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"Polypharmacy: Unraveling The Causes And Consequences"

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ABSTRACT

Polypharmacy, the concurrent use of multiple medications, is on the rising in globally, driven by the increasing prevalence of comorbidities resulting from acute and chronic illnesses. While aimed at improving patient care and quality of life, polypharmacy presents significant challenges, especially among the older population with multimorbidity. The associated risks include adverse outcomes such as mortality, falls, adverse drug reactions, prolonged hospital stays, and readmissions. The term lacks a universally agreed clinical definition, reflecting the complexity of determining its scope .

This article explores the multifaceted causes of polypharmacy, including over-the-counter medication availability easily , alternative treatment methods, ease of access to medications, comorbidities, multiple consultations, and adverse drug effects. Factors associated with the polypharmacy such as Patient-related factors, disease conditions, healthcare-related elements, and prescribing-related behaviors contribute to the phenomenon in the polypharmacy. The consequences of polypharmacy encompass increased healthcare costs, adverse drug events, medication non-adherence, reduced functional capacity, and geriatric syndromes.

Keywords :- Polypharmacy , Comorbidities, Adverse Drug Reactions, Healthcare, Medication Safety

INTRODUCTION

The implications of polypharmacy use over the world Are starting to becoming a major issue. The trend Toward polypharmacy has grown as a result of the Rise in comorbidities brought on by acute and chronic diseases, which aims to give patients the best care possible While extending their lives and improving their patients quality of life . In addition to producing the greatest results possible, The global trend and use are also leading to several Unfavorable effects that are not only seen in a small Number of cases but are also seen in a significant portion Of the population that contains individuals from a variety of age group.[1], [2] The use of several medicines, it generally referred to As polypharmacy is common in the older population With multimorbidity, as one or more medicines may be used to treat each acute or chronic condition. Polypharmacy is linked with adverse outcomes including mortality, falls, adverse drug reactions, increased length of stay in hospital and readmission to hospital soon after discharge The risk of adverse effects and harm increases with increasing multiple numbers of medications.[3] Older people are more vulnerable to morbidity and mortality secondary to medication-related harms because of age-related changes and pathologies; comorbidity of chronic diseases, such as cardiovascular

diseases and psychological disorders; and different pharmacokinetics and pharmacodynamics. Consequently, older adults are more open to adverse drug reactions (ADR).

Polypharmacy is a term that has been used in health care for decades. In prevalent use, it has meant the concurrent use of number of medications in the same patient. However this definition understates the potential for dangerous that polypharmacy may pose to the patient. Other different definitions have appeared in the medical literature that put the problem of polypharmacy in a broader perspective. polypharmacy defined as the "prescription, administration, or use of multiple medications than are clinically indicated, or when a medical regimen includes at least one unnecessary medication.[1]

WHAT IS POLYPHARMACY ?

The word polypharmacy is obtained from the ancient Greek 'polús' meaning 'many', and 'pharmakeía' meaning 'the use of Drugs'. This broad meaning from a clearly linguistic perspective Is reflected in the fact that there is no consensus on a clinical definition of polypharmacy. For example, should the term refer to only simultaneous opposed to consecutive medications, it contains short-term as well as long-term therapy, be restricted to prescription-only medications, or include non-pharmacological products? These points make it heavy to accurately quantify the extent of the issue or enable comparisons between health systems or care settings.[4], [5]

The general idea reflected by the phrase combination is the administration of many drugs to a patient in the hospital. Use of five or more drugs at a time it refers a term "Polypharmacy" .although medicines are play very important role in the management of both acute and chronic health disorders, polypharmacy may sometimes develop into an unwelcome condition when it comes to taking the prescribed medications. From a therapeutic standpoint, it is compulsory to prescribe a variety of drugs, but taking too many of them at once might be harmful . Sometimes the medications that are continually taken are no longer necessary, which is referred to as inappropriate polypharmacy. Due to multimorbidity, a higher risk of mortality, non-adherence, medication interactions, and hospitalization, polypharmacy is widespread among the elderly .
WHO definition, in whole or in part, which is defines as the administration of many drugs at the same time or the administration of an excessive number of drugs is called as polypharmacy.[6]

Polypharmacy can be related with numerous poor health outcomes, especially among older adults with multimorbidity, it including an increased risk of death, falls, drug interactions, non-adherence, and hospitalization.

Causes of polypharmacy:-

Polypharmacy is accompanied by multiple numbers of causes given following :

▪Over-the-counter medication:

OTC medications are easily available without a prescription in offline and online platforms , making them easily accessible to individuals. This convenience can lead to patients taking self-initiated treatment without consulting healthcare professionals that causes increasing the likelihood of accumulating multiple medications. The readily availability of OTC medications often encourages self-diagnosis and self-treatment. People may attempt to managing and reducing their symptoms without seeking professional medical advice, it resulting in the use of multiple OTC drugs simultaneously and cause polypharmacy . There may be will not get sufficient education on responsible OTC medication use. Without proper guidance on potential interactions and risks, individuals may unknowingly combine OTC medications in ways that leading to polypharmacy.[6]

▪Alternative methods of treatment (Crosspathy) :-

When patients simultaneously engage in conventional medical treatments and alternative therapies, there is often a lack of connection and communication between healthcare providers. This can result in a fragmented approach to treatment, with each provider prescribing medications independently, increasing the risk of polypharmacy . Alternative different therapies, it including herbal remedies, dietary supplements, and traditional medicines, may interact with prescribed medications. These interactions can lead to unpredictable effects, adverse reactions, or diminished efficacy of either the conventional or alternative treatments, prompting individuals to use number of medications simultaneously.[7]

▪Easy availability

Easily access to different medications without a prescription may encourage individuals to engage in self-medication. This practice involves individuals diagnosing and treating their own health conditions, often resulting in the accumulation of multiple medications without professional oversight and cause polypharmacy.[8]

▪Comorbidities:

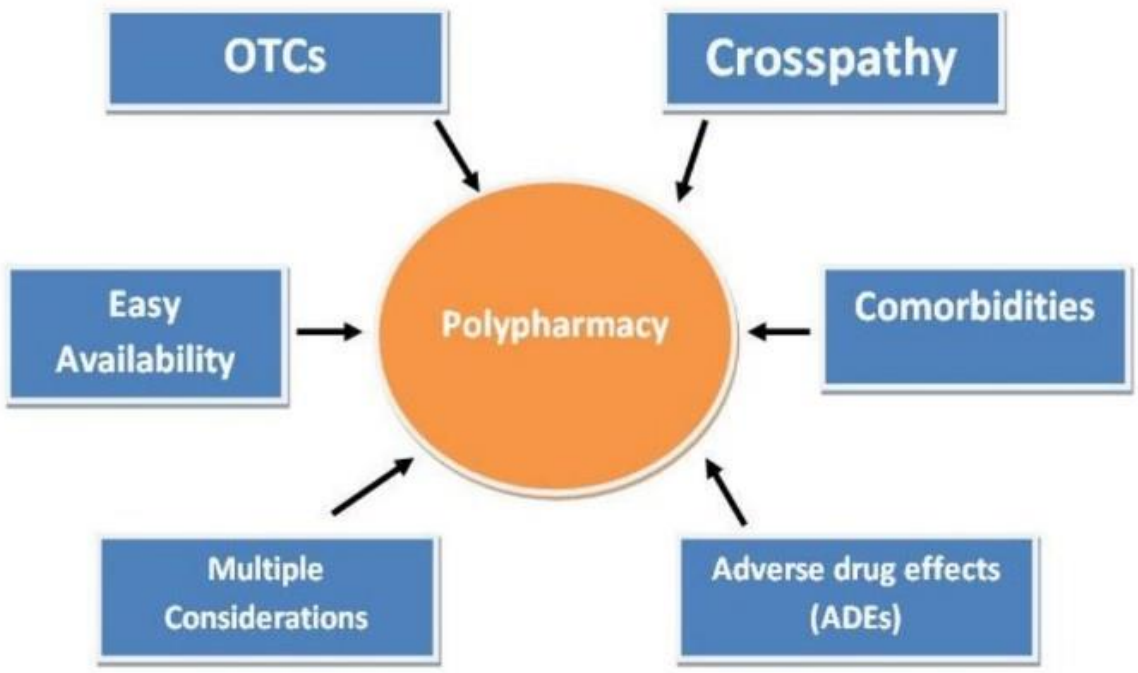
Comorbidities, or the presence of multiple medical conditions in and individual, can contribute to polypharmacy for several reasons such as Individuals with comorbidities often require the management of multiple health conditions simultaneously. Each condition may necessitate specific medications, leading to a higher likelihood of being prescribed multiple drugs concurrently.[9]

▪Multiple consultations :

Multiple consultations with different healthcare providers can contribute to polypharmacy for several reasons Patients and their families often want or consider multiple consultations better Rather than sticking to or continuing consultation with A single physician. Sometimes they stick with each prescription without having any proper therapeutic reconciliation.[10]

▪Adverse drug effects (ADE) :-

Polypharmacy involves the use of multiple medications, which inherently raises the risk of adverse drug events. The more than one medications a person is taking, the greater the likelihood of experiencing side effects, drug interactions, or unintended reactions .[11]



Factors Associated with Polypharmacy :-

Factors associated with polypharmacy include There are more numbers of patients, diseases, and healthcare-related factors which contribute to polypharmacy and its prevalence.
These factors are :-

1) Factors related to patients:

In the factors related to patients age Factor is important . Polypharmacy is most recognized in older adults patients , because old patients with have one or more chronic conditions have longer medication lists.
Even if the majority of individuals patients with polypharmacy are less than 70 years of age . A number of studies shown that the average number of medications increases with increasing age, because age is one of the most common risk factors for excessive polypharmacy.
With increasing age the prevalence of diseases increases, resulting in a greater proportion of prescribed drugs . Commonly , women take more medications than men, with a higher prevalence of polypharmacy than for men. Therefore, multiple studies have defined gender as a risk factor for excessive polypharmacy. In higher age categories, the relative risk for polypharmacy for women versus men levels out, and no general gender factor for elderly individuals can be identified .
The economic status of people and educational status aresociodemographic characteristics. The risk associated with entering polypharmacy might differ depending on a person's socioeconomic situation. The danger of polypharmacy related to deprivation was discovered by Nishtala et al. in their study .

On the other hand, the likelihood of polypharmacy is increasing due to some patient-related variables, it including smoking, obesity, etc. People who live in urban areas seem to be more inclined toward polypharmacy than those who live in rural locations . [12] Ageing is a natural phenomenon that is accompanied by a cascade of unwanted and unintended circumstances or complicated conditions that are always undesirable but it is not still avoidable. Polypharmacy or irrational use of drugs is one of the many issues that may affect any age group but mostly affects the geriatric population. Since ageing is usually related with several co-morbiditis, elderly are exposed to polypharmacy to greater extent.[13] Multiple doctor prescriptions may also prevent a previous diagnosis from being reevaluated and get result in improper Polypharmacy. Fast population aging has been accompanied by an increase in comorbidities among the elderly. Polypharmacy A frequently occurs in the treatment of patients with comorbidities, and concerns have been raised regarding adverse health outcomes due to polypharmacy.[14]

2) Factors related to disease condition :-

In the Several studies found that cardiovascular diseases, such as coronary ischemic diseases or heart failure, and hypertension Were linked with polypharmacy . Among metabolic diseases, diabetes and Dyslipidemia were linked with polypharmacy. Diseases of esophagus and stomach were Also associated to polypharmacy . multiple chronic conditions may be also associated to polypharmacy. An increase in the number of chronic conditions and in the Carlson comorbidity Index were reported to be associated with polypharmacy. [15]

3) Healthcare-related factors

In the Health-related quality of life (HRQoL), multi-morbidity (yes/no), number of falls during the last year, frailty (yes/No), use of outpatient service (yes/no) and hospitalization (yes/no) during the last year were grouped in the factors related to the health and health care use.[16]

People who have recently visited a doctor and those patients have been hospitalized that individual more risk of polypharmacy, according to findings. additionally, such as visiting a primary care physician like a general physician at least five times per year increases the chance of polypharmacy by polypharmacy is also defined as the presence of numerous insurance plans and supplemental provider.[17]

4) Prescribing-related factor

Several behaviours of physicians may also increases polypharmacy. Thus, reduce of communication between specialist and general practitioners, prescription refill request, preferences, personal beliefs, multiple sources of guidelines and information, and lack of proper continuous education can be factors which favour polypharmacy
The use of medications without a proper indication, which concerns mainly sedatives/hypnotics, laxatives, antidepressants and analgesics, were also predictors of polypharmacy [18]

Consequences Due to Polypharmacy :-

Unfortunately, there are so many negative consequences linked with polypharmacy. Specifically, the burden of taking more than one medication has been linked with greater health-care costs and an increased risk of adverse drug events (ADEs), Drug interactions, medication non adherence, reduced functional capacity, and multiple geriatric syndromes. We focus on studies that used multivariable analyze controlling for most important factors that could potentially confound or modify any association between polypharmacy and the health-related outcomes detailed earlier and later.[19]

Medication safety problems are common and there is strong Evidence that these are linked with polypharmacy . Prescribing or monitoring errors were observed in one in eight patients, affecting 5% of all prescription items.[20]

Prevalence of polypharmacy :-

The increasing size of the elderly population in developing world including India is undoubtedly posing mounting pressures on various socio-economic fronts concluding increased inter-personal and health related problems, health care expenses etc.

The study indicated higher proportion of polypharmacy among males as compared to females in the rural area. This was although similar to the study performed in the Mumbai with higher proportion of polypharmacy among males, but it was conducted in urban area. The finding of the present study that contains maximum polypharmacy was found in (60-65) years age group differed from the study that found more polypharmacy among (70-79) years old age groups.[21]

Reducing consequences Of polypharmacy

Interventions to help physicians reduce polypharmacy it include reviewing drugs with older patients at every office visit and during transitions of care into and out of the hospital or other care facility. A 2016 Cochrane review of 5 randomized trials of inpatient or admitted patients medication reviews led by pharmacist , physicians, and other health care professionals showed a 36% reduction in ED visits 30 days to 1 year after discharge.

patients can collaborate in this effort by bringing all medications to each appointment or upon hospital admission—not just a list but the actual supply, to ensure that a exact correct medication list is compiled and a thorough review conducted. explicitly ask open-ended questions of the patient about over-the counter medications, herbal products, and other home remedies that have not been prescribed; many patients may have problem with recall or are uncertain what fits the definition of a nonprescription medication.[22], [23]

Advice for Preventing Polypharmacy Problems

1)Ensure that a complete list of medications is protected Through attentive connected with patients and Families.
2)Rearrange the HER patient's medication list.
3)Keep an eye out for bad and wrong prescriptions.
4)Please Take care when stopping the prescription of Medication.
5)Keep an eye out for indications of prospective issues During yearly health exams.

Supporting appropriate, desirable, and pertinent Improvements in response to problematic polypharmacy it may not include conceptual changes in the way that drug evaluations are conducted. The affective or visceral nature of the clinician-patient connection is very essential for making responsible decisions in the face of such complexity & ambiguities[13].

CONCLUSION :-

In conclusion, the global rise in polypharmacy, driven by the increasing prevalence of comorbidities, poses a significant challenge to healthcare systems. While polypharmacy aims to optimize patient care, it concurrently leads to adverse outcomes, especially among older adults Factors such as over-the-counter medication accessibility, alternative therapies, comorbidities, and multiple consultations contribute to this phenomenon. The associated consequences include adverse drug events, increased healthcare costs, and reduced functional capacity. Recognizing the multifaceted nature of polypharmacy, interventions involving medication reviews and improved patient-physician communication are crucial. Addressing this complex issue requires a collaborative effort from

healthcare providers, patients, and policymakers to ensure medication regimens prioritize safety and efficacy, ultimately enhancing the overall quality of patient care.

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