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EFFECTS OF CHRONIC NON-STEROIDAL ANTI-INFLAMMATORY DRUGS USE AMONG YOUNG FEMALE ADULTS IN NIGERIA

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ABSTRACT

Background: Non-steroidal anti-inflammatory drugs (NSAIDs) are among the most commonly used medications for the relief of pain and inflammation, particularly among young female adults experiencing dysmenorrhea and other recurrent painful conditions. Despite their therapeutic benefits, chronic and unsupervised use of NSAIDs has been associated with several adverse effects involving the gastrointestinal, renal, cardiovascular and hematological parameters.

Methods: This review critically appraised selected studies and peer-reviewed literatures published on epidemiological data on the effects of chronic NSAID uses among young female adults in Nigeria, and the laboratory investigations used in monitoring affected individuals. The review examined the classification and mechanism of action of NSAIDs, highlighting the differences between non-selective and COX-2 selective agents.

Results: The findings reveal that prolonged NSAID uses among young female adults impose severe adverse effects on the hematological parameters, particularly impairment of platelet count, platelet aggregation, and chronic blood loss. Common clinical manifestations such as fatigue, epigastric pain, dizziness and gastrointestinal bleeding were noted alongside alterations in laboratory investigations

results including hemoglobin estimation, packed cell volume (PCV), stool occult blood testing, renal function tests, platelet count and platelet function tests.

Conclusions: The public health implications of NSAID misuse in Nigeria, especially the widespread practice of self-medication and over-the-counter drug access by young female adults, if remains unregulated will assumed an epidemic proportion. Preventive and control measures such as health education, proper prescription practices, patient monitoring and the use of safer alternatives for pain management have to be advocated. Chronic NSAID uses among the young female adults may result in significant health complications if not properly monitored. Increased awareness, rational drug use and appropriate laboratory evaluation are essential in reducing NSAID-related morbidity among young female adults in Nigeria.

Keywords: Non-steroidal anti-inflammatory drugs, Young female adults, Nigeria.

1.0 INTRODUCTION

Non-steroidal anti-inflammatory drugs (NSAIDs) are among the most widely used medications worldwide due to their analgesic, antipyretic, and anti-inflammatory properties. They are referred to as "non-steroidal" to distinguish them from corticosteroids, which also possess anti-inflammatory effects but differ in structure, mechanism of action, and adverse effect profile (NHS, 2023). Common NSAIDs include aspirin, ibuprofen, diclofenac, naproxen, ketorolac, indomethacin, mefenamic acid, piroxicam, and celecoxib. These drugs may differ in chemical structure, duration of action, potency, and selectivity for cyclooxygenase enzymes, but they generally produce similar therapeutic effects. The history of NSAIDs dates back to the introduction of acetylsalicylic acid (aspirin) in 1899. Since then, several NSAIDs, including cyclooxygenase-2 (COX-2) selective inhibitors, have been developed for the management of various painful and inflammatory conditions (Saraf, 2010). Today, NSAIDs are commonly used in the treatment of arthritis, musculoskeletal disorders, migraine, postoperative pain, fever, gout, and dysmenorrhea. Among young female adults, dysmenorrhea remains one of the major reasons for frequent NSAID use. Menstrual pain can significantly affect daily activities, academic performance, and quality of life, leading many young women to depend on these medications for relief (Marjoribanks *et al.*, 2010). NSAIDs exert their therapeutic effects primarily through inhibition of cyclooxygenase (COX) enzymes involved in prostaglandin synthesis. Prostaglandins are important mediators of pain, inflammation, fever, platelet aggregation, gastric mucosal protection, and maintenance of renal blood flow. Two major isoforms of cyclooxygenase have been identified: COX-1 and COX-2. COX-1 is normally present in many tissues and performs protective functions such as maintaining gastric mucosal integrity, platelet function, and renal

perfusion, while COX-2 is mainly induced during inflammation and is responsible for the production of inflammatory prostaglandins (Ghlichloo and Gerriets, 2023).

