Effects of Sleep Deprivation on Memory, Problem Solving and Well Being among Young Adults

By

VISHNU PRIYA, S. K.

(17PAP019)

A Thesis Submitted to the

Avinashilingam Institute for Home Science and Higher Education for Women

Coimbatore-641043

In Partial Fulfillment of the Requirement for the

Degree of Master of Science in Applied Psychology

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S. Gayathridevi 20.4.19

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ABSTRACT

ABSTRACT

The present study is aimed on Effects of Sleep Deprivation on Memory, Problem Solving and Well Being among Young Adults. Two hundred College Students from Dr. SNS Rajalakshmi College of Arts and Science, Coimbatore, Tamil Nadu were selected for the study and they were administered by the Informed Consent Form and confidentiality statement, Socio-demographic Status, The Pittsburgh Sleep Quality Index (PSQI, Buysse, D. J. & Reynolds, 1989), Multifactorial Memory Questionnaire (Angela K. Troyer and Jill B. Rich, 2007), Problem Solving Skill Questionnaire (Dereli Iman, 2009) and Psychological Well Being Scale (PWB, Carol D. Ryff, 1989). The data was analysed by using SPSS package. The Mean, Standard Deviation, t- test and Correlation were computed. The results revealed that there is a significant negative relationship between Sleep Deprivation, Memory, Problem Solving and Well Being and there is also positive relationship between Memory and Problem Solving among young adults.

Keywords: Sleep Deprivation, Memory, Problem Solving, Well Being.

INTRODUCTION

CHAPTER I

INTRODUCTION

Sleep Deprivation

Sleep is an important component of the human condition that permits to perform daily functions at peak optimization. However the community at massive typically underestimates sleep and its importance, thus leading individuals not involved with a proper sleep, thereby preventing from functioning at peak potency. By failing to obtain sufficient amount of sleep each night, there is a vast possibility of there being one or more adverse effects on the individual's cognitive and well being.

Sleep deprivation, additionally referred to as inadequate sleep, is the condition of no longer having enough sleep. It is able to be either chronic or acute and might range extensively in severity. A chronic sleep restricted condition can cause extreme tiredness, daytime hour's sleepiness, weight loss or acquire weight and clumsiness.

Sleep deprivation happens when an individual fails to get enough sleep. The quantity of sleep that a person needs varies from one person to some other, however on average most adults want about 7 to 8 hours of sleep every night to experience alert and well rested. Teenagers need average of approximately 9 hours of sleep in every night time, and youngsters need 9 hours of nightly sleep or extra, depending on their age.

The loss of sleep is found trouble in modern day society, affecting many individuals sooner or later of their lives. Although occasional sleep interruptions are typically no more than a nuisance, ongoing loss of sleep can lead to immoderate daytime sleepiness, emotional imbalance, poor work place performance, obesity and a lowered notion of lifestyles. There is no wondering the significance of restorative sleep, and a particular amount of interest is very much essential to hinder and manipulate sleep deprivation.

The consequences of Sleep deprivation can adversely affect the body systems. It could have the following effect:

- Extended threat of persistent infection.
- Increased hazard of recent and advanced respiratory illnesses.
- High risk for Type 2 diabetes.

- Increase the danger of cardiovascular ailment.
- It can affect the growth hormones and testosterone in guys.

Common Symptoms of Sleep Deprivation

Sleep deprivation, whether or not it takes place over the small or long term, which can lead to some characteristic signs. These ensuing signs may also variety from the relatively predicted and common, along with sleepiness, to particularly extreme complaints of hallucinations, reminiscence problems, and pain complaints. It can also bring about reduced alertness, excessive daytime hours sleepiness, compromised daytime abilities and major long-term health consequences together with obesity.

Common symptoms and severity -The edge for sleep deprivation may be extraordinary depending on a person's sleep needs, but obtaining much less sleep than a person need will inevitably cause sleep deprivation and its symptoms.

The severity for all of those signs and symptoms will depend on two factors. First, the person will obviously suffer greater from signs and symptoms of sleep deprivation the extra time is spend to awake. For instance, staying up a further hour to watch favourite television show is a long way distinct from getting only 4 hours of sleep. This can be especially real if the sleep deprivation happens night after night time or if it turns into intense (which includes "pulling an all-nighter").

Secondly, the intensity of the symptoms will range relying to person’s circadian clock. Consequently, the signs and symptoms of sleep deprivation will appear plenty more suggested in the course of times while person need to obviously be asleep (like overnight). It can be additionally extra exquisite whilst the circadian signal dips, together with in the early to mid-afternoon.

Mood Modifications- The self-quick-tempered can be found due to not getting proper sleep, it can sincerely apprehend the outcomes that sleep deprivation can also have on mood. When a person do not have enough sleep, they are likely to have signs of irritability. On the other hand, an amazing night time’s sleep may also positioned us in a super temper as the person start their day.

These temper changes may increase beyond a transient fantastic or negative attitude into extra problems, along with anxiety and melancholy. The interplay between psychiatric situations and sleep is wealthy, as sleep seems to effect the frontal lobe of the brain, a place

linked to those mood disorders. More symptoms of depression overlap with the ones associated with sleep issues. Problems such as Post Traumatic Stress Disorder (PTSD) may also result in nightmares and loss of sleep. People with persistent insomnia frequently have anxiety and an accelerated danger of suicide. Sleep is an important part of our health, and this definitely includes the intellectual/ mental fitness.

***Issues in concentrating and impaired overall performance*-**The ability is to be attentive to the environment requires a well-rested brain. While in sleep deprived, unavoidably increase a subtle impairment in each potential to pay attention. This would be rather insidious, to the factor that those who are chronically sleep deprived begin to fail to understand their degree of impairment. Decreased alertness may additionally result in accidents, compromised performance and errors. There is some person variability in the influences of sleep deprivation, and threshold for impairment might also range.

***Memory and thinking problems* -**Sleep has vital consequences on one's capacity to assume and manner memories. Sleep deprivation can also cause further issues with higher stage capabilities, which include making plans, company, and judgment. Sleep is crucial to processing reminiscence. Sleep facilitates us to consolidate the day's events, solidifying and recording critical memories. There are different factors of wondering that may be stricken by sleep deprivation, especially those connected to the part of the brain called the frontal lobe. Sleep deprivation may additionally cause impairments in executive function, resulting in: Bad planning; Increased risk taking; Disorganization; Negative prioritization; Awareness on brief term rewards and Reduced judgment.

***Disorientation, Hallucinations and Paranoia*-**Sleep deprivation may also cause some surprising psychiatric effects. These are noticeably not unusual, and just like the other symptoms, correlate with the degree of sleep deprivation. A number of the commonplace psychiatric signs and symptoms of sleep deprivation might include disorientation, hallucinations and paranoia.

Disorientation is regularly part of the confusion that happens in a condition known as delirium. In standard, an individual may disoriented first lose track of time; subsequent, disoriented humans may additionally come to be confused about the vicinity, not understanding wherein they are. Sooner or later, in the extremes of disorientation and fails to recognize.

Eventually, sleep deprivation may result in some other psychiatric symptom of paranoia. Paranoia normally consists of a notion which an individual being persecuted through some out of doors entity. Those mind are not based in truth. Fortunately, these psychiatric symptoms are alleviated quickly by proper adequate sleep.

Somatic and pain complaints -Sleep deprivation may additionally cause other physical signs and nonspecific bodily signs proceedings. Aside from the experience of fatigue, the person may have other generalized signs of discomfort. The individual can also have a sense of malaise, which might show up as feeling rundown or virtually "no longer well". Even they may also complain of an upset belly or gastrointestinal symptoms, inclusive of diarrhoea. Medical research into these troubles won't lead to their decision if the underlying motive is disregarded and the symptoms are rather because of unrecognized sleep deprivation.

Disruption of Sleep cycle-Sleep deprivation disrupts two basic ranges all through the night time. The two levels of sleep are rapid eye movement sleep (REM) and non rapid eye movement sleep (NREM). Arousal may be a shift from REM sleep to NREM sleep, or from NREM sleep to a state of being awake.

REM is a deep level of sleep with intense mind activity in the forebrain and midbrain. Its miles characterised through dreaming and the absence of motor characteristic excluding the attention muscle mass and the diaphragm. It occurs cyclically numerous times throughout sleep, however it accommodates the smallest part of the sleep cycle.

The other simple state of sleep is nonrapid eye movement sleep, or NREM sleep. NREM consists of three separate degrees. The three main stages are N1, N2, and N3, and every separate state has precise, wonderful, and recognizable electric brain wave styles. Even as REM sleep is the private notion of sleep, NREM sleep takes up the biggest part of the overall sleep cycle.

Causes of Sleep Deprivations

There are numerous factors which will cause an individual to induce insufficient sleep and result in sleep deprivation, together with environmental, habitual, medical and psychological causes. In several cases, the cause is complex and a number of other various factors play a role within the presentation of the condition.

- ***Voluntary Behaviour:*** Behaviourally triggered insufficiently sleep syndrome is a sleep problem related to continual sleep deprivation caused by a voluntary sample of confined

sleep. This typically occurs due to the fact individuals are unaware that their body frame has better needs of sleep and they select to remain conscious to socialize or experience pursuits, for this reason limiting sleep time.

- ***Work or Study Commitments:*** Certain work environments are much more likely obstruct natural sleep wake cycles of the body and cause sleep deprivation. This is especially not unusual in youth, as the sleep wake cycle shifts causing them to nod off later, however the early study schedule calls for them to evoke earlier than they get sufficient sleep.
- ***Environment and Sleeping Habits:*** Lack of sleep will occur as a result of stimuli within the atmosphere wherever the patient sleeps. This may embody extreme temperatures, a loud neighbourhood, or sharing a bed with a partner that snores. Additionally, the sleep habits may have a bearing on the standard and amount of sleep, this could embody the consumption of stimulants or the activities undertaken, like work up or screen time, near time of day.
- ***Insomnia:*** Insomnia may be a condition involving issue sleeping in the dark that affects upto a 3rd of the adult population and is related to sleep deprivation. It's distinguish by symptoms of daytime drowsiness and issue with concentration, memory and performance.There are numerous causes of sleep disorder and, as a result, sleep deprivation such as: Anxiety; Neurotransmitter Imbalances; Concurrent Medical Conditions; Stimulant Medications; Psychiatric Problems and Environmental factors.
- ***Sleep Apnea*** is a health circumstance regarding the disintegration of the top airway while an individual sleeps, leading to reduced airflow to the lungs. This often effect individual to awaken at frequent periods at some stage in the night as a reflex response to inadequate oxygen deliver. Following this, it is common for sufferers to grow to be sleep deprived and enjoy signs of sleepiness all through the day.
- ***Short Term Illness:*** Short term illnesses together with a cold, influenza or tonsillitis can purpose changes to respiration while drowsing, causing an individual to awaken frequently at some point of the night time. This can fragment the sleep and motive sleep deprivation.

Sleep Loss Affects Cognitive Performance

Sleep had loss been mostly fired as the cause of poor psychological and cognitive performance earlier, yet poorly designed, research. More modern analysis has discovered sleep loss induced neurobehavioral effects, which frequently leads unrecognized by the affected individual. The neurobehavioral impact extends on manageable measures of cognition to far more composite errors in judgement and in making decisions like medical errors. Performance effects of sleep loss includes;

- Unintentional micro sleep occurs
- Cognitive swiftness happens in subject-packed tasks
- Compensatory efforts to stay behaviourally effective are stayed
- Acquisition of psychological features tasks is reduced
- Performance declines in short run recall of remembering
- Attention to rigorous performance is unstable, with raised errors of omission and commission
- An increase in response suppression errors in tasks requiring primarily anterior cortex functions
- However tasks may be done properly, performance decline as tasks period increases

Thus, the extent to that sleep deprivation affects a selected cognition could depend upon many factors, as well as the magnitude of world decline generally alertness and a focus, the degree to that the precise psychological feature perform depends on emotion processing networks, and therefore the extent to that that cognition will draw upon associated plant tissue regions for counteractive support.

Memory

Memory is the way through which each individual draw on beyond level experiences, if an individual want to use those facts at future. Memory is vital to all our lives. Without a memory of the beyond, the individual cannot perform in the present or reflect on the future. Memory is significant to experiences, its retention of knowledge over time for the aim of influencing future action. If a person has a tendency to could not keep in mind about the past events, then the particular person couldn't have the tendency to learn or develop language, relationship and individuality. Memory is involved in processing of vast amounts of records. This may indulge with various forms, e.g., pictures, meanings or sounds.

The three main aspects of information processing:

Encoding - When learned facts or information comes into an individual reminiscence system, it wants to be changed right into a form of system that can deal with, in order to that it can be stored and then recalled later from short term to long term memory. Simply receiving sensory input is not adequate to encode information. Encoding of information takes place in both automatic processing and effortful processing.

- *Automatic processing:* Automatic processing takes place without any conscious focus. It happens effortlessly, automatically, without having to reflect on consideration in it.
- *Effortful processing:* It normally takes place when individual consciously attempt to remember information. It needs for special attention, idea and practice; In other words, each individual have to put in effort to get the data into the memory.

The three different kinds of encoding are,

- *Semantic:* Information which involves words and their meanings
- *Visual:* This represented the encoding of pictures
- *Acoustic:* Involves sounds and words.

Storage - It is the retention of records over time; this is the second level of memory process, in which creates an everlasting record of the encoded information. The three main areas of storage are sensory memory; short term memory and long term memory.

- *Sensory memory*: It stores arriving sensory information in detail, but only on smattering of a second. The capacity of sensory memory is very huge, however the records in its miles unprocessed.
- *Short term memory:* Short time period memory has a limited ability. Some of the facts in sensory memory transfers to short time period memory. Short term memory can keep information for approximately 30-45 seconds.
- *Long term memory:* Long term memory has an almost a vast garage capacity. Information that makes it into long term memory can continue to be there for complete lifestyles. The manner in which individual store facts in long term memory affects the manner of retrieve it.

