E-ISSN No : 2581-6195 | Volume : 7 | Issue : 8 | August 2024

BEHAVIOURAL MANAGEMENT OF NON-COMMUNICABLE DISEASES: A COMPREHENSIVE REVIEW

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ABSTRACT

Chronic non-communicable diseases (NCDs) are a growing global health concern, characterized by their prolonged duration and gradual progression. Unlike infectious diseases, NCDs are not transmitted between individuals but result from complex genetic, environmental, and lifestyle interactions. This review paper extensively examines vital chronic NCDs, including hypertension, diabetes mellitus type 2, arthritis, chronic respiratory diseases, and reproductive health issues. It discusses each condition's prevalence, causes, symptoms, and management strategies. It emphasizes the importance of early diagnosis, lifestyle modifications, and multidisciplinary approaches to increase patient result and decrease the load on healthcare organizations.

KEYWORDS: Chronic Non-Communicable Diseases, Prevalence, Management Strategies

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HOW TO CITE THIS ARTICLE:
Dr. Hemlata Joshi (2024). Behavioural Management of Non-Communicable Diseases: A Comprehensive Review, International Educational Journal of Science and Engineering (IEJSE), Vol: 7, Issue: 8, 32-38

INTRODUCTION

Chronic non-communicable diseases (NCDs) characterize a noteworthy challenge to public wellbeing globally. These illnesses, distinguished by their long duration and slow development, include a broad spectrum of ailments not transferred by people but by genetic, environmental, and behavioural aspects. The World Health Organization (WHO) estimates that NCDs, including cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases, are responsible for a large portion of global illness and death (WHO, 2021). Effective management of these conditions necessitates a thorough understanding of their etiology, clinical manifestations, and treatment options. This review aims to offer a broad overview of critical chronic NCDs and the strategies employed in their management.

1. Hypertension

Hypertension, or high blood pressure, is a widespread chronic illness affecting a major section of the worldwide people. Characterized by elevated arterial pressure, hypertension often progresses silently, making early detection and management crucial. Hypertension is typically categorized into primary (essential) hypertension and secondary hypertension. Risk factors include age, family history, obesity, sedentary lifestyle, high salt intake, and excessive alcohol consumption (Oparil et al., 2018). In one study mentioned that untreated blood pressure can affect cognitive functioning and cause issues with learning, memory, attention, abstract thinking, mental flexibility, and other cognitive functions(Forte et al., 2019). These issues are significantly more prevalent in young hypertensives (Waldstein et al., 1996; Moraes et al., 2019).Early identification and treatment of hypertension are crucial due to the dangers and severity of the condition.

Pathophysiology

Hypertension results from increased cardiac output and elevated systemic vascular resistance. It is associated with alterations in the autonomic nervous system, endothelial dysfunction, and renal sodium retention. Over time, uncontrolled hypertension can lead to target organ damage, including the heart, kidneys, and brain (Waldstein et al., 1996). The major causes of rising blood pressure in healthy, average persons are acute stress and unfavourable environmental conditions. Most lifestyle and dietary variables, including inactivity, excessive salt intake from processed fatty foods, use of nicotine and alcohol, and lifestyle factors, are to blame for the condition's rising prevalence (Pickering, 1997). In one study state that childhood temperament (emotional excitability) encourages adolescent central weight increase (Jang et al., 2023).

In this constellation of risk, emotional variables are also involved. Chronic anger in the family might be a factor in the development of hypertension (Ewart, 1991; McCubbin et al., 2018).

Clinical Manifestations

Hypertension is often asymptomatic and also known as "silent killer." Symptoms include headaches, dizziness, and visual disturbances. Prolonged hypertension can lead to severe

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complications such as stroke, myocardial infarction, heart failure, and chronic kidney disease (CKD)(Abebe et al., 2024).

Diagnosis

The diagnosis of hypertension is based on sustained elevated blood pressure readings. The American College of Cardiology and American Heart Association define hypertension as systolic blood pressure (SBP) ≥130 mmHg and diastolic blood pressure (DBP) ≥80 mmHg (Iqbal & Jamal, 2024).