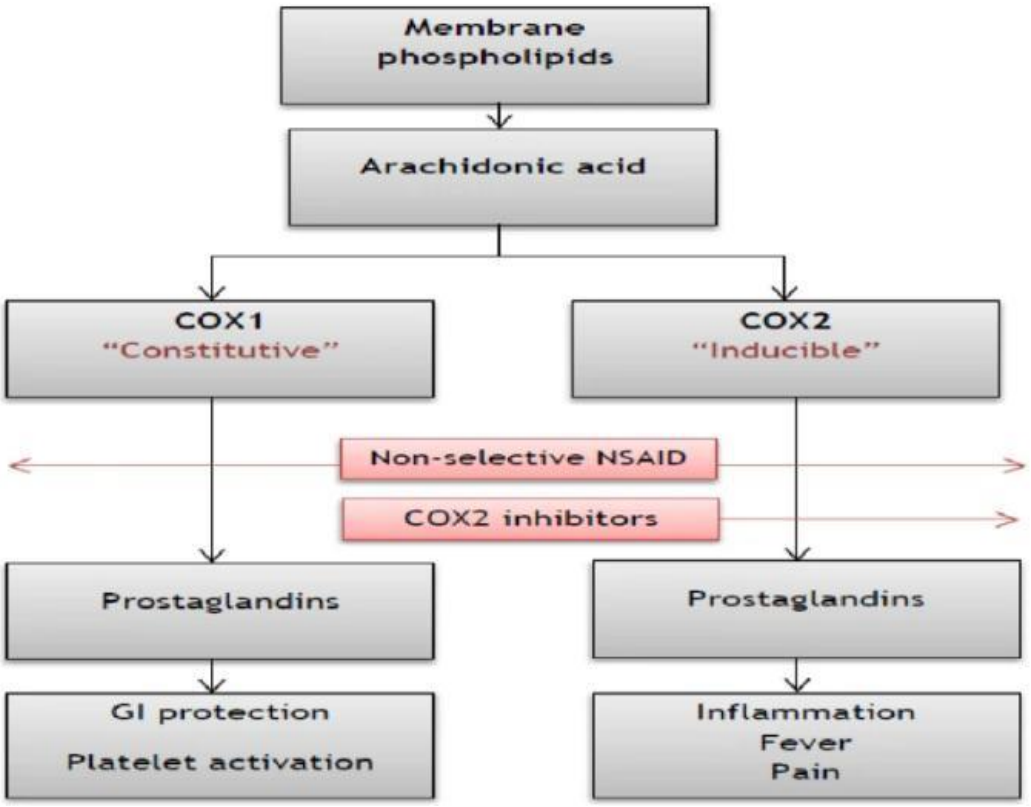

Figure 2: Mechanism of Action of NSAIDs. Source: ResearchGate. Synthesis, Characterization and Anti-Inflammatory Evaluation of New Potentially Active Naproxen Hydrazones. Available at: ResearchGate Figure (Accessed on May 15, 2026).

Most conventional NSAIDs inhibit both COX-1 and COX-2 enzymes. While inhibition of COX-2 contributes to pain relief and reduction of inflammation, inhibition of COX-1 is responsible for many adverse effects associated with NSAID use. To reduce gastrointestinal toxicity, selective COX-2 inhibitors such as celecoxib and etoricoxib were developed. However, some of these agents have been associated with increased cardiovascular risks including hypertension, myocardial infarction, and stroke (FDA, 2022). Although NSAIDs provide significant therapeutic benefits, prolonged or excessive use may result in serious complications. Chronic use has been associated with gastrointestinal disorders such as gastritis, peptic ulcer disease, and gastrointestinal bleeding. Long-term blood loss may subsequently result in anemia. NSAIDs may also impair renal blood flow, leading to renal dysfunction, fluid retention, edema, and hypertension. Furthermore, certain NSAIDs have been linked to an increased risk of cardiovascular complications, particularly during prolonged use (Bindu et al., 2020). In Nigeria, NSAIDs are easily accessible through pharmacies and patent medicine stores, often without prescription. This easy accessibility encourages self-medication and

repeated use, especially among young female adults who frequently use these drugs for dysmenorrhea and other painful conditions. Consequently, understanding the effects of chronic NSAID use, their associated health risks, and the importance of appropriate laboratory monitoring is essential for promoting rational drug use and reducing preventable complications among young women.

2.0 Patterns of Chronic NSAID Use among Young Female Adults in Nigeria

Several studies have reported an increasing use of non-steroidal anti-inflammatory drugs (NSAIDs) worldwide, particularly among adolescents and young adults (Ghlichloo and Gerriets, 2023). In Nigeria, chronic NSAID use has become common among young female adults due to the high prevalence of dysmenorrhea, widespread self-medication practices, easy access to over-the-counter analgesics, and limited awareness of the risks associated with prolonged use. Research among female undergraduate students in Nigeria has shown that NSAIDs are among the most frequently used medications for the management of menstrual pain. Ayanugo .C. J *et al*. (2025) reported that NSAIDs accounted for approximately 61.9% of analgesic use among respondents, while about 95.9% obtained these medications without prescription or professional medical supervision. The authors identified affordability, effectiveness, and accessibility as major factors influencing NSAID use. The widespread practice of self-medication has also been identified as a major contributor to chronic NSAID use in Nigeria. According to Osemene and Lamikanra (2020), many young adults obtain NSAIDs directly from pharmacies, patent medicine vendors, and other retail outlets without professional guidance. Factors such as high healthcare costs, poverty, inadequate healthcare services, long waiting times in hospitals, and poor health-seeking behavior further encourage this practice. Genetic factors may also influence the occurrence of dysmenorrhea and the response to NSAID therapy. Akinyemi *et al*. (2022) reported an association between cyclooxygenase-2 (COX-2) gene polymorphisms and increased severity of dysmenorrhea among Nigerian women, suggesting that biological factors may contribute to variations in NSAID use.

Furthermore, poor drug regulation, inadequate public awareness, and the perception of NSAIDs as harmless pain relievers have been identified as important factors promoting their misuse. As a result, chronic NSAID use remains an important public health concern among young female adults in Nigeria, emphasizing the need for improved health education, responsible medication use, and stricter regulation of over-the-counter drug sales.

2.1 Classification of NSAIDs

Non-steroidal anti-inflammatory drugs (NSAIDs) are commonly classified according to their selectivity for cyclooxygenase (COX) enzymes, namely COX-1 and COX-2, which play important

roles in prostaglandin synthesis. This classification is clinically significant because the therapeutic benefits and adverse effects of NSAIDs are largely determined by the degree of inhibition of these enzymes (Bindu *et al.*, 2020; Ghlichloo and Gerriets, 2023). NSAIDs are broadly divided into non-selective NSAIDs and selective COX-2 inhibitors, also known as coxibs. Non-selective NSAIDs inhibit both COX-1 and COX-2 enzymes, whereas selective COX-2 inhibitors preferentially inhibit the COX-2 enzyme involved in inflammatory processes while sparing COX-1 to a greater extent (Ghlichloo and Gerriets, 2023). Several studies have reported that commonly used non-selective NSAIDs include aspirin, ibuprofen, diclofenac, naproxen, indomethacin, ketorolac, piroxicam and mefenamic acid. These agents remain widely prescribed because of their effectiveness in reducing pain, inflammation and fever. However, inhibition of COX-1 reduces the production of protective prostaglandins within the gastrointestinal tract and kidneys, thereby increasing the risk of gastritis, peptic ulcer disease, gastrointestinal bleeding, renal impairment and altered platelet function (Bindu *et al.*, 2020). Aspirin is particularly notable because it irreversibly inhibits platelet cyclooxygenase activity, resulting in prolonged bleeding time and reduced platelet aggregation (Patrono and Rocca, 2009). To overcome the gastrointestinal toxicity associated with conventional NSAIDs, selective COX-2 inhibitors such as celecoxib, etoricoxib, parecoxib and valdecoxib were developed. These agents selectively inhibit the COX-2 enzyme responsible for inflammatory prostaglandin production while exerting relatively little effect on COX-1-mediated gastric protection. As a result, studies have shown that COX-2 inhibitors are associated with a lower incidence of gastrointestinal ulceration and bleeding compared with traditional NSAIDs (Ho *et al.*, 2020). Despite these advantages, concerns regarding cardiovascular safety have been raised. Bally *et al.* (2021) reported that selective inhibition of COX-2 may disrupt the physiological balance between prostacyclin and thromboxane A_2, thereby increasing the risk of vasoconstriction, platelet aggregation and thrombotic events. Consequently, prolonged use of some COX-2 inhibitors has been associated with hypertension, myocardial infarction and stroke. These concerns led to the withdrawal of certain agents, including rofecoxib, from clinical use. The choice of NSAID in clinical practice therefore depends on several factors, including the patient's age, medical history, gastrointestinal and cardiovascular risk profile, duration of therapy and severity of symptoms. Current recommendations emphasize individualized NSAID selection and the use of the lowest effective dose for the shortest possible duration in order to minimize adverse effects (Ho *et al.*, 2020).

3.0 Reported Effects of Chronic NSAID Use among Young Female Adults

Non-steroidal anti-inflammatory drugs (NSAIDs) are widely documented as effective agents for the management of pain, inflammation, and fever; however, a growing body of evidence highlights that

prolonged or inappropriate use is associated with significant adverse effects across multiple organ systems. (Osemene and Lamikanra, 2020) Studies have consistently reported that chronic exposure to NSAIDs is particularly common among young female adults due to recurrent conditions such as dysmenorrhea, headaches, migraines, and musculoskeletal pain, often leading to repeated self-medication and unsupervised use (Afolabi, 2021).

3.1 Effects on Gastrointestinal Systems

Gastrointestinal (GI) toxicity remains the most frequently reported complication of chronic NSAID use. Research indicates that inhibition of cyclooxygenase-1 (COX-1) reduces the synthesis of protective prostaglandins responsible for maintaining gastric mucosal integrity through mucus and bicarbonate secretion, adequate mucosal blood flow, and epithelial protection (Sostres and Lanas, 2021). The disruption of these protective mechanisms predisposes individuals to a spectrum of GI disorders ranging from dyspepsia and gastritis to gastric erosions, peptic ulcer disease, and gastrointestinal bleeding. In more severe cases, chronic NSAID use may result in clinically significant complications such as hematemesis, melena, and even perforated gastric ulcers. Several studies have noted that young women who frequently use NSAIDs during menstruation are at increased risk, particularly when medications are taken on an empty stomach or in high doses without medical supervision (Wallace, 2013). Long-term occult gastrointestinal bleeding may also occur silently, gradually contributing to iron deficiency anemia and reduced hematological indices.

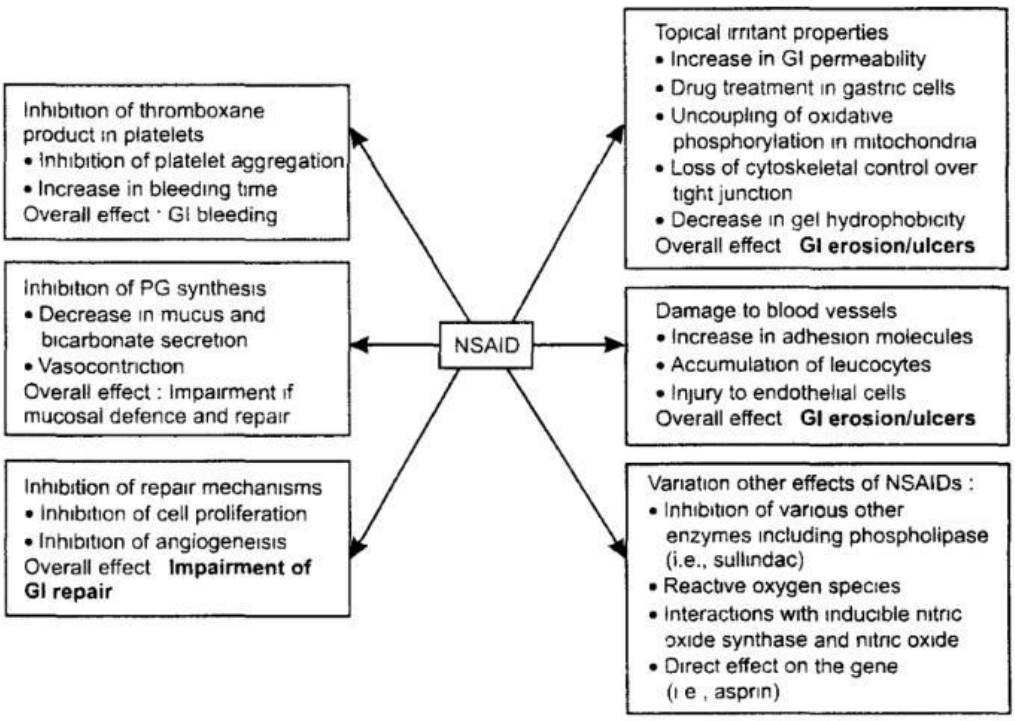

Figure 2: Mechanism of NSAID-Induced Gastrointestinal Injury. Source: Saraf, S. (2010). NSAID: An Overview. CBS Publishers and Distributors.

3.2 Effects on Hematological Parameters

The hematological consequences of chronic NSAID use are closely linked to both gastrointestinal blood loss and direct effects on platelet function. Repeated occult bleeding from NSAID-induced gastric injury has been widely associated with iron deficiency anemia, characterized by reduced hemoglobin concentration and packed cell volume. Clinically, affected individuals may present with fatigue, pallor, dizziness, reduced concentration, and generalized weakness (Patrono *et al.*, 2021). In addition, NSAIDs—particularly aspirin—exert antiplatelet effects through irreversible inhibition of cyclooxygenase activity, leading to reduced thromboxane A_2 synthesis. This impairs platelet aggregation and prolongs bleeding time, increasing susceptibility to bleeding complications. Literature suggests that this effect may be clinically relevant in young females who already experience physiological blood loss during menstruation, thereby compounding the risk of anemia (Patrono and Rocca, 2009).

3.3 Effects on Renal Function Parameters

The kidneys are highly dependent on prostaglandins for the maintenance of renal blood flow, particularly under conditions of dehydration, stress, or reduced perfusion. Chronic NSAID exposure inhibits renal prostaglandin synthesis, resulting in reduced renal perfusion and impaired glomerular filtration rate (Zhang *et al.*, 2022). Reported renal complications include sodium and water retention, peripheral edema, hypertension, electrolyte imbalance, acute kidney injury, and in severe cases, chronic renal impairment. The risk is significantly higher in individuals with dehydration, pre-existing kidney disease, or concurrent use of nephrotoxic agents. Studies further emphasize that young adults engaging in unsupervised NSAID use may be particularly vulnerable due to poor hydration practices and lack of medical monitoring (National Kidney Foundation, 2023).

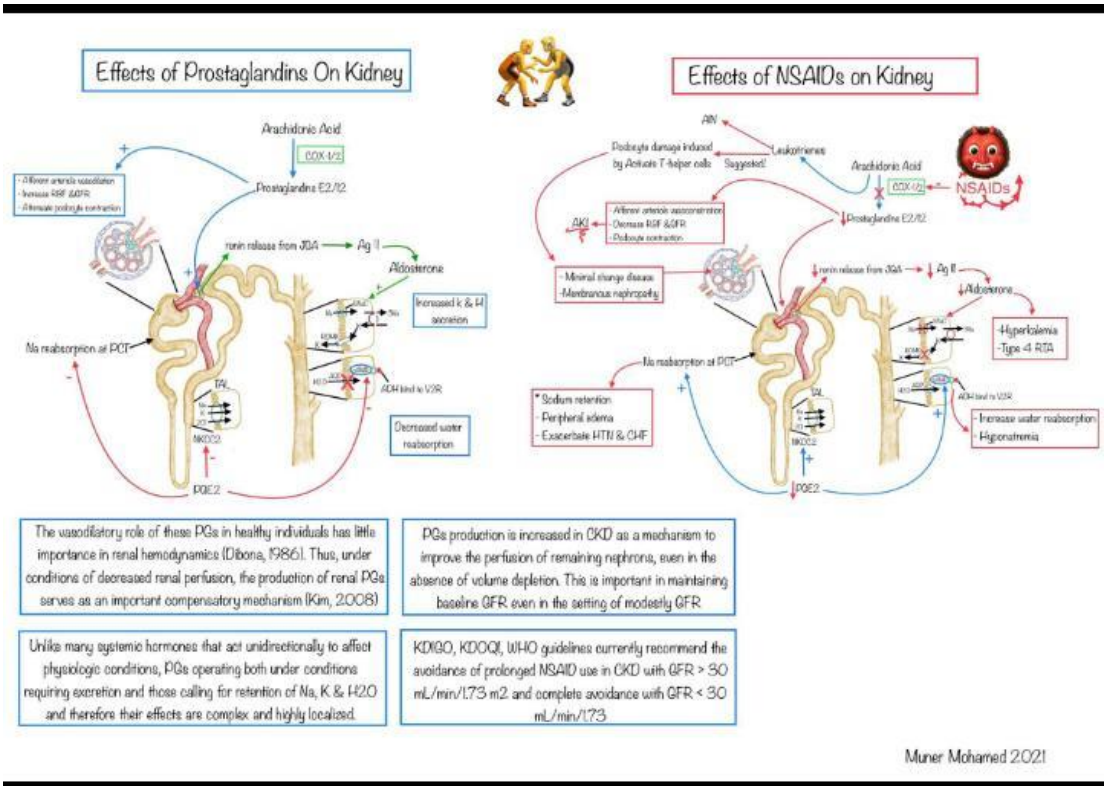

Figure 5: Effects of Prostaglandins and NSAIDs on Kidney Function. Source: Mohamed, M. (2021). Effects of NSAIDs on Kidney Function.

3.4 Effects on Cardiovascular System

Cardiovascular risks associated with chronic NSAID use have also been extensively documented, particularly with selective COX-2 inhibitors. The inhibition of COX-2 disrupts the physiological balance between prostacyclin (vasodilatory and antithrombotic effects) and thromboxane A_2 (vasoconstrictive and pro-thrombotic effects), thereby promoting vasoconstriction, platelet aggregation, and thrombosis (Bally *et al.*, 2021).As a result, prolonged NSAID use has been associated with hypertension, fluid retention, myocardial infarction, stroke, and other thrombotic events. Although these complications are more commonly reported in older adults, evidence suggests that prolonged and unsupervised NSAID use may still pose cardiovascular risks in younger populations, particularly among individuals with predisposing factors such as obesity, smoking, or underlying cardiovascular conditions.

4.0 Clinical Manifestations and Laboratory Findings Associated with Chronic NSAID Use

Studies have shown that the clinical manifestations of chronic non-steroidal anti-inflammatory drug (NSAID) use depend largely on the duration of exposure, dosage, frequency of use, individual susceptibility, and the organ systems affected. Many symptoms develop gradually and may initially appear mild or nonspecific, leading affected individuals to overlook the possibility of NSAID-related toxicity. Among young female adults, chronic NSAID use is commonly associated with gastrointestinal, hematological, renal, cardiovascular, and hypersensitivity-related manifestations (Bindu *et al.*, 2020). Gastrointestinal symptoms are among the most frequently reported manifestations of chronic NSAID exposure. Several studies have demonstrated that inhibition of prostaglandin synthesis reduces gastric mucosal protection, thereby predisposing individuals to epigastric pain, abdominal discomfort, dyspepsia, bloating, nausea, heartburn, and early satiety (Sostres and Lanas, 2021). Prolonged use may further result in gastritis, gastric erosion, peptic ulcer disease, and gastrointestinal bleeding. In severe cases, affected individuals may present with hematemesis, melena, severe abdominal pain, or perforated ulcers. These complications are particularly important among young women who frequently use NSAIDs for dysmenorrhea without adequate medical supervision. The hematological consequences of chronic NSAID use are largely related to occult gastrointestinal blood loss and impairment of platelet function. Persistent blood loss may gradually reduce hemoglobin concentration and packed cell volume, leading to iron deficiency anemia. Clinical manifestations commonly reported include fatigue, generalized weakness, dizziness, pallor, reduced exercise tolerance, shortness of breath on exertion, and impaired concentration

(Patrono *et al.*, 2021). Young female adults may be especially vulnerable because physiological menstrual blood loss may further worsen anemia associated with chronic NSAID exposure. Renal manifestations have also been reported among chronic NSAID users. Renal prostaglandins play an important role in maintaining adequate renal blood flow and glomerular filtration, particularly during dehydration and physiological stress. Inhibition of these prostaglandins may result in reduced urine output, fluid retention, facial puffiness, peripheral edema, electrolyte imbalance, and impaired kidney function (Zhang *et al.*, 2022). Studies have further shown that prolonged NSAID use may contribute to acute kidney injury and chronic renal impairment, especially in individuals with dehydration, pre-existing renal disease, or concurrent exposure to nephrotoxic agents. Cardiovascular manifestations associated with chronic NSAID use include elevated blood pressure, edema, palpitations, and an increased risk of thrombotic events. Bally *et al.* (2021) reported that prolonged NSAID use may alter the balance between prostacyclin and thromboxane A_2, thereby promoting vasoconstriction, platelet aggregation, and thrombosis. Although severe cardiovascular complications are more commonly observed in older adults, prolonged and unsupervised NSAID use may still increase cardiovascular risk among younger individuals with underlying risk factors such as obesity, hypertension, smoking, or cardiovascular disease. In addition to these effects, some individuals may develop hypersensitivity reactions to NSAIDs. These reactions may manifest as skin rash, urticaria, facial swelling, bronchospasm, wheezing, or respiratory distress and are more commonly reported among aspirin-sensitive individuals and patients with asthma (Bindu *et al.*, 2020). Laboratory investigations play a vital role in the detection, assessment, and monitoring of complications associated with chronic NSAID use. Hemoglobin (Hb) concentration and packed cell volume (PCV) are commonly used hematological parameters for assessing anemia secondary to chronic gastrointestinal blood loss. Studies have shown that prolonged NSAID use may lead to gastritis, peptic ulceration, and occult gastrointestinal bleeding, resulting in reduced Hb and PCV values (Sostres et al., 2013). Regular monitoring of these parameters is therefore important, particularly in young female adults who may already be predisposed to iron deficiency anemia. A Complete Blood Count (CBC) is also valuable in the evaluation of chronic NSAID users because it provides information on hemoglobin level, hematocrit, red blood cell indices, white blood cell count, and platelet count. Although NSAIDs rarely cause significant thrombocytopenia, platelet count determination may help identify bleeding-related abnormalities and monitor hematological changes associated with chronic drug exposure (Cleveland Clinic, 2024). Because NSAIDs affect platelet function, platelet studies are particularly relevant in evaluating their hematological effects. Aspirin and other non-selective NSAIDs inhibit cyclooxygenase activity and suppress thromboxane A_2 synthesis, resulting in impaired platelet aggregation and prolonged bleeding tendency (Patrono & Rocca, 2009). Platelet function may be

assessed using Bleeding Time (BT), Platelet Function Analyzer (PFA-100/PFA-200), and Light Transmission Aggregometry (LTA), which remains the gold standard for evaluating platelet aggregation (Kottke-Marchant, 2012). In many routine medical laboratory settings, bleeding time tests and platelet counts are more readily available and may provide useful information regarding hemostatic function. Platelet indices generated by automated hematology analyzers, including Mean Platelet Volume (MPV), Platelet Distribution Width (PDW), and Plateletcrit (PCT), have also received increasing attention in NSAID-related studies. Alterations in these parameters may reflect changes in platelet size, activation, and function. Reduced platelet activity resulting from chronic NSAID exposure may be associated with prolonged bleeding tendency, impaired clot formation, and increased susceptibility to bleeding complications, particularly in individuals who frequently use aspirin-containing medications. The stool occult blood test (FOBT) is another important investigation used to detect hidden gastrointestinal bleeding associated with NSAID-induced gastric erosion and peptic ulcer disease. Positive FOBT results may indicate chronic blood loss and may help explain reduced hemoglobin concentration and other hematological abnormalities in affected individuals (Sostres and Lanas, 2021). Renal function tests are equally important in monitoring NSAID-induced nephrotoxicity. Parameters commonly assessed include serum creatinine, blood urea nitrogen (BUN), electrolyte levels, estimated glomerular filtration rate (eGFR), and urinalysis findings. Elevated serum creatinine levels or reduced eGFR may indicate impaired renal function associated with prolonged NSAID exposure (Zhang *et al.*, 2022). Regular renal monitoring is therefore recommended for individuals receiving long-term NSAID therapy. Although not strictly classified as laboratory investigations, blood pressure measurements are routinely recommended during prolonged NSAID therapy. Chronic NSAID use may promote sodium and fluid retention, resulting in hypertension and increased cardiovascular risk. Regular blood pressure monitoring may therefore assist in the early detection of NSAID-associated cardiovascular complications (Ho *et al.*, 2020**).**

5.0 Public Health Impact of Chronic NSAID Use in Nigeria

The increasing use of non-steroidal anti-inflammatory drugs (NSAIDs) in Nigeria has attracted considerable attention in the literature due to the growing prevalence of self-medication and the associated health risks. Several studies have identified chronic NSAID use as an emerging public health concern, particularly among young adults who frequently use these medications without adequate medical supervision (Bennadi, 2013; Osemene and Lamikanra, 2020). Research has shown that analgesic misuse is relatively common in Nigeria. In a community-based survey conducted in Jos, Agaba *et al*. (2004) reported that approximately 22.6% of respondents engaged in analgesic abuse, with headaches, fever, stress, and musculoskeletal pain identified as the major reasons for repeated

analgesic consumption. Similar findings have been reported in studies on self-medication practices among Nigerian youths, where NSAIDs were among the most frequently used classes of drugs due to their affordability, availability, and perceived effectiveness (Osemene and Lamikanra, 2020). The widespread availability of NSAIDs through pharmacies, patent medicine stores, supermarkets, and informal drug vendors has been identified as a major factor contributing to chronic use. Common NSAIDs such as ibuprofen, diclofenac, aspirin, naproxen, and mefenamic acid can often be obtained without prescription, thereby encouraging unsupervised drug use and increasing the likelihood of inappropriate dosing and prolonged exposure (Asakitikpi, 2019). Studies have further suggested that weak enforcement of drug regulations and inadequate monitoring of over-the-counter drug sales contribute significantly to this pattern of misuse. Poor public awareness regarding the adverse effects of chronic NSAID use also remains an important concern. Bennadi (2013) noted that many individuals perceive NSAIDs as harmless pain relievers and are often unaware of the potential complications associated with long-term use. Consequently, symptoms such as recurrent abdominal pain, gastrointestinal bleeding, renal dysfunction, hypertension, and anemia may go unrecognized until serious complications develop. This lack of awareness is particularly important among young adults who frequently self-medicate for dysmenorrhea, headaches, and other minor ailments. Socioeconomic factors have also been implicated in the widespread use of NSAIDs in Nigeria. Limited access to healthcare services, financial constraints, long waiting times in hospitals, and poor health-seeking behavior often encourage individuals to manage symptoms independently rather than seek professional medical attention (Asakitikpi, 2019; Osemene and Lamikanra, 2020). In addition, recommendations from friends, relatives, and social media platforms have increasingly influenced medication choices among young adults, further promoting unsupervised NSAID consumption. The public health consequences of chronic NSAID use extend beyond individual health outcomes. Studies have suggested that NSAID-related complications contribute to increased healthcare costs, hospital admissions, reduced productivity, and a greater burden on healthcare facilities due to the management of preventable gastrointestinal, renal, cardiovascular, and hematological disorders (Ho *et al.*, 2020). As the prevalence of self-medication continues to rise, the burden associated with NSAID-related complications may become increasingly significant. Evidence from the literature therefore emphasizes the need for comprehensive public health interventions aimed at promoting rational drug use. Such interventions should include public awareness campaigns, improved access to healthcare services, stricter regulation of over-the-counter drug sales, and enhanced patient education regarding the risks associated with prolonged NSAID consumption. These measures may help reduce the incidence of NSAID-related complications and improve medication safety among young female adults and the general population in Nigeria.

6.0 CONCLUSION

Non-steroidal anti-inflammatory drugs (NSAIDs) remain among the most widely used medications for the management of pain, inflammation, and fever. Their effectiveness, affordability, and easy accessibility have contributed significantly to their widespread use, particularly among young female adults who frequently rely on them for the management of dysmenorrhea and other recurrent painful conditions. However, evidence from the literature indicates that prolonged and unsupervised use of NSAIDs may result in significant adverse effects involving multiple organ systems. This review has shown that chronic NSAID use is associated with gastrointestinal complications such as gastritis, peptic ulcer disease, and gastrointestinal bleeding; hematological abnormalities including anemia and impaired platelet function; renal complications such as reduced renal perfusion, kidney dysfunction and cardiovascular effects including hypertension and an increased risk of thrombotic events. The review further highlights the pathophysiological mechanisms underlying these complications, particularly the inhibition of cyclooxygenase enzymes and disruption of prostaglandin synthesis. The literature also demonstrates that self-medication, over-the-counter availability, poor awareness of adverse effects, and limited access to healthcare services contribute substantially to chronic NSAID use among young adults in Nigeria. Laboratory investigations including hemoglobin estimation, packed cell volume, complete blood count, platelet function studies, stool occult blood testing, and renal function tests play important roles in the detection and monitoring of NSAID-related complications. Overall, chronic NSAID use represents an important public health concern that requires increased awareness, rational drug use, proper medical supervision, and regular monitoring. Promoting safe medication practices and strengthening public health education will help reduce the burden of NSAID-related complications among young female adults and the wider population in Nigeria.

7.0 RECOMMENDATIONS

Findings of this literature review, the following recommendations are made:

Health education and awareness campaigns should be intensified through hospitals, schools, universities, pharmacies, and mass media platforms to educate the public, particularly young female adults, on the risks associated with prolonged and unsupervised NSAID use.

Self-medication practices should be discouraged through public enlightenment programs that emphasize the importance of seeking professional medical advice before prolonged use of NSAIDs.

Healthcare professionals should promote rational NSAID prescribing by using the lowest effective dose for the shortest possible duration and by carefully assessing patients for gastrointestinal, renal, and cardiovascular risk factors before initiating long-term therapy.

Regular clinical and laboratory monitoring should be encouraged among individuals receiving prolonged NSAID therapy. Important assessments should include complete blood count, hemoglobin concentration, packed cell volume, platelet function studies, renal function tests, stool occult blood testing, blood pressure monitoring, and other relevant investigations where indicated.

Regulatory authorities should strengthen the control of over-the-counter sales of NSAIDs to reduce indiscriminate access and misuse, particularly among adolescents and young adults.

Pharmacists and patent medicine vendors should provide appropriate counseling on the safe use of NSAIDs, including recommended dosages, duration of use, potential adverse effects, and situations requiring medical referral.

Safer alternatives for pain management should be considered where appropriate. These may include paracetamol, physiotherapy, exercise, adequate rest, heat therapy, and other non-pharmacological approaches that can reduce dependence on NSAIDs.

Further studies should be conducted in Nigeria to evaluate the prevalence of chronic NSAID use, patterns of self-medication, level of awareness of adverse effects, and the long-term health consequences among young female adults.

Implementation of these recommendations will contribute to safer NSAID use, early detection of complications, improved patient outcomes, and a reduction in the public health burden associated with chronic NSAID consumption in Nigeria.

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Ethics approval and consent to participate

The author(s) declare that it is not applicable.

Consent for publication

The author(s) declare that this is not applicable.

Competing interests

The author(s) declare that they have no competing interests.

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