Evaluation of Knowledge and Attitude towards Antidepressants among Healthcare Professionals in South India

A thesis submitted in partial fulfilment of the requirements for MSc in Pharmaceutical Business & Technology (QQI)

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CANDIDATE DECLARATION

I hereby declare that this dissertation entitled “Evaluation of Knowledge and Attitude Towards Antidepressants among Healthcare Professionals in South India” submitted in the partial fulfilment the MSc in Pharmaceutical Business and Technology, is my own; based on my personal study and/research, and I acknowledged that all material and sources used for the study purpose. I also certify that I have not copied in part or whole or otherwise plagiarised the work of anyone else, including other students.

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ABBREVIATIONS

WHO: World Health Organisation

FDA: Food and Drug Administration

OCD: Obsessive Compulsive Disorder

PTSD: Post Traumatic Stress Disorder

HCPs-Healthcare Professionals

TCAs-Tricyclic Antidepressants

SSRIs-Selective Serotonin Reuptake Inhibitors

SNRIs-Serotonin-Norepinephrine Reuptake Inhibitors

MAOIs-Monoamine Oxidase Inhibitor

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ABSTRACT

ATHUL MATHEW

1. Background Antidepressants are drugs which are used to relieve the symptoms of depressive disorders. The clinical awareness about physical, mental and social factors of a patient is very keen in deciding an optimal antidepressant therapy. The rational use of antidepressant must be monitored very carefully as inappropriate use can lead to its abuse and overuse

2. Purpose: This study aims to evaluate the knowledge and attitude towards, antidepressant drugs among the healthcare professionals working in South India. This is to analyse the issues involved in practicing antidepressant therapy and review the methods to ameliorate and enhance the implementation of antidepressants.

3. Design and methodology: The study involved deductive approach as well as qualitative and quantitative analysis was done for the questionnaire-based survey conducted among 50 healthcare professionals in South India. The secondary data was acquired from an analysis of current research articles on antidepressants and its abuse and overuse and the measures to curtail these issues.

4. Findings: Eighty four percent of the participants reported that the main cause for antidepressant abuse and overuse is the inappropriate use of antidepressants. Considering, pharmaceutical companies' intervention, there was a strong agreement from the study group at seventy four percent while twenty four percent gave a neutral response. A large proportion of the healthcare professionals agree that outpatients pressurise them to prescribe or dispense antidepressants.

5. Conclusion: The participants had adequate understanding of general antidepressant use. Lack of knowledge can be curtailed by the implementation of antidepressant awareness programs. Healthcare professionals should be

motivated to attend training programmes to reduce the abuse and overuse of antidepressants.

Keywords: Antidepressant abuse and overuse, Self -Medication of Antidepressants

CHAPTER 1
INTRODUCTION

1.0 INTRODUCTION

The Indian healthcare system, both public and private, has a successful approach to introducing the most advanced medical treatment practises for patients of all ages. Since 2000, the Indian health system has undergone significant changes, and it is currently undergoing continuous review and introduction of staged initiatives. These structured policies have resulted in the country having a functional healthcare system and a stable economy. The Indian health system was effectively transformed, resulting in the establishment of a single national body that includes all healthcare professionals in the country, including surgeons, doctors, nurses, pharmacists, and care assistants.(Kasthuri, 2018)

One of the main responsibility of healthcare professionals is to make sure that vulnerable populations receive safe and effective drugs. The improvement of treatment conditions in the healthcare system will increase the quality and comfort of life in the country's health population. Enhancing current standards and monitoring clinical quality progress must be an unavoidable component of the system.(Sokol, 2019)

Antidepressants are one of the most commonly used medications in the prevention, care, and reduction of disease in patients.New blockbuster medications can be a bonus to healthcare practitioners, but they may also be a huge obstacle for the health system due to improper therapy practices. The primary responsibility of healthcare practitioners is to provide adequate pharmaceutical services, which is the direct application of the optimal provision of drug-related care to achieve the best quality of life for the patient.(Osterwis *et al.*, 2017)

In today's world, both the abuse and overconsumption of antidepressants is a big problem in the healthcare system. In several nations, studies suggest that a doctor's and a patient's behavioural perceptions contribute to unhealthy antidepressant prescription practices. Since they lack ongoing instruction and awareness of antidepressants, many healthcare professionals say they feel pressured to prescribe or dispense antidepressants. Implementing antidepressant awareness programmes in this situation can open the path to reducing these risks and allowing healthcare professionals to provide quality services to patients.(Pierre, 2018)

1.1 ANTIDEPRESSANTS

Depression is thought to be induced by a decrease in the amount of monoamine neurotransmitters in the brain, or a decrease in their activity. Evidence suggests that medications that correct chemical abnormalities in the levels of neurotransmitters in the brain significantly reduce depressive symptoms. In reality, all antidepressants work by preventing monoamine neurotransmitters from being reabsorbed or inactivated by the body, permitting them to aggregate and stay in touch with their receptors for longer periods of time; these modifications appear to be significant in improving mood and alleviating depression.(Floyde, 2019)

Antidepressants are a range of medications used in the treatment of depression and other mental health conditions, and are some of the most commonly prescribed medications around. They include selective serotonin reuptake inhibitors (SSRIs), serotonin–norepinephrine reuptake inhibitors (SNRIs), atypical antidepressants, tricyclic antidepressants (TCAs), and monoamine oxidase inhibitors (MAOIs).Antidepressant medications are designed to change chemicals (neurotransmitters) in the brain that affect mood and emotions.(Timothy, 2018)

1.2 EVOLUTION OF ANTIDEPRESSANTS

Iproniazid, previously used to cure tuberculosis, and imipramine, the very first drug in the tricyclic antidepressant class, were clinically introduced in the 1950s. Iproniazid and imipramine added numerous significant strength for the better development of psychiatry: one of a social-health nature, resulting in a genuine change in the psychiatric care of patients under depressive disorder; and second one is of a purely pharmacological nature, as these compounds have served as an integral research tool for neurobiology and psychopharmacology, allowing, among other things, the study of the effects of various drugs on the brain. In the mid1980s, the therapeutic development of fluoxetine, a selective serotonin reuptake inhibitor, revolutionised depression treatment yet again, paving the way for modern antidepressant groups. The current thesis examines the full procedure that resulted in the development of these drugs, as well as their connection to the advancement of neuro-scientific disciplines, from a historical

context. Even so, both of these antidepressants, much like several of those currently in clinical use, have the similar mode of action, that includes synaptic modulation of mono-aminergic neurotransmission. As a result, the future of antidepressant therapy seems to influence across the discovery for extra-neuronal non-aminergic mechanisms that modify intra-neuronal bipolar neurotransmission.(López-Muñoz, 2009)

1.3 INFLUENCE OF ANTIDEPRESSANTS

The FDA has approved most tricyclic antidepressants (TCAs) for the treatment of depression and anxiety disorders. However, they are also a promising off-label choice that clinicians in specialties other than psychiatry would explore, particularly for treating pain syndromes. With the current opioid use disorder crisis, more focus is being paid to alternative chronic pain treatment treatments, reigniting interest in tricyclic antidepressants. Other than for depression they are used in headache, migraine, neuropathic pain, Chronic low back pain, Fibromyalgia and chronic widespread pain, Abdominal and gastrointestinal pain, Pelvic and urogynecologic symptoms, insomnia.(Schneider, 2020)

Dosing guide for tricyclic antidepressants in conditions other than depression

Indication	Medications	Initial/ maximum dosing	Dose escalation	Adverse effect management
Headache or migraine	Amitriptyline	10–25 mg/ 100 mg nightly	Individualized: Increase by 10–25 mg every 5–14 days, assess for tolerability and adverse effects Amitriptyline side effects (dry mouth, orthostasis) often limit dose escalation above 100 mg; nortriptyline or maprotiline may be considered (better tolerated at higher doses)	Dry mouth and secretions: Pilocarpine 5 mg 2–3/day Constipation: Stool softeners, eg, docusate sodium, senna glycoside Weight gain: Consider augmenting with metformin 500–1,000 mg/day or topiramate 50–100 mg/day Seizures, QT interval prolongation, active suicidal risk, orthostasis, or falls: Discontinue the agent
Neuropathic pain	Amitriptyline	25–50 mg/ 150 mg nightly (or divided into twice-daily doses if frequent pain or symptom flares)		
Chronic low back pain	Amitriptyline, maprotiline	25–50 mg/ 150 mg nightly		
Fibromyalgia or chronic widespread pain	Amitriptyline, nortriptyline, maprotiline	25–50 mg/ 150 mg nightly (or divided into twice-daily doses if frequent pain or symptom flares)		
Irritable bowel syndrome	Amitriptyline, nortriptyline	10–25 mg/ 100 mg nightly		
Cyclic vomiting syndrome	Amitriptyline, nortriptyline	25–50 mg/ 100 mg nightly		
Chronic pelvic pain, interstitial cystitis, nocturia	Amitriptyline, nortriptyline, imipramine	10–25 mg/ 100 mg nightly		

Figure1: Dosing Guideline for tricyclic antidepressants in conditions other than depression adopted from Joan Schneider 2019

1.4 ROLE OF HEALTHCARE PROFESSINALS

Antidepressant selection, prescribing, and dispensing awareness among healthcare professionals is a valuable asset that can significantly reduce poor therapeutic practises in India. Continuous training systems must be implemented to refine and refresh these skills on a regular basis.(Treglia *et al.*, 2018)

Every healthcare professional involved in the patient's treatment, beginning from researchers, doctors, surgeons, pharmacists, nurses, and caregivers, must work together to combat the rising epidemic of antidepressant misuse and abuse. For example taking the case of Pharmacists, Since a significant number of cases of abuse have involved identity theft, pharmacists may ask patients to show photo identification while picking up their antidepressants prescriptions at the pharmacies. It can be accomplished by requiring that the patient's identity be reviewed well before prescription for antidepressant drug claim is accepted. In addition statutory guidelines must be developed to ensure that antidepressant prescribing methods follow the World Health Organization's guidelines and standards, as well as the standards of the respective local health regulatory bodies(Sokol, 2019)

1.5 METHODS TO MINIMISE ABUSE AND MISUSE OF ANTIDEPRESSANTS

- Giving Proper Education-The effects of prescription drugs on the brain development must be educated to parents, adolescents, and prescribers. Training doctors on safe antidepressant prescribing is part of a systematic risk-reduction strategy. Patients should also be given health advice about how to use antidepressants safely, including information on proper storage (e.g., lock boxes) and management of unused pharmaceuticals.
- Prescription Monitoring Programs- These are data collection systems that specify the number of doctors who have prescribed antidepressants for each patient, as well as it gives information about number of pharmacies where such drugs are dispensed. Prescription monitoring systems track the prescriber, pharmacy, name of product, concentration, dose, and quantity of medication given out. Though its evidence is minimal, it appears that such interventions minimise the abuse of such drugs.

- Preventing Medical and Prescribing errors- Detecting improper antidepressant prescribing and medical errors, such as wrong patient choice, off-label use, improper indication, inadequate dose, and conversion mistakes, is a significant component of risk minimization applicable to antidepressants. It could be done by developing algorithms that detect imbalances between diagnosis and medication/dose. The aim of such interventions is not to punish prescribers, but rather to inform prescribers who have created honest mistakes in safe prescribing practises, allowing them to prevent malpractice litigation.(Hahn, 2011)

1.6 SIGNIFICANCE OF THE STUDY

The objective of the study was to assess the knowledge and attitude of healthcare professionals (HCPs) in South India towards antidepressants. The study also figured out the guidelines or methods to improve the treatment therapy. Several studies on the knowledge and attitude towards antidepressants among the HCPs in India has already been conducted. From the results of these studies it can be clearly outlined that knowledge, training and awareness about antidepressant medications are minimal and should be improved.

1.7 RESEARCH PURPOSE

The aim of this study is to assess healthcare professionals' attitudes and knowledge about antidepressants. Through literature reviews, the study explores different aspects of antidepressant understanding among health care practitioners, as well as the limitations encountered during antidepressant therapy. A questionnaire-based research was conducted to assess awareness and attitudes toward general perceptions of antidepressants.

1.8 RESEARCH OBJECTIVE

- To evaluate the knowledge and attitude of healthcare professionals towards use of antidepressants in South India.

- A comparative study of responses within health care professionals based on their designations about use of antidepressants.
- Generate some ideal guidelines based on knowledge and attitude of Healthcare Professionals about antidepressants,

The research objective is critical to the success of any project. Three research priorities are highlighted in the following research work. The first goal is to assess healthcare professionals' attitudes about the use of antidepressants in their line of work. The goal is to determine how knowledgeable each health professional is about the topic as they go about their work. The importance of information an individual has about a topic is a critical factor in the success of any assessment. Following that, the second aim is to acquire a comparative understanding of the general perception of the antidepressants This approach assesses knowledge based on the field in which a healthcare professional works in India, and a comparative review of the outcomes derived from them is analysed to meet the second objective. The third objective is extracted from the two objectives, which assists the researcher in assuming and listing a few recommendations depending on the data collected and analysed, as well as from the literature reviews used. As a result, it aids the reader in understanding the findings of the research and providing data for a more thorough examination of the topic.

1.9 CONCLUSION

The first chapter begins with a brief introduction to the research study. In addition, the study's goal and relevance of research are provided, which aids in providing a comprehensive picture of the complete research effort. Second, when it comes to the literature review, earlier findings and studies are mentioned. The analytical context wherein all literature reviews are interconnected to emphasize the application of knowledge and attitude regarding antidepressants among Healthcare Professionals concludes this chapter. The research approach and plan are described in detail with references in the next chapter on methodology and research design. Even ethical issues arising from the research are considered. In the concluding section of Chapter 4, the specifics of the data acquired, as well as the findings of the study themes, are chosen properly and described. Finally, in chapter five, the limitations,

strengths, and results of this work were discussed. Recommendations and principles which can be put into effect to prevent antidepressant abuse and overuse are also mentioned, as well as direction for further research on this topic.

CHAPTER 2
LITERATURE REVIEW

2.0 LITERATURE REVIEW

2.1 GLOBAL SCENARIO OF ANTIDEPRESSANT MARKET

The overall antidepressants demand is expected to increase from $14.3 billion in 2019 to about $28.6 billion in 2020, owing to an increase in mental health problems as a result of the Covid-19 pandemic's impact on the world economy. In 2023, the market is estimated to stabilise and hit $19 billion. In the event covid-19 epidemic, the demand for antidepressants has also grown. The rising number of cases and deaths is having a negative impact on mental health by escalating anxiety levels around the world. Those who already have mental health issues are feeling more stressed as a result of the Covid-19 outbreak. Antidepressant medications are in high demand as a result of this. The antidepressant market's development is being hampered by side effects and patent expiration of the medications. Lexapro and Celexa are antidepressants that are both used to treat depression. Lexapro even works with anxiety. Nausea, sleeplessness, sweating, dry mouth, and drowsiness are some of the side effects that Lexapro and Celexa can cause. Celexa and Lexapro also carry the possibility of more severe side effects, such as heavy bleeding, seizures, and vision problems. In 2018, the drugs' labels included a black box that consist of warning of an elevated risk of suicide.(Markets, 2020)

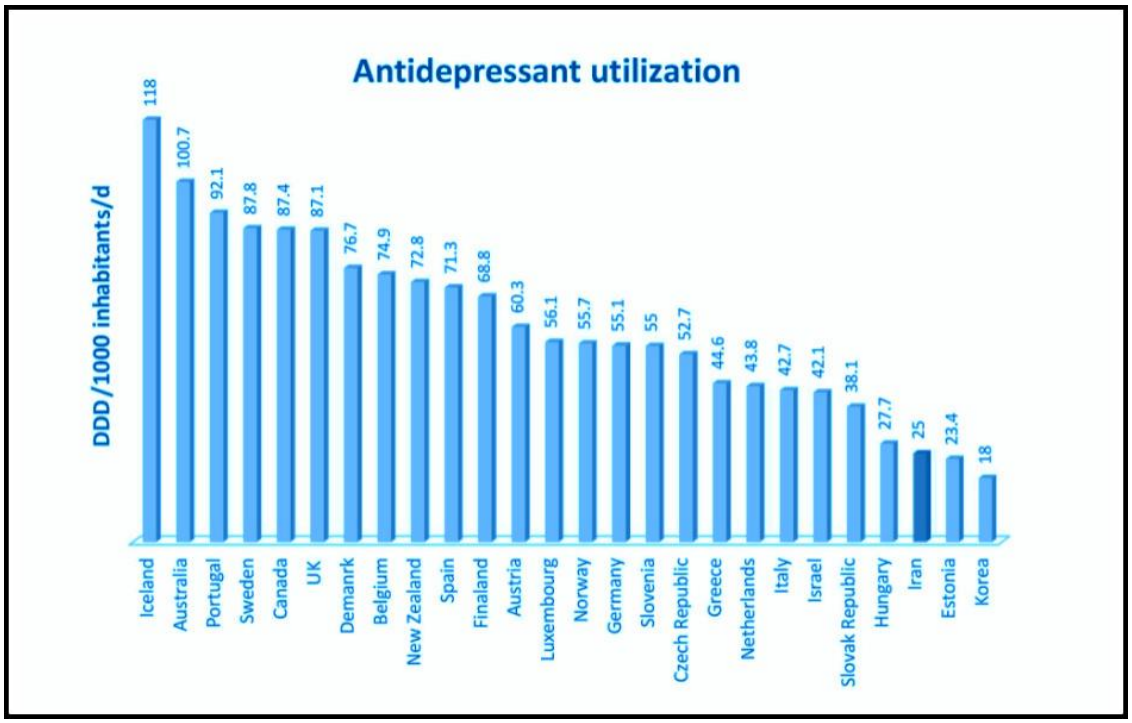

Figure2: Antidepressant utilization in different countries(Markets, 2020)

Globally, growing cases of mental health disorders are a major driver of the antidepressants drug industry's development, as many consumers rely on these drugs to treat depression, anxiety, and other mental illnesses. Depression, Obsessive Compulsive Disorder(OCD), childhood enuresis, major depressive disorder, extreme anxiety disorder, bipolar disorder, post-traumatic stress disorder (PTSD), social anxiety disorder, and other disorders are treated with antidepressant drugs. Globally, the number of people suffering from depression ranges from 2% to 6%, with the elderly having a higher risk of depression than other age groups. As per the World Health Organization, approximately 264 million people of all ages will be depressed by 2022.(Correa, 2020)

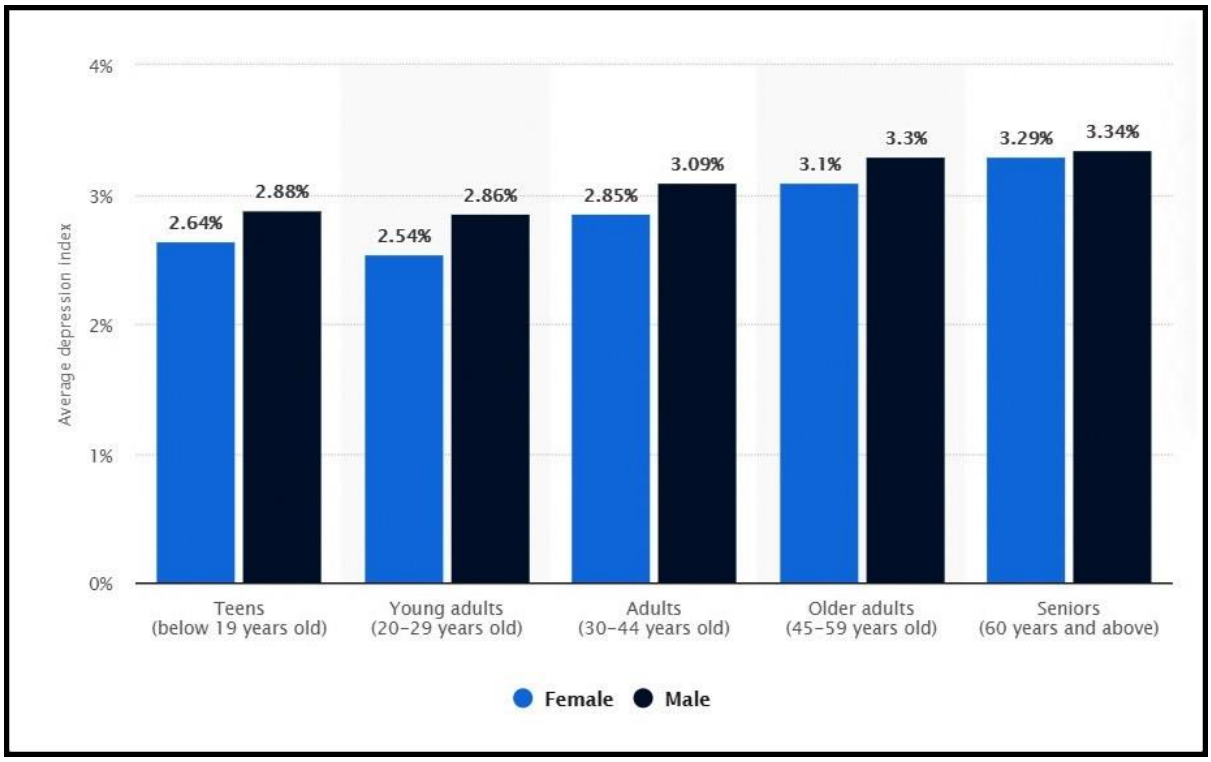

Figure3: Gender distribution of depression index across India in 2019 based on different age groups (Statista, 2021)

According to the findings of a large-scale survey conducted across India in 2019, young adults between the ages of 20 and 29 were the most depressed in the country, regardless of gender. Several of the main underlying causes are loss of loved ones, hereditary vulnerability, medical and hormonal dysfunction.

Psycho-pharmaceuticals have penetrated both the formal and informal pharmaceutical industries in India, with unlicensed doctors being willing prescribers of psychotropic medications. All such ethnographic findings raise

concerns about initiatives aimed at “task shifting” psychiatric drugs to low-skilled health professionals, as though drugs were only legally obtained from public sector psychiatrists. Antidepressant use has risen dramatically in recent decades. One of the reasons for the global increase in depressive disorder is socioeconomic change. The other explanation is that antidepressants are being actively marketed in order to extend their global scope. Generic manufacturers fuel drug promotion, which is prescribed by doctors who doesn't have a licence, which spreads by unlicensed "floating" medications that patients take from one prescriber to the next.(Ecks, 2019)

2.2 FACTORS AFFECTING SELECTION OF ANTIDEPRESSANTS

The absence of specific side effects, the lack of comorbid psychiatric conditions, and the presence of specific clinical symptoms were the most common factors on antidepressant choice. The second important factor affecting drug choice was previous treatment history, that including a prior positive or negative response. Antidepressant selection was seldom affected by factors such as concerns regarding discontinuation syndrome and drug-drug interactions.(Kehoe, 2016)

The presence of unique clinical features affected antidepressant option in more than half of the prescriptions. Insomnia, high levels of anxiety, and fatigue were the most commonly recorded factors that influenced drug selection. The DSM-approach IV's to defining phenomenologically homogeneous subtypes of major depressive disorder based on the existence of atypical or melancholic features, which is dependent on the existence of atypical or melancholic features, seldom affected antidepressant selection. When it came to the impact of diagnostic comorbidity on antidepressant selection, the existence of comorbid anxiety disorders, especially panic disorder and generalised anxiety disorder, was the most common factor. The most common side effects were sexual dysfunction and weight gain, which had the greatest influence on drug selection.(Zimmerman *et al.*, 2019)

2.3 SELF MEDICATION –A WRONG DECISION

Self-medication with antidepressants is another barrier that healthcare practitioners must overcome in order to reduce antidepressant abuse. These practises have an effect on the medication's clinical efficacy. A standardised and validated questionnaire was sent randomly of 2981 final year undergraduate pharmacy students in 12 major Pakistani cities to undertake a cross-sectional survey on self-medication of psychoactive stimulants and antidepressants among pharmacy students. Without being conscious of the dangers of these medications, Pakistani pharmacy students self-medicate. Because of the stress of studies, self-medication with antidepressants is very common among students. Academic performance is the primary motivator behind the consumption of these drugs.(Abbas *et al.*, 2015)

Many individuals are not conscious of the drug's side effects when they intend to self-medicate. Self-medication with antidepressant drugs may exacerbate a patient's disease condition or there is high chance of causing withdrawal symptoms. Visit your physician about the consequences and benefits of consuming these drugs before starting care.(Maria, 2018)

2.4 PATIENT CENTRED BARRIERS

Antidepressants are a popular treatment for depression. Antidepressants help four out of ten people who try them for the first time. Even if the initial antidepressant does not really work, the second or third one usually does. The majority of people end up finding one that fits them. Experts believe that many patients who may profit from antidepressants never take them because they are afraid of them. Antidepressants, when used properly, would not alter your behaviour. It will assist you in regaining your sense of self-identity and returning to your previous functional ability. When taking some antidepressants, some people can feel apathy or a lack of emotions. Reducing the dose of the medication or changing to another antidepressant drug can aid if this occurs. (Bhandari, 2019)

A study was carried out to examine the reasons physicians and nurses provided for their inability to execute guideline-concordant acute-phase care for patients with depression. The research team spoke with 12 doctors and 6 nurse care managers to find out why depressed patients don't get guideline based care. This data was used to create a list of obstacles to depression treatment. The 12

doctors then went to each of the 64 patients for whom they were the primary care provider and fulfilled the checklist for each of them. Doctors selected which barriers they believed related to each patient and assigned a total of 100 points to each patient relevance of the barrier. Barrier scores identified naturally occurring groups of participants with similar barrier profiles. A large proportion of patients face obstacles to undertaking guideline based care, which are currently unaddressed by current therapies. Barriers, according to doctors, are most often caused by factors involving patients, their mental and social conditions, and their attitudes and opinions regarding depression and its treatment. Doctors make decisions that deviate from the recommendations less often, but they do so when patients have complicated disease patterns.(Nutting *et al.*, 2014)

2.5 ATTITUDE OF HEALTHCARE PROFESSIONALS TOWARDS ANTIDEPRESSANTS

A study in Brazil was conducted by NJ Boteja to evaluate the attitude of General Practitioner towards antidepressants. Every 110 general practitioners employed in primary health care centres in Campinas, Brazil, received a self-report instrument which consist of twenty scale statements regarding attitudes toward depression. The Depression Attitude Questionnaire (DAQ) contains comments on three key topics: the essence of depression, preferences for treatment, and clinical responses to depressed patients. Seventy-eight physicians responded to the survey. "It is hard to distinguish whether patients are diagnosed with unhappiness or a psychiatric depressive disorder that requires care," 42% of doctor thinks.(Botega and Silveira, 2015)

Another study was conducted by Gert Schreeder among healthcare professionals towards antidepressants in 9 European countries. A questionnaire-based research was conducted to gather information on attitudes about depression and its medication, as well as their perceptions of its causes, recommended treatment methods, and awareness of depression symptoms. Nurses had a far more negative outlook toward patients with depressive disorder and antidepressants than health practitioners, and they had less understanding of symptoms caused by depression. CFs(pharmacists, healthcare workers etc) were more likely to accept non-standard depression care. Nurse assistants strongly varied from registered nurses, only with least favourable behaviours and the most minimal experience of all classes. When related to

mental health providers and physicians, CFs and nurses had less favourable behaviours and awareness about depression. This could have a negative impact on clinical teamwork, make it more difficult to provide appropriate treatment to the patients. The skills and attitudes of CFs and nurses can be close to those of the general public, which may be due to minimal experience in mental health conditions.(Schneider, 2020)

2.6 INAPPROPRIATE PRESCRIPTION PATTERN OF ANTIDEPRESSANTS

Psychotropic medications are effective treatments for a variety of psychiatric illnesses, however improper prescribing may have severe consequences. To counter these issues, establishing clinical care recommendations that will inform doctors, insurance insurers, and the general public about the most effective therapies for common mental health conditions. The majority of antidepressants are administered by primary-care doctors who may have less experience treating mental illnesses. Antipsychotic medications are being prescribed off-label for an increasing number of mental health conditions, including dementia, anxiety, depression, and insomnia. Though doctors may prescribe drugs off-label for a variety of conditions, the FDA prohibits pharmaceutical firms from marketing drugs for off-label uses. Throughout the last five years, Eli Lilly, Pfizer, and a number of other pharmaceutical firms have accepted to pay billions of dollars in fines for illegal off-label sales of their medications, such as antidepressants and antipsychotics.(Smith, 2012)

Medication	Lucknow (n=74)	Chandigarh (n=110)	Tiruvalla (n=44)	Mumbai (n=40)	Guwahati (n=44)	Total (n=312)
Escitalopram	25(33.78)	30 (27.27)	25 (56.82)	20 (50)	14 (35)	114 (36.54)
Sertraline	6 (8.12)	17 (15.46)	13 (29.55)	3 (7.5)	4 (9.09)	43 (13.78)
Fluoxetine	3 (4.05)	4 (3.64)	1 (2.27)	6 (15)	7 (15.91)	21 (6.73)
Paroxetine	3 (4.05)	12 (10.91)	0	4 (10)	4 (9.09)	23 (7.37)
Fluvoxamine	0	2 (1.82)	2 (4.55)	0	1 (2.27)	5 (1.60)
Duloxetine	16 (21.62)	4 (3.64)	1 (2.27)	0	1 (2.27)	22 (7.05)
Venlafaxine	0	16 (15.55)	0	0	8 (18.18)	24 (7.69)
Desvenlafaxine	4 (5.41)	0	3 (6.82)	0	0	7 (2.24)
Mirtazapine	5 (6.76)	9 (8.18)	4 (9.09)	2 (5)	2 (4.55)	22 (7.05)
Bupropion	2 (2.70)	0	0	0	1 (2.27)	3 (0.96)
Amitriptyline	9 (12.16)	7 (6.36)	1(2.27)	13 (32.5)	4 (9.09)	34 (10.90)
Imipramine	1 (1.35)	10 (9.09)	1 (2.27)	0	0	12 (3.85)
Clomipramine	2 (2.70)	2 (1.82)	1 (2.27)	0	1 (2.27)	6 (1.92)
Trazodone	1 (1.35)	2 (1.82)	0	0	0	3 (0.96)
More than one antidepressants	10 (13.51)	0	7 (15.91)	10 (32.1)	3 (6.82)	30 (9.61)

Figure 4: Antidepressant prescribing patterns in various cities in India(Tripathi *et al.*, 2016)

A study was conducted in India which consist total of 312 patients who visited an outpatient department or were transferred to psychiatry wards on a specific day in several cities , and who were using or had been prescribed antidepressant drugs, were included in this cross-sectional study. The aim of the study was to analyse the prescription pattern and the information was gathered using a standardised analysis methodology. Antidepressants were given to around half of the patients with diagnoses other than depression. The most popular class of antidepressants was SSRIs, with escitalopram being the most commonly prescribed drug. The use of two antidepressants at the same time was uncommon. Antidepressants were often combined with hypnotics and sedatives.(Tripathi *et al.*, 2016)

2.7 Antidepressants and Suicide

Suicide is more likely in people who are depressed. Antidepressants, particularly selective serotonin reuptake inhibitors (SSRIs), are still being studied to see if they reduce or raise this risk. Antidepressant medication has the potential to induce an increase in depression rather than a decrease in some persons. In fact, the FDA mandates that all antidepressants have a warning label about the higher risk of suicide in children and young adults. During the first month or two of treatment, the risk of suicide is quite high.

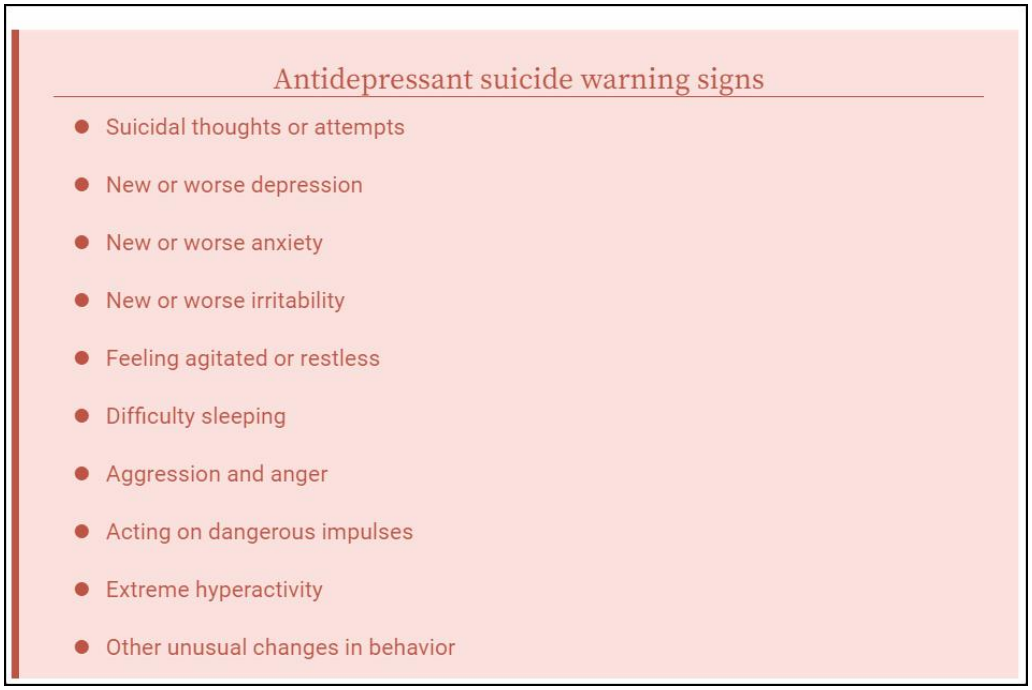

Figure5: Antidepressant Suicide Warning Signs (Melinda, 2017)

Anyone taking antidepressants should be closely watched for suicidal thoughts and behaviours. Monitoring is especially important if this is the person's first time on depression medication or if the dose has recently been changed.(Melinda, 2017)

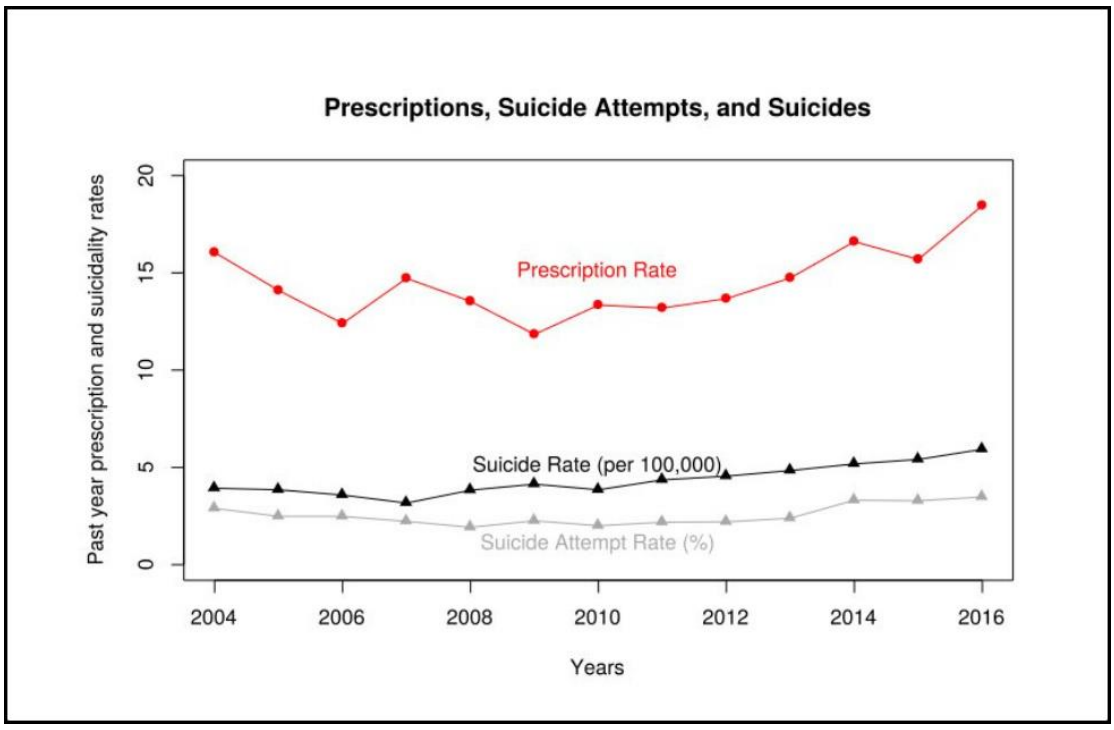

Figure 6: Prescription, suicide attempt and suicide rate from2004 to 2016(Popa-Velea *et al.*, 2015)

Studies in recent years have raised concerns that antidepressants may raise the risk of suicidal thoughts or behaviors among children, adolescents, and young adults. For example, a 2009 review in the British Medical Journal (BMJ) looked at 372 studies involving nearly 100,000 people who were taking antidepressants. It found that compared to placebo, antidepressants were associated with a slightly higher risk for suicidal thoughts in some children and young adults, have no effect on suicide risk among those 25 to 64, and reduce the risk in those 65 and older.(Popa-Velea *et al.*, 2015)

2.8 CONCLUSION

Antidepressants are an effective treatment option for depressive disorders. But due to a lack of knowledge and understanding among healthcare professionals, antidepressant use is fraught with problems. The key issues created due to the unsafe use of antidepressants are its overuse and abuse. It is critical that healthcare practitioners take responsibility for this. Healthcare practitioners are administering antidepressant medication without a proper intervention depending on their antidepressant prescribing behaviour. Physicians compromise their professional healthcare principles by following the examples set by their superiors or whom they have worked under, or by succumbing to pressures from pharmaceutical companies. This practise has the potential to cause a major tragedy for the whole world, as well as a rise in the rate of death rates in the population. Many healthcare practitioners operate in a limited decision-making capacity, which may lead to discrepancies in determining which medication to prescribe. Together with these scenarios many people make their own prescriptions, which may cause harmful effects.(Penn and Tracy, 2012)

Antidepressant medications are sold over the counter in many places, and these activities must be regulated by law, and pharmacists must be constantly educated on the need of proper dispensing. In several cases, healthcare workers are unsure of the type of treatment that should be used .All these are a few

examples, but really the importance of this issue is so great that it is the primary duty of any healthcare professional to inform themselves and others about health ethics and to observe them in their treatments. These activities, on the other hand, can be monitored by introducing such awareness classes and executing the WHO's control measures. All of these proposals may be carried out if the appropriate support from governing bodies and organisations is received.(Derrin, 2019)

CHAPTER 3
RESEARCH METHODOLOGY

3.0 RESEARCH METHODOLOGY

3.1 INTRODUCTION

Research methodology is a technique for solving a research problem in a systematic way. Each researcher is responsible for understanding not only the research methods or techniques, but also the research methodology. A series of questions was used to assess attitudes and awareness about antidepressants among healthcare professionals in India. The research was carried out using online questionnaires that were distributed to healthcare providers.(Jilcha, 2019)

The key aspect of every analysis is how the research methods are efficiently defined. The researchers have numerous ideal research strategies to achieve this objective. These methods largely consist of research theory, design and various data collection methods and interpretation. The method of research in addition also outlines the various methods involved in data collection, which involve the various modes of application used for the gathering of information relating to the topic.(Crossley, 2021)

3.2 RESEARCH PHILOSOPHY

One of the main tool or techniques that researchers use in their works is understanding a subject or a concept and describing it to others in a detailed manner. The following are the four primary forms of paradigms used in study.

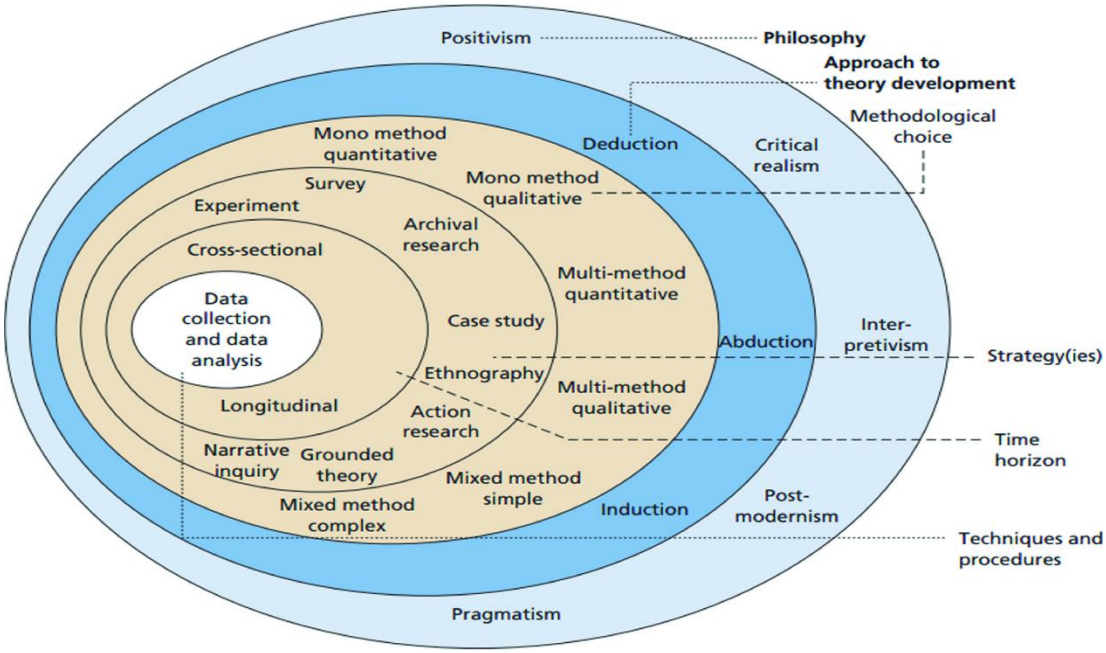

Figure 7: **Research onion adopted from Saunders et al**

- Positivism: This is described as a procedure of conducting the research that takes into account social reality. The research's findings will be consistent with theoretical guidelines or rules on the topic. This paradigm is primarily associated with quantitative research and aids in the clarification of a hypothetical scenario to the actual situation.
- Realism: This is described as a method in which a scientist believes that their thought or fact is truthful and that it is the truth based on their feelings. They are a subset of positivism, but as contrasted to positivism, they have ideas. Quantitative analysis approaches often employ realism.
- Interpretivism: This is characterised as a method by which researchers interpret data based through their own ideas and knowledge which is obtained from their previous experience works. This technique is primarily used in qualitative study.
- Pragmatism: This is an approach in which more than one method is used to conduct the research. Typically, various approaches are used in these experiments, and the philosophy is not a significant factor in this paradigm. This is often considered as another type of interpretivism.(Saunders *et al.*, 2015)

The positivism philosophy was used in this study to better grasp understanding and attitudes about antidepressant perceptions. The theory was useful in understanding the newer approaches that needed to be introduced in the healthcare system to curb antidepressant misuse and overuse, as expressed by healthcare professionals in the field. The theory was useful in understanding the newer approaches that needed to be introduced in the healthcare system to curb antidepressant misuse and overuse, as expressed by healthcare professionals in the field.

3.3 RESEARCH APPROACH

The process of carrying out the analysis of a research methodology is crucial because it ensures the study's authenticity as well as its development. Furthermore, it enables the researcher to comprehend the study by

concentrating on the research methodology. The following are the various forms of Approach methods:

- Deductive Approach: It is an approach method in which a fictitious statistical data set is created first, and then an analysis is used to prove the hypothesis. The deductive method starts with a hypothetical case that can be accepted or rejected after the research is completed. This approach works from a broad perspective to a more specific one. This approach, also known as the top-down method, employs highly hierarchical methods to determine relationships between the given variables.
- Inductive Approach: This is an approach method in which the study's conclusion determines the theory or hypothesis, and it is less concerned with generalisation but more concerned with helping people understand the hypothesis through a versatile framework.
- Abductive Approach-It has much to do with the reasoning for the incomplete findings. The interface between the general and unique groups is generalised in this method.(Ragab and Arisha, 2017)

Due to the positivism impact in the analysis, this study is primarily using the deductive method, which aids in the development of a new phase in the study.

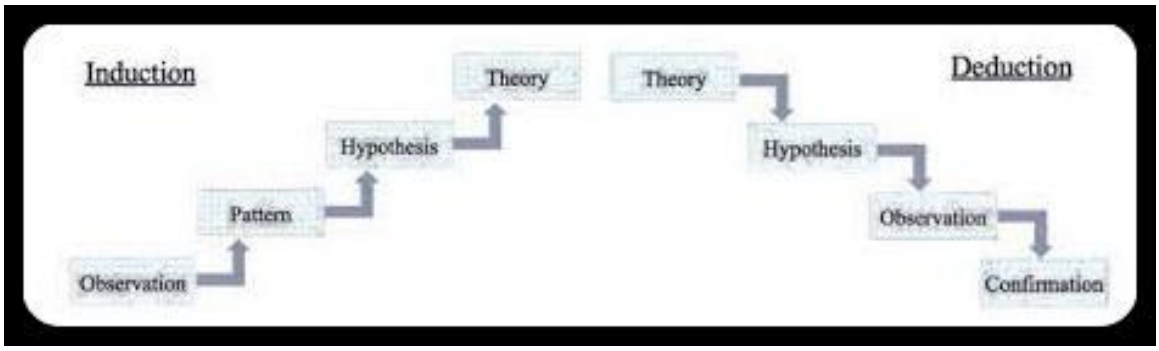

Figure 8: Induction and Deduction Method(Ragab and Arisha, 2017)

3.4 DATA COLLECTION

PRIMARY SOURCES

The data collection method is crucial in any research project because it aids in the discovery of resources. It can be achieved quantitatively or qualitatively. Quantifiable data is obtained in the quantitative process, and the data is analysed using statics. These aid in the deductive analysis of generalised results

applicable to positivism theory. Experiments, surveys, structural observation tests, and formal interviews are some of the approaches used in quantitative research.(Bhandari, 2020)

The key disadvantage of quantitative analysis is that when humanistic factors such as sociological and physiological dimensions are analysed in depth, social phenomena are not known.The qualitative approach, on the other hand, is focused on the subjects' own data, that is helpful for comprehending and studying a limited number of cases in depth or visualising complex studies. The most common methods of analysis are conceptual or content analysis.(Bhandari, 2021)

In this study, both qualitative and quantitative analysis technique is employed. This integrated approach aids in the collection and analysis of all necessary data in order to improve the study's outcomes. A questionnaire was created using the qualitative and quantitative testing method and included both closed-ended and open-ended questions. The survey is distributed to 50 health-care practitioners via email and other social platforms. The questions that were involved in the study were given in the below table

SL/NO	QUESTIONS	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
1	Antidepressants are prescribed and dispensed after proper medical intervention					
2	Inappropriate use of antidepressants is the main cause for its abuse and overuse					
3	Healthcare professionals are pressurised by outpatients to					

	prescribe or dispense Antidepressants					
4	Pharmaceutical companies influence prescribing of antidepressants to increase sales					
5	I have limited knowledge about Antidepressants					
6	I have educated patients on the rational use of Antidepressants					
7	Practising self-medication of antidepressants leads to its abuse and overuse					
8	I know of healthcare institutions practising antidepressant awareness programs					
9	Healthcare institutions follow guidelines to reduce antidepressant abuse and its overuse					

Table 6-Survey questions

SECONDARY SOURCES

The secondary source of study is the literature review. Data was gathered and evaluated from a variety of posts, journals, books, and blog posts. For the study's objectives, various studies were interpreted and compared. Furthermore, the survey questionnaire methodology was chosen because it was straightforward and so easy to use for participants via online and mobile applications. This research approach is more adaptable, cost-efficient, and reliable in terms of time.

3.5 QUANTITATIVE AND QUALITATIVE QUESTIONNAIRE

A questionnaire with 13 questions that included both closed and open-ended questions was created and distributed to various healthcare professionals. Social media networks are used to gather data from healthcare professionals. The questionnaire was structured using a 5-point Likert scale with responses as strongly agree, agree, neutral, disagree and strongly disagree. It is indeed a 1932 ordinal scale that was used to recognize the responses of participants and reported on a point scale measuring from I to 5.

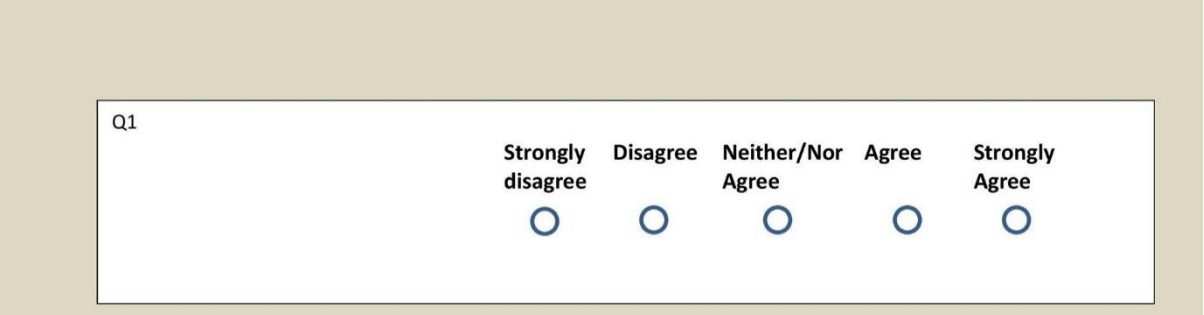

Figure 9: Sample for Likert Scale(MacIntosh, 2016)

3.6 ANALYSIS OF DATA

The results of a quantitative questionnaire with a five-point Likert scale are thoroughly evaluated based on participant experience, awareness, and steps for improving the current situation. To arrive at a conclusion, data is analysed using various methods and techniques. The research was carried out using Microsoft Excel, SPSS, and Tableau.

3.6.1 Ms-excel-The data collected from the survey was analysed using Excel in order to gain a deeper understanding of the data in this study. Excel is employed to extract essential components that are extremely important to the

study. Excel does not require advanced training and can be used by non-technical researchers.

3.6.2 Tableau- This programme assists a researcher in performing multiple tasks as well as creating, analysing, maintaining, and visualising data. When using Tableau, the user can analyse the data and view it in a variety of ways. Descriptive statistics is a tool for describing a dataset using mathematical steps and visualising it with a histogram for improved coordination. This approach aids the researcher in analysing and obtaining a broad overview and a concise description of the value data. This aids the researcher in the definition of data by logical measurement and explanation.

3.7 ETHICAL CONSIDERATIONS

The ethical concerns for the study subjects are considered as the most critical considerations in research.(Vanclay, 2013) The research was carried out among South Indian healthcare professionals, and the data was gathered through a survey. The aim of research ethics is to make sure that the research approach is sound and justifiable to the respondents. Since research ethics is a topic of discussion in the research report, it was constantly considered and revised. The purpose, aim, and significance of the survey have been well outlined in a 'participant information sheet' attached with the questionnaire before the data was collected from the respondents. Participants were told of their choice to withdraw at any stage of the study at any time without reason, as well as their right to withdraw/destroy their data from the time they completed/withdrew until 14 days later, when the data were analysed and written up. The data obtained via this questionnaire is highly confidential and that will be used only for this report. Except for their age and occupation, the study doesn't really obtain any sensitive data from the participants. The survey's participation was entirely voluntary.

3.8 INCLUSION AND EXCLUSION CRITERIA

INCLUSION CRITERIA

- Must be an Healthcare Professional
- Participant must be from India

Exclusion Criteria

- Non Healthcare Professional
- Participants other than from India

3.9 CONCLUSION

The research design and methodology were the key topics of discussion in this chapter. It described and implemented the data collection process in greater depth. It also detailed the study's research methodology and philosophy. In addition, this section covered the questionnaire design process, participant selection criteria, and survey completion methodologies.

CHAPTER 4

ANALYSIS AND FINDINGS

4.0 ANALYSIS AND FINDINGS

4.1 INTRODUCTION

A quantitative analysis was carried out as part of the data collection process, using a questionnaire titled "Evaluation of knowledge and attitude toward Antidepressants among Healthcare Professionals in South India," which was distributed among the study population of healthcare professionals. Fifty people from various sectors of the healthcare industry responded to the survey and that includes doctors, pharmacists, healthcare assistants, nurses and clinical pharmacists. The initial set of questions focused on the applicant's career and job experience. The second segment of the survey asked about their awareness of antidepressants as well as their attitudes toward them.

4.2 FINDINGS

FINDINGS

SL.NO.	1.How long you have been working within the healthcare system in India?	2.What is your job title?	3.Antidepressants are prescribed and dispensed after proper medical interventions	4.Inappropriate use of Antidepressants is the main cause of major problems associated with the medication	5.Healthcare Professionals are pressurized by outpatients to prescribe or dispense Antidepressants	6.I have educated patients on the rational use of Antidepressants before prescribing or dispensing the medication	7.Pharmaceutical companies influence prescribing of antidepressants to increase sales	8.I have limited knowledge about Antidepressant drugs	9.Practicing self - medication of Antidepressants will lead to severe side effects	10.I know of healthcare institutions practicing Antidepressant awareness programs	11.Healthcare institutions follow guidelines to reduce the abuse and overuse of Antidepressants
1	10 years and above	Doctor	Strongly Agree	Strongly Agree	Strongly Agree	Agree	Strongly Agree	Strongly Disagree	Agree	Agree	Agree
2	1-5 years	Doctor	Agree	Agree	Agree	Agree	Strongly Agree	Strongly Disagree	Agree	Agree	Agree
3	Less than 1 year	Doctor	Strongly Agree	Agree	Strongly Agree	Agree	Strongly Agree	Strongly Disagree	Agree	Agree	Agree
4	Less than 1 year	Healthcare Assistant	Neutral	Agree	Neutral	Neutral	Agree	Agree	Neutral	Neutral	Disagree
5	5-10 years	Nurse	Agree	Strongly Agree	Agree	Agree	Neutral	Strongly Disagree	Agree	Agree	Neutral
6	1-5 years	Pharmacist	Disagree	Neutral	Neutral	Neutral	Agree	Agree	Agree	Neutral	Disagree
7	1-5 years	Nurse	Agree	Strongly Agree	Neutral	Agree	Disagree	Strongly Disagree	Neutral	Neutral	Neutral
8	1-5 years	Healthcare Assistant	Disagree	Neutral	Disagree	Neutral	Agree	Agree	Agree	Neutral	Agree
9	5-10 years	Clinical Pharmacist	Agree	Strongly Agree	Agree	Agree	Agree	Strongly Disagree	Strongly Agree	Agree	Agree
10	1-5 years	Pharmacist	Neutral	Neutral	Neutral	Disagree	Agree	Agree	Agree	Neutral	Disagree
11	1-5 years	Healthcare Assistant	Agree	Agree	Agree	Neutral	Neutral	Agree	Agree	Neutral	Agree
12	1-5 years	Clinical Pharmacist	Strongly Agree	Strongly Agree	Agree	Agree	Agree	Strongly Disagree	Strongly Agree	Strongly Agree	Agree
13	1-5 years	Pharmacist	Agree	Agree	Neutral	Agree	Neutral	Neutral	Disagree	Strongly Disagree	Disagree
14	5-10 years	Doctor	Strongly Agree	Agree	Strongly Agree	Agree	Strongly Agree	Strongly Disagree	Agree	Strongly Agree	Strongly Agree
15	Less than 1 year	Pharmacist	Neutral	Agree	Neutral	Agree	Neutral	Agree	Agree	Agree	Agree
16	10 years and above	Clinical Pharmacist	Agree	Strongly Agree	Neutral	Agree	Agree	Strongly Disagree	Strongly Agree	Agree	Agree
17	1-5 years	Nurse	Agree	Strongly Agree	Neutral	Agree	Neutral	Strongly Disagree	Agree	Neutral	Agree
18	Less than 1 year	Healthcare Assistant	Agree	Neutral	Agree	Neutral	Neutral	Strongly Agree	Agree	Agree	Disagree
19	10 years and above	Doctor	Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Disagree	Strongly Agree	Agree	Agree
20	Less than 1 year	Healthcare Assistant	Agree	Neutral	Neutral	Disagree	Agree	Strongly Agree	Neutral	Neutral	Disagree
21	1-5 years	Clinical Pharmacist	Agree	Strongly Agree	Neutral	Agree	Agree	Strongly Disagree	Strongly Agree	Agree	Agree
22	1-5 years	Pharmacist	Neutral	Agree	Neutral	Disagree	Agree	Neutral	Agree	Disagree	Agree
23	1-5 years	Doctor	Agree	Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Disagree	Strongly Agree	Agree	Strongly Agree
24	Less than 1 year	Healthcare Assistant	Neutral	Agree	Agree	Disagree	Neutral	Agree	Agree	Agree	Disagree
25	10 years and above	Nurse	Agree	Strongly Agree	Agree	Neutral	Agree	Strongly Disagree	Agree	Neutral	Agree
26	5-10 years	Pharmacist	Agree	Neutral	Neutral	Neutral	Agree	Agree	Agree	Neutral	Neutral
27	10 years and above	Doctor	Agree	Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Disagree	Strongly Agree	Agree	Neutral
28	1-5 years	Pharmacist	Neutral	Agree	Neutral	Neutral	Agree	Neutral	Agree	Agree	Agree
29	1-5 years	Healthcare Assistant	Neutral	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Strongly Agree
30	10 years and above	Pharmacist	Agree	Neutral	Agree	Agree	Agree	Strongly Agree	Strongly Agree	Agree	Agree
31	1-5 years	Clinical Pharmacist	Strongly Agree	Strongly Agree	Neutral	Strongly Agree	Agree	Strongly Disagree	Strongly Agree	Agree	Agree
32	Less than 1 year	Pharmacist	Neutral	Agree	Agree	Neutral	Agree	Agree	Agree	Neutral	Strongly Agree
33	Less than 1 year	Healthcare Assistant	Agree	Agree	Agree	Neutral	Agree	Agree	Agree	Agree	Agree
34	1-5 years	Pharmacist	Neutral	Neutral	Agree	Agree	Agree	Neutral	Neutral	Agree	Strongly Agree
35	1-5 years	Pharmacist	Agree	Agree	Agree	Agree	Neutral	Neutral	Agree	Neutral	Agree
36	5-10 years	Nurse	Agree	Strongly Agree	Agree	Agree	Agree	Strongly Disagree	Strongly Agree	Agree	Agree
37	1-5 years	Clinical Pharmacist	Agree	Strongly Agree	Agree	Strongly Agree	Agree	Disagree	Strongly Agree	Agree	Strongly Agree
38	Less than 1 year	Pharmacist	Neutral	Agree	Neutral	Neutral	Agree	Disagree	Agree	Agree	Strongly Agree
39	1-5 years	Pharmacist	Neutral	Agree	Disagree	Agree	Agree	Strongly Agree	Agree	Disagree	Disagree
40	5-10 years	Healthcare Assistant	Agree	Strongly Agree	Agree	Neutral	Strongly Agree	Agree	Neutral	Agree	Agree
41	1-5 years	Clinical Pharmacist	Strongly Agree	Strongly Agree	Neutral	Agree	Agree	Strongly Disagree	Agree	Neutral	Agree
42	Less than 1 year	Pharmacist	Neutral	Agree	Agree	Neutral	Agree	Agree	Neutral	Agree	Agree
43	1-5 years	Clinical Pharmacist	Agree	Strongly Agree	Agree	Strongly Agree	Agree	Strongly Disagree	Strongly Agree	Agree	Strongly Agree
44	Less than 1 year	Pharmacist	Neutral	Agree	Disagree	Agree	Agree	Agree	Disagree	Agree	Agree
45	1-5 years	Healthcare Assistant	Neutral	Agree	Agree	Agree	Strongly Agree	Agree	Neutral	Agree	Strongly Agree
46	5-10 years	Pharmacist	Agree	Strongly Agree	Agree	Neutral	Agree	Agree	Agree	Agree	Neutral
47	1-5 years	Pharmacist	Agree	Strongly Agree	Neutral	Agree	Neutral	Agree	Neutral	Strongly Agree	Strongly Agree
48	1-5 years	Pharmacist	Agree	Agree	Agree	Neutral	Neutral	Agree	Agree	Neutral	Neutral
49	5-10 years	Pharmacist	Disagree	Agree	Agree	Agree	Neutral	Agree	Agree	Agree	Agree
50	1-5 years	Pharmacist	Agree	Agree	Agree	Agree	Neutral	Agree	Agree	Strongly Agree	Agree

4.3 BACKGROUND AND EXPERIENCE OF STUDY PARTICIPANTS

The survey's first two questions are designed to learn about the study participants' backgrounds and experiences. These questions were posed in order to better understand the scope of the answers to the survey's second section's questions.

4.3.1 HOW LONG YOU HAVE BEEN WORKING WITHIN THE HEALTHCARE SYSTEM IN INDIA

The first question was designed to determine each healthcare professional's level of experience in the Indian healthcare system. Figure shows that 50 percent of healthcare professionals in the sample population had 1 to 5 years of experience, while 22 percent had less than a year of experience. The rest two categories are 16 percent of healthcare professionals with 5 to 10 years of experience and 12 percent of healthcare professionals with 10 years or more of experience.

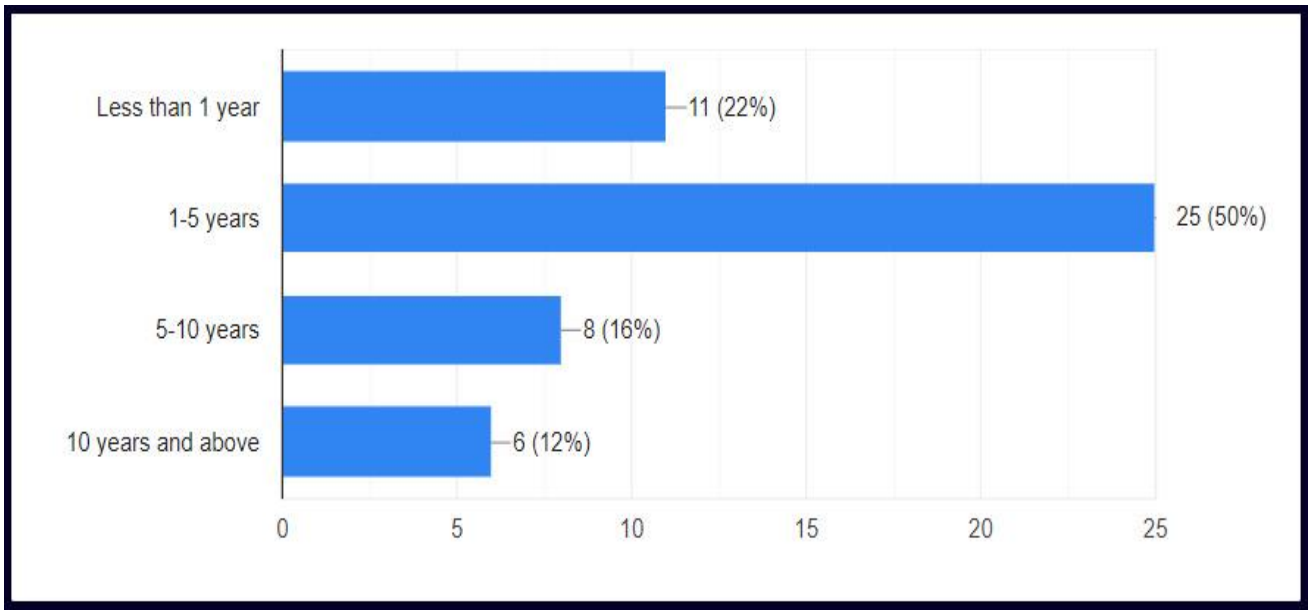

Figure 10: Number of survey respondent's year of experience in the Indian healthcare system

4.3.2 WHAT IS YOUR JOB TITLE?

Pharmacists made up the largest percentage of those who took part in the survey, accounting for 40%, followed by Healthcare Assistants (20%) and clinical

pharmacists (16%). Doctors (14%) and nurses (10) were the study group's least represented professions.

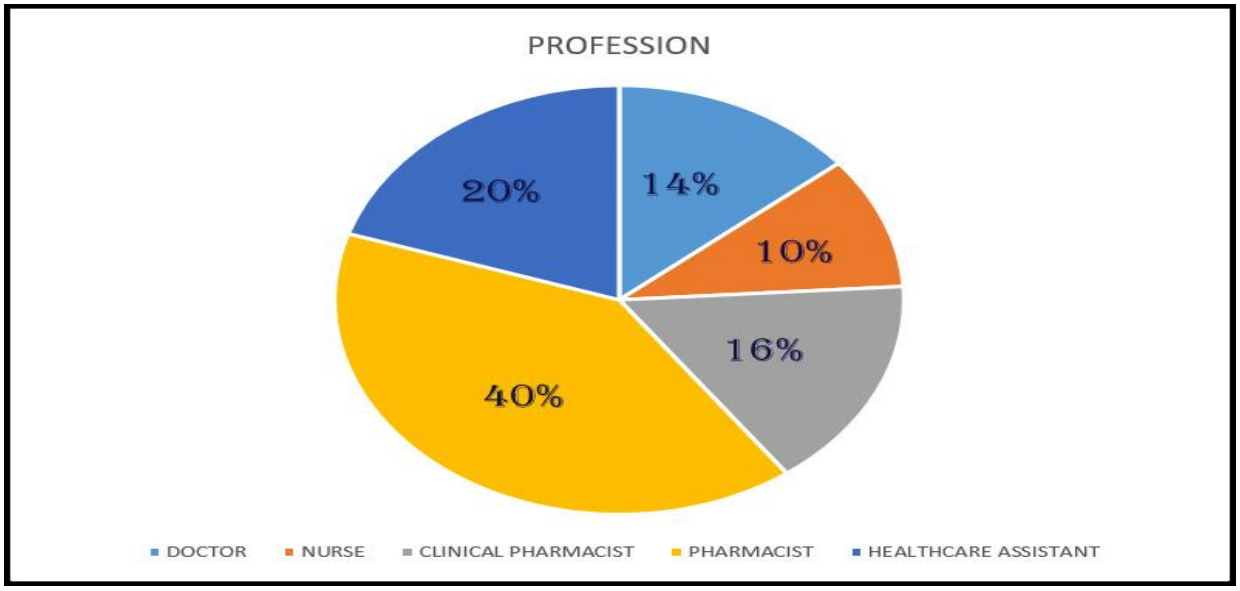

Figure 11: Pie chart representation of type and proportion of profession of the respondents.

4.4 RESPONDENT KNOWLEDGE AND ATTITUDE TOWARDS ANTIDEPRESSANTS

The second section of the survey focused on the respondents' knowledge and attitudes towards antidepressant use based on their personal experiences. For this reason, ten questions were drafted. The first two questions were designed to help understand healthcare professionals why the need antidepressants and how they use them, and the third and fourth questions were designed to assess antidepressant misuse and overuse, the causes of incidence, and awareness of steps taken by health authorities to mitigate the impact. The survey also enabled respondents to express their thoughts on how to curb the rise in antidepressant abuse and overuse.

4.4.1 GENERAL KNOWLEDGE ON ANTIDEPRESSANTS

As previously mentioned, the survey questions in total have been divided into three sections. The first section of the survey consists of a question about healthcare professionals' awareness of antidepressants.

4.4.1.1 ANTIDEPRESSANTS ARE PRESCRIBED AND DISPENSED AFTER PROPER MEDICAL INTERVENTIONS

The initial question was designed to see if antidepressant prescriptions were made after proper medical intervention. The respondents' responses were analysed, and 54 percent agreed, while 12 percent strongly agreed, that proper medical intervention were conducted out before the medication was administered or dispensed, and about 28 percent of the participants had a neutral belief that proper interventions were made. However, about 6% of the participants disagreed with the statement.

OPINION	FREQUENCY	% FREQUENCY
Strong Disagree	0	0
Disagree	3	6.0
Neutral	14	28.0
Agree	27	54.0
Strongly Agree	6	12.0
Total	50	100

Table 1: Frequency for medical intervention

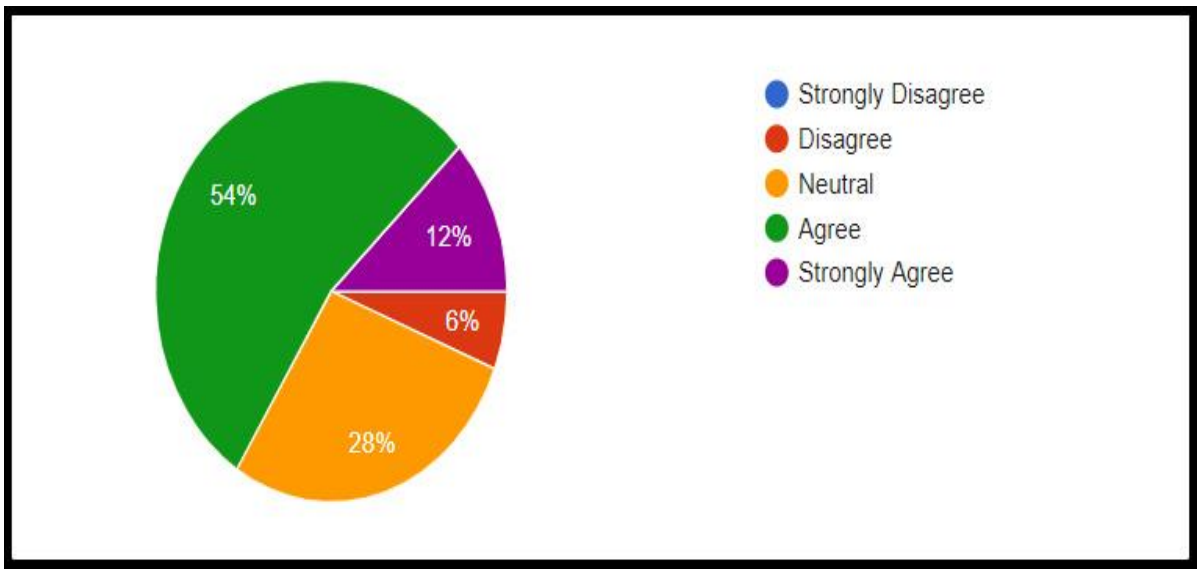

Figure 12: Pie chart representation of healthcare professionals suggesting to proper medical intervention before prescribing antidepressants

4.4.2 EVALUATION ON THE CAUSE OF ANTIDEPRESSANT ABUSE AND OVERUSE

The upcoming six questions address antidepressant misuse and overuse, as well as the reasons that healthcare professionals believe are to blame for these issues. These questions were posed by the researcher in order to identify the healthcare professional's knowledge and relate it to the review of the literature on the subject.

4.4.2.1 INAPPROPRIATE USE OF ANTIDEPRESSANTS IS THE MAIN CAUSE OF MAJOR PROBLEMS ASSOCIATED WITH THE MEDICATION

The healthcare professionals believe that improper use of antidepressants leads to its misuse and overuse, as shown by 48 percent of the professionals who have agreed and 36 percent strongly agreed to the statement. However, about 16% of them take a neutral stand on the topic. This question determines whether the healthcare provider understands the significance of antidepressant use and the precautions that must be taken while administering and dispensing the drug.

OPINION	FREQUENCY	% FREQUENCY
Strong Disagree	0	0
Disagree	0	0
Neutral	8	16.0
Agree	24	48.0
Strongly Agree	18	36.0
Total	50	100

Table 2: Frequency for Inappropriate use of Antidepressants

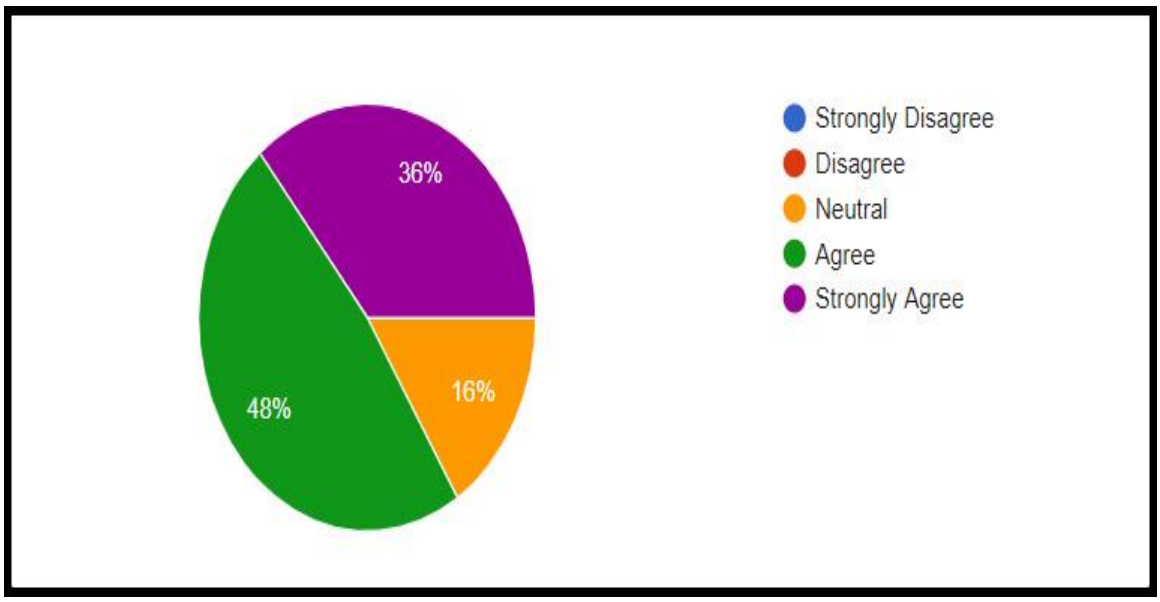

Figure 13: Pie chart representation of Healthcare Professionals on the inappropriate use of Antidepressants as a causative for its abuse and overuse.

4.4.2.2 HEALTHCARE PROFESSIONALS ARE PRESSURISED BY OUTPATIENTS TO PRESCRIBE OR DISPENSE ANTIDPRESSANTS

Outpatients are pressuring doctors to prescribe antidepressants, according to nearly half of healthcare professionals. Despite the fact that the majority agreed with this argument, about 34% of healthcare professionals took a neutral stance whereas 6% of healthcare professionals disagreed. Out of the total healthcare professionals about 12% strongly agreed that outpatients pressurise to prescribe or dispense these kind of medications.

OPINION	FREQUENCY	% FREQUENCY
Strong Disagree	0	0
Disagree	3	6.0
Neutral	17	34.0
Agree	24	48.0
Strongly Agree	6	12.0
Total	50	100

Table 3: Frequency for Outpatients Intervention

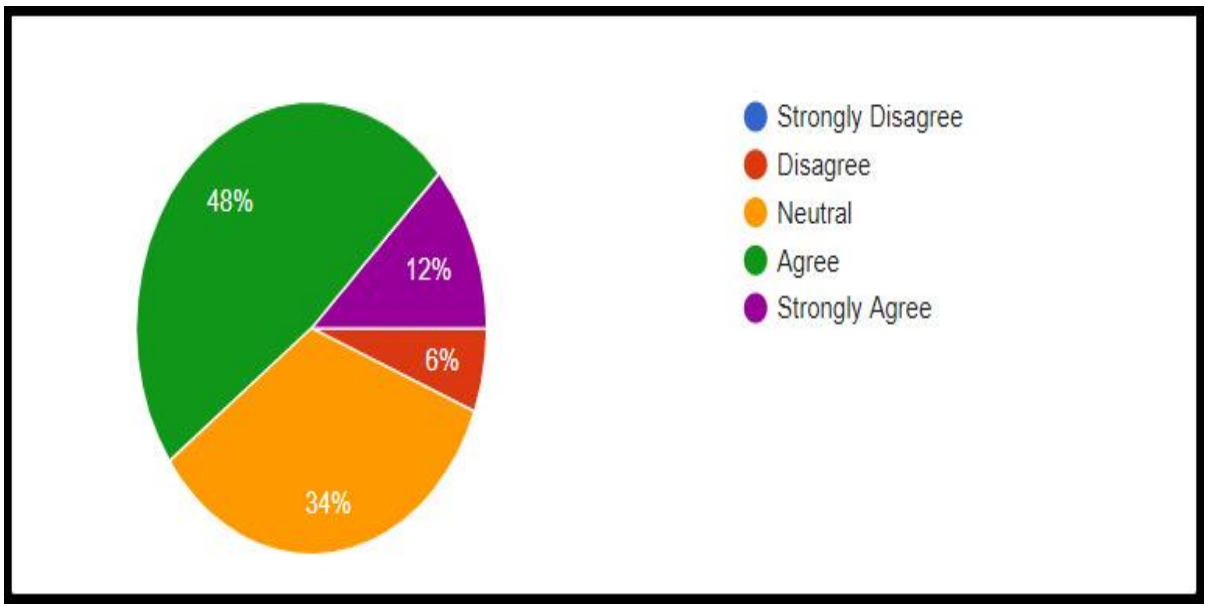

Figure 14: Pie Representation of Healthcare Professionals response to whether they agree being pressurised to prescribe or dispense antidepressants by outpatients.

4.4.2.3 PHARMACEUTICAL COMPANIES INFLUENCE PRESCRIBING OF ANTIDEPRESSANTS TO INCREASE SALES

In general, the question aids in determining whether healthcare practitioners act in accordance with pharmaceutical company requirements. Approximately 24% of healthcare professionals have a neutral opinion about whether pharmaceutical firms manipulate healthcare professionals to increase the company's economic gain. However, 56 percent agree and 18 percent strongly agree that they have been used as marketing tools by pharmaceutical firms to boost sales.

OPINION	FREQUENCY	% FREQUENCY
Strong Disagree	0	0
Disagree	1	2.0
Neutral	12	24.0
Agree	28	56.0
Strongly Agree	9	18.0
Total	50	100

Table 4: Frequency for Pharmaceutical companies Intervention

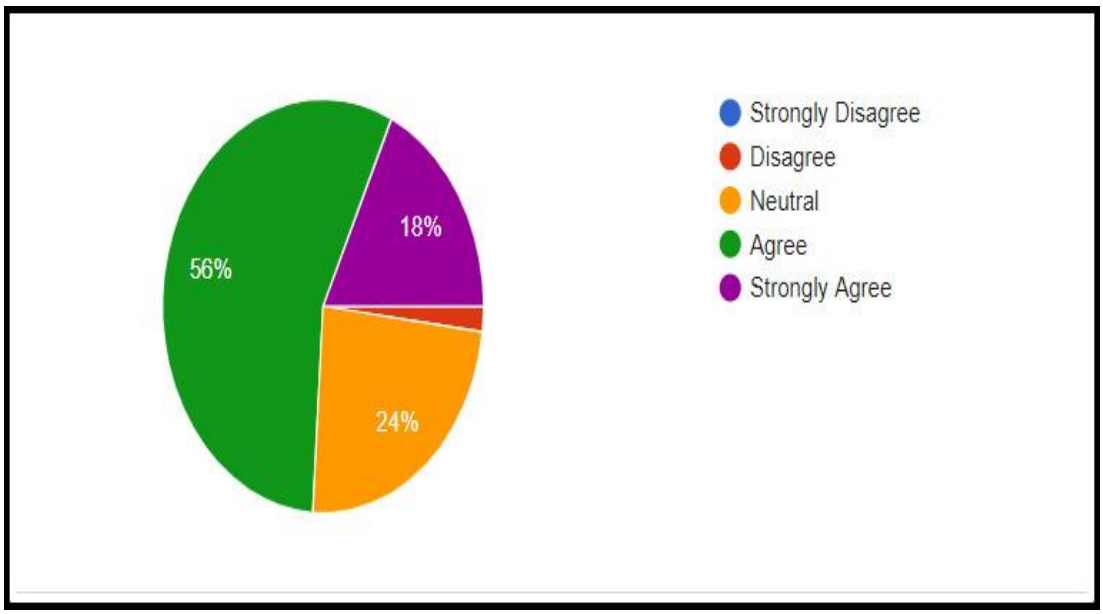

Figure 15: Pie chart representation for Pharmaceutical companies influence on prescribing of antidepressants to boost sales.

4.4.2.4 I HAVE EDUCATED PATIENTS ON THE RATIONAL USE OF ANTIDEPRESSANTS

Around 12% of all healthcare practitioners strongly agreed that they have trained their patients on the proper use of antidepressants, and about half agree. These practises assist healthcare practitioners in keeping up to date on antidepressants, and thereby assist patients in adhering to the dosage protocol. This question allows the researcher to determine whether healthcare professionals are educating patients about antidepressant use, toxicity, and side effects. Approximately 8% of healthcare professionals disagreed. However, a small percentage of clinicians (30%) were unable to decide whether or not to educate patients on the use of antidepressants.

OPINION	FREQUENCY	% FREQUENCY
Strong Disagree	0	0
Disagree	4	8.0
Neutral	15	30.0
Agree	25	50.0
Strongly Agree	6	12.0
Total	50	100

Table 5: Frequency for Educating Patients

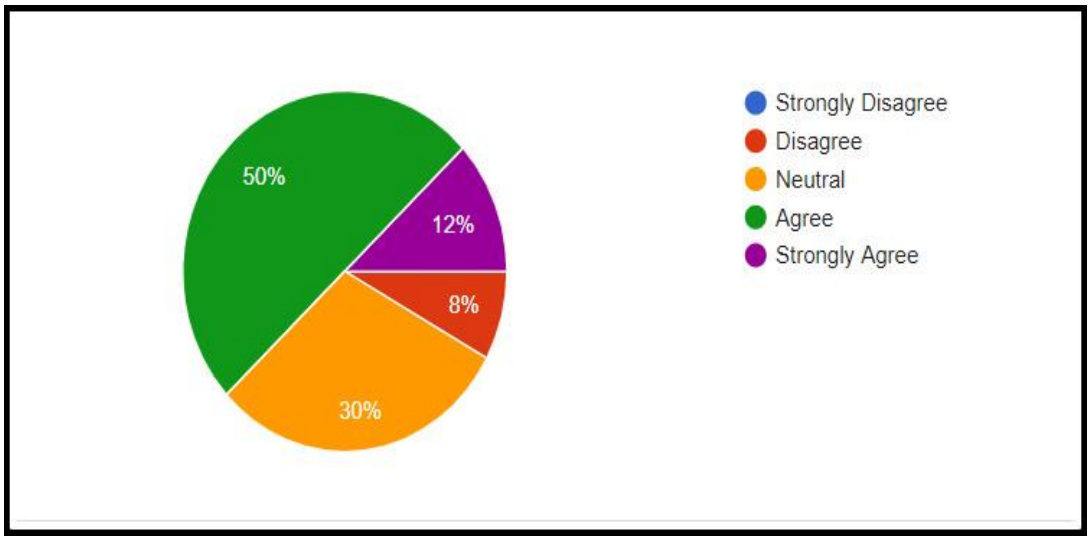

Figure 16: Pie chart representation of Healthcare Professionals responses to whether they have educated patients on the rational use of antidepressants before prescribing or dispensing.

4.4.2.5 I HAVE LIMITED KNOWLEDGE ABOUT ANTIDEPRESSANT DRUGS

Up to 38% of healthcare professionals strongly disagree that they have insufficient knowledge of antidepressants, and up to 40% of healthcare professionals agree that they have good knowledge of antidepressants. The chart in above questions is proof that the healthcare professionals admit that they have trained their patients on antidepressants, which is only possible if they have good information. However, 10% of healthcare practitioners are required to remain neutral because it is difficult for them to confirm their antidepressant knowledge.

OPINION	FREQUENCY	% FREQUENCY
Strong Disagree	19	38.0
Disagree	2	4.0
Neutral	5	10.0
Agree	20	40.0
Strongly Agree	4	8.0
Total	50	100

Table 6: Frequency for Knowledge about Antidepressants

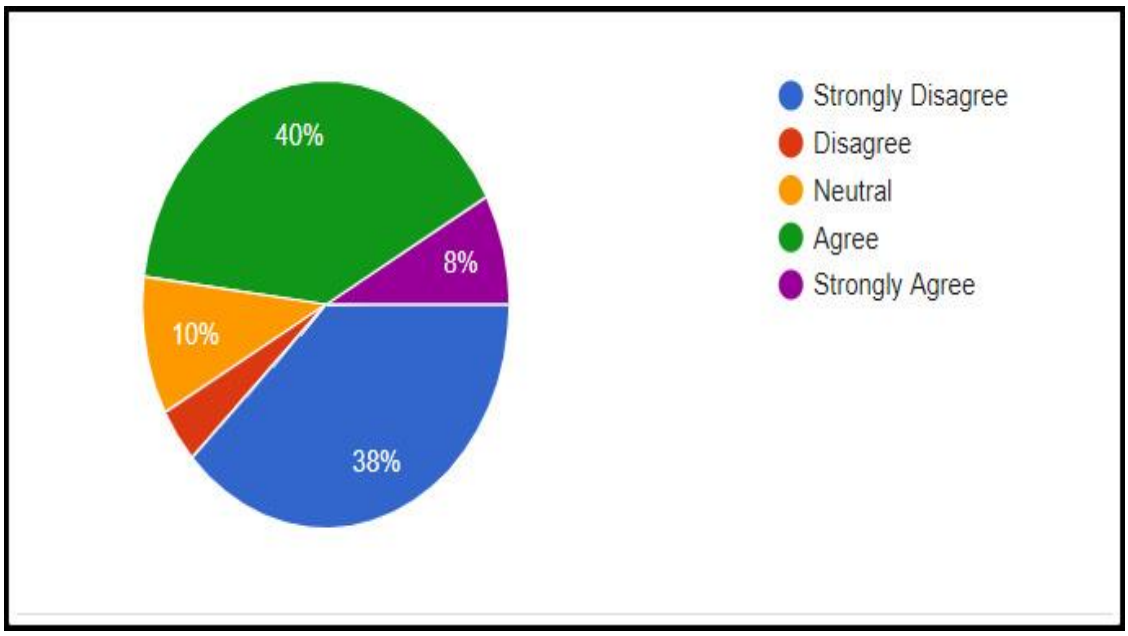

Figure 17: Pie chart representation of responses of Healthcare Professionals on knowledge of antidepressants

4.4.2.6 PRACTISING SELF MEDICATION OF ANTIDEPRESSANTS WILL LEAD TO SEVERE SIDE EFFECTS

Among the most shocking responses depicted in the graph is that a large proportion of healthcare professionals acknowledge that self-medication contributes to antidepressant misuse and overuse. Through addressing this query, the professionals conclude that antidepressant prescribing behaviour is observed among healthcare professionals. Around 16 percent of healthcare professionals are neutral about this argument, while 56 percent agree and 24 percent strongly agree that it caused problems.

OPINION	FREQUENCY	% FREQUENCY
Strong Disagree	0	0
Disagree	2	4.0
Neutral	8	16.0
Agree	28	56.0
Strongly Agree	12	24.0
Total	50	100

Table 7: Frequency for Practice of self-medication

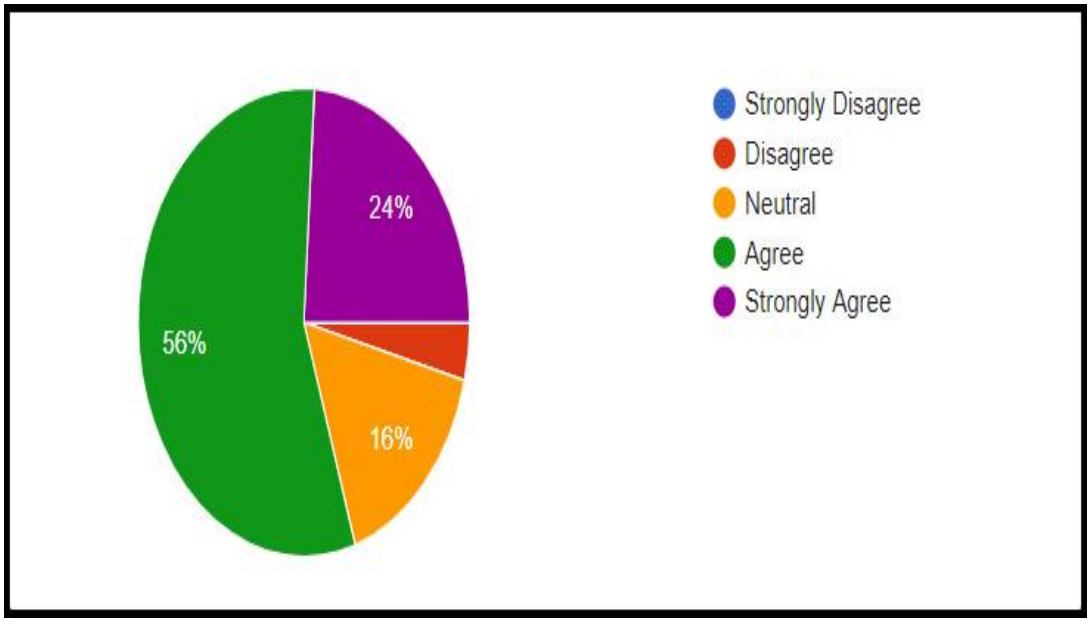

Figure 18: Pie chart representation of responses by Healthcare Professionals on the practise of self-medication of antidepressants

4.4.3 PREVETIVE MEASURES TO REDUCE ANTIDEPRESSANT ABUSE AND OVERUSE

The survey's third section includes three questions that will help the researcher determine if the healthcare professional is familiar with any of the services or approaches that can assist authorities in reducing antidepressant misuse and overuse. The last question is an open-ended question whereby the respondent should submit their own view about how antidepressants can help mitigate problems.

4.4.3. I KNOW OF HEALTHCARE INSTITUTIONS PRACTICING ANTIDEPRESSANT AWARENESS PROGRAM

This question assists the researcher in determining whether healthcare professionals are aware of prevention steps, as well as assessing professionals' knowledge of antidepressant awareness programmes and ensuring that organisations adopt them in order to minimise the risks associated with antidepressant-related issues. However, a curious opinion is that about 28% of healthcare professionals are neutral on this issue, leading us to believe that they haven't heard of such a programme or that the organisation lacks such programmes to reduce the misuse. However, 58 % of the professionals agree

and 8% strongly agreed that they have come across these programs and they are aware of these kinds of programs.

OPINION	FREQUENCY	% FREQUENCY
Strong Disagree	1	2.0
Disagree	2	4.0
Neutral	14	28.0
Agree	29	58.0
Strongly Agree	4	8.0
Total	50	100

Table 8: Frequency for Institutions practising Antidepressant Awareness Programs

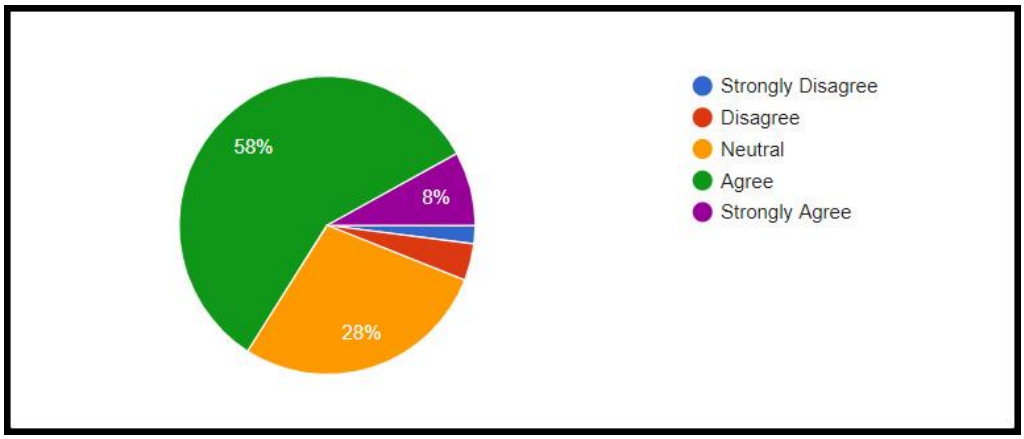

Figure 19: Pie chart representation of responses recorded by Healthcare Professionals regarding Institution practising Antidepressant awareness programs.

4.4.3.2 HEALTHCARE INSTITUTIONS FOLLOW GUIDELINES TO REDUCE ANTIDEPRESSANT ABUSE AND OVERUSE

This question usually aids the researcher in determining whether healthcare professionals are informed of global and national action plans initiated by WHO and national agencies, respectively, and whether they are adopted by their respective organisation. About half of healthcare practitioners agree with the statement, and a quarter of them strongly agree that most health institutions follow rules and guidelines to reduce antidepressant misuse. However, approximately 16 percent disagreed with this assertion, while the remaining 12 percent were neutral about this.

OPINION	FREQUENCY	% FREQUENCY
Strong Disagree	0	0
Disagree	8	16
Neutral	6	12
Agree	26	52
Strongly Agree	10	20
Total	50	100

Table 9: Frequency for safeguarding guidelines

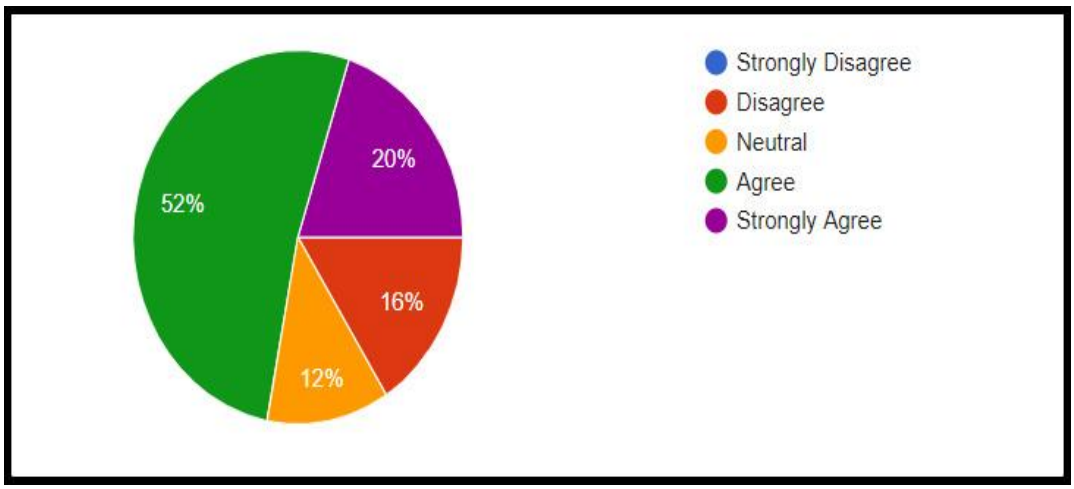

Figure 20: Pie chart representation of Healthcare Professionals suggesting their opinion whether institutions follow guidelines to avoid antidepressant abuse and overuse.

4.4.3.3 SOLUTION TO CURTAIL ANTIDEPRESSANT ABUSE AND OVERUSE

It was an open question to health care professionals, who were asked to recommend any interventions or a better way to reduce antidepressant use. The majority of healthcare practitioners had their own recommendations, which were mostly identical. The table below shows the most common responses proposed by healthcare professionals.

SOLUTIONS SUGGESTED BY HEALTHCARE PROFESSIONALS TO CURTAIL THE ABUSE AND OVERUSE OF ANTIDEPRESSANTS
a) Avoid Self Medication
b) Proper awareness about Antidepressant Drugs
c) Proper Patient Counselling
d) Stress Management Programs
e) Proper study of Patient Case History
f) Proper Medical Intervention
g) Up-to-date all relevant scientific information to Healthcare Professionals
h) Strict monitoring and Proper Diagnosis
i) Educate people about the side effects of Antidepressants
j) Counselling regarding overuse or inappropriate use of antidepressants

Table 10: Different methods suggested by the respondents in curtailing Antidepressant abuse and overuse.

4.5 COMPARATIVE STUDY AMONG HEALTHCARE PROFESSIONALS

A comparison analysis of healthcare professionals' general awareness of antidepressants, the causes and prevention of antidepressant misuse and overuse, and the personal factors that contribute to abuse and overuse of antidepressants was conducted.

4.5.1 GENERAL KNOWLEDGE OF ANTIDEPRESSANTS

The responses of healthcare professionals based on the identification of antidepressants are examined in this section. The findings indicate that eight pharmacists agreed with the need for a thorough medical intervention before prescribing or dispensing antidepressants, whereas ten pharmacists were neutral about this. An equal number of doctors and clinical pharmacists strongly agreed that antidepressants require careful medical intervention. It is evident from the graph that a significant number of Healthcare Professionals agreed on the importance of proper medical intervention.

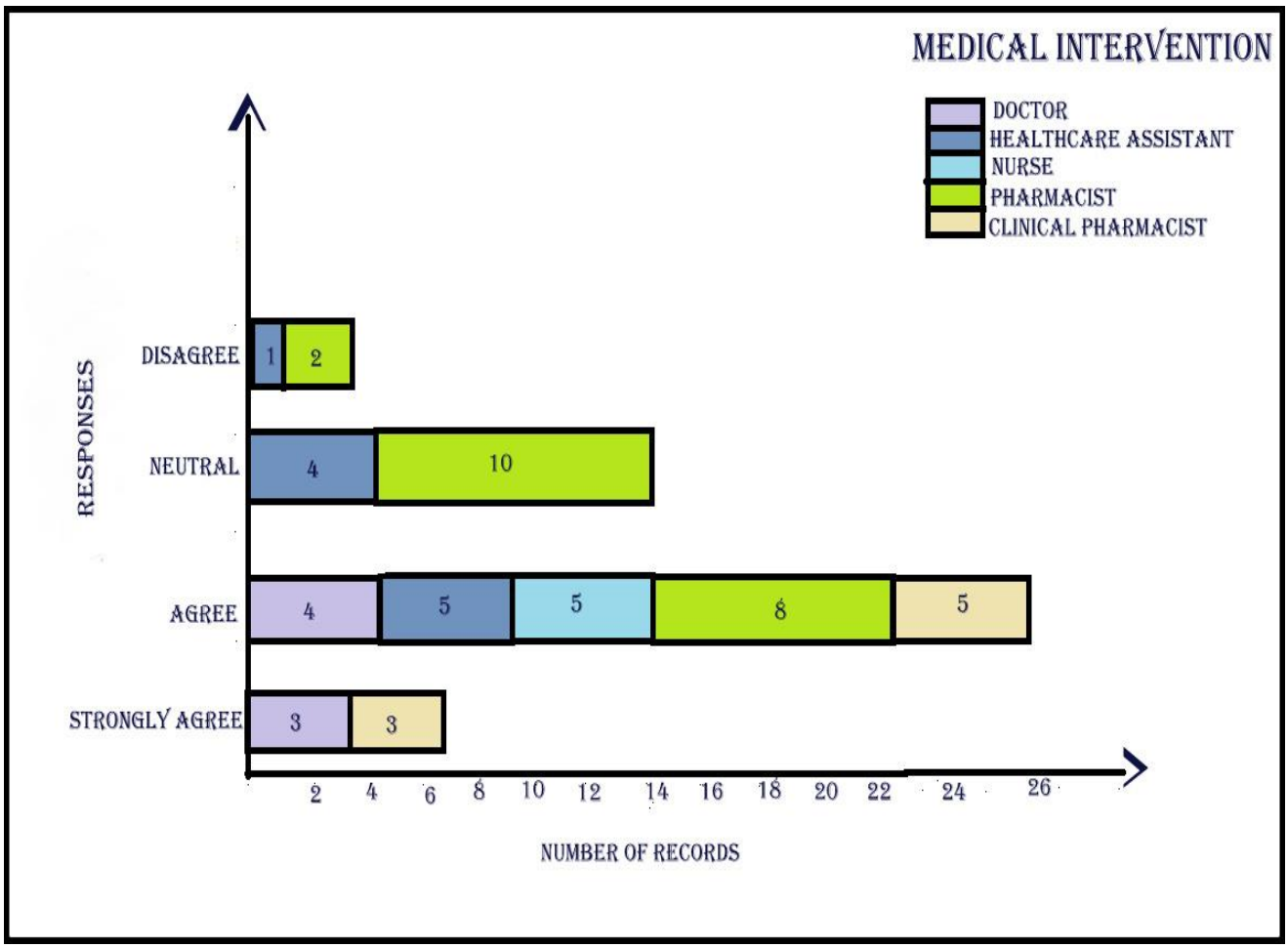

Figure 21: Comparative analysis of responses by individual groups of healthcare professionals on general knowledge of antidepressants

4.5.2 CAUSES OF ANTIDEPRESSANT ABUSE AND OVERUSE

The responses of healthcare professionals were compared in order to better understand the causes of antidepressant misuse and overuse. More than half of the pharmacists agreed that improper antidepressant usage would lead to substance abuse. It's worth noting that almost all of the nurses, as well as the clinical pharmacist, decided that improper usage was a bad idea. On the intervention of outpatients in prescribing or dispensing antidepressants, an equal number of pharmacists agreed and had a neutral position. Approximately 86 percent of the doctors strongly agreed about outpatient pressurization upon healthcare professionals. When it comes to the influence of pharmaceutical firms on antidepressant prescribing, all of the clinical pharmacists agreed whereas doctors strongly agreed on the statement.

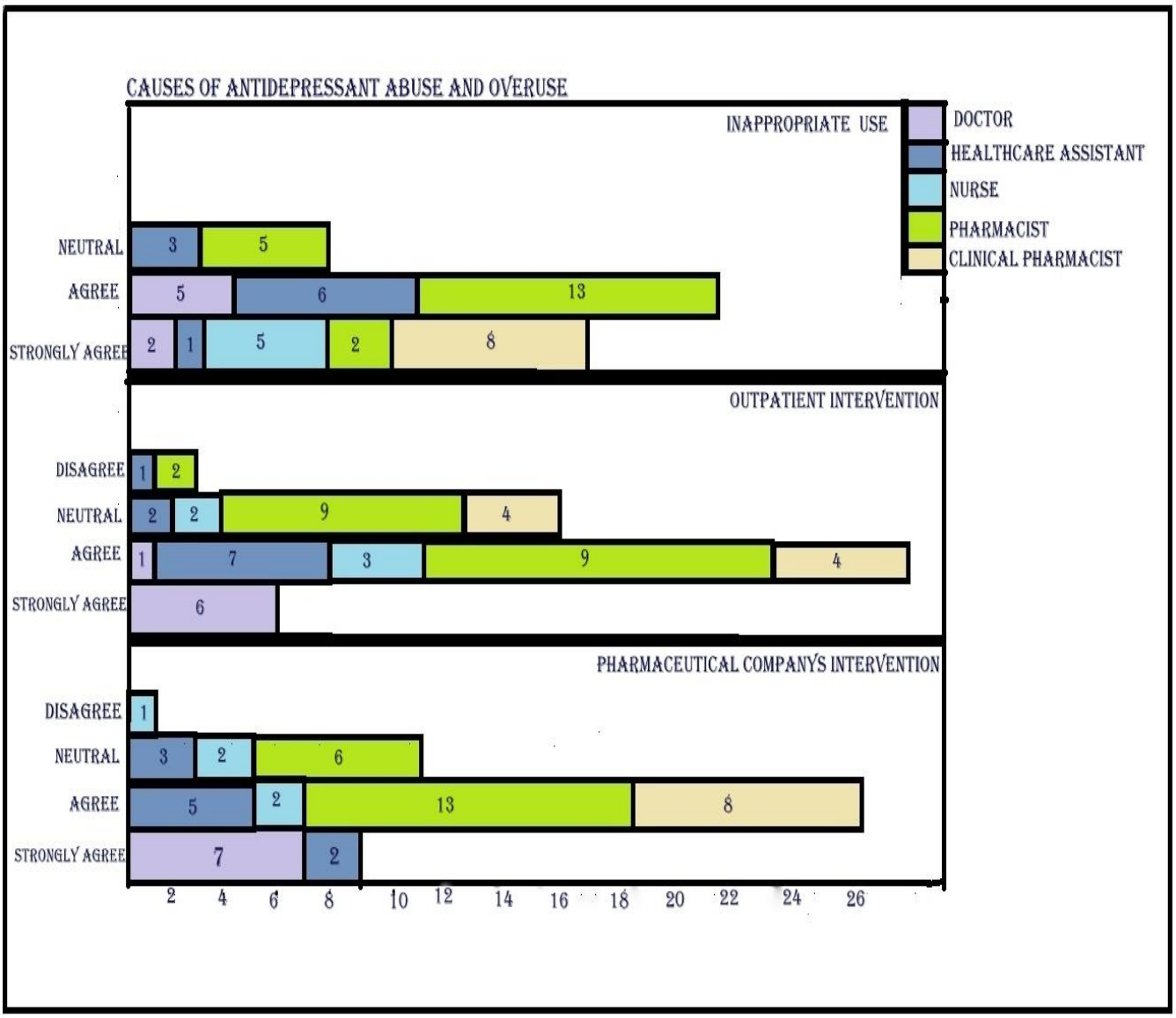

Figure 22: Comparative analysis of responses by individual groups of healthcare professionals on the causes of antidepressant abuse and overuse.

4.5.3 PERSONAL FACTORS LEADING TO ANTIDEPRESSANT ABUSE AND OVERUSE

The emphasis of this study is on the personnel factors that can contribute to antidepressant abuse among healthcare workers. The majority of respondents said they educate or teach their patients about antidepressant use, while about half of pharmacists and healthcare assistants said they were neutral on the topic. The majority of respondents, which included a full proportion of

physicians, clinical pharmacists, and nurses, disagreed that they had little knowledge of antidepressants. On the other hand, a higher percentage of pharmacists and healthcare assistants agreed that their knowledge is limited.

Self-medication with antidepressants is the most common response among personal factors that all healthcare professionals have identified in their study. The doctors about full proportion have agreed that self-medication is one of the reason for antidepressant abuse and overuse. Just a small percentage of healthcare assistants, nurses, and pharmacists were neutral about the argument.

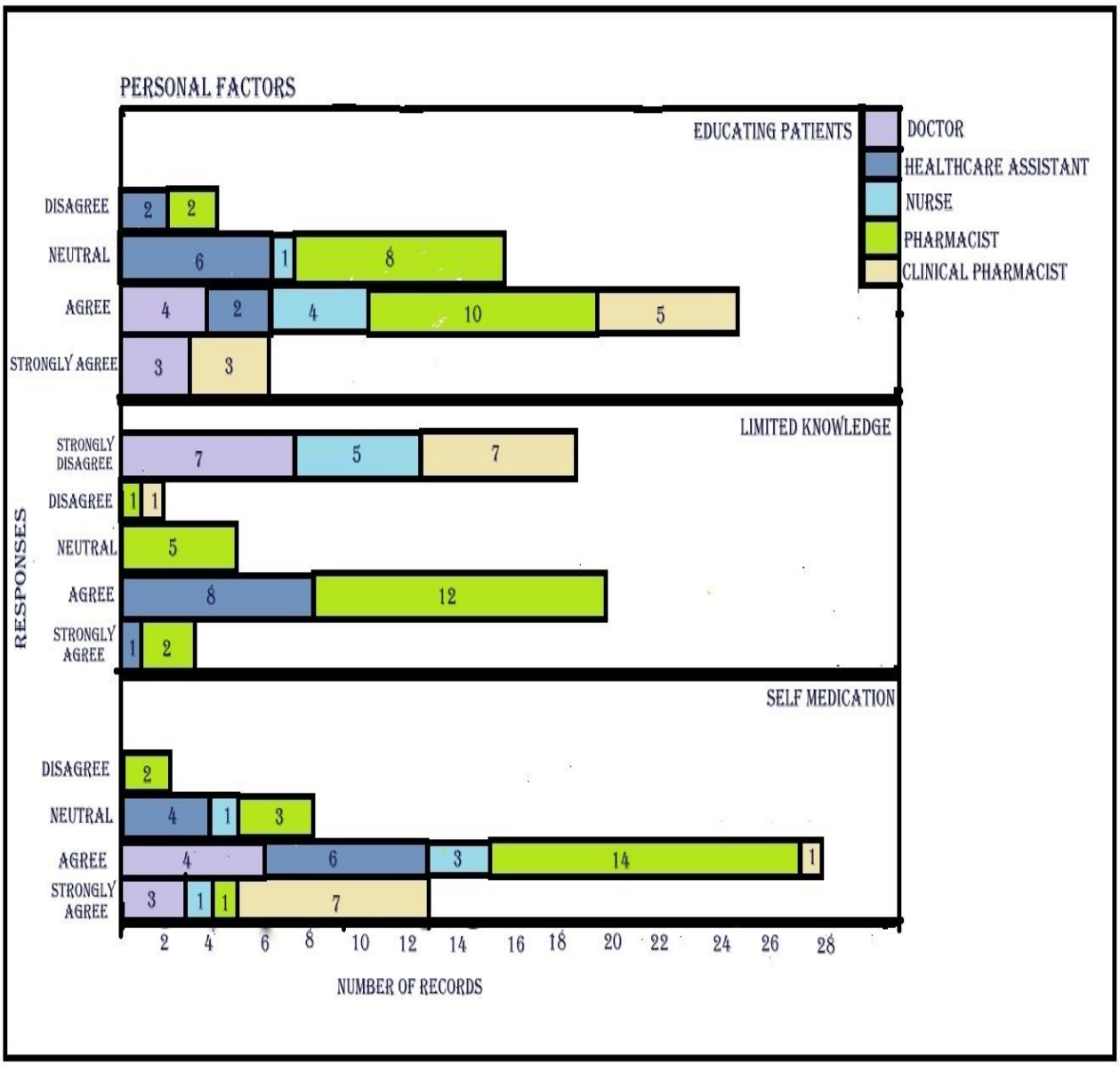

Figure 23: Comparative analysis of responses by individual groups of

healthcare professionals on the personal factors that may lead to antidepressant abuse and overuse.

4.5.4 FACTORS THAT PREVENT ANTIDEPRESSANT ABUSE AND OVERUSE

The research in this segment aims to determine the healthcare professional's recommendations for avoiding antidepressant misuse and overuse. Almost a significant proportion of respondents from all professions accepted that their healthcare facilities practise antidepressant awareness programmes. The opinion was disagreed by about half of the healthcare assistants and nurses. Despite the fact that the majority of respondents believe the organisations obey standards, there was no evidence of a strong agreement. All professionals agree, but healthcare assistants and pharmacists are the only ones who made a disagreement.

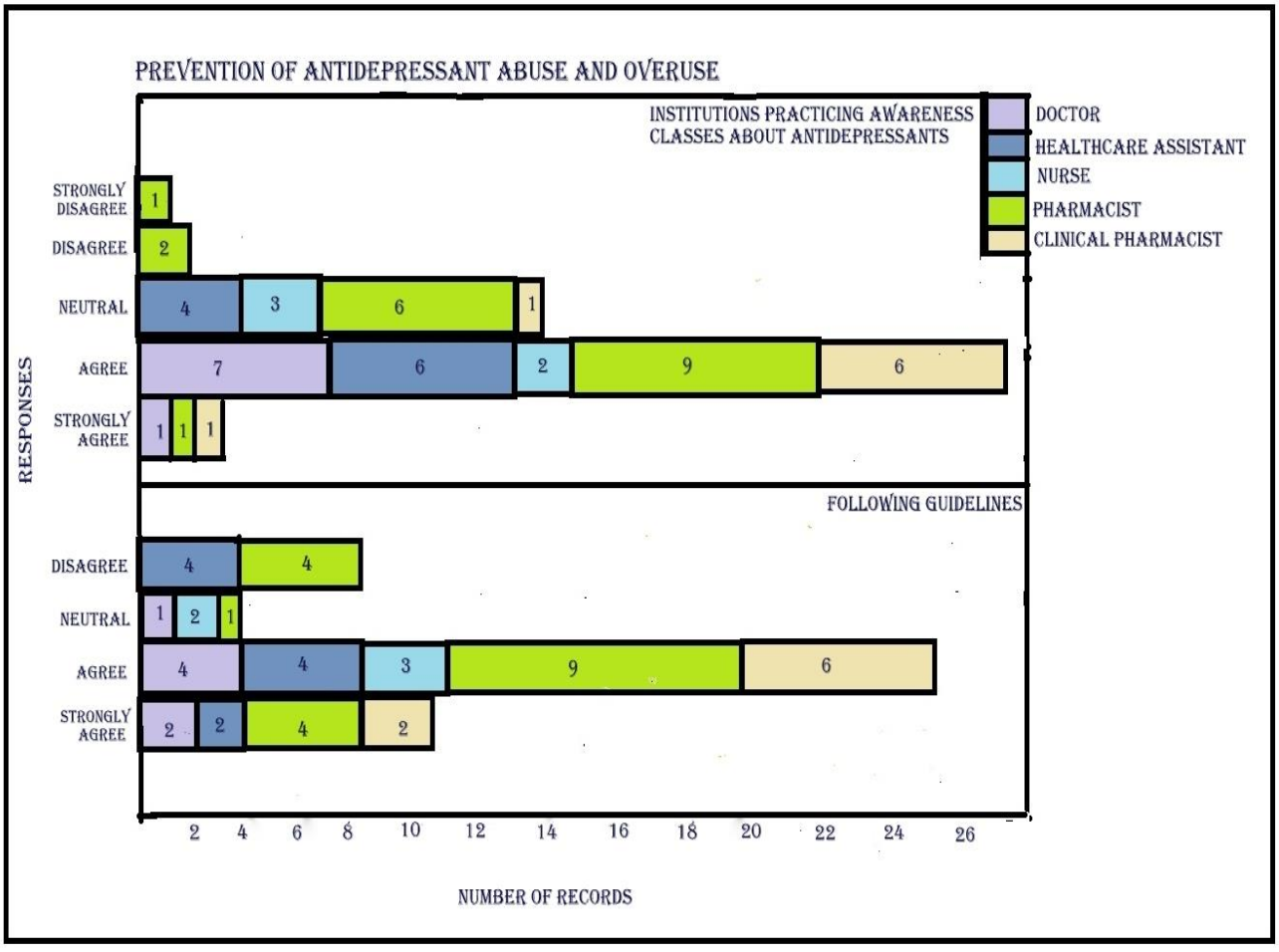

Figure 24: Comparison of responses among the healthcare professionals for the prevention of Antidepressant abuse and overuse.

CHAPTER 5
DISCUSSION
AND CONCLUSION

5.0 DISCUSSION AND CONCLUSION

5.1 INTRODUCTION

The responsibility of healthcare professionals is to make sure that vulnerable populations receive safe and effective drugs. The improvement of treatment conditions in the healthcare system will increase the quality and comfort of life for the people of all countries. Improving current standards and monitoring clinical quality progress must be an unavoidable component of the healthcare system.(Brown and Savulescu, 2019) The survey was conducted on a sample of 50 healthcare professionals who answered 13 questions about their attitudes and awareness about antidepressants. Healthcare practitioners are aware of common misconceptions about antidepressant treatment and the side effects that can result if it is not administered or dispensed correctly.

5.2 GENERAL KNOWLEDGE ON ANTIDEPRESSANTS

The survey participants were asked whether they agreed that antidepressants could only be provided after proper medical intervention. Antidepressants are typically prescribed after the completion of necessary medical laboratory testing and appropriate intervention(Shelton,2019).Healthcare practitioners concurred, with 66 percent recommending that antidepressants be administered only after thorough medical interventions. These tests assist in determining and selecting the most appropriate therapy. As a result of the findings, it is possible to conclude that if adequate medical procedures are provided, antidepressants may be prescribed to patients for improved outcomes.

5.3 CAUSE OF ANTIDEPRESSANT ABUSE AND OVERUSE

Abuse and overuse of antidepressants is reducing the effectiveness of many patients' treatments and, as a result, raising the risk of handling vulnerable populations. According to the healthcare professional's response, inappropriate antidepressant will result in its abuse and overuse, which was reported by 84 percent. The healthcare professional acknowledges the value of antidepressant use as well as caution that should be exercised when prescribing and dispensing the drug in the above answer. Abuse and overuse of antidepressants could also be a factor in certain cases where the outpatients put pressure on doctors to

prescribe antidepressants. According to some reports, patients are urging healthcare practitioners, such as doctors, to prescribe antidepressants for a quick relief without worrying about the adverse effects.(Grimm, 2021)

According to the study, about 60% of practitioners believe they have been pressured by their patients to prescribe antidepressants. However, 34% of professionals took a neutral stance, while 6% of professionals disagreed. Besides that, educating patients about the proper use of antidepressants is a critical step that healthcare providers must take. The goal of educating communities must be considered in order to achieve the improvement that nurses and other medical workers expect. It should, in fact, becomes a strategic tool aimed at achieving a healthier society (Shrank and Avorn, 2007). More than 62 percent of the practitioners agreed that their patients be educated about the use of antidepressants, which is very significant. In such a case, if the majority of patients are being trained on the same, which is recommended by healthcare professionals, therefore patients must compromise these.

Pharmaceutical companies' control on healthcare practitioners has benefited their economic ideals by causing them to prescribe medicine or dispense antidepressants in accordance with the industry's interests. According to research, pharmaceutical companies compel doctors to prescribe antidepressants to their patients by giving them attractive rewards or deals in exchange for prescribing antidepressants.(Latten *et al.*, 2018) In order to determine whether healthcare practitioners act in accordance with pharmaceutical company standards it is found from the survey that a quarter of the responses were neutral.

More than half of the respondents, on the other hand, believe that healthcare practitioners are merely advertising agents for pharmaceutical firms. This form of practise is most common in the generic medicine industry, where physicians are typically pressured to prescribe or prescribed the drug's substance name, effectively turning physicians into promotional tools.(Kasthuri, 2018) The health professionals indicated that they were well-versed in antidepressant therapy. This aids practitioners in educating their patients about the side effects of the drug as well as the instructions for fulfilling the prescription. The interesting finding in the survey was that about 30% of the practitioners had a neutral response to it, and 48% of the respondents appeared to have very limited

knowledge of antidepressants. These studies emphasise the value of ongoing educational programmes that must be introduced to educate practitioners about how to use antidepressants and how to reduce their abuse.

A large proportion of healthcare professionals believed that self-medication antidepressants leads to its misuse and overuse. Many healthcare practitioners are in this position, prescribing antidepressants for themselves or their close relatives. Surprisingly, only a small percent of the participants did not believe in antidepressant self-medication. Many other factors such as place of residence, age, gender, lack of clinical experience, lack of expertise in prescribing of antidepressants, and patients' desire to heal fast open the way for antidepressant self-medication.(Evans and Sullivan, 2014)

5.4 PREVENTIVE MEASURES TO CURTAIL ANTIDEPRESSANT ABUSE AND OVERUSE

Antidepressant misuse and overuse is on the rise, according to healthcare professionals, and steps must be taken to prevent it. Antidepressant awareness programme mostly assisted in understanding the program's advantages, allowing the healthcare professionals to participate in the programme and, as a result, minimise antidepressant use, prescription costs, abuse and overuse.

Around 28% of healthcare professionals were neutral on whether or not their organisations practised antidepressant awareness programmes. However, 66 percent of participants agreed that organisations are taking steps to reduce abuse and overuse by putting in place guidelines for healthcare professionals to adopt.

The more pharmacist has recommended that antidepressant awareness services be introduced in both hospitals and primary health care systems to optimise antidepressant usage. Despite the fact that the antidepressant s programme informs each community pharmacist about the benefits of antidepressant use, a larger proportion of pharmacists took a neutral stance on expanding the awareness programme to many other healthcare sectors across the nation.

Along with this response, 72 percent of healthcare professionals believe that healthcare facilities can do a better job of analysing the problems caused by antidepressant misuse and overuse, as well as implementing strategic steps to

avoid the problems. In response to the final question, healthcare professionals were asked to recommend various approaches or interventions that they believe could help to curb the rise in antidepressant abuse and overuse. Most healthcare practitioners agreed that antidepressants should only be prescribed and administered after adequate medical intervention, and that self-medication should be discouraged and those made aware that it can lead to addiction and overuse. The healthcare professional also stressed the importance of continuing education for practitioners.

5.5 COMPARISON BETWEEN HEALTHCARE PROFESSIONALS

When questioned about the necessity for medical interventions to recognise the need for antidepressants, healthcare professionals' responses were analysed, with the pharmacist recording the majority of the responses and the Healthcare Assistants marking the larger proportion of the neutral reactions on the questions asked.

Doctors have a good knowledge of the causes that contribute to antidepressant misuse and overuse, and most healthcare practitioners accept these factors. The most surprising fact was that the majority of the nurses believed that improper antidepressant use result in abuse and overuse. Moreover, the majority of healthcare professionals concluded that outpatient intervention could be used to compel healthcare professionals to prescribe antidepressants, and pharmaceutical firms' influence laid the groundwork for same suggestion. Most healthcare professionals stated that they disagree with the fact that they limit antidepressant knowledge, but the strange thing was that most healthcare professionals, regardless of their status, self-medicate with antidepressants. After all, these harmful practises can lead to increased misuse and overuse, posing a risk to potential healthcare treatment. Almost all participants from all professions do not agree or disagree when it comes to their understanding of their healthcare institutions' antidepressant awareness programmes. The healthcare assistants are the ones who didn't agree at all when compare to others.

However, because of a lack of awareness and understanding among healthcare practitioners, as well as socioeconomic factors, the usage of these therapies is

fraught with problems. The key issues that arise as a result of antidepressant misuse and overuse are abuse and overuse. India, after China, is the world's second-largest manufacturer of generic medicines. The primary goal of pharmaceutical firms is to maximise their profits through selling to the greatest number of people. In this case, healthcare practitioners are being used as a marketing tool.(Purcarea, 2019)

The government's inability to reach out to everyone else has been abused. Similarly, since there are more private clinics and hospitals in India, pressuring healthcare practitioners to prescribe antidepressants is more popular. Furthermore, people living in rural areas, due to a lack of awareness and the need to take immediate action or recovery, are advised to take antidepressants, which aid in the cure of the disease. Moreover, these are among the social and cultural factors that which influence peoples thinking. Antidepressant self-prescription is a popular practise in India. Healthcare practitioners, on the other hand, have made valuable contributions to the causes of antidepressant misuse and overuse, as well as prevention strategies.(Glen, 2018)

5.6 COMPREHENSIVE CONCLUSIONS ON FINDINGS

The duty of healthcare professionals to make sure that vulnerable populations receive safe and effective drugs is increasing day by day. The improvement of treatment conditions in the healthcare system will increase the quality and comfort of life of the nation’s health population.(Scheerder *et al.*, 2011) Finally, it is clear that the majority of healthcare practitioners are well-versed in antidepressants. Professionals have proposed some of the interventions that they believe should be used or avoided in antidepressant medication therapy practise to reduce its abuse and overuse. The aim of the study was to learn about healthcare professionals' perceptions about antidepressants.

A questionnaire was distributed to healthcare professionals, allowing them to respond according to their own decision and understanding of antidepressants. Antidepressant misuse and overuse, according to many of the healthcare professionals who responded to the study, is a global tragedy. The unfortunate reality is that most patients are completely unaware of this. Healthcare workers find it a personal mission to inform the people they are treating, but the

recommendations are occasionally violated by the patients. The major thing discovered is that if adequate medical intervention is made, it aids healthcare practitioners in prescribing the specific drug required for treatment.

Similarly, including more experts in the decision-making process for an antidepressant aids professionals in receiving recommendations from clinical experience and then prescribing the same to patients. Most healthcare professionals believe and recommend that the healthcare professionals who work with antidepressant treatment for the betterment of the patient be regarded with a great degree of significance. In this situation, it is imperative that healthcare professionals keep a close eye on the patient.(Dunlop, 2017)

As per healthcare professionals, the most common causes of antidepressant misuse and overuse are self-prescribing, lack of adequate medical intervention, and lack of patient education on antidepressant application. Furthermore, healthcare practitioners point out a problem in which certain patients request that antidepressants be prescribed for immediate relief of disease symptoms. Pharmaceutical companies' reach must not be overlooked at all costs, as they have exerted pressure on practitioners in order to boost their own economic growth.(Morgan *et al.*, 2006) The study revealed that these are some of the common societal circumstances that can result in or contribute to antidepressant misuse and overuse. Even if we believe it does not have a larger impact at times, the sad reality is that its impact is unavoidable. Healthcare practitioners, on the other hand, are familiar with the health authority's efforts to avoid such problems and are enthusiastic about them. Regardless of sector or job title, every healthcare professional agrees and assures that their lack of expertise and dedication to patient education will enable society to resolve this problem to some extent.(Hieronymus, 2019)

5.7 FINAL CONCLUSION

The objective of this research dissertation was to assess healthcare professionals' knowledge and attitudes toward antidepressants in South India. The dissertation's result shed light on the factors that contribute to antidepressant misuse and overuse, as well as some preventative steps that can be taken. The deficiencies of the lack of previous ongoing study studies and the ability to approach participants must, however, be recognised. However, the duty of healthcare practitioners to ensure that vulnerable populations receive

safe and effective drugs is growing day by day. Regardless of sector or job title, every healthcare professional agrees and assures that their experience in the field and dedication to patient education will enable society to solve this problem to some extent

5.8 CONTRIBUTIONS AND LIMITATIONS

Despite the fact that the survey had a limited sample size, healthcare professionals were heavily active in offering useful opinions that assisted in better understanding information and attitudes regarding general antidepressant perceptions. The research helped to identify the causes that lead to antidepressant misuse and overuse, as well as preventative steps. The following are the study's acknowledged limitations:

- Due to the COVID-19 pandemic's rules, the chances of reaching participants were low, and the participants for this study were few.
- The research was confined to Healthcare Professionals in Kerala, India, because it was undertaken during the Covid-19 pandemic period. As a result, the findings cannot be applied to the entire South Indian region. HCPs' attitudes and practises will be influenced by cultural differences and custom in various regions of India.
- Due to the limited sample size, a more detailed comparison of understanding among healthcare professionals was not possible.
- The region and educational institution in which they studied could have influenced their reactions, and this was not investigated in this research.
- The analysis of the literature was limited due to the lack of existing research in this field.
- For better understanding of the data, the respondents were further divided into categories depending on their profession, though the percentages in each group were not equal. There were 20 pharmacists and only ten healthcare assistants.

5.9 RECOMMENDATIONS FOR FURTHER RESEARCH

Following are several suggestions that can be made after this research dissertation is completed.

- Recommendation for Indian healthcare bodies to issue best antidepressant prescribing recommendations in order to reduce antidepressant misuse and overuse.
- To gain a better picture of healthcare professionals' knowledge and attitudes about antidepressants, a greater sample size must be chosen.
- Carrying out interviews with a variety of healthcare professionals of varying specialisations may help with future research.
- It is suggested that higher healthcare authorities give better training and advancement in the field of antidepressants to healthcare practitioners, as many of them requires proper education and awareness.

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