 | −0.0320 | −0.0540 | −0.0570 | −0.0310 | 0.0130 | −0.0160 | −0.0290 | - |

*$P$<0.05, **$P$<0.01. Hb: Hemoglobin, FBS: Fasting blood sugar, PPBS: Postprandial blood sugar, HbA1c: Glycated hemoglobin, HDL: High-density lipoprotein, LDL: Low-density lipoprotein, SGPT: Serum glutamic pyruvic transaminase, SGOT: Serum glutamic-oxaloacetic transaminase, RFT: Renal function test, TSH: Thyroid-stimulating hormone, TG: Triglyceride

can be overcome by multi-centric, long-term, prospective clinical studies with a larger sample size.

## Conclusion

There exist significant correlations between sociopsychological, and biochemical profiling determinants of health and disease in executive health check-up. These incite the need for utilizing preventive health services. Preventive measures can also be taken by early diagnosis of diseases. It also includes advice on diet and physical activity. Periodical health checkups help the ongoing medical issues to counsel on preventive measures and to improve the physician and patient relationship.

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## Conflicts of interest

There are no conflicts of interest.

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