

# **RESEARCH ARTICLE**

### EDUCATION (COUNSELLING AND DIGITAL UPDATE) BY CLINICAL PHARMACIST IN PATIENTS WITH POLYPHARMACY IN CHRONIC DISEASES IN THE DEPARTMENT OF GENERAL MEDICINE

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#### Abstract

..... **Background**: As chronic diseases require treatment with an expanding number of medications, the issue of polypharmacy is getting more significant. Polypharmacy can lead to the danger of adverse events, drug interactions and medication non adherence.

Objective: To improve patient medication compliance, check whether all the drugs prescribed are safe and appropriate to use, improve the knowledge about their medical state and poly-pharmacy and to check whether there is any drug-drug interaction.

Materials And Methods: A prospective observational study was carried in 200 patients. The collected data was investigated for polypharmacy and analyzed for factors and consequences associated with poly-pharmacy. Patient information and relevant data is collected in data collection form directly by clinical pharmacist by interviewing the patient and the patient follow-up is done by digital counseling provided to the patient using various sources such as chats, calls, videos.

**Result**: This study was designed to educate patients in poly-pharmacy for chronic diseases through digital counselling means. During the six months study period, a total of 200 patients among which Patients suffering from several diseases have been consumed multiple medicines  $(8.52\pm3.58)$  compared to patients with two types  $(8.15\pm4.05)$ or single type of disease (7.29±3.10), p 0.08. Knowledge assessment score was improved after education (counseling and digital update) by clinical pharmacist (2.75±1.21; 7.15±0.94, p value 0.02). Morrisky medication Adherence scale (MMAS-8) score was significantly increased after education (counseling and digital update) by clinical pharmacist (2.83±1.79; 7.60±0.66, p value 0.001). Quality of lifeED-5D-5L score was improved after education (counseling and digital update) by clinical pharmacist  $(1.01\pm0.78; 2.94\pm1.25, p \text{ vale } 0.003)$ . We performed Pearson correlation coefficient test to analyze the correlation between poly-pharmacy and quality of life (QOL), We observed that, individuals who consumed poly pharmacy were found with decreased quality of life (r = -0.72; p value = 0.003). This might

be due to adverse side effects caused by multiple medications. Among the 200 patients digital counselling by WHATSAPP along with Call and E-mail was done to 16% of patients, WHATASPP and Call was done to 44% of patients, WHATSAPP and E-mail was done to 2% of patients, WHATSAPP was done to 17% of patients, Call was done to 21% of the patients. Patient satisfaction score with clinical pharmacist by Direct counseling 42% (9.02 $\pm$ 3.90) and Digital counseling58% (12.29 $\pm$ 3.83).

**Conclusion**: The utilization of digital counselling has become an inexorably well-known mode for giving counselling. Nonetheless, little is thought about its effectiveness. This study is an initial effectiveness study on digital counselling. Participants who had gotten digital counselling from a phone evaluated the viability of digital counselling and the quality of their counselling relationship. Generally, respondents showed that digital counselling they got. There was an improvement found in the quality of life of participants and their knowledge with respect to chronic condition and polypharmacy. The participants understood the significance of medication adherence for polypharmacy in chronic diseases. Participants were made mindful of the suspected adverse drug reactions, drug-to-drug interaction, medication errors, medication redundancy, and so on.

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### **Introduction:-**Polypharmacy:

Polypharmacy (i.e., the utilization of numerous medication as well as the administration of a larger number of medication than are clinically shown, speaking to unnecessary medication use)(1). Components that add to this issue include: patient attributes of expanding age, various clinical issues, therapy desires, and choices to self-treat; doctor factors, for example, extreme prescribing; and system issues of multiple suppliers and lack of a planning provider(2).

Polypharmacy is a complex and stressing marvel that merits more research(3). Inappropriate polypharmacy is a specific worry in older individuals and is related with negative health results. Picking the best mediations to improve appropriate polypharmacy is a need, subsequently enthusiasm for proper polypharmacy, where numerous medication might be utilized to achieve better clinical outcomes for patients, is growing.(4). The heightening utilization of recommended drugs has progressively raised worries about polypharmacy(5).

Polypharmacy has been connected to elevated risk of event of drug-related problems (DRPs) and an adverse health outcome.(6). Polypharmacy happens when an individual is taking a wide range of prescriptions simultaneously. This frequently happens when an individual has numerous chronic diseases, for example, diabetes, high blood pressure, cardiovascular breakdown, osteoporosis, as well as symptoms, for example, pain or sleep deprivation, requiring long term therapy with medications.