Retrieval **-** This type of memory refers to the ensuing of reassessing the past events or information, which has been already stored and encoded in brain. Memory retrieval indulge for gathering information from the subconscious long term memory and making it spontaneously accessible to the conscious mind. There are two primary ways to involve the retrieving process are recognition and recall.

- *Recall:* It relate the potential to directly pull information from individual minds without substantial effort. Then mainly involves remembering the facts, events or other information that are not recently present.
- *Recollection:* It involves to assemble various information together into the memory. The memory recognition elucidate recall based on encountering the memory again and again. At last the memory retrieve those information through relearning.

Sleep and Memory

The quantity and quality of sleep have an effect on a person's ability to recollect, and sleep may be an amount wherever the brain consolidates recollections of memory. Let's contemplate memory in three parts: acquisition, consolidation and recall. Acquisition and recall happens whereas we tend to area unit awake. Consolidation happens throughout waking and sleep. Consolidation means that moving the memory from a short run "buffer-like" memory to a memory and change believes and public knowledge with new learning.

Memories seem to be cemented and shaped mainly in three forms of sleep – Lightweight sleep, Deep sleep and Sleep. There is conflicting proof concerning memory formation throughout REM and what quite memory formation happens could also be qualitatively completely different from what happens in slumber.

Age Related Changes in Memory

Forgetfulness is a standard a part of aging. As individuals develop, changes occur in all the components of the body, together with the brain. As a result, some individuals might notice that it takes a longer to learn new things, they forget information as well as they did, or they lose things like their glasses. These typically measures signs of delicate forgetfulness, not serious memory issues, like Alzheimer's disease. Other cause for problems in memory indulge with emotional problems, sleep disturbances, medical conditions, and other mild cognitive impairment.

Memory Loss Related to Medical Conditions

Certain medical conditions will cause serious memory issues. These issues ought to escape once an individual gets treatment. Medical conditions that will cause memory issue include:

- Tumours, blood clots, or infection within the brain
- Some thyroid, kidney or liver disorders
- Drinking an excessive amount of alcohol
- Head injury like a concussion form a fall or accident
- Medication facet effects
- Not in taking of enough healthy foods, or too few nutrition's and minerals in a person's body.

Memory Loss Related to Emotional Problems

Emotional issues like stress, anxiety, or depression will build an individual additional forgetful and might be mistaken for insanity. The confusion and forgetfulness caused by emotions sometimes measure temporary and flee once the emotions fade. Emotional problems is mitigated by substantiating trends and family, however these feelings lasts for quite two weeks, its necessary to urge facilitate from a doctor or a counsellor. Treatment could embrace content, medication or both. Being active and learning new skills may facilitate an individual to feel higher and improve his or her memory.

Causes of Memory Loss

Medications: A number of instructions and over the counter medication can indulge with loss of memory. It may include antidepressants, medications for anti-anxiety, sleeping tablets, and pain medications after surgery.

Alcohol and Smoking: Too much of consuming alcohol leads to memory loss. Smoking distress memory by diminishing the amount of oxygen that receive through the brain.

Sleep Deprivation: Both quality and quantity of sleep is very much essential to memory. Getting less amount of sleep, or often waking customarily in the night can lead extreme tiredness, which get involved with the ability to consolidate and recover information.

Depression and Stress: Being depressed can make it burdensome to stay focussed, which eventually affect memory. Even stress and anxiety can also get in the way to attentiveness. Mainly stress precipitate by an emotional trauma that leads to memory loss.

Nutritional Deficiency: Proper nutritional food intake makes the brain active, whereas the deficiencies of Vitamin B1 and B12 particularly affects memory.

Head Injury: A drastic hit to the head from a fall or accidents can cause both short and long term memory loss. By over a period of time, memory gradually increases.

Stroke: This happens when the blood supply in the brain gets stopped working due to some blockage. Stroke generally cause short term memory loss.

Dementia: Dementia is a progressive loss of memory and other feature of thinking that are strong enough to indulge with the potential to function in regular activities. There are some causes of dementia which includes alcohol/substance abuse; blood vessel disease; and another main cause is Alzheimer’s disease.

Treatment for Memory Loss

Treatment for memory loss based on the cause. In several cases, it should be reversible with treatment. For instances, memory loss from medications could resolve with a modification in medication. Nutriment supplements are often helpful against memory loss caused by a nutritional deficiency. And treating depression could also be useful for memory once depression could be an issue. In few cases like following a stroke medical aid could facilitate individuals bear in mind a way to do bound tasks like walking or ligature shoes. In others, memory could improve over a time period.

Treatments can also be particular to conditions associated with memory loss. In case, drugs are obtainable to treat memory issues associated with Alzheimer's, and drugs lower pressure level will help to cut back risk of a plenty brain harm from dementia associated with high pressure level.

Problem Solving

Problem solving refers to the intellectual manner that humans undergo to find out, examine and solve problems. This entails all the steps within the trouble technique, such as the discovery of the hassle, the choice to tackle the difficulty, knowledge the problem, understanding about the issues and taking available actions to achieve goals.

There are varieties of mental process at work throughout problem solving. These include:

- Perceptually recognizing
- Representing the matter in memory
- Considering relevant information that applies to this drawback
- Identify completely different aspects of the matter
- Labelling and describing the matter

Problems and Obstacles in Problem Solving

Problem solving is not a perfect method; there are variety of various obstacles which will interfere with our ability to unravel a haul quickly and expeditiously. The barriers are often indulge with cognitive blocks – how we predict and feel, additionally as sensible social and physical blocks.

The main causes of these barriers are;

- *Perspective*–This type of barrier can cause potential solutions to be incomprehensible or neglected as impracticable supported the attitudes, beliefs, and opinions.
- *Emotion* – Emotional blocks are the items that a person have a tendency to feel that stops to solve problems accurately.
- *Intellectual* – Intellectual barriers may be caused by not having proper coaching, skills or information to solve the problems effectively.
- *Expression* – Poor expression of issue and solutions cause mistaking and communication; several problem solving techniques usually have the way to unravel this directly. However individuals should struggle to return up with associate correct description.
- *Cultural* –This works on three levels. One is concerning however an individual have a tendency to behave in regard to geographic point culture and ethics. The next is

concerning about the cultural bias; this include all sorts of discrimination. The ultimate one is about how culture expects a person to behave.

Researches have delineated variety of those mental obstacles that embrace functional fixedness, impertinent information and assumptions.

Functional Fixedness: This term refers to the tendency to look at the issues solely in their customary manner. It prevents folks from absolutely seeing all of the various choices that may be on the market to seek out the answer.

Irrelevant Information: When trying to solve issues, it's necessary to differentiate between information that is relevant to the problem and impertinent knowledge which will result in faulty solutions. Whenever the problem is extremely complicated, the better it comes to target misleading information.

Assumptions: When dealing with the problems, individuals typically create assumptions concerning the constraints and obstacles that stop bound solutions.

Mental Set: Another common problem solving obstacle is thought as a mental set, that is the tendency that individual got too solely use solutions that have worked within the past instead of probing for different ideas. A mental set will typically work as a heuristic, creating it a helpful problem solving tool. However, mental sets can even result in inflexibility, creating it harder to seek out effective solutions.

Unnecessary Constraints: This barrier causes unwarranted barriers to be located in the trouble. It hyperlinks to solve problems by usage of previous experiences rather than looking on new solutions.

Psychological Steps Involved In Problem Solving

A cognitive operation or a development dedicated towards finding issues by discovering and analysing the matter is known as problem solving. It is the method dedicated to findings not simply any resolution, however most effective resolution to resolve any issues. Since there is a distinctive issues relying upon matters, in which there measure distinctive solutions too. There are more number of rigid psychological steps concerned in problem solving, that is additionally referred to as Problem Solving Cycle.

The steps involved in problem solving are

Identifying the Problem: Identifying the root of the problems is the first priority. Individuals may determine the incorrect source of the problem, which can render the steps thus carried as worthless.

Defining the problem: It is very much essential to properly outline the issue, once it's been known. Only by understanding the problem, additional steps may be taken to solve the specific issue. The people have to be compelled to take into the consideration of different perspectives to manipulate any problem, this would help each person to solve the problems in different perspectives.

Forming a Strategy: Developing a method is that the next step to finding the answer, in every different scenario will require formulating different strategies, also depending on individual distinctive preferences.

Organizing Information: Organizing the obtainable information is another crucial step to the method. Accuracy of the answer for individual drawback can depend upon the quantity of knowledge obtainable.

Allocating Resources: Deciding how high the priority to solve unique problems, will help to determine the resources to solve the problems. If the issue is that much important then person may allocate more resources. However the problem is not important, it's not worth the time to spend more for the specific issue.

Monitoring Progress: Effective problem solvers are notable to observe their progress often and, if the person not creating the maximum amount progress as imagined, then those individual value their approach or explore for new methods.

Evaluating the Results

Evaluate the situation to seek out if it's the best possible solution to the problems. The evaluation might be spontaneous or might take a while. Each problems may end up with the possible results that occur.

The Problem Solving Strategies

There are numerous method that create solving issues easier and productive. In psychological perspectives the two main methods such as algorithms and heuristic are specifically useful aspects.

Algorithms

An algorithm is a gradual procedure which will make the correct solution at the end of each issue. A mathematical formula may be a good example for problem solving rule, whereas a rule guarantees correct solution method of algorithm, it is not much effective approach for problem solving. This strategy is not sensible for several things as a result of it will be thus long.

Heuristics

A heuristic is a cognitive rule of thumb method which could or may not work in various situations. Not similar to algorithm, heuristic not always provide correct solution. But, the usage of this problem fixing method does permit people to simplify complicated issues and reduce the total range of possible answers to an extra workable set.

Trial and Error

A trial and errors approach to trouble fixing entails trying some of distinct answers and ruling out the ones that do not work. This method can be a good alternative when a person have totally confined number of options available. If there are numerous one of kind choices, then the individual may better off narrowing down the feasible options the use of another trouble solving technique earlier than attempting trial and mistakes.

Insight

In some cases the solution to an issue can appear rapid insight. According to the researchers insight can occur when the person know about the current and past history of problems and eventually helps to underlying the process which happen out of awareness.

Psychological Well Being

Psychological well being refers to inter and intra individual levels of positive functioning that may embrace one's connectedness with others and reflexive attitudes that embrace ones sense of mastery and private growth. Subjective well being reflects dimensions of have an effect on judgments of life satisfaction.

The five Major Types of Well Being are

Emotional Well Being

The potential to follow stress management techniques be resilient and generating the emotions that cause smart feelings. To flourish emotional well being, each individual want to construct emotional skills – skills like effective thinking, sensational regulation and mindfulness. By managing those emotional well being skills, can able to handle stress, cope with emotional feelings and quickly recuperate from disappointments.

Physical Well Being

To boost the functioning of the body through healthy uptake and smart exercise habits. To evolve physical well being, should prevent various diseases, enhance emotional well being and decrease the amount of health challenges.

Social Well Being

The potential to converse, develop meaningful interpersonal relationships, and maintain a support network that helps a person to overwhelm loneliness. To build social well being, include the skills like recognition, communication and kindness.

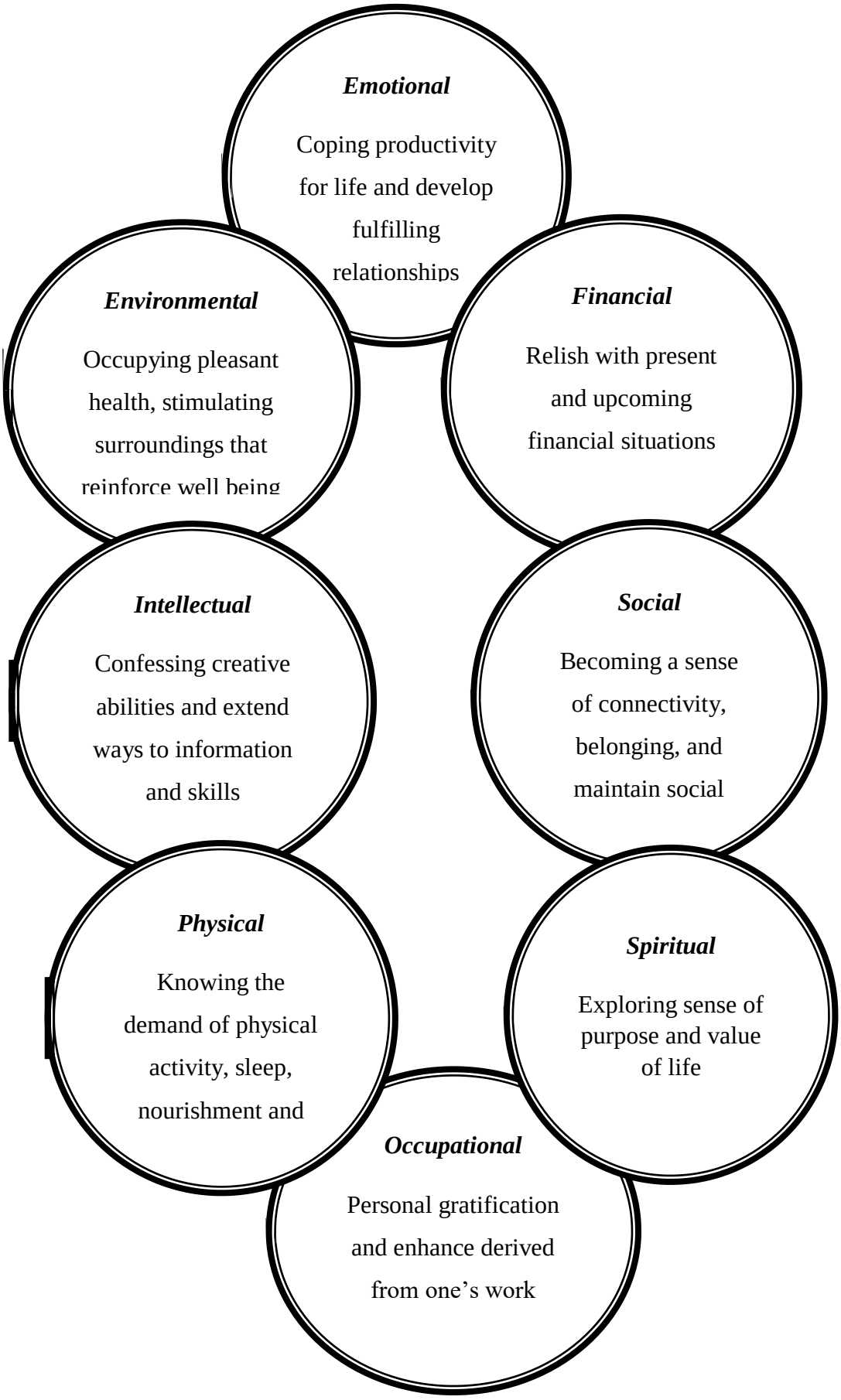
Workplace Well Being

To improve workplace well being, there are few skills to be conclude. They are maintaining work life balance, finding for the purpose and focus on the intention at workplace.

Societal Well Being

To promote this type of well being includes to support the surroundings, developing effective impacts on other's life and kindness.

Dimensions of Well Being



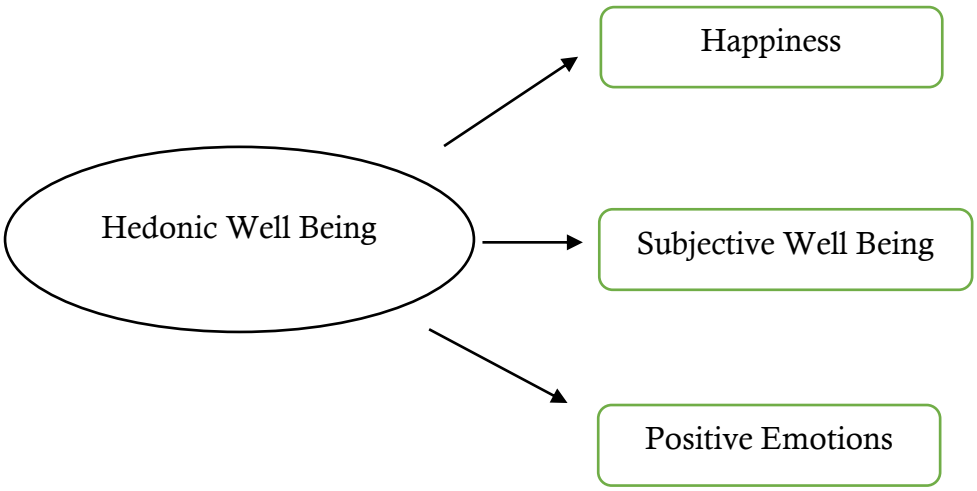
Factors Influencing Well Being

Every features of the life influence state of well being. The subsequent factors enhance a personality's well being:

- Satisfied intimate relationship
- Close social networks
- Adequate money
- Proper exercise
- Spiritual beliefs
- Optimistic attitude
- Adapting to new situation without any difficulty
- Sensible and achievable goal
- Living in fair minded and democratic society

Types of Psychological Well Being

1. The term "Hedonic" well being is generally meant for the subjective feelings of happiness. It contains of two parts, an effective component (which includes high +ve affect and low –ve affect) and a cognitive component (life satisfaction). It is suggested that an individual happiness when positive have an effect on and satisfaction with the life are both high (Carruthers & Hood, 2004).



2. The slighter well known term “Eudaimonic” well being refers to the determined aspect of Psychological Well being. Carol Ryff, Psychologist, evolved an awfully clear model that breaks down eudaimonia into six factor of PWD.
    - ❖ Self-Acceptance
    - ❖ Environmental Mastery
    - ❖ Positive Relations with Others
    - ❖ Personal Growth
    - ❖ Purpose in Life
    - ❖ Autonomy

NEED FOR THE STUDY

The quality of sleep directly influence mental and physical health and also quality of waking life, together with efficiency, immune system, emotional balance, brain and heart disease, vitality and even weight. The study aims to show that lack of sleep or inadequate sleep cause severe issues among individuals which may due to insomnia or sleep disorders such as sleep apnea or making late hours to complete a particular works or tasks. Due to sleep deprivation the individuals have great impact on mood; memory and in judgmental ability. This present study mainly focus on sleep deprivation has a wide impact on individuals health and in cognitive abilities. Individuals are not aware of inadequate sleep can leads to high risk of serious medical complications. Some of the serious medical complications includes obesity, heart disease, diabetes and more importantly shortens life expectancy. As young adults their sleep requirements vary from person to person, a healthy adults need 7 to 9 hours of sleep to function the body. In current scenario it is proved that a person who sleeps less than 6 to 7 hours per night, then the individual indulge with mental affects that leads to severe, difficulty in concentrating and fails to take decisions.

REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

A literature review is a text written to someone to contemplate the vital points of current information as well as substantive findings yet as theoretical and method contributions to a selected topic. Literature reviews are unit of secondary sources and report any new or original experimental work. Also, a literature review is understood as a review of an associate abstract accomplishment. Most frequently related to academic oriented like a thesis, a literature review typically antecedent a research a proposal and result section. Its main goals are to situate the present study within the literature and to produce context for the actual reader.

The review of literature of the current study involved the following:

- Sleep Deprivation
- Memory
- Problem Solving
- Well Being

Sack, Broer and Anders (2019) demonstrated on "Sleep Deprivation Selectively Enhances Interpersonal Emotion Recognition from Dynamic Facial Expressions at Long Viewing Times: An Observational Study". The study mainly focuses on the lack of sleep and acknowledgment report that affectability to others feelings was damped during sleep deprivation. Participants viewed 2-4 seconds or 8-10 seconds video of female senders who facially conveyed outrage, sicken, dread or bitterness to their sentimental accomplice and assessed the sender's affective state in a forced choice paradigm; during sleep deprivation after night shifts (40 adults) or after regular night sleep (50 adults). The results proved that impact may be because of prefrontal action related with sleep deprivation, which may disinhibit emotions to outer occasions as well as discharge simulation based neural processes that contributes from dynamic facial expressions outward at longer time scales than as a explored in acknowledgment of emotion recognition studies.

Pasula, Brown and Turner (2018) examined the effects of sleep deprivation on component processes of working memory, comparing younger and older adults across verbal

and visuospatial modalities. The participants were 31 younger adults (19-38 years) and 33 older adults (59-82 years); completed matched versions of verbal and visuospatial working memory tasks across conditions. The results revealed that younger adults outperformed older adults on encoding and displacement component processes for both verbal and visuospatial working memory and also main effect of condition was observed for verbal displacement.

Ratcliff and Van Dongen (2018) measured the effects of sleep deprivation on two memory tasks, item recognition and associative recognition. The total participants were 26 subjects (10 women and 16 men). The tool used for this study was Cognitive Performance and Recognition Test Blocks. The results showed that sleep deprivation reduces drift rate, with little effects on the other components of the decision process. In addition the results suggested that sleep deprivation degrades the quality of information stored in memory and that this may occur through degraded attentional processes.

Peng, Liu, Hermanus and Heck (2018) conducted a study on "Effects of Sleep Deprivation under Social Isolation Environment on Individual Working Memory". The study helps to find the sleep deprivation technique under social isolation environment to investigate the effects of individuals thinking. The participants were 12 undergraduate males between the ages of 18 years and 30 years. Those participants were performed in pre test and post test measurements. The results revealed that the effects sleep deprivation has a major impact between the behaviour, cognitive performance and autonomic nervous system when they are isolated.

Rahmankhan, Hossain and Hassan (2018) investigated on "Effect of Total Sleep Deprivation on Visual Sequential Memory". The total participants were 100 adults aged between 18 years and 40 years. The tools used for this study was Subtest of Memory and Learning (Reynolds & Bigler, 1994). The results revealed that the visual sequential memory performing the cognitive processes in proper phenomena, and it depends on high or low sleep depended.

Souissi, Chikh, Affes and Sahnoun (2018) assessed the impacts of caffeine indigestion and fractional lack of sleep on mind set and intellectual performances. The participants were 12 healthy male physical education students completed four test sessions. In each test session, members performed a Reaction Time Test, Vigilance Test, Wingate Cyclic Test and 5m multiple shuttle test. The results are evident that reaction time and vigilance were

altogether lower after caffeine ingestion in correlation with placebo and caffeine is a powerful technique to keep up physical and intellectual performances the following day.

Elmenhorst, Benderoth and Aeschbach (2018) conducted a study on "Cognitive Impairments by Alcohol and Sleep Deprivation Indicate Trait Characteristics and Potential Role for Adenosine A1 Receptors". The study aims to find whether the impairments performance is based on the acute or chronic sleep deprivation that can predict an individual's vulnerability towards acute alcohol intake. The participants were 49 healthy volunteers (15 females and 34 males) under the age group of 19-26 years. The results showed that individual traits characteristics make either vulnerable or resilience to both sleep deprivation and alcohol and also revealed that molecular brain imaging that decreases the adenosine A1 receptors.

Wiggins, Mottarella, Eggleston and Stevens (2018) inspected whether sleep deprivation has impact on early stages in sensory processing on a particular attention. The participants were randomly selected young adults and assigned for 24 hours sleep. The results revealed that the normal sleep participants showed attentional modulation in sensory processing whereas sleep deprived participants showed significantly less and absence in attentional modulation in neural processing.

Gireesh, Das, Russell and Viner (2018) determined the modifiable components impacting well being in young boys and girls by representing deprivation, ethnicity and grouping nearby specialists. The participants were (120 males and 115 females) adolescents who turned 15 years old in the academic year of 2014-2015. The study measure of mental well being was the Warwick Edinburgh Mental Well Being Scale (WEMWBS). The results proven that in the balanced model, every one of numerous hazards practices, dietary patterns, rest, harassing, physical action, screen time and reading wee autonomously connected with mental well being in both male and female. Sleep and eating practices had a more grounded relationship with both genders than bulling, physical action and screen time. Youngsters from black ethnic groups had significantly higher well being in both sexes. Deprivation was not related with well being among young boys rather than young girls.

Zhai, Gao and Wang (2018) demonstrated whether the university students from the china has increasingly suffering from lack of sleep and psychological well being. The participants were 2495 full time final year college students in china, this study was based on the cross sectional survey that was utilized in multivariable strategic relapse to evaluate relationship between sleep quality and psychological well being by controlling the socio

demographic factors. The results shows that the solid relationship between the sleep quality and psychological well being. Poor sleep quality is related with abnormal state of negative psychological well being. Although poor sleep quality has higher strength than typical sleep quality because of negative inclination and among covariates, age, sex and education effectively affects the impacts on psychological well being.

Lo et. al. (2018) examined the short and longer term effect of a 45 minutes delay in school beginning time on sleep and well being of adolescents. The participants were 375 students in grades of 7-10 from an all-girls secondary school in Singapore that postponed its beginning time from 7:00 to 08:15. Self-reports of sleep time, sleepiness and well being were acquired at the pattern before the postponement, and at around 1 and 9 months after the delay; the total sleep time was assessed. Karolinska Sleepiness Scale, Positive and Negative Effect Scale and Pittsburgh Sleep Quality Index Questionnaires were used. The results revealed that lower levels of subjective drowsiness and enhancement of well being at both subsequent meet ups. Notably, high levels of sleep duration on school nights were related with more prominent enhancement in alertness and Well Being.

Nirandhi, Gayathri and Vishnupriya (2018) conducted a study on "Awareness of Effects of Sleep Deprivation among College Students". The participants were 100 students from Saveetha University at Chennai. This study is based on the questionnaire based survey; the survey contains questions related to the impacts of sleep deprivation among undergraduates. The results evident that sleep deprivation is noteworthy issue looked among students at present age. Even there are few causes which attribute towards it; such as irritability, mood swings, absence of inspiration, swelling of eye and cerebral pains were results which may hurt the well being conditions seriously.

Przbylski and Bowes (2017) evaluated the prevalence of cyber bullying and traditional bullying among adolescents and survey its relative impacts on mental well being. The participants were 1,20,115 students from various International Schools in England. Warwick Edinburgh Mental Well Being Scale were used to assess and looked at those adolescents who detailed traditional bullying or cyber bullying. The results proved that traditional bullying was extensively more typical among adolescents in England than cyber bullying. While the two types of bullying were related with poorer mental well being, cyber bullying represented a little variance of difference after adjustment for disconnected bullying and different covariates.

Tang et. al. (2017) inspected the relationship of changes in sleep with consequent health and well being in the general group population. The participants were 30,594 people (age > 16) who gave information on sleep and well being at both wave 1 and wave 4 assessments. General Health Questionnaire, Pittsburgh Sleep Quality Index and Short Form Health Survey were used in this study in order collect data from the households. The results showed that changes in sleep were temporally connected with consequent health and well being. The main intend to ensure a basic measure of sleep, advance sleep quality, and diminish sleep medication use may have general health esteems.

Ryswyk et. al. (2017) enhanced the well being and performance indicators in a gathering of Australia Football League (AFL) players by means of a six week sleep optimization programme. The total participants (n=25) received continuous feedback on their sleep, and a mid programme training and input session. The tools used for this study were Sleep Diary, Epworth Sleepiness Scale, Pittsburgh Sleep Quality Index, Profile of Mood States, Training Distress Scale, Perceived Stress Scale and the Psychomotor Vigilance Task. The results showed that sleep diaries exhibit the expansion in all the sleep time around 20 minutes and appropriately expansion in sleep efficiency. Improvements in proportions of sleep efficiency, fatigue and vigour showed that sleep optimization programme may enhance competitor's well being.

Wunsch, Kasten and Fuchs (2017) found out the pressure buffering speculation hypothesizes that physical movement and exercise can cradle the negative impacts of academic stress of well being. The 64 students were successfully completed five surveys; the questions included the categories about their activity level, sleep quality, well being and affect. The tools used for the study were German Physical Activity, Exercise and Sport Questionnaire; Pittsburgh Quality Index; German Questionnaire for Assessing Subjective Physical Well Being; Positive and Negative Affect Schedule and Perceived Stress Scale. The results suggested that physical action and exercise in the academic examination time frame might have the capacity to cushion the negative impacts of stress on health related outcomes. Hence, action levels ought to be kept up during high stress to counteract negative consequences for sleep, well being and affect in students.

Killgore, Balkin and Yarnell (2017) assessed the impacts of one night of sleep deprivation and night of ensuing recovery sleep on the capacity to recognize the six most broadly settled upon fundamental emotion categories (joy, excitement, fear, sad, disgust and

anger). The participants were 29 males and 25 female healthy adults grouped a progression of 120 standard outward appearances of facial expressions that were PC transformed with their most exceptionally confusable expression counterparts to make continua of expressions that varied in discriminability between feelings categorization (i.e. joining 70% happiness + 30% shock; 90% surprise + 10% fear). The results recommended that sleep deprivation antagonistically influence the acknowledgment of inconspicuous facial signals of bliss of bitterness, the two feelings that are most significant to exceptionally developed prosocial relational connections including association and compassion, while the recognition of other more primitive survival oriented emotional faces prompts might be moderately powerful against rest fortune.

Gosselin, De Koninck and Campbell (2017) conducted a study on "Novel Measures to Assess Partial Sleep Deprivation on Sensory Working, and Permanent Memory". The participants for total sleep deprivation were 12 young adult university students (6 males, 6 females) age ranges from 20 - 31 years; and the participants for partial sleep deprivation were 18 young adults (9 males, 9 females) age between 20 years to 32 years. The research conducted two various experimental tasks for total and partial sleep deprivation. The results proved that classical sensory, working and permanent memory have impact on sleep loss.

Patrick et. al. (2017) probed the effects of sleep deprivation on cognitive and physical performance among students. The participants were 64 students both male and female from Imperial College. The tool used for the study was Online Time Stamped Questionnaire and they were requested to complete in the participants home. The study reveals that acute sleep deprivation can have effect on physical but not in cognitive abilities in young healthy university students.

Thomas, Ooms, Jurgen, Claassen, Marcel and OldeRikket (2017) proved the relationship between sleep deprivation, cognition and brain structure in order to determine whether abnormal sleep behavioural patterns makes changes in cognition before subjective cognitive complaints. The participants were group of male 20 volunteers age ranges from 40 years to 60 years . The tool used for cognition and memory was Neuropsychological Test Battery; structural and functional changes of brain is measured by MRI scan. The results revealed that poor sleep was the one of preventable risk factors to initiate and develop Alzheimer Disease and other sleep disorder problems at high risk.

Dwivedi (2017) found out the most frequent sleep disorders among adults and to know about the health issues due to disturbances of sleep. The participants were 400 young adults age ranges from 18 – 24 years were selected and administered by 20 items Sleep Quality Questionnaire. The results showed that sleep deprivation has more impact on mood, alertness, cognitive function, motor activity and affects physical and emotional health.

Jo, Ong, Ruth, Leong, Joshua, Gooley Michael and Chee (2016) investigated the effects of sleep restriction on cognitive performance, subjective sleepiness and mood in adolescents. The sample consists of 56 healthy adolescents participants (25 males; 31 females) in best secondary schools. The strategy used in this investigation was parallel group design embraced in the requirement for sleep study. The participants underwent 2 week protocol consisting of 3 baseline nights; 7 nights of sleep opportunity manipulation; and 3 nights of recovery sleep at a boarding school. The tools used for this study was Cognitive Test Battery and Pittsburgh Sleep Quality Index. The results outcomes demonstrated that lack of sleep hinders wide scope of psychological capacity, emotional readiness, and state of mind even in high performing secondary school young people. Indeed even a few measures do not recuperate complete even after two nights of recovery sleep.

Frenda, Berkowitz, Loftus and Fenn (2016) found out that the person with sleep deprivation have false assumption and wrongly doing that never occurred. The participants were 88 undergraduate students from Michigan State University (age range from 18 years to 23 years). The study conducted three laboratory sessions and provided with demographic information. The results showed that false confessions occur when people have insufficient amount of regular sleep duration in their life.

Inkster, Zammit, Ritchie, Deary, Morrison and Frier (2016) conducted a study on "Effects of Sleep Deprivation on Hypoglycemia - Induced Cognitive Impairment and Recovery in Adults Type I Diabetics". The participants were 14 adult diabetic patients (age between 18 and 40 years) recruited from diabetics clinics in Scotland. The tool used for this study was National Adult Reading Test; Willpower Questionnaire; Modified Hypoglycaemia Symptom Scale and Cognitive Tests. The results proved that impairment of cognitive function associated with hypoglycemia was not aggravated by sleep deprivation.

Patalay and Fitzsimons (2016) conducted a study on correlates of both mental illness and well being in a vast, and broadly acquiring sample of children in the UK. The total participants were 12,347 children from Millennium Cohort Study. The results showed that mental illness and well being were pitifully associated in children and some of them were related but varieties of others; it mainly correlates of mental illness and well being were largely extend and focusing on the significance of considering these ideas independently and keeping away from their conflation.

Raj (2016) conducted a study on Resident Well Being seeks to become aware of factors associated with Well Being, summarize well being promoting interventions, and provide a framework for destiny studies efforts. The participants were 53 adulthood residents whose age between 28 to 33 years old. The Medical Education Research Study Quality Instrument (MERSQI) was used to measure the quality of Well Being. Results showed that resident well being and related factors, predictors, consequences, barriers, as well as interventions enhance with the well being. Interventions focused on fitness and coping skills appear to enhance well being, examined interventions had been confined by means of small samples and single web site management.

Li, Lepp and Barkley (2015) conducted a study on "Locus of Control and Cell Phone Use: Implications for Sleep Quality, Academic Performance and Subjective Well Being". The participants were 516 undergraduate university students and completed the surveys assessing their cellular cell phone use, locus of control, sleep quality, overall performance and subjective well being. The results examined that allowing an person to better manipulate cell phone use at inopportune instances, a extra internal locus of control may additionally mitigate some of the terrible effects related to high frequency mobile telephone use; conversely, an man or woman with a greater outside locus of manage might also have issue controlling use at inopportune times and the poor outcomes related to excessive frequency use may be exacerbated.

Kassam, Horton, Shoimer and Patten (2015) conducted a study on "Predictors of Well being in Resident Physicians: A Descriptive and Psychometric Study". There were 50 physicians participants in both male and female among adults were administered WHO Five Well Being Index and Copenhagen Burnout Inventory. The results suggested that the effects advocate a high share of residents at this group have low well being. This study fails to find work related burnout to be most significant predictor for well being.

Min, Sbarra and Keim (2015) provided the prospective relationship between self reported sleep quality and wellness across a single training period. The participants were 69 resident physicians completed the Brief Resident Wellness Profile and the Pittsburgh Sleep Quality Index at numerous events in a single training period. This research inspected the one month slacked impact of sleep disturbances on residents and self reported wellness. The results showed that overall level of sleep disturbances influence the whole investigation time frame, both simultaneous inside the event impact of sleep disturbances were noteworthy indicators of diminished resident wellness. Increases in sleep disturbances were the major pointer of resident wellness, anticipating diminished well being one month later.

Stoica (2015) examined subjective well being which were influenced by the sleep. The sample consisted of 5 males and 28 females aged between 24 and 47 years. The subjects were coordinated in a self observing process, during which they precisely noticed the parameters identified with the night time sleep and subjective well being. It was utilized a fundamental arrangement with two segments of the autonomous variable, the sleep: Average Number of Hour's Slept by Night (ANHS) and Average Level of Self Evaluated Resting after Waking (ALR). The results inferred that self evaluated resting level after waking were statistically altogether indicator of the inclination which is influenced by it to a more worthy degree than cognitive and readiness ability, signifying the main importance of sleep quality for regular well being.

Pilcher, Callan and Posey (2015) investigated the impact of half sleep and total sleep deprivation on emotional stimuli. The participants were 28 partially sleep deprived and 31 total sleep deprived adults. Those participants appraised their valence and excitement reactions to positive and negative pictures crosswise over four testing sessions during the day following partial sleep deprivation or during the night under complete lack of sleep. The results recommended that valence and arousal evaluations diminished under both lack of sleep conditions. Moreover, partial and sleep deprivation had more prominent negative impact on positive occasions than negative occasions. This study mainly suggested that sleep deprived persons were more respond lower to positive events than negative events. All things considered, sleep deprivation could affect reactivity to enthusiastic improvements through automated attentional and self-administered processes.

Lei et. al. (2015) expected to test the speculation that the coupling quality of expansive scale brain networks will reflect the pressure of sleep and will anticipate cognitive performances. The participants were 14 healthy subjects and right handed adult males experienced within subject functional magnetic resonance, examined during rested wakefulness and after 36 hours of total sleep deprivation. The results demonstrated that changes in salient network and default mode network coupling may be critical in cognitive alternations that underline the slip by after total sleep deprivation. Further test may approve the sleep pressure index as a potential clinical biomarker to evaluate the effect of sleep deprivation.

Gevers, Deliens and Hoffmann (2015) examined the impact on sleep deprivation on intellectual (cognitive) control measuring the adapted version of the stroop test that permits to isolate top down (attentional reconfiguration on incongruent things) and bottom up (encouraged preparing after continuity in reactions and additionally highlights of improvements) components of performances. The participants were 25 healthy young adults (6 males; 19 females) underwent a normal sleep or total sleep deprivation before cognitive testing. The tools used for the study was Pittsburgh Sleep Quality Index, Edinburgh Handedness Questionnaire; Mornings Eveningness Questionnaire and to adapt regular normal sleep habits participants were requested to complete St Mary's Hospital Sleep Questionnaire. The results revealed that lack of sleep specifically weakens top down adjustment systems: cognitive control never again endless supply of reaction struggle at the previous preliminary. In parallel, bottom up capacities were discovered unaffected by lack of sleep; helpful impacts of improvement and reactions reiterations preserved. Changes in the vigilance states because of sleep deprivation specifically effect on the psychological control in the stroop test by influencing top down, yet not bottom up, systems that guide adaptive behaviour.

Tavakoli, Muller Gass and Campbell (2015) found out whether partial sleep deprivation would also lead to any involvement in cognitive strategy that unsustain attention and effortful processing which is mandatory for using predicative expectancy strategy. The participants were 16 young adults (10 females; 6 males) between the age of 20 and 30 years were selected and Pittsburgh Sleep Index Questionnaire was given. The results proved that event related potential was not different between two conditions of sleep (i.e., partial and total sleep deprivation) and also revealed that night sleep is much essential for individuals to measure cognitive processing.

Richter (2015) examined the effects of perceived sleep deprivation's influence on psychological well being at the end of four academic years, while controlling for institutional and student background characteristics that are theoretically associated with psychological well being. The tool used was Well being Questionnaire and Six Subscales composing the complete measure. The participants were 2,212 the first year undergraduate college students. The results contributed to college outcomes models by supporting the claims for the importance of healthy, habitual sleep in relation to students ability to achieve overall psychological well being as well as the six subscales of total model.

Bassett, Sarah and Lupis (2015) tested the effects of sleep quality and quantity on cortisol responses to acute psychosocial stress. The total participants were 73 college aged adults (44 females and 29 males) were administered by Pittsburgh Sleep Index Quality and Salivary Cortisol responses to the Trier Social Stress Test. The results suggested that gender specific stress reactivity dysfunctions as one mechanism linking poor sleep with detrimental physical health outcomes.

Uddin (2015) inspected the impact of rest cautiousness, momentary memory, and learning; and additional aim was to test whether these factors influence grade point average (GPA). The data was collected from 20 undergraduate college students from Walden University was administered by Self Reported questionnaires for Sleep and Grade Point Average; Digital Vigilance Test (DVT); Short Term Memory and Learning were measured using subtests of the Wide Range Assessment of Memory and Learning (WRAML 2). The results showed that inadequate sleep had a significant effect on short term memory and learning but not in vigilance.

Kalak et. al. (2014) found out that whether the low time of sleep affect the psychological well being and to predict the subjective psychological well being may cause any changes in their later life due to short time of sleep. The participants were 1,601 adolescents from two different European countries. The tools used for this study was self-assessment of Bern Well Being Questionnaire for Adolescents. The results revealed that duration of sleep decreases due to the age factor and also the longer duration of sleep is significantly associated with the subjective Psychological Well Being.

Guadagni, Burles, Ferrara and Iaria (2014) conducted a study on "The Effects Sleep Deprivation on Emotional Empathy". The participants were 37 healthy young adults volunteers (15 males; 22 females) assigned for three experimental groups. The tools used for the study was State Trait Anxiety Inventory Questionnaire, Beck Depression Scale, Pittsburgh Sleep Quality Index questionnaire and Multifaceted Empathy Test. The results showed that the negative effect of sleep deprivation deal with emotional information and expand these effects to emotional empathy.

Lopez Zunini, Muller Gass and Campbell (2014) conducted a study on "The Effects of Total Sleep Deprivation on Semantic Priming: Event Related Potential Evidence for Automatic and Controlled Processing Strategies". Word priming is distinctive because it include the strategies of either automatic or controlled, difficult processing. The participants were 12 young adults were resented with word pairs that were extremely semantically associated, less semantically associated or unassociated semantically. The results revealed that task advantages decrease from utilizing predictive strategies, based on the event related potential the processing prey did not differ in the function of sleep.

Olmos and Pinilla (2014) insisted attention performance of medical students after the lack of sleep due to night shifts. The participants were 209 students (18-26years) from all 12 academic semesters. This test was held for the students who underwent the night shift during their academics. The tools used for the study was Sleep Questionnaire and Neurocognitive Assessment. The outcome of the study revealed that sleep deprived students have very less concentration power that those students without.

Abel and Karl-Heinz and Bäuml (2013) suggested a link between sleep and memory consolidation, indicating that sleep in comparison to wakefulness stabilizes memory. In this study they applied the list method directed forgetting task and assessed memory performance after 3 delay intervals. Initially the participants were 210 students in which 18 participants were reporting with sleep disorders, alcohol intake between sessions, 192 healthy students remained (range = 18-36 years ; 76 men and 116 women) for the study. The results revealed that when wakefulness follows upon encoding, the forgetting can be successful; when sleep follows upon encoding, no forgetting may arise.

Zawadzki, Graham and Gerin (2013) examined the mechanisms that underlie the observed relationship between loneliness on depressed mood and sleep quality in college students. The study investigated whether rumination and trait anxiety are psychological mechanisms that mediate the relationship. The samples were 1,244 college students from different universities in US. The results found that rumination and trait anxiety fully mediated the associations between loneliness and depressed mood as well as poor sleep quality; these relationships held after testing all other factors.

Grundgeieger, Bayen and Horn (2013) studied the impact of sleep deprivation and no sleep deprivation on memory of prospective by ensuring the more or less resource demands in prospective memory. The participants were 60 first year university students, instructed to carry sleep/wake diary for 5 days till the session ends. The results showed that sleep deprivation affect the cognition more globally and also it increases failures of intended actions, which have more consequences in safety critical situations.

METHOD

CHAPTER III

METHOD

The procedure pertaining to the present study namely, **"Effects of Sleep Deprivation on Memory, Problem Solving and Well Being among Young Adults"** was carried out involving the following steps:

- Objectives
- Hypotheses
- Area
- Sample
- Inclusion Criteria
- Exclusion Criteria
- Tools
- Procedure
- Analysis of Data

Objectives

The study used a static group comparison research design to determine the regulatory focus on young adults. And the objectives are,

1. To assess the level of Sleep Deprivation, Memory, Problem Solving and Well Being among Young Adults
2. To examine the relationship between the Sleep Deprivation, Memory, Problem Solving and Well Being among Young Adults.
3. To examine the relationship between Demographic Variables and Sleep Deprivation, Memory, Problem Solving and Well Being.
4. To identify the factors that represents the relationship between the Sleep Deprivation, Memory, Problem Solving and Well Being among Young Adults.

Hypotheses

The hypotheses are stated as Alternative Hypotheses, so that they can be either accepted or rejected, based on the results.

- There will be differences in the level of Sleep Deprivation among Young Adults.
- There will be differences in the level of Memory among Young Adults.
- There will be differences in the level of Problem Solving among Young Adults.
- There will be differences in the level of Well Being among Young Adults.
- There will be significant relationship between Sleep Deprivation and Memory among Young Adults.
- There will be significant relationship between Sleep Deprivation and Problem Solving among Young Adults.
- There will be significant relationship between Sleep Deprivation and Well Being among Young Adults.
- There will be positive relationship between Memory and Problem Solving among Young Adults.

Area

The participants were selected from Dr. SNS Rajalakshmi College of Arts and Science to conduct the study. The reasons for selecting the areas were as follows:

- Availability of the required number of participants for the study
- Cooperation of the participants
- Easy accessibility as the Institution is situated within the city
- Permission and facilities provided by the Institution Authorities to conduct the research.

Sample

Two hundred samples were collected from Dr. SNS Rajalakshmi College of Arts and Science for Sleep Deprivation, Memory, Problem Solving and Well Being. The participants were in the age range of 18-25 years.

Inclusion Criteria

- Age range from 18-25 years
- Both male and female participants
- Samples from the Educational Institution

Exclusion Criteria

- The participants below 18 years and above 25 years were excluded.
- The participants who are not willing to participate.

Tools

The following tools were used for data collection

- Consent Form used for the ethical purpose.
- The Pittsburgh Sleep Quality Index (PSQI, Buysse, D. J. & Reynolds, 1989) was used to measure the Sleep Deprivation.
- Multifactorial Memory Questionnaire (Angela K. Troyer and Jill B. Rich, 2007) was used to measure the level of Memory.
- Problem Solving Skill Questionnaire (Dereli Iman, 2009) was used to measure the level of Problem Solving Skills.
- Psychological Well Being Scale (PWB, Carol D. Ryff, 1989) was used to measure the Well Being.

Consent Form

Consent form was signed by the participants in agreement to participate in the research.

Social Demographic Status

Demographic data was used to gather information about the sample including initials, age, sex, stream, etc.

The Pittsburgh Sleep Quality Index

The Pittsburgh Sleep Quality Index was constructed and standardized by Buysse, D.J., Reynolds (1989) which is used to assess the sleep quality and patterns of sleep among adults. The scale consists of 19 items, mainly it differentiates “poor” from

"good" sleep by assessing 7 domains: subjective sleep quality; sleep duration, sleep latency, sleep disturbances, habitual sleep efficiency, use of medications and daytime dysfunction over the last month. The participants self-rates each of these areas of sleep. Scorings for these statements is based on a 0 to 3 scale, by which 3 reflects the extreme negative on the Likert Scale. A wide sum of "5" or greater indicates "poor" sleeper. Even though there are few questions that requested the evaluation of the participant's bedtime or roommate, these are not calculated, nor reflected in the given instrument. The PSQI has internal consistency and a reliability coefficient (Cronbach's alpha) of 0.83 for its seven components. Numerous studies using the PSQI in a variety of adult populations internationally have reinforced high reliability and validity.

Multifactorial Memory Questionnaire

The standardized Multifactorial Memory Questionnaire was developed by Angela K. Troyer and Jill B. Rich (2007) was used for the research study to assess the level of memory among participants. The analysis using Cronbach's alpha designated good internal consistency for satisfaction ($\alpha = .95$); strategy ($\alpha = .83$) and ability ($\alpha = .93$) scales. Classification of items into their individual scales showed sturdy agreement among twelve memory consultants (Troyer & wealthy, 2002). Of the sixty one original items, there was 100% agreement for fifty three items, 92% agreement for six items, and 83% agreement for one item. One of the item failed to meet the criterion of 70% agreement, and it absolutely was not preserved within the final version of the MMQ. The scale consists of 20 items with 5 alternatives "All the time", "Often. "Sometimes", "Rarely" and "Never". The scale measures the self-perception of memory ability. The score range is from 0 to 80, with higher scores shows that better self-reported memory ability.

Problem Solving Skill Questionnaire

The standardized Problem Solving Skill Questionnaire was developed by Dereli Iman (2009). This scale was used to assess the problem solving ability among the participants of the study. The analysis was evaluated by the Cronbach's alpha, the scale had a factor leading value of 0.75 by which internal consistency construct validity and the reliability value of the scale was 0.50. This scale consists of 15 statements and with 4 alternatives which are "Completely Agree", "Mostly Agree", "Completely Disagree" and "Mostly Disagree".

Psychological Well Being Scale

The Psychological Well Being Scale was standardized and constructed by Carol D. Ryff (1989) which was used to assess the aspects of well-being in individuals and its role in physical and psychological health. The scale consists of 42 statements with six subscales. The test retest reliability coefficient of PWB was 0.82. The subscales of Self-acceptance was 0.71; Positive Relations with Others was 0.77; Autonomy was 0.78; Environmental Mastery was 0.77; Purpose in Life was 0.70 and Personal Growth was 0.78 were found respectively, which was significantly significant ($p<0.001$). These results demonstrate that the scale is a valid and reliable instrument.

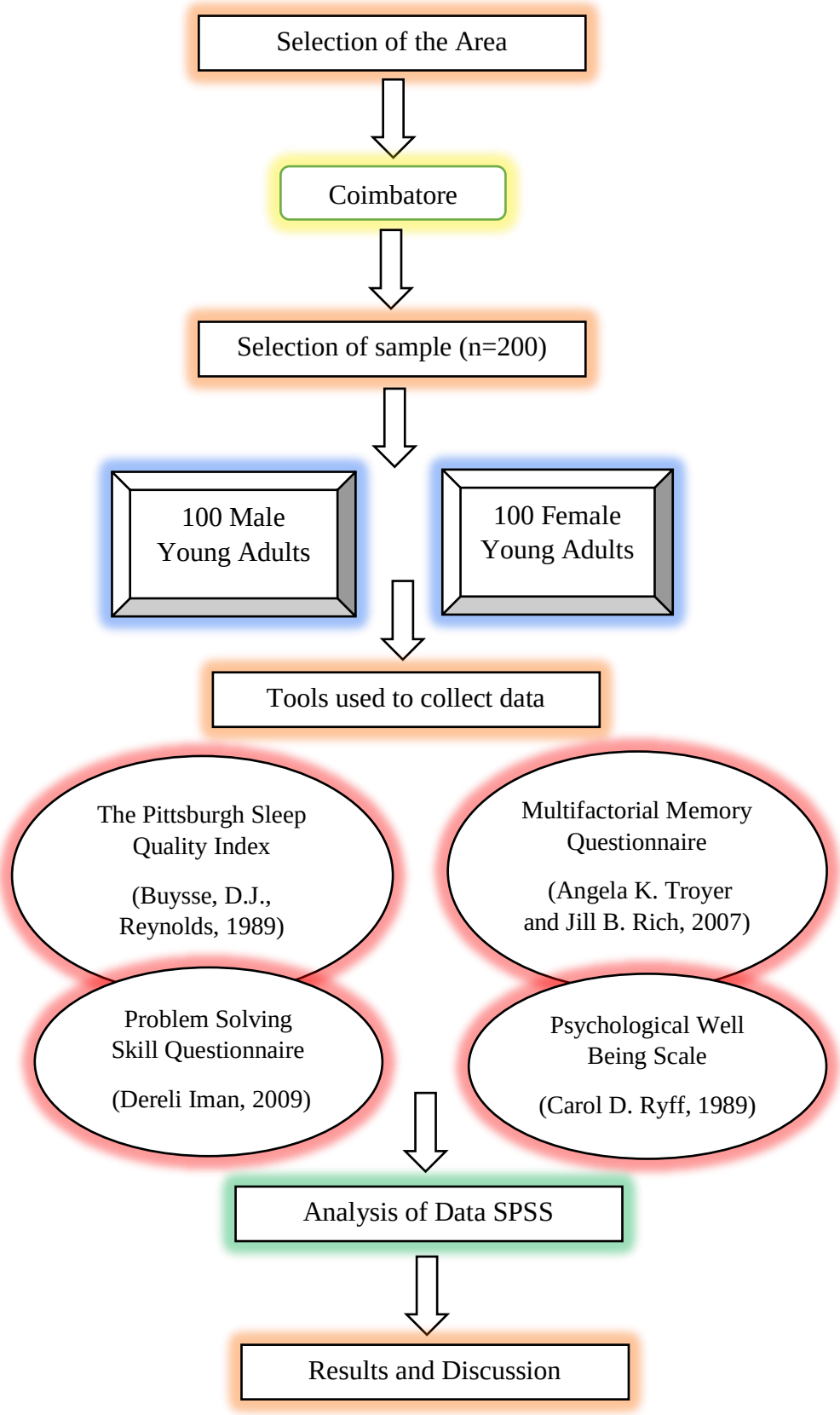
Institution of Human Ethics Committee

As the study involves human subjects, all procedures described in this study was reviewed and approved by the Institutional Human Ethics Committee, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore. The approval number for the research purpose is **AUW/IHEC/PSY-18-19/XPD/02**.

Effects of Sleep Deprivation on Memory, Problem Solving and Well Being among Young Adults

Flow chart

Experimental Design



Procedure

Initially the booklet was given to the participants which consists of Consent form; Demographic Data; Pittsburgh Sleep Quality Index; Multifactorial Memory Questionnaire; Problem Solving Skill Questionnaire and Psychological Well Being Scale. Participants were asked to sign in the consent form in the agreement of participating in the research; and requested to fill each statements according to the instructions provided to them.

Analysis of Data

The data was analysed using SPSS (Statistical Package for the Social Sciences) version 21. Correlation was used to find the relationship between Sleep Deprivation, Memory, Problem Solving and Well Being among Young Adults and Independent sample test was computed.

RESULTS AND DISCUSSION

CHAPTER IV

RESULTS AND DISCUSSION

A study on "Effects of sleep Deprivation on Memory, Problem Solving and Well Being among Young Adults". Two hundred participants were selected by using convenient sampling method.

The results of the survey are analysed, tabulated and discussed below:

Table 1

Level of Sleep Deprivation among Young Adults

Sleep Deprivation	Number	Percent (%)
Normal	84	42
High	116	58

Percentages are rounded off

Sleep Deprivation is mainly known for inadequate of sleep, is that the condition when an individual are not having sufficient sleep. Table 1 shows that the percentage of Sleep Deprivation levels among Young Adults, in which 42% of the participants have normal sleep patterns whereas rest of 58% of the participants have irregular sleeping patterns due to late night tasks or other severe complications.

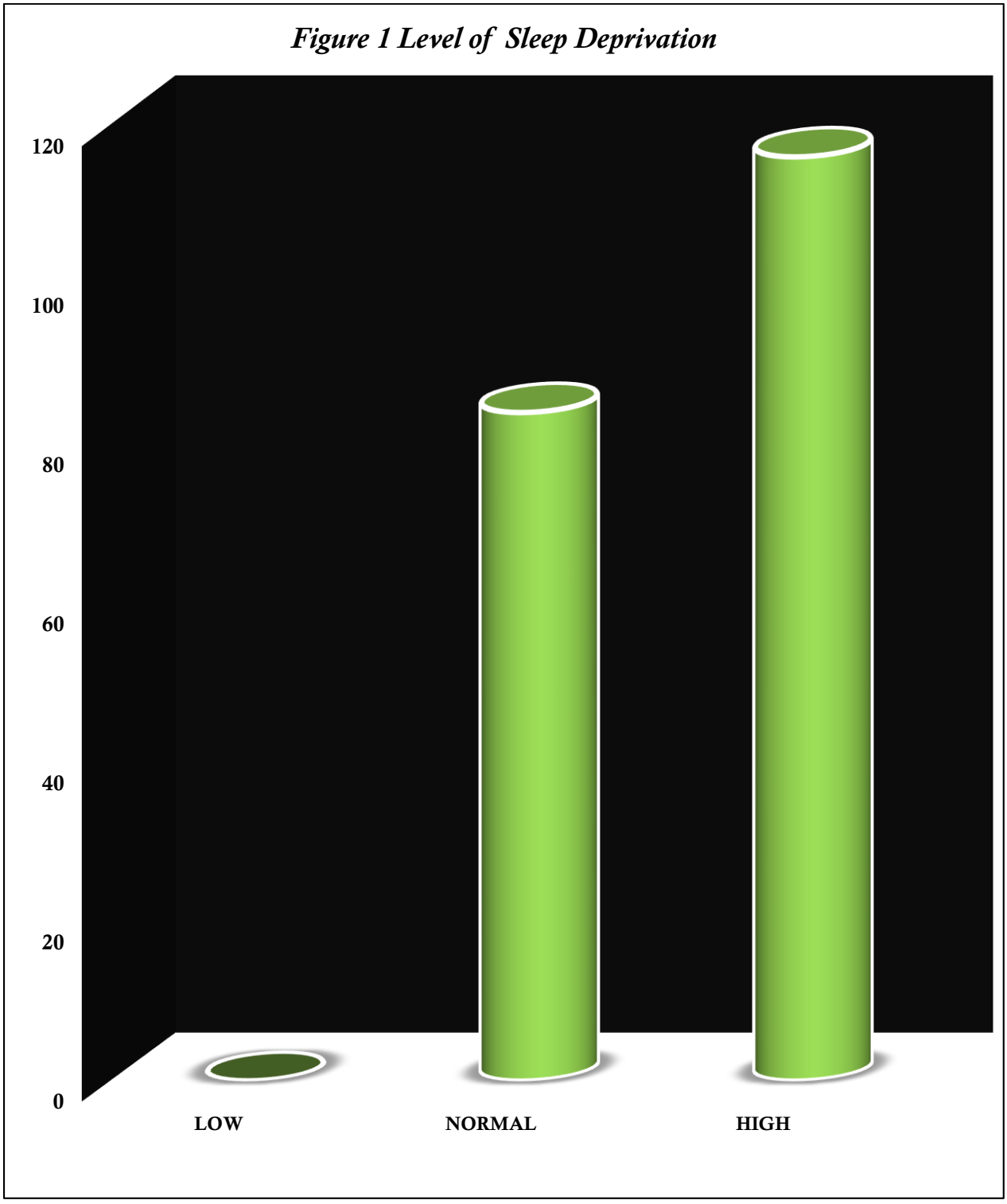


Figure 1 Level of Sleep Deprivation
120
100
80
60
40
20
0
LOW
NORMAL
HIGH

Table 2

Level of Memory among Young Adults

Memory	Number	Percent (%)
Low	10	5
Average	64	32
Above Average	46	3
High	80	40

Percentages are rounded off

Memory is the power of retaining and recalling of the past experiences, it enhances with the cognitive processes whereas past experienced are gained. Table 2 shows the level of Memory among Young Adults. Nearly 40% of the participants had high level in memory, it shows that the particular individuals are intellectually active through training, learning or reading. Only 3% of the participants scored above average as it shows that they have the capacity to retrieve information whenever needed and can able to manipulate with ideas normally. 32% of the participants had average level of memory, because they have the ability to cope up with their own ideas and to manipulate in different ways. And 5% had low level of memory, it shows that they have less conscious to remember and they have less amount in concentrating some of things eventually.

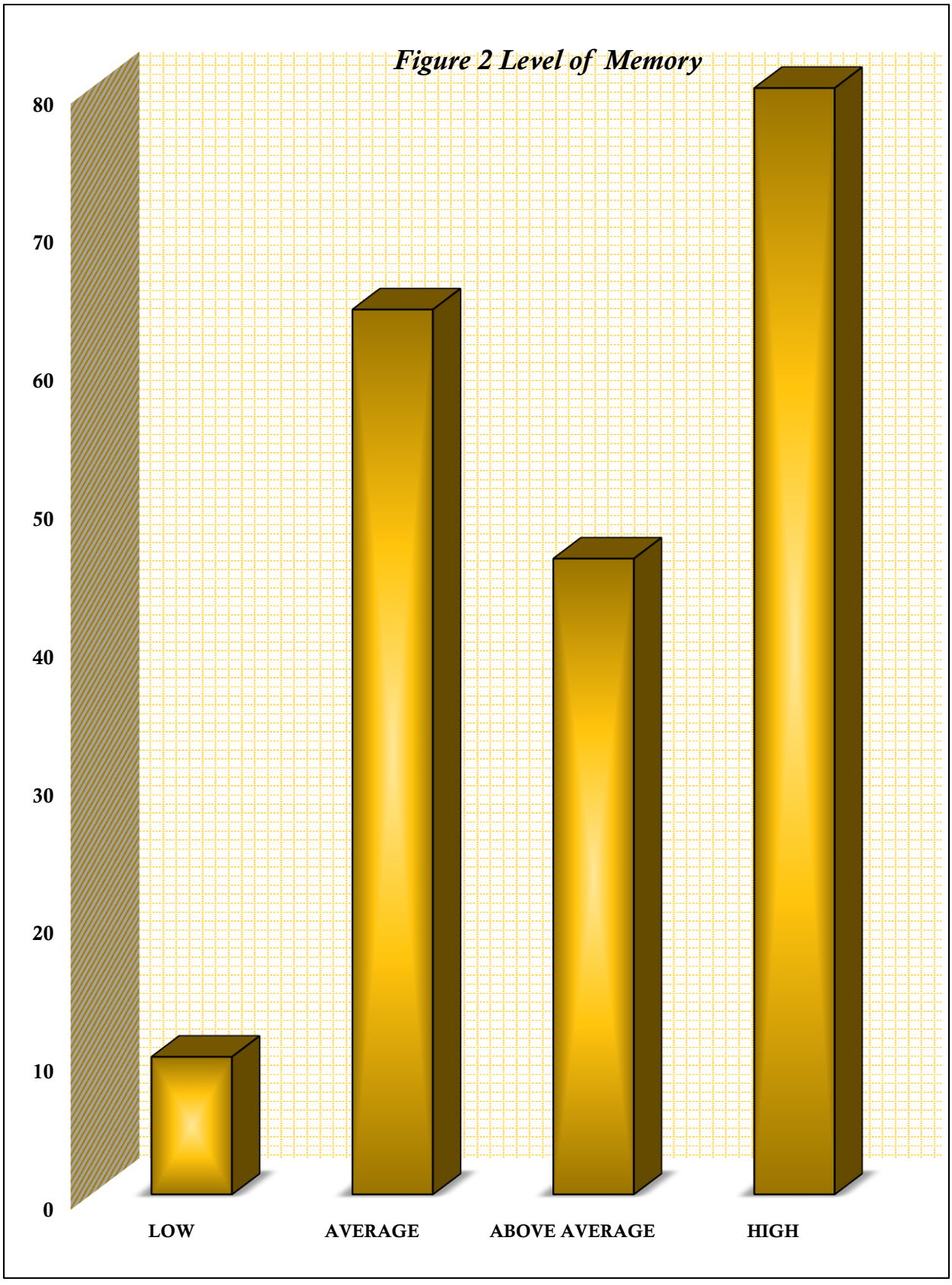


Figure 2 Level of Memory
80
70
60
50
40
30
20
10
0
LOW
AVERAGE
ABOVE AVERAGE
HIGH

Table 3

Level of Problem Solving among Young Adults

Problem Solving	Number	Percent (%)
Low	40	20
Average	83	41
High	77	39

Percentages are rounded off

Problem Solving is the process to detect solutions to strenuous or complex issues. This process begins with problem finding and shaping the problem, where the problem actually occurs and simplified. Table 3 shows that the maximum amount of participants had occurred average level of problem solving abilities, in which the individuals required a careful balance of creativity and logical thinking. The table indicates that 39% of the participants had high level of problem solving abilities which shows that they can encounter problems in their daily basis of life even though the problems are severe and complex than others. Only 20% of participants had low level of problem solving abilities, which shows that they feel difficulty in identifying the issues and easily gets distracted instead of staying focussed about the issues.

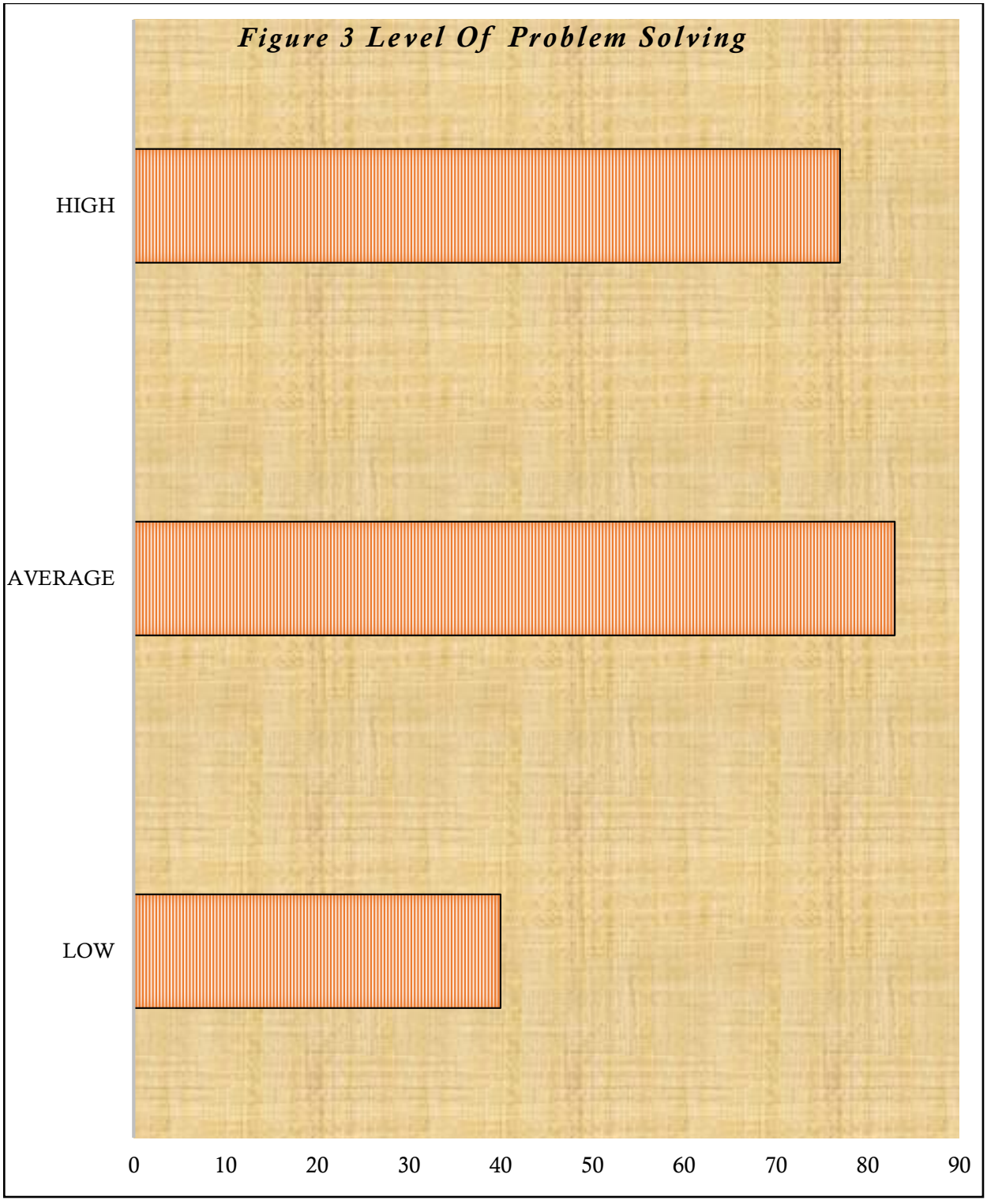


Figure 3 Level Of Problem Solving
HIGH
AVERAGE
LOW
0
10
20
30
40
50
60
70
80
90

Table 4

Level of Psychological Well Being among Young Adults

Well Being	Number	Percentage (%)
Autonomy		
High	132	66
Low	68	34
Environmental Mastery		
High	138	69
Low	74	31
Personal Growth		
High	143	71
Low	57	29
Positive Relations		
High	144	72
Low	56	28
Purpose in Life		
High	142	71
Low	54	29
Self Acceptance		
High	142	71
Low	54	29

Percentages are rounded off

Psychological wellbeing is quite indistinguishable to other terms that refer to positive mental states, such as happiness or triumph, and in many ways it is not mandatory or helpful to worry about exquisite distinctions between such terms. Table 4 shows that the levels of psychological well being subscales among the participants. The Autonomy interpreted as the high level of 66%, which shows that they are individualistic in nature and able to resist pressure and 34% have low level which shows that they depend on others judgement. Environmental Mastery interpreted as the high level of 69%, which shows that the participants have ability in managing the environment and 31% have low level because they have issues in

managing day to day affairs. Personal Growth interpreted as high level with 71% because they have fondness of continued development to extend and 29% had low level which indicates that they lack in personal growth, feels bored and apathetic towards life. Positive Relations interpreted as high level with 72% because the individuals have cosy satisfying relationship with others and few participants have low level with 28% which showed that participants are less close with others and struggles to get warmth with others. Purpose in Life has interpreted with high level of 71% which shows that they have intention motivation towards life and way of direction; 29% have low level in well being because they may have fewer goals and lacks sense of assertiveness. Self Acceptance had interpreted as high level with 71% which indicates that they have positive perspectives towards the self and 29% had low level because they feels discontented with self and may have unsuccessful experiences with their past life.

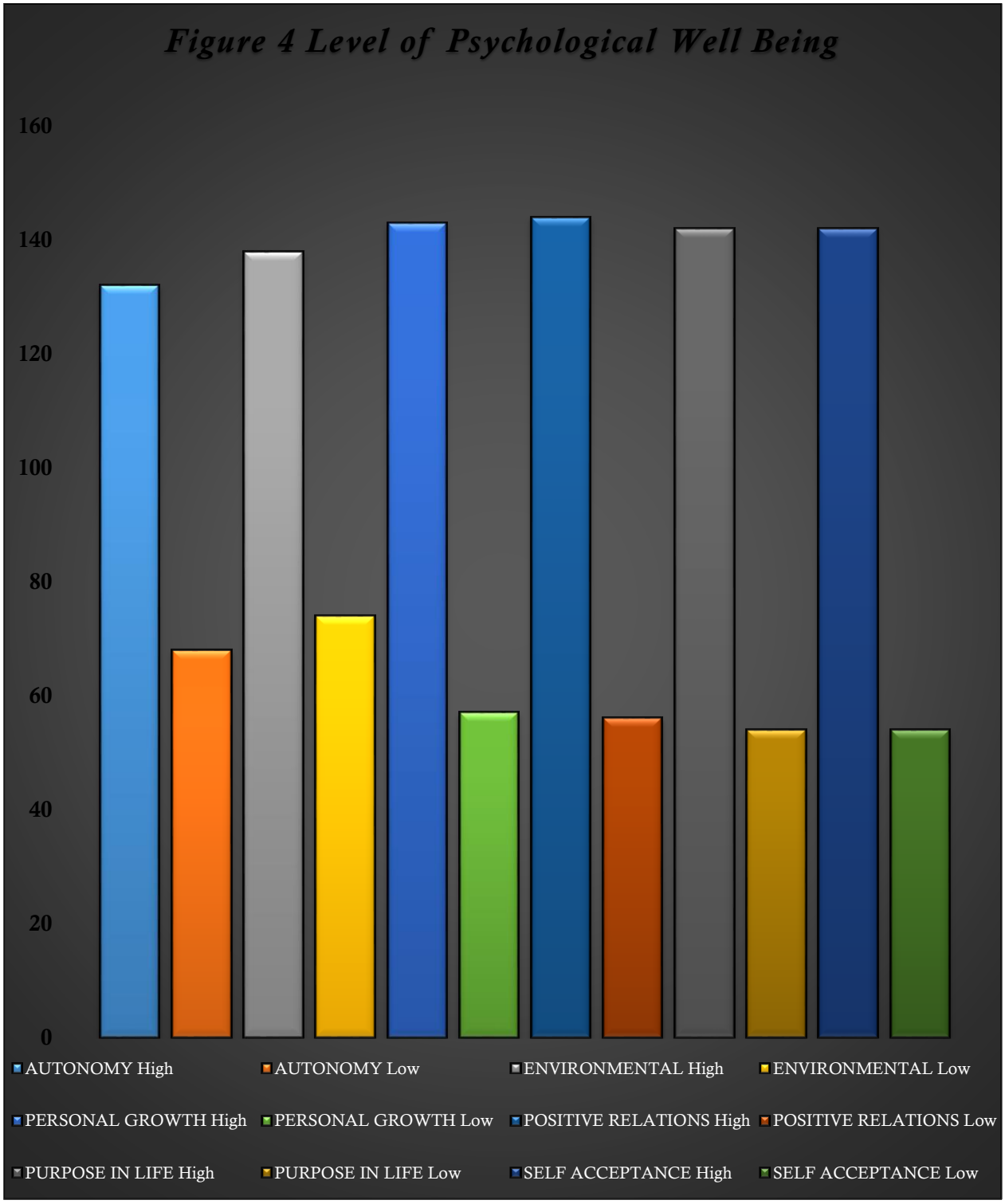


Figure 4 Level of Psychological Well Being
160
140
120
100
80
60
40
20
0
AUTONOMY High
AUTONOMY Low
ENVIRONMENTAL High
ENVIRONMENTAL Low
PERSONAL GROWTH High
PERSONAL GROWTH Low
POSITIVE RELATIONS High
POSITIVE RELATIONS Low
PURPOSE IN LIFE High
PURPOSE IN LIFE Low
SELF ACCEPTANCE High
SELF ACCEPTANCE Low

Table 5

Mean and Standard Deviation of Psychological Variables among Young Adults (N=200)

Variables	Gender	Mean	Standard Deviation
Sleep Deprivation	Male	9.00	6.99
	Female	7.48	5.60
Memory	Male	49.92	18.90
	Female	50.62	17.44
Problem Solving	Male	38.91	12.36
	Female	41.01	9.69
Autonomy	Male	27.55	8.26
	Female	26.47	7.45
Environmental Mastery	Male	27.31	8.74
	Female	26.47	7.53
Personal Growth	Male	28.09	8.27
	Female	27.63	6.96
Positive Relations with Others	Male	27.50	7.83
	Female	27.36	7.74
Purpose in Life	Male	27.07	7.73
	Female	27.18	7.61
Self Acceptance	Male	27.45	8.15
	Female	27.62	6.97

Table 5 shows the Mean Difference and Standard Deviation of Psychological Variables among Young Adults. From the statistical analysis, the mean difference of sleep deprivation in male and female participants is 9.00 and 7.48; male scored slightly higher than female because women require twenty minutes more sleep than men, when sleep occurs the brain actually regenerates and since women brain works more during sleeping hours. The mean difference of memory in male and female participants is 49.92 and 50.62, there is a mild differences among the participants because female are typically more reactive to emotional recognition. The mean difference of problem solving is 38.91 and 41.01, it is clear that women have higher level in problem solving abilities that men because women are better equipped for the workplace and are more able to cope with different modern ways. The mean differences of Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Purpose in Life and Self Acceptance have quite similar among male and female participants.

Table 6

Correlation between Sleep Deprivation and Memory among Young Adults

		Sleep Deprivation	**Memory**
Sleep Deprivation	Pearson Correlation	1	-.87**
	Sig. (2- tailed)		.00
	N	200	200
Memory	Pearson Correlation	-.87**	1
	Sig. (2- tailed)	.00	
	N	200	200

**** Correlation is significant at the 0.01 level (2- tailed)**

Table 6 shows that the correlation between the two variables of sleep deprivation and memory. The statistical measure shows that the variables are correlated, which is significant at the 0.01 level.

Alhola and Polo-Kantola (2007) conducted a study on "Sleep Deprivation: Impact on Cognitive Performance". The study aims to provide that partial and total sleep deprivation influence changes in cognitive performance. The total sleep deprivation mainly adverse memory and attention, but also affects other functions which may include long term memory and decision making. It mainly involved in the effects of demanding cognitive performance which is lacking more in memory. Coping with sleep deprivation depends on various factors which may indulge age and gender differences. The results revealed that the prolonged wakefulness can be due to sleep deprivation and individual's lacks memory performance in their day to day life. Hence the Alternative Hypothesis 5 '**There will be significant relationship between Sleep Deprivation and Memory among Young Adults**' is accepted.

Table 7

Correlation between Sleep Deprivation and Problem Solving among Young Adults

		Sleep Deprivation	Problem Solving
Sleep Deprivation	Pearson Correlation	1	-.83**
	Sig. (2- tailed)		.00
	N	200	200
Problem Solving	Pearson Correlation	-.83**	1
	Sig. (2- tailed)	.00	
	N	200	200

**** Correlation is significant at the 0.01 level (2- tailed)**

Table 7 shows that the correlation between Sleep Deprivation and Problem Solving among Young Adults. The value of – 0.83 clearly indicates that if the participants has sleep deprivation and they cannot have proper problem solving skills and it is significant at the 0.01 level.

Linde and Bergstrome (2002) investigated on the impact of spending one night without sleep on the performance of complicated cognitive tasks, such as problem solving compared with short term memory task. One type of task analysed was immediate free recall and second type of task analysed with reasoning and problem solving tasks. These two experiments were performed with repeated measured designs. Experiment 1 showed a major decline on performance as operate of sleep loss on problem solving task and there is no other impact on inadequate sleep was found. Experiment 2 suggested with the various order between tasks than first experiment and time without the sleep was eventually increased. The results revealed that there was a significant negative impact on sleep loss in the performance was found in experiment 2. The impacts on loss of sleep on another task were not significant because the tasks reflect the capacity to monitor selective attention and to monitor mental computations. Hence the Alternative Hypotheses 6 '**There will be significant relationship between Sleep Deprivation and Problem Solving among Young Adults**' is accepted.

Table 8

Correlation between Sleep Deprivation and Well Being among Young Adults

		Sleep Deprivation	Well Being
Sleep Deprivation	Pearson Correlation	1	-.78**
	Sig. (2- tailed)		.00
	N	200	200
Well Being	Pearson Correlation	-.78**	1
	Sig. (2- tailed)	.00	
	N	200	200

**** Correlation is significant at the 0.01 level (2- tailed)**

Table 8 shows that the correlation between Sleep Deprivation and Well Being among Young Adults and the correlation value is – 0.78 and it is negatively correlated at 0.01 level.

Haack and Mullington (2005) investigated on "Sustained Sleep Restriction Reduces Emotional and Physical Well Being". The participants were 40 healthy subjects in the age range of 21 years to 40 years (14 females and 26 males). Subjects were irregular to either four hours of sleep per night (11pm - 3am, N=22) or eight hours of sleep per night (11pm -7am, N=18) for twelve consecutive days. The results revealed that optimism - sociability increasingly declined over consecutive days of sleep restrictions by 15%. Bodily discomfort showed a mild but significantly increased by 3% across those selective days due to vital increases of generalized body pain and stomach ache. Overall data suggested that chronic inadequate sleep could be contributed to the onset of amplification of pain and mainly it affects the individuals well being. Hence the Alternative Hypotheses 7 '**There will be significant relationship between Sleep Deprivation and Well Being among Young Adults**' is accepted.

Table 9

Correlation between Memory and Problem Solving among Young Adults

		Memory	**Problem Solving**
Memory	Pearson Correlation	1	.80**
	Sig. (2- tailed)		.00
	N	200	200
Problem Solving	Pearson Correlation	.80**	1
	Sig. (2- tailed)	.00	
	N	200	200

**** Correlation is significant at the 0.01 level (2- tailed)**

Table 9 shows that the correlation between Memory and Problem Solving among Young Adults. The statistical measures shows that the variables are correlated, and which is significant at the 0.000 level.

Craig P. McFarland, Mark Primosch, Chelsey M. Maxson and Brandon T. Stewart (2017) examined the links between Memory, Imagination, and Problem Solving among Individuals with Depression and recommend that increasing access to memories can lead to enhance imagination and problem solving performance. The participants were 47 adults aged from 18years to 50 years), the depressed group mates consists of 23 participants and 24 participants were non-depressed. The results revealed that episodic specificity induction promoted increase in memory and imagination and highly relevant on problem solving tasks among the depressed and non-depressed participants. Hence the Alternative Hypotheses 8 '**There will be positive relationship between Memory and Problem Solving among Young Adults**' is accepted.

Table 10

Level of Significance of the variables based on Gender (N=200)

Variables	Gender	Mean	Standard Deviation	t value
Sleep Deprivation	Male	9.00	6.99	0.58**
	Female	7.48	5.60	
Memory	Male	49.92	18.90	-.27
	Female	50.62	17.44	
Problem Solving	Male	38.91	12.36	-1.34**
	Female	41.01	9.69	
Autonomy	Male	27.55	8.26	.97
	Female	26.47	7.45	
Environmental Mastery	Male	27.31	8.74	-.47**
	Female	26.47	7.53	
Personal Growth	Male	28.09	8.27	-.43**
	Female	27.63	6.96	
Positive Relations	Male	27.50	7.83	-.13
	Female	27.36	7.74	
Purpose in Life	Male	27.07	7.73	-.10
	Female	27.18	7.61	
Self Acceptance	Male	27.45	8.15	-.16**
	Female	27.62	6.97	

**** Significant at 0.01**

Table 10 shows the independent sample test for Sleep Deprivation, Memory, Problem Solving and Well Being among young Adults. This shows that there is no major difference between males and females among the psychological variables. Sleep Deprivation is more common in modern society, but it reaches extend to the cognitive aspects that should understood from the scientific perspective view. Whenever there is inadequate sleep, it gradually leads to slow down the ability of speed and increased variability. The effects of sleep deprivation shows more impact on the cognitive abilities which includes memory, perception and executive functions. By contrast, less amount of sleep quality is relatively associated with higher level of negative psychological well being; biological sleep rhythms are disrupted, because those individuals experience more stressful events regarding futures and employment or late night works.

SUMMARY AND CONCLUSION

CHAPTER V

SUMMARY AND CONCLUSION

Sleep Deprivation consists either during a complete lack of sleep throughout a definite amount of time or a shorter than optimal sleep time. The foremost common causes of sleep deprivation are those associated with the lifestyles and work related factors. A chronic reduction within the sleep time or the fragmentation of sleep, resulting in the disruption of the sleep cycle, may have consequences equivalent to those of several acute sleep deprivation; referring significantly to the psychological well being, cognitive functions, attention and operant memory.

The study on "Effects of Sleep Deprivation on Memory, Problem Solving and Well Being among Young Adults". The main objectives are

- To assess the level of Sleep Deprivation, Memory, Problem Solving and Well Being among Young Adults
- To examine the relationship between the Sleep Deprivation, Memory, Problem Solving and Well Being among Young Adults.
- To examine the relationship between Demographic Variables and Sleep Deprivation, Memory, Problem Solving and Well Being.
- To identify the factors that represents the relationship between the Sleep Deprivation, Memory, Problem Solving and Well Being among Young Adults.

The participants were selected from Dr. SNS Rajalakshmi College of Arts and Science to conduct the study. Two hundred participants were selected for the study from the Educational Institution for Sleep Deprivation, Memory, Problem Solving and Well Being. The participants were in the age range of 18-25 years. The tools were used for this study were Consent Form, The Pittsburgh Sleep Quality Index (PSQI, Buysse, D. J. & Reynolds, 1989), Multifactorial Memory Questionnaire (Angela K. Troyer and Jill B. Rich, 2007), Problem Solving Skill Questionnaire (Dereli Iman, 2009) and Psychological Well Being Scale (PWB, Carol D. Ryff, 1989). Participants were asked to sign in the consent form in the agreement of participating in the research; and requested to fill each statements according to the instructions provided to them. The data was analysed using SPSS (Statistical Package for the Social Sciences) version

21. Correlation was used to find the relationship between Sleep Deprivation, Memory, Problem Solving and Well Being among Young Adults and Independent sample test was computed.

Conclusion

- The levels of sleep deprivation among young adults showed that 42% of the participants had normal patterns of sleep and nearly 58% of the participants had high level of irregular sleep patterns.
- The levels of memory among young adults showed that nearly 40% of the participants had interpreted as high level of memory, 32% of the participants had average level of memory, 5% had interpreted as low level of memory and only 3% of the participants had interpreted as low level of memory.
- The levels of problem solving among young adults showed that 39% had high level of problem solving ability, 41% of the participants had average level of problem solving abilities, and 20% of the participants had low level of problem solving ability.
- The high level of autonomy was 66% and 34% of the participants had low level of autonomy.
- The level of personal growth shows that 71% of the participants have interpreted as high level and 29% of the participants have interpreted as low level.
- The level of personal growth showed that 71% of the participants high level and 29% of the participants had low level.
- The level of positive relations showed that 72% of the participants high level and 28% of the participants low level.
- The level of purpose in life showed that 71% of the participants had high level and 29% had low level.
- The level of self acceptance showed that 71% of the participants had high level and 29% of the participants low level.
- There is negative relationship between Sleep Deprivation and Memory; Sleep Deprivation and Problem Solving; Sleep Deprivation and Well Being and it is statistically significant at 0.01 level implies that sleep deprivation leads to problem in memory and it leads to not taking decisions properly and in turn affects the well being.
- The t value and significance of the variables based on gender. The sleep deprivation is significantly correlated with the level of .000**, memory is not significant with the value of .247, problem solving is significantly correlated with the value of .001**,

autonomy is not significant with the value of .182, environmental mastery is significantly correlated with a value of .048*, personal growth is significantly correlated with a value of .013*, purpose in life is not significant with the value of .666 and self acceptance is significantly correlated with a value of .015*.

Recommendations

- To enhance new or existing research focussed on either adolescents or adulthood to advance knowledge about the quality of sleep patterns and well being.
- To solve the problems faced by the young adults could be minimized by Jacobson's Progressive Muscle Relaxation Technique and other Psychotherapies.

Limitations

- A larger sample could have been taken for the study as it was difficult to obtain survey from the other participants who are typically engaged with their busy schedules.
- Middle and Late Adulthood could have been included
- Coimbatore area alone was selected for the study other places from Tamil Nadu and India could have been included.

Suggestions for further research

- The research might be expanded to the diversified and cross- sectional samples from different cities and provinces in India as well as internationally for comparison purposes.

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ANNEXURES

ANNEXURE – I

INFORMED CONSENT FORM

Use of a questionnaire's for students

You are being invited to take part in a research study. Before you decide to participate in this study, it is important that you understand why the research is being done and what it will involve. Please take the time to read the following information carefully. Please ask the researcher if there is anything that is not clear or if you need more information. The purpose of the study is to find out the effects of sleep deprivation on memory, problem solving and well being among young adults.

Study Procedure

You will be given four tests of paper-pencil type along with socio demographic profile. You need to respond to all the items in the test. There is no expected time commitment for this test. Any amount of time can be taken to complete the tests. There is no risk in undertaking the study. There will be no direct benefits to you for your participation in this study. Your responses to the question will be anonymous and kept confidential. Your participation in this study is voluntary. It is up to you to decide whether or not to take part in this study. If you decide to take part in this study, you will be asked to sign this form. You are free to withdraw at any time and without giving any reason. There are no costs to you for your participation in this study.

CONSENT FORM

"By signing this consent form, I confirm that I have read and understood the information and have the opportunity to ask questions. I understand that my participation is voluntary and I am free to withdraw at any time, without giving a reason and without cost. I voluntarily agree to take part in this study."

Name of the participant: _____

Signature: _____

Place: _____

Date: _____

ANNEXURE – II

SOCIO-DEMOGRAPHIC STATUS PROFILE

Name:

Age:

Gender:

Occupation:

Place:

Mail Id:

ANNEXURE – III

THE PITTSBURGH SLEEP QUALITY INDEX

(Buysse, D. J. & Reynolds, 1989)

Instructions: - *The following questions relate to your usual sleep habits during the past month only. Your answers should indicate the most accurate reply for the majority of days and nights in the past month. Please answer all questions.*

1. When have you usually gone to bed? _____

2. How long (in minutes) has it taken you to fall asleep each night?

_____

3. What time have you usually gotten up in the morning?

_____

4. A. How many hours of actual sleep did you get at night? _____

B. How many hours were you in bed? _____

5. During the past month, how often have you had trouble sleeping because you	Not during the past month (0)	Less than once a week (1)	Once or twice a week (2)	Three or more times a week (3)
A. Cannot get to sleep within 30 minutes				
B. Wake up in the middle of the night or early morning				
C. Have to get up to use the bathroom				
D. Cannot breathe comfortably				
E. Cough or snore loudly				
F. Feel too cold				
G. Feel too hot				
H. Have bad dreams				
I. Have pain				
J. Other reason (s), please describe, including how often you have had trouble sleeping because of this reason (s)				
6. During the past month, how often have you taken medicine (prescribed or "over the counter") to help you sleep?				
7. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?				
8. During the past month, how much of a problem has it been for you to keep up enthusiasm to get things done?				
9. During the past month, how would you rate your sleep quality overall?	Very good (0)	Fairly good (1)	Fairly bad (2)	Very bad (3)

ANNEXURE – IV

MULTIFACTORIAL MEMORY QUESTIONNAIRE

(Angela K. Troyer and Jill B. Rich, 2007)

Instructions: - *Read each statement carefully and decide how often you have done each one in the last two weeks. Then check the box next to the appropriate response.*

0 = All the time 1= Often 2 = Sometime 3 = Rarely 4 = Never

S.No	STATEMENT	0	1	2	3	4
1	Forget to pay bills on time.					
2	Misplace something you use daily, like your keys/glasses.					
3	Have trouble remembering a phone number you just looked up.					
4	Not recall the name of someone you just met.					
5	Leave something behind you meant to bring it with you.					
6	Forget an appointment.					
7	Forget what you were just about to do; for example, walk into a room and forget what you went there to do.					
8	Forget to run an errand.					
9	In conversation, have difficulty coming up with a specific word that you want.					
10	Have trouble remembering details from a newspaper/magazine article you read earlier that day.					
11	Forget to take medication.					
12	Not recall the name of someone you have known for some-time.					
13	Forget to pass on a message.					
14	Forget what you were going to say in conversation.					
15	Forget a birthday/anniversary that you used to know well.					
16	Forget a telephone number you use frequently.					
17	Retell a story/joke to the same person because you forget you already told to him/her.					
18	Misplace something that you put away a few days ago.					
19	Forget to buy something you intended to buy.					
20	Forget details about a recent memories/conversation.					

ANNEXURE – V

PROBLEM SOLVING SKILL QUESTIONNAIRE

(Dereli Iman, 2009)

Note: - *Read each statements carefully and decide whether you completely agree, mostly agree, mostly disagree, or completely disagree with the statement. Once you have made your decisions, darken the appropriate responses corresponding to its number.*

1 = Completely Agree; 2 = Mostly Agree; 3 = Mostly Disagree; 4 = Completely Disagree

S.No	STATEMENT	CA	MA	MD	CD
1	I contact experts and gather as much information as possible before making decisions about the education.	1	2	3	4
2	There is no one for me to observe directly in order to find out about the kind of work I might like to do.	1	2	3	4
3	When solving a problem, I am able to think everything through in my own head.	1	2	3	4
4	Once I have decided what kind of work I want to do, I know how to go about getting it.	1	2	3	4
5	I can compare and look carefully at the various ideas I develop.	1	2	3	4
6	I like to make plans and take action steps before making a final decision about a job.	1	2	3	4
7	When it is time to make an important educational/occupational decision, I'm able to develop an appropriate plan of action.	1	2	3	4
8	When it comes to solving a problem, I consider all of the things that are part of the problem before deciding what to do.	1	2	3	4
9	I do not know which talents to work on that will help me in future.	1	2	3	4
10	I can tell the differences between talk that is backed up by facts and talk that is not backed up by anything.	1	2	3	4
11	I use information I gather to help me develop several different ways to solve a problem.	1	2	3	4
12	I know where to go to find dependable information about jobs.	1	2	3	4
13	I am able to solve problems through the use of logic.	1	2	3	4
14	I know how my actions and decisions will affect my occupational choice.	1	2	3	4
15	In exploring the kind of work I might want to do, I get information about it, talk to people who work at it, and get a part time job that is like the work I am considering.	1	2	3	4

ANNEXURE – VI

PSYCHOLOGICAL WELL BEING SCALE

(Carol D. Ryff, 1989)

S.No	***Please indicate your degree of agreement using a score range from 1-6 to the following sentences.***	**Strongly Disagree**					**Strongly Agree**
1	I'm not afraid to voice of my opinions, even when they are in opposition to the opinions of most people.	1	2	3	4	5	6
2	In general, I feel I'm change of the situation in which I live.	1	2	3	4	5	6
3	I'm not interested in activities that will expand by horizons.	1	2	3	4	5	6
4	Most people see me as loving and affectionate.	1	2	3	4	5	6
5	I live life one day at a time and don't really think about the future.	1	2	3	4	5	6
6	When I look at the story of my life, I'm pleased with how things have turned out.	1	2	3	4	5	6
7	My decisions are not usually influenced by what everyone else is doing.	1	2	3	4	5	6
8	The demands of everyday life often get me down.	1	2	3	4	5	6
9	I think it is important to have new experiences that challenge how you think about yourself and the world.	1	2	3	4	5	6
10	Maintaining close relationships has been difficult and frustrating for me.	1	2	3	4	5	6
11	I have a sense of direction and purpose in life.	1	2	3	4	5	6
12	In general, I feel confident and positive about myself.	1	2	3	4	5	6
13	I tend to worry about what other people think about me.	1	2	3	4	5	6
14	I do not fit very well with people and the community around me.	1	2	3	4	5	6
15	When I think about it, I haven't really improved much as a person over years.	1	2	3	4	5	6
16	I often feel lonely because I have few close friends with whom to share my concerns.	1	2	3	4	5	6
17	My daily activities often seem trivial and unimportant to me.	1	2	3	4	5	6
18	I feel like many of the people I know have gotten more out of life than I have.	1	2	3	4	5	6
19	I tend to be influenced by people with strong opinions.	1	2	3	4	5	6
20	I'm quite good at managing the many responsibilities of my daily life.	1	2	3	4	5	6
21	I have a sense that I have developed a lot as a person over time.	1	2	3	4	5	6
22	I enjoy personal and mutual conversation with family members of friends.	1	2	3	4	5	6

23	I don't have a good sense of what it is I'm trying to accomplish in life.	1	2	3	4	5	6
24	I like most aspects of my personality.	1	2	3	4	5	6
25	I have confidence in my opinions, even if they are contrary to the general consensus.	1	2	3	4	5	6
26	I often feel overwhelmed by responsibilities.	1	2	3	4	5	6
27	I do not enjoy being in new situations that require me to change my old familiar ways of doing things.	1	2	3	4	5	6
28	People would describe me as a giving person, willing to share my time with others.	1	2	3	4	5	6
29	I enjoy making plans for the future and working to make them a reality.	1	2	3	4	5	6
30	In many ways, I feel disappointed about my achievements in life.	1	2	3	4	5	6
31	It's difficult for me to voice my own opinions on controversial matters.	1	2	3	4	5	6
32	I have difficulty arranging in my life in a way that is satisfying to me.	1	2	3	4	5	6
33	For me, life has been a continuous process of learning, changing and growth.	1	2	3	4	5	6
34	I have not experienced many warm and trusting relationships with others.	1	2	3	4	5	6
35	Some people wander aimlessly through life, but I'm not one of them.	1	2	3	4	5	6
36	My attitude about myself is probably not as positive as most people feel about themselves.	1	2	3	4	5	6
37	I judge myself by what I think is important, not by the values of what others think is important.	1	2	3	4	5	6
38	I have been able to build a home and a lifestyle for myself that is much to my liking.	1	2	3	4	5	6
39	I gave up trying to make big improvements or changes in my life a long time ago.	1	2	3	4	5	6
40	I know that I can trust my friends, and they know they can trust me.	1	2	3	4	5	6
41	I sometimes feel as if I've done all there is to do in life.	1	2	3	4	5	6
42	When I compare myself to friends and acquaintances, it makes me feel good about who I am.	1	2	3	4	5	6

INSTITUTIONAL HUMAN ETHICS COMMITTEE

Avinashilingam
Institute for Home Science and Higher Education for Women
Deemed to be University Under category 'A' By MHRD, (Estd. u/s 3 of UGC Act 1956)
Re Accredited with 'A' Grade By NAAC, Recognised by UGC Under Section 12 B
Coimbatore - 641043, Tamil Nadu, India

24 January 2019

To
Ms. Vishnu Priya.S.K
Department of Psychology
Avinashilingam Institute for Home Science and
Higher Education for Women
Coimbatore – 641 043

Dear Vishnu Priya.S.K,

Ref: Your proposal No. IHEC/18-19/PSY/02 entitled "The Effects of Sleep Deprivation on Memory, Problem Solving and Well Being among Young Adults" submitted for approval of the IHEC on 30.09.18.

The Institutional Human Ethics Committee of our University hereby grants approval to your research proposal No. IHEC/18-19/PSY/02 entitled "The Effects of Sleep Deprivation on Memory, Problem Solving and Well Being among Young Adults" submitted by you. The Approval number for the same is AUW/ IHEC/PSY-18-19/XPD/02.

We wish you all the best in your research endeavours.

Regards,

S. Uma Mageshwari
Dr.S.Uma Mageshwari
Member Secretary

Institutional Human Ethics Committee