Management

Management of hypertension involves lifestyle modifications and pharmacological treatment. Lifestyle changes include reducing dietary salt, increasing physical activity, and moderating alcohol consumption(Kaplan, 2007).

Pharmacological treatment typically involves antihypertensive medications such as diuretics, beta-blockers, angiotensin-converting enzyme (ACE) inhibitors, and calcium channel blockers. Regular monitoring and adherence to treatment are essential for effective management (Muntner et al., 2017).

Psychological intervention: Cognitive behaviour therapy Includes muscle relaxation, hypnosis, meditation, and anger management techniques. In CBT intervention, goal-setting, self-calming, self-affirmation, and time management are frequently used. Another strategy is to consider stress a multi-stage process that includes stress triggers, coping mechanisms, thoughts, and physiological reactions. Thus, training a wide range of problem-solving abilities may be necessary for treatment or intervention. In one study result indicate that interventional methods such as cognitive counseling and sedation can be used sideways with medication to control BP and increase the quality of life of pregnant women (Arini et al., 2023; Atef et al., 2023). Liu et al. (2017) investigated the impact of psychological interventions on blood pressure, health-related quality of life (HRQOL), and stroke prevalence in hypertensive patients in the Chinese working population. The intervention group received regular cognitive, emotional, and behavioral psychotherapy for two years. After two years of psychological treatment, the non-anxiety and anxiety subgroups had lower systolic blood pressure and diastolic blood pressure than baseline and the control group, respectively. Thus, long-term psychological psychotherapy can improve blood pressure, HRQOL, and stroke risk in Chinese working hypertensive (Liu et al., 2017).

2. Diabetes Mellitus

Diabetes mellitus develops because of inadequate insulin production and function; people with diabetes mellitus have improper food metabolization. The pancreas, a gland beneath the stomach, produces insulin. The pancreas typically releases insulin in response to blood glucose levels. In diabetes, the amount of insulin needed to maintain a certain blood glucose level does not match the amount of readily available insulin. Insulin aids glucose absorption into the body's cells, supplying them with the energy they need to function. It also affects the liver and muscles' ability to store glucose for later use. These reserves are stored as glycogen and converted back into glucose as needed (Sapra & Bhandari, 2024).

Insulin controls blood glucose levels by keeping them within a set range and regulating how much is circulating. Diabetes is a metabolic disorder that arises from improper use of carbohydrates. Many glucose molecules remain in circulation rather than being digested or stored, limiting energy production (Wilcox, 2005).

Diabetes mellitus type 2 is a prevalent metabolic disorder characterized by insulin resistance and impaired insulin secretion. It leads to chronic hyperglycemia, which can result in serious long-term complications if not properly managed (Taylor, 2018).

- **Type 1 Diabetes mellitus:**

This illness typically affects children and is brought on by the pancreatic beta cells that secrete insulin. The person must take insulin for the rest of their life since the body either generates very little or no insulin. Juvenile diabetes is another name for this illness, diagnosed in patients between 9 and 15 (Lucier & Dulebohn, 2024).

- **Type 2 Diabetes mellitus:**

The third most prevalent chronic illness in the US is type II diabetes. Usually, it appears after age 40 (Taylor,2018). This is the most pervasive problem that affects many people, and both insulin resistance and a lack of insulin cause it. For this illness, both medication use and lifestyle changes are necessary. Because of its prevalence and ongoing maintenance requirements, it frequently leads to compliance issues. Although the body makes much insulin, cells cannot use it. It used to happen often among elderly folks, but it happens more regularly today. Obesity, inactivity, and improper diet are the main risk factors for type 2 diabetes mellitus(Galicia-Garcia et al., 2020).

Pathophysiology

The pathophysiology of type 2 diabetes involves a combination of genetic predisposition and environmental factors. Insulin resistance in peripheral tissues and inadequate insulin secretion by pancreatic beta cells results in elevated blood glucose levels. Over time, this can lead to beta-cell dysfunction and progressive deterioration of glycemic control (Powers et al., 2016).

Risk Factors

Key risk factors for type 2 diabetes include obesity, physical inactivity, poor diet, and a family history of diabetes. Other factors include advancing age, gestational diabetes, and specific ethnic backgrounds (American Diabetes Association, 2020).

Clinical Manifestations

The symptoms of diabetes(Ramachandran, 2014):-

- **Excessive Thirst:** It absorbs Fluid from the tissues when blood sugar levels are high, and there is a significant build-up in the circulation. The person will feel thirsty after this.
- **Excessive Urination:** A person may drink too much water when thirsty, which will cause them to urinate more than usual.

- **Excessive Hunger:** When the insulin cannot transport the sugar into the body or the cells, the organs lose energy. Overeating results from this.
- **Loss of weight:** Calories are lost as the extra glucose is eliminated through urine.
- **Tiredness:** When the cells lack sugar, fatigue will develop.
- **Blurred vision:** It made focusing more difficult.
- **Slow recovery from infections:** The person's capacity for a speedy recovery is lost.

Symptoms of type 2 diabetes include polyuria, polydipsia, fatigue, and blurred vision. Long-term complications can affect multiple organ systems, including cardiovascular, renal, and neurological systems. Common complications include cardiovascular disease, nephropathy, retinopathy, and neuropathy (Zheng et al., 2018).

Diagnosis

Diagnosis is based on elevated fasting plasma glucose levels, oral glucose tolerance tests (OGTT), or haemoglobin A1c (HbA1c) levels. According to the American Diabetes Association, an HbA1c level ≥6.5% is diagnostic for diabetes (American Diabetes Association, 2020).

Management

Self-management: We can successfully manage diabetes with active self-management. High-risk individuals' lifestyle adjustments can entirely avoid Type II diabetes. Research shows that exercise helps overweight people lose weight, manage stress, and follow a healthy diet (Galaviz et al., 2015).
Dietary intervention: Dietary intervention includes consuming fewer carbohydrates and sugars. It urged patients to reach an average weight since obesity particularly strains the insulin system. Exercise is crucial since it helps burn off blood sugar and promotes weight loss (Reynolds & Mitri, 2000).

Psychoeducation about diabetes:

Many diabetes individuals lack sufficient knowledge of how insulin regulates glucose metabolism. A patient was advised what to do without being informed of the reasoning behind it. Making sure that patients have the proper beliefs about their illness is crucial to adherence because many Type II diabetics do not recognize that they have a chronic health condition that requires a sustained commitment to medications and behaviour change. Education is undoubtedly a crucial part of the intervention(Sami et al., 2017).

Provide psychosocial support: Many studies have also shown that having diabetes impacts the mental health and behaviour of other family members, including partners, parents, and siblings. Only poor diabetes control will unquestionably result from dysfunctional family dynamics. Adherence to a regimen positively correlates with family functioning, whereas non-adherence correlates with family conflict. It showed that family therapy helps people adapt to life with diabetes better. Family therapy is a thorough treatment plan that also aids in addressing self-destructive behavior (Garrett & Doherty, 2014).

Dietary changes, regular physical activity, and weight management are critical treatment components. Pharmacological options include metformin, sulfonylureas, and newer agents such as glucagon-like peptide-1 (GLP-1) receptor agonists and sodium-glucose co-transporter 2 (SGLT2) inhibitors. Monitoring blood glucose levels and managing comorbid conditions are essential for optimal care (Inzucchi et al., 2015;Budreviciute et al., 2020).

3. Arthritis

Arthritis encompasses a range of inflammatory and degenerative joint conditions that can lead to significant pain and disability. Major types of arthritis include rheumatoid arthritis (RA), osteoarthritis (OA), and psoriatic arthritis (PsA) (Taylor, 2018). According to research, women are reported to have arthritis more frequently than males; the ratio is around three men to 1 woman. Remission and exaggeration are traits of this illness, meaning the patient may endure discomfort for a certain period and feel no pain after some time. Therefore, the seasons of minimal and severe discomfort continue to change, and how frequently they will do so is unknown. Pain is the most defining element of arthritis, as well as its most frequent and problematic aspect. Almost everyone who has an arthritis diagnosis often reports that they suffer from moderate-to-severe levels of pain (J.-R. Kim & Kim, 2020).

- **Rheumatoid Arthritis**

Rheumatoid arthritis is an autoimmune ailment categorized by chronic swelling of the synovial joints, leads to joint impairment and deformity. The disease often presents with symmetrical joint swelling, pain, and morning stiffness (Radu & Bungau, 2021).

- **Osteoarthritis**

Osteoarthritis is a degenerative joint disease characterized by the breakdown of articular cartilage and underlying bone. It usually affects weight-bearing joints such like knees and hips, leading to discomfort, difficulty, and reduced joint mobility (King et al., 2013).

- **Psoriatic Arthritis**

Psoriatic arthritis is associated with psoriasis and involves both skin and joint inflammation. It can present with peripheral arthritis, spondylitis, and enthesitis. Symptoms include joint pain, swelling, and skin lesions(Tiwari & Brent, 2024).

Diagnosis

Diagnosis of arthritis typically involves clinical evaluation, imaging studies, and laboratory tests. Radiographic findings indicate osteoarthritides, such as joint space narrowing and osteophyte formation. Autoimmune markers, such as rheumatoid factor (RF) and anti-citrullinated protein antibodies (ACPAs), are used in the diagnosis of rheumatoid arthritis (Tiwari et al., 2024).

Risk factors

According to Maisha et al. (2023) risk factors of arthritis are :-

- **Age:** The chance of developing rheumatoid arthritis is considerable and increases with age, regardless of generation or individual.

- **Sex:** Compared to males, women are more likely to get arthritis. The person is also more vulnerable to developing arthritis if they have a history of joint damage or injury. As a result, this person is at a higher risk of having arthritis in the future.
- **Obesity:** Lack of activity, sedentary work habits, and a lack of physical activity will also push the person towards a higher weight on the vein scale, then make him into the obese category.
- **Family history:** Genetics and family history expose the person to great danger. Some families have a high prevalence of specific forms of arthritis. Therefore, there is a substantial likelihood that a person may develop arthritis later in life or more recently if a parent or sibling has the condition.

Management

Management of arthritis involves pharmacological and non-pharmacological interventions. Non-steroidal anti-inflammatory drugs (NSAIDs), disease-modifying antirheumatic drugs (DMARDs), and biologics are commonly used in the treatment of rheumatoid arthritis. For osteoarthritis, management focuses on pain relief, physical therapy, and lifestyle modifications. Psoriatic arthritis treatment includes NSAIDs, DMARDs, and biologic agents (Bullock et al., 2019; Radu & Bungau, 2021).

Pharmacological treatment: For someone with arthritis, aspirin is regarded as the cornerstone of pharmacological therapy. Large doses of it have a strong anti-inflammatory effect. It is viewed as a painkiller and an antipyretic. The maximum dosage is 4 grams per day, and anything more might lead to adverse impacts in the future. Diazepam is regarded as another helpful pharmaceutical therapy since it may assist a patient in managing their anxiety levels. When the pain is intense, a doctor may occasionally give non-steroidal anti-inflammatory medicines(Vane & Botting, 2003).

There also available surgical therapies for arthritis in addition to pharmaceutical ones. Synovectomy is a procedure used to manage pain and preserve joint and muscle harmony. Joint fusion is offered to stabilize the joints and lessen deformity(Kim & Jung, 2007).

Psychological treatment: The patient dealing with arthritis can undoubtedly benefit from psychotherapy. When a problem is detected early on so that the person can manage it better, different people may respond differently when diagnosed with arthritis. It all depends on how much activity he is now experiencing. When the condition is still in its early stages, he will likely be in a better frame of mind to accept the diagnosis. Still, if levels of inactivity are high, an individual may experience significant effects on his response to the diagnosis. Individuals must know that to live correctly, they must make several lifestyle adjustments(Sharpe, 2016).

Several psychosocial strategies may manage arthritis. Psychoeducation programs highlight the different aspects of arthritis and provide a wide range of information on what arthritis is and how to manage and control it. These instructional programs undoubtedly give the patient the tools to manage his disease effectively. They will give him a newfound sense of self-assurance, and he will feel independent and stop depending on anybody. There are a lot of cognitive behaviour therapy activities that are done (Backman, 2006).

4. Chronic Respiratory Diseases

Chronic respiratory diseases, including chronic obstructive pulmonary disease (COPD), asthma, and lung cancer, have a significant impact on global health. These conditions are often characterized by impaired lung function and can lead to severe morbidity and mortality (Global Initiative for Chronic Obstructive Lung Disease, 2020).

- **Chronic Obstructive Pulmonary Disease (COPD)**

COPD is a progressive lung disease primarily caused by long-term exposure to harmful particles, most commonly from smoking. It is characterized by persistent airflow limitation and is associated with chronic bronchitis and emphysema (GOLD, 2020). Symptoms include chronic cough, sputum production, and dyspnoea.

- **Asthma**

Asthma is a chronic inflammatory disorder of the airways characterized by recurrent episodes of wheezing, breathlessness, chest tightness, and coughing. The pathophysiology involves bronchial hyperreactivity and inflammation triggered by various environmental and genetic factors (Global Initiative for Asthma, 2021).

- **Lung Cancer**

Lung cancer is a significant cause of cancer-related mortality worldwide, with smoking being the primary risk factor. It can present as non-small cell lung cancer (NSCLC) or small cell lung cancer (SCLC), each with distinct clinical and therapeutic implications (American Cancer Society, 2021). At the same time, smoking-related fatalities from cancer are more common than those from any other cause in the US. A large number of malignancies, particularly lung cancer, are influenced by smoking. There is enough data to draw the conclusion that smoking causes cancers of the mouth, throat, oesophagus, larynx, trachea, kidney, bladder, cervix, and stomach. This risk has the most excellent correlation with a significant cause of mortality identified too far(Walser et al., 2008).

Several respiratory conditions have clear links to medical issues that health psychologists may treat. For instance, smoking is linked to both lung cancer and pulmonary emphysema. Air pollution and hazardous chemicals at work are additional variables that raise the risk of respiratory issues. Several of these topics studied by health psychologists have also examined the clinical difficulties they bring up. Several respiratory problems are chronic. In light of this, the importance of long-term physical, occupational, social, and psychological rehabilitation(Manisalidis et al., 2020).

Diagnosis

Diagnosis of chronic respiratory diseases involves clinical assessment, imaging studies, and pulmonary function tests.

Spirometry is essential for diagnosing and monitoring COPD and asthma, while imaging and biopsy are critical for lung cancer diagnosis(Bailey, 2012).

Management

Pharmacological treatment: Management strategies for COPD include smoking cessation, bronchodilators, and inhaled corticosteroids. Asthma management involves avoiding triggers and using inhaled corticosteroids and bronchodilators. For lung cancer, treatment options include surgery, chemotherapy, radiation therapy, and targeted therapies (Yawn, 2012; Global Initiative for Asthma, 2021).

Psychological treatment: Cognitive behavioural therapy (CBT) improve psychological outcomes for persons with COPD. Self-management is an essential component of chronic disease clinical treatment, and the most complicated patients need a five-part care continuum (action, education, self-management, PR, and integrated care). A psychologist is an important source of support for self-management input, helping patients to learn and practice a variety of self-management strategies. Motivational interviewing (MI) is another psychological technique utilized in self-management programs for COPD patients. MI helps individuals overcome ambivalence about change and enhance desire to modify troublesome habits. Mindfulness-based techniques have been shown to be very beneficial for persons suffering from a variety of chronic health issues, improving their perception of physical symptoms and lowering emotional discomfort. Systemic therapy is often used to explore strategies of dealing with the health condition and its influence on interpersonal interactions. Narrative therapy, which aims to collectively construct and reinforce preferred self- and life stories, has been shown to result in considerably improved physical and mental health in patients and family members who attended systematic groups than in those who received standard treatment(Lunn et al., 2017).

5. Reproductive Health

The biological process through which living things make their offspring is called reproduction. There are two different ways of reproduction: sexual reproduction, which involves two individuals and involves a series of events, is a natural way to produce offspring. One way to produce offspring from a single parent that does not include the fusing of gametes is through asexual reproduction. The pituitary gland regulates the growth of the reproductive system. The gonadotropic hormones are produced by the anterior pituitary lobe and regulate the development of the female ovary and the male testes. Reproductive health issues encompass a range of conditions affecting both men and women, including sexually transmitted infections (STIs), menstrual disorders, and menopause. These conditions can impact overall health and quality of life (Taylor, 2018).

- **Sexually Transmitted Infections (STIs)**

STIs, such as gonorrhoea, syphilis, and HIV, can have significant health implications if left untreated. They can lead to chronic infections, infertility, and increased susceptibility to other infections (WHO, 2021). Some of the prevalent STIs include gonorrhoea, syphilis, genital herpes, chlamydiosis, genital warts, trichomoniasis, hepatitis B, and, of course, the most talked-about infection in recent years, HIV leading to AIDS(Garcia et al., 2024).

- **Menstrual Disorders**

Menstrual disorders include conditions such as amenorrhea, dysmenorrhea, and polycystic ovary syndrome (PCOS). These disorders can affect menstrual regularity and overall reproductive health. Chronic pelvic inflammatory disease (PID), which can cause excruciating stomach pain and infections that may impair fertility, poses a danger for women from several STDs. Other gynecologic conditions to which women are predisposed include vaginitis, endometriosis (in which fragments of the uterus' endometrial lining move into the fallopian tubes or abdominal cavity, grow, and spread to other sites), cysts, and fibroids (noncancerous growths in the uterus) that may interfere with reproduction. Amenorrhea, which is the absence of menses, and oligomenorrhea, which is infrequent menstruation, are among the menstrual cycle diseases that can affect women (Taylor,2018;Igbokwe and & John-Akinola, 2021)

- **Menopause**

Menopause marks the end of menstrual cycles and fertility in women, typically in middle age. It is associated with various symptoms, including hot flashes, night sweats, and mood changes (Peacock et al., 2024).

Diagnosis and Management

Diagnosing reproductive health issues involves clinical evaluation, laboratory tests, and imaging studies. Management strategies vary depending on the condition and may include pharmacological treatments, lifestyle modifications, and counselling. Public education and early intervention are essential for addressing reproductive health issues effectively (Carson & Kallen, 2021).

To ensure that everyone has access to methods of birth control, fertility management, and genuine and accurate information on reproductive health, it is essential to address issues related to reproductive health. There are some following management step available(Mahobia & Choudhari, 2022):

- To promote reproductive health, public education and counseling should focus on reproductive organs, puberty, safe and hygienic sexual behaviors, and STIs, including AIDS.
- A key aspect of reproductive and child health care programs is providing medical care for menstrual irregularities, pregnancy-related issues, delivery, medical termination, STIs, birth control, infertility, post-natal care, and maternal management.
- Early STI diagnosis and treatment can reduce rates of mother and newborn mortality and support infertile couples.
- Various contraception methods: natural, conventional, barrier, IUDs, pills, injectable, implants, and surgery. Even while contraception is not necessary for reproductive health, it is needed to prevent conception and delay or

spacing pregnancies.

- Medical abortion is legal in our country. Rape and casual relationship pregnancies are usually ended using MTP. It is also used when the mother, fetus, or both might be injured or killed if the pregnancy continues.
- Sexually Transmitted Diseases (STIs) are illnesses transferred via sexual behavior. Pelvic inflammatory disorders (PIDs) and infertility are its effects. Early detection improves therapy of many illnesses. STI prevention includes avoiding sexual contact with unknown or multiple partners and using condoms.
- Infertility is the inability to conceive or give birth. Couples may employ numerous methods. One method is the "Test Tube Baby," which includes in vitro fertilization and embryo transfer into the female vaginal canal.
- Active discouragement of harmful practices, such as female genital mutilation and sex violence.

CONCLUSION

Chronic non-communicable diseases present a significant public health challenge, requiring a multifaceted approach to management. Understanding the etiology, clinical manifestations, and treatment options for conditions such as hypertension, diabetes mellitus type 2, arthritis, chronic respiratory diseases, and reproductive health problems is important for better patient outcomes and decreasing the load on healthcare organizations. Early diagnosis, lifestyle modifications, pharmacological treatments, and multidisciplinary approaches are essential to effective care. Future research and healthcare strategies should focus on enhancing prevention, early detection, and integrated care for individuals affected by NCDs.

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