Chronic diseases and manifestations accumulate with age; consequently, more older grown-ups are at higher risk of polypharmacy (7,8). Since people are living longer and accumulating chronic diseases, experts have another duty to prescribe appropriately the numerous medications accessible to manage concurrent disease states. The plenty of drug choices must be balance with the possible risk of different medication use. These risks include, yet are not restricted to, adverse impacts, drug/drug interaction, drug/disease collaborations and inappropriate dosing regimens. (9).

Inappropriate polypharmacy, particularly in older individuals, imposes a significant weight of adverse drug events, sick health, handicap, hospitalization, and even death. The absolute most significant indicator of inappropriate prescribing and risk of adverse drug events in older patients is the quantity of prescribed drugs (10). Polypharmacygrows for the mainly in older patients who as of now utilize a several drugs, who are known to experience the ill effects of cardiovascular diseases, diabetes or stomach symptoms, the individuals who regularly consume medications (particularly tranquilizers/hypnotics) without clear sign and the individuals who develop

hypertension or atrial fibrillation over time (11). Various drug use is normal in older individuals, and may offer ascent to drug related issues. Techniques to lessen the risks of polypharmacy incorporate patient training, physician instruction, for example, education and feedback system and administrative intervention. Continual drug and disease monitor is essential (12)

### **Reason ForPolypharmacy:**

The primary reasons for polypharmacy are longer life, co-morbidity and the usage of evidence-based clinical practice rules. In any case, polypharmacy likewise has important negative outcomes, for example, a higher risk of adverse drug reactions and a decrease in medication efficacy as a result of reduce compliance (13)

One reason why GPs discover polypharmacy a complicated issue is that regularly more than one prescriber is included. Inappropriate prescribing can arise from the absence of communication between doctorspracticing in various settings or even between specialists practicing in a similar setting. Older grown-ups frequently have a few chronic conditions and need a few drugs; they are regularly admitted to medical clinic and should have normal surveys of their treatment (14).

A major reason for polypharmacy is that a patient has numerous existing medical condition receiving treatment. Also, on account of diseases, for example, cardiovascular breakdown and high blood pressure, combinations of a two or three different medications are normal and recommended. Another reason for polypharmacy is that the documentation of why a medication was prescribed at first is regularly absent in the clinical record, settling on choices to consider end of a treatment difficult to make later (15).

### **Consequences:**

Consequences of polypharmacy incorporate adverse drug effects, drug–drug interactions, disease–drug interactions, food–drug interactions and medication course effect. Medication administration mistakes, for example, phonetic confusion, flip-flopping dosing error and pill obvious sign error, are additionally reviewed (16). Strong connection among polypharmacy and negative clinical consequences (17)). the effect of supported clinical pharmacist interventions including elderly outpatients with polypharmacy and their primary physicians.(18)The major consequences of polypharmacy to a patient is an a lot higher risk of adverse drug effects. This risk increases dependent on the quantity of medications prescribed and taken.Moreover, if an adverse effect develops, it tends to be hard to make sense of which of the numerous drugs is the reason. Another possible issue is what is referred to as medication or drug interactions, implying that the effects of one medication.(19)

### **Steps To Manage Polypharmacy**

Stepwise methodology for evaluation of a geriatric patient who is: (1) getting at least nine medications; (2) seen for beginning assessment; (3) seen for falls or potentially practices; as well as (4) admitted for rehabilitation.

The clinician initially acquires pulse, blood pressure (postural), and oxygen saturation rate at rest and with movement. A physician appraisal and physical examination is trailed by the following steps:

Step 1: A = ASSESS the person for total number of medications and for specific groups of medications that have potential for adverse result: • Beta blockers • Antidepressants • Antipsychotics • Otherpsychotropics • Pain medications • Other medications recorded in the Beers Criteria12 • Vitamins and supplements.

Step 2: R = REVIEW for possible • Drug-drug interactions. • Drug-disease interactions. • Drug-body interactions (pharmacodynamics). • Impact on practical status (Timed Get Up and Go test). • Subclinical ADRs. • Weigh singular medication benefits against essential body capacities (craving, weight, torment, mind-set, vision, hearing, bladder, bowel, skin, swallowingand action level).

Step 3: M = MINIMIZE unnecessary medications: • Eliminate medications that plainly need evidence for their use. • Eliminate medications whose risks exceed benefits and that have high potential for negative effect on essential capacities (hunger, weight, torment, state of mind, vision, hearing, bladder, gut, skin, gulpingand movement level). Table: ARMOR: A Tool to Evaluate Polypharmacy in Geriatric Patients An Assess - Beers Criteria - Beta blockers - Pain medications - Antidepressants - Antipsychotics - Other psychotropics - Vitamins and supplements R Review Drug–disease interactions - Drug–drug interactions - Adverse drug reactions M Minimize Number of medications as indicated by useful status as opposed to evidence-based medication O Optimize - For renal/hepatic leeway, PT/PTT,

beta-blockers, pacemaker work, anticonvulsants, torment medications, and hypoglycemics; GDR for antidepressants R Reassess - Functional/intellectual status in multi week and varying -Clinical status and medication compliance PT = prothrombin time; PTT = partial thromboplastin time; GDR = gradual dose decrease.

Step 4: O = OPTIMIZE by addressing • Duplication. • Redundancy. • Adjust renally cleared medications to creatinine leeway (glomerular filtration rate). 14 • Adjust medications that are used in liver for clearance adjust oral hypoglycemics to blood sugar target and HbA1c. • Consider progressive gradual dose decrease (GDR) for antidepressants. • Adjust beta blockers to permit physiological pulse reaction. • Adjust beta blocker portion for pacemakers. • Adjust anticoagulants for international normalized ratio (INR) guidelines and potential DDIs. • Adjust seizure medications with free phenytoin level.

Step 5: R = REASSESS pulse, blood pressure (postural), oxygen immersion rate (> 92%) at REST and ACTIVITY. Likewise rethink • Functional status17 (Timed Get Up and Go test, activity of daily living [ADL] and instrumental activity of day by day living [IADL] from Minimum Data Set). • Cognitive status (Folstein Mini-Mental State Examination). • Clinical status (clinical test by physician for pay of prior diseases). • Medication compliance (medication errors on account of LTC) favorable or troublesome, may change whenever given along with another medication. (20). Be activist about medication compromise. Inquire to patient whether they are being treated by different physicians and suppliers. Check that there is a genuine sign for each medication being taken. Evaluate deprescribing openings at each visit or care progress. Include a pharmacist. Use innovation instruments that convey precise solution data.Try conduct change techniques before including another drug (21).

### **Clinical Pharmacist:**

Clinical pharmacy is a health science discipline in which pharmacists give patient consideration that upgrades medication therapy and advances health, wellbeing, and disease prevention (22).

Clinical pharmacists work legitimately with physicians, other health experts, and patients to guarantee that the medications recommended for patients contribution to the most ideal health outcomes.Clinical pharmacist analysts produce, spread, and apply new information that adds to improved health, personal satisfaction, quality of life (23)

The clinical pharmacist serves as a goal, evidence-based source of therapeutic data and recommendations. Many patients with chronic conditions have a need and a craving for pharmacist counselling about new medications that is neglected in the local community drug store setting. (24)

### **Role Of Pharmacist In Poly-Pharmacy:**

Today pharmacists are progressively capable additionally dealing with patients' medication regimens by giving comprehensive medication reviews and educational services for the both patients and physicians. Various investigations have analyzed pharmacist interventions to reduce polypharmacy and the results that these interventions have upon humanistic and clinical factors. In particular, studies have considered the number of medications and dosages taken, patient adherence, social and practical capacities, and ADRs, notwithstanding social economic factors, for example, cost to the patient and the institution.it is significant to consider any intervention that can possibly lessen this issue – a role that pharmacists are all around prepared to fill.(25). Pharmacists evaluate viewpoints concerning the utilization of sufficient medications; decrease of medication dosages without influencing treatment efficiency; modification of dose beyond the drug safety margin; and right utilization of the medication by elderly patients.

The role of a clinical pharmacist has been confirmed as vital in the development of suggestions for the two physicians and patients Treatment adherence of the elderly patient is another factor that impair polypharmacy decrease. Medication adherence can be characterized as consistency between clinical prescription and drugs taken by the patient. Compliance is lower among seniors older than 85 years compared with those matured from 60 to 74 years. Another factor that adds to the decrease of drug bioavailability is the way that more older grown-ups drink less water and will in general take their medication with food, and utilize drugs, for example, sedatives and diuretic operators, by themselves.(26) .Clinical pharmacists have a considerable effect in a wide variety of roles in inpatient and mobile settings, to a great extent through optimization of drug use, avoidance of adverse drug events, and momentary consideration activity focusing on medication compromise and patient education. Development of clinical drug store services is regularly hindered by policy, enactment, and pay barriers (27).

Medication errors, Drug dosing, decision, use and interactions were the most reasons for mistake. These errors were distinguished, detailed, and prevented by infectious diseases by clinical pharmacists. Clinical pharmacists' interventions can effectively prevent these errors. The kinds of errors show the requirement for nonstop education and usage of clinical pharmacist's interventions (28).

The role of a clinical pharmacist has been confirmed as vital in the development of recommendations for both physicians and patients Treatment adherence of the elderly patient is another factor that impairs polypharmacy reduction. Medication adherence can be defined as consistency between medical prescription and drugs consumed by the patient.<sup>20</sup> Compliance is lower among elders older than 85 years compared to those aged from 60 to 74 years. Another factor that contributes to the reduction of drug bioavailability is the fact that older adults drink less water and tend to take their medication with food, and make use of drugs, such as tranquilizers and laxative agents, by themselves.(26).Clinical pharmacists have a substantial effect in a wide variety of roles in inpatient and ambulatory settings, largely through optimization of drug use, avoidance of adverse drug events, and transitional care activities focusing on medication reconciliation and patient education. Expansion of clinical pharmacy services is often impeded by policy, legislation, and compensation barriers (27).

Medication errors, Drug dosing, choice, use and interactions were the most causes of error. All of these errors were detected, reported, and prevented by infectious diseases by clinical pharmacists. Clinical pharmacists' interventions can effectively prevent these errors. The types of errors indicate the need for continuous education and implementation of clinical pharmacist's interventions (28).

Pharmacists have a positiverole to carry out and ought to intervene to lessen and if necessary, stop the inappropriate utilization of polypharmacy, and improve its suitable use. Pharmacists who are commonly considered as drug specialists, are in an exceptional situation to screen and intervene in patients with polypharmacy and improve their personal satisfaction and quality of life.

Pharmacists need to distinguish drug-related issues, organize them, lessen pill trouble, dispose of pointless medication use, and monitor for adverse drug-withdrawal events. Pharmacists can advance medication therapy and improve therapeutic results for patients through medication therapy the executives.

Pharmacists can make interventions to improve the quality of healthcare for patients with polypharmacy. A pharmacist can perform release counselling, evaluate drug-drug interactions, prevent medication blunders, screen for adverse events and so forth.

Deprescribing is being advanced as a device for enhancing drug therapy in patients with polypharmacy, particularly in elderly patients, and is prescribed to be remembered for the prescribing measures for all experts involve with healthcare.

Pharmacists gather patient specific information to recognize and organize medication-related issues and make an arrangement to resolve them. Pharmacists should worry to patients the importance of having and maintaining a current individual medication record. (29).

# **Digital Counselling Used For Poly-Pharmacy:**

Digital guiding is the arrangement of expert health counselling services through the Internet. From what used to be only face-to-face service, counsellors presently offer meetings online by means of email, video-talk, texting, group discussions, and that's only the tip of the iceberg. This kind of counselling passes by endless names, for example, the internet guiding, e-therapy, e-advising, web based advising and tele-counselling. With advanced counselling, you can send your specialist a message whenever that your feelings of anxiety have crested, a panic of anxiety went ahead or when the loneliness or pity is at a staggering level. Digital counselling refers to counselling services through the web and incorporates, for example, messages, talk rooms and web cameras. This kind of counselling passes by endless names, for example, the internet guiding, e-therapy, e-counselling, online directing and tele-counselling (30).

# Aim & Objective:-

### Aim:

To educate the patient about their disease state and poly-pharmacy by assessing the patient's knowledge, enhancing medication compliance, quality of life and provide satisfaction to the patient.

# **Objectives:-**

- 1. To improve knowledge about their medical state and poly-pharmacy.
- 2. To improve patient medication compliance
- 3. To bridge the gap between the physician and patient.
- 4. To reduce the use of inappropriate medications.
- 5. To check for drug-drug interactions and to report them.
- 6. To check carefully whether all the drugs prescribed are safe.

# Methodology:-

# **Study Site:**

The study is conducted in the outpatient and in-patient setup of General Medicine Department of Owaisi Hospital and Research Centre, a tertiary care hospital of South India, during the period September 2019 to February 2020. It is a 1000-bedded teaching hospital situated in the heart of the city of Hyderabad, providing specialized health care services to all people.

# Sample Size:

It is a study where 200 patients who are under treatment for chronic diseases like Hypertension, Diabetes Mellitus and Thyroid disorders are selected according to inclusion and exclusion criteria.

# **Inclusion Criteria:**

- 1. Male and female patients with chronic diseases (HTN, T2DM, THYROID).
- 2. Male and female patients with poly-pharmacy.
- 3. Patients above 18 years of age.
- 4. Patients who are willing to participant in this study.

# **Exclusion Criteria:**

- 1. Pediatric patients.
- 2. Patients with acute conditions.
- 3. Women who are pregnant or planning to become pregnant.
- 4. Lactating women.
- 5. Patients who are not willing to participate in this study.

### Novelty:

- 1. Use of handy and digital friendly counseling means as digital work is accepted by world population in this digital world.
- 2. To lessen the burden of physicians and patients with poly-pharmacy.

### **Expected Outcomes:**

- 1. To assess the patient's knowledge about their disease and medications.
- 2. To increase the knowledge of patients about their disease and medications.
- 3. To improve patient medication compliance.
- 4. Patient satisfaction with the clinical pharmacist.
- 5. Drug-drug interactions are reported.
- 6. Adhere to physician recommended follow up visit schedule.

# **Plan Of Work:**

- 1. Ethical Committee approval to be obtained from Institutional Review Board Committee of a teaching hospital
- 2. Informed consent was taken from patients.
- 3. Literature review related to the study was done.
- 4. Designing a data collection form.

- 5. To study and counsel the patients with poly-pharmacy with chronic diseases.
- 6. Review of patients and counselling by digital means using the Morrisky Medication Adherence Score, Knowledge Assessment Scale, Patient Satisfaction Questionnaire and Quality of Life ED-5D-5L.
- 7. Results and Statistical Analysis.
- 8. Report the data collected.

# **Results:-**

This study was designed to educate patients in polypharmacy for chronic diseases through digital counselling means. During the six months study period, a total of 200 patients among which 47(87%) were males and 118(57%) were females who were educated through digital means. The highest number of patients were in the age group above 50 years 163(81.5%) and the remaining patients were below 50years 37(18.5%). Out of 200 patients, 41(37%) were smokers and 63(159%) were non-smokers. The patients who were alcoholics were 62(20%) in number and non-alcoholics were 138(80%) in number. Among the 200 patients who enrolled for this study, 14(7%) had DM, 1(0%) had CAD, 117(58%) had DM and HTN, 30(15%) had DM along with HTN and Hypothyroid disorder, 5(2%) had DM and Hypothyroid disorder, 12(6%) had HTN and Hypothyroid disorder, 1(0%) had CAD and AKI. The number of patients who had polypharmacy (below 8) were 70 and the number of patients who had polypharmacy (above 8) were 130. Over the counter (OTC) drugs used below 3 drugs was by 182(91%) patients and above 3 drugs was by 18(9%) patients. OTC DRUGS (average):  $2.1\pm0.89$ . Patients suffering from several diseases have been consumed multiple medicines ( $8.52\pm3.58$ ) compared to patients with two types ( $8.15\pm4.05$ ) or single type of disease ( $7.29\pm3.10$ ), p 0.08. Though, these results were statistically not significant, slight decline can be observed with respect to polypharmacy. Polypharmacy (average):  $8.52\pm3.59$ .

### Polypharmacy:

POLYPHARMACY	NO.OF PATIENTS
Below 8	70
Above 8	130

### **Relationship BetweenPolypharmacy And Chronic Diseases:**

Polypharmacy (average): 8.52±3.59

DISEASE	DM, HTN, HYPOTHYROID	DM,HTN	HTN	P value
MEAN±SD	8.52±3.58	8.15±4.05	7.29±3.10	0.08

Patients suffering from several diseases have consumed multiple medicines  $(8.52\pm3.58)$  compared to patients with two types  $(8.15\pm4.05)$  or single type of disease  $(7.29\pm3.10)$ , p 0.08. Though, these results were statistically not significant, slight decline can be observed with respect to polypharmacy.

#### **Digital Counselling**

Type of Digital counselling	Percentage of individuals
Whatsaap, Call, Email	16%
Whatsaap, Call	44%
Whatsaap, email	2%
Whatsaap	17%
Call	21%

### Morrisky Medication Adherence Scale(MMAS-8) Score:

MORRISKY MEDICATION ADHERENCE SCALE(MMAS-8) SCORE	
Before	2.83±1.79
After	7.60±0.66
T value	35.40
P value	0.001*

Morrisky medication Adherence scale (MMAS-8) score was significantly increased after education (counselling and digital update)by clinical pharmacist (2.83±1.79; 7.60±0.66, p value 0.001).

### Knowledge Assessment Score:

KNOWLEDGE ASSESSMENT SCORE	
Before	2.75±1.21
After	7.15±0.94
Т	40.64
P value	0.02*

Knowledge assessment score was improved after education (counselling and digital update) by clinical pharmacist (2.75±1.21; 7.15±0.94, p value 0.02)

### **Quality Of Life ED-5D-5L Score:**

QUALITY OF LIFE ED-5D-5L SCORE:	
Before	1.01±0.78
After	2.94±1.25
Т	18.45
P value	0.003*

Quality of lifeED-5D-5L score was improved after education (counselling and digital update) by clinical pharmacist  $(1.01\pm0.78; 2.94\pm1.25, p \text{ vale } 0.003)$ 

#### **Patient Satisfaction Score:**

PATIENT SATISFACTION SCORE:	
Digital counselling	12.29±3.90
Direct counselling	9.02±3.83
Т	2.10
P value	0.05

Patient satisfaction score with clinical pharmacist by Direct counselling and Digital counselling.

### **Relationship BetweenPolypharmacy And Qol:**

<u> </u>	
R	-0.724
P value	0.003

We performed Pearson correlation coefficient test to analyze the correlation between polypharmacy and quality of life (QOL), We observed that, individuals who consumed poly pharmacy were found with decreased quality of life (r = -0.72; p value = 0.003). This might be due to adverse side effects caused by multiple medications.

#### **Drug Interactions:**

Drug interaction	Number and percentage of patients
Below 5	180 (90%)
Above 5	20 (10%)

Drug interactions (average): 2.75±1.09

### Pharmacist Intervention

#### **Telmisartan Induced Pruritis:**

A 45year old female patient receiving treatment for her HTN, DM, Hypothyroidism alignment came with complaint of itching all over his body. During patient counselling, it has been revealed that patient has this reaction upon taking telmisartan. Lexicomp suggests telmisartan induced pruritis, however, frequency is less than 1%. Dechallenge was done to confirm such ADR. Furthermore, clinical pharmacist suggested physician to replace it with Angiotensin converting enzymes, especially, Enalapril and the intervention was accepted. Pharmacist monitored her itching for a period of 1 week and patient is doing well on enalapril and there is no further episode of itching.

### Aspirin Induce Epistaxis:

A 63year old female patient receiving treatment for HTN, DM, CAD. During patient counselling revealed that patient is suffering from epistaxis upon taking drug aspirin 150mg. Furthermore, clinical pharmacist suggested clinician to reduce the dose. The intervention was accepted and dose was reduced to 75 mg aspirin. Pharmacist follow-up digitally and there is no further epistaxis.

### Self Administration /Irrational Use Of Antibiotic Drus:

A 49year old male patient receiving treatment for HTN and he came with the chief complaint of diarrhea vomiting. During patient counselling patient spoke about using antibiotic ofloxacin drug from long period as pain killer without consulting with clinician. Pharmacist reported this problem to clinician and said to counsel him. As clinical pharmacist we counselled the patient about the irrational use of antibiotic resistance, side effects, and safety use medication, lifestyle modification. Patient well satisfied during counselling. Follow-up is done digitally patient doing well.

### Drug-Drug Interaction Lead To Hypoglycemia:

A 72year old female patient receiving the treatment for DM. Drug interaction found is vildagliptin +insulin has led to hypoglycaemia in patient. Clinical pharmacist suggested clinician to reduce the dose of insulin and the intervention was accepted. Pharmacist follow-up digitally after 2 week and patient is doing well. Pharmacist counselled to monitored glucose level.

### WrongAdministrationof Drug:

A 55year old female patient, receiving treatment for DM. During patient counselling it shows that doctor has prescribed antidiabetic drug to patient for DM, but patient was consuming another antidiabetic drug. As a clinical pharmacist we counsel the patient and explain the difference between the drug effects. Patient well satisfied.

### **Over Use Of Analgesic:**

A 56year old male patient receiving treatment for HTN, DM. When counselled it was found that the patient was using ACETOP (aceclofenac +acetaminophen) daily from past 1 year for chronic arthritis which has led to nephropathy. This issue was informed to the clinician and said to counsel him. As a clinical pharmacist we counsel the patient and explain the risk and complication of overuse of analgesics.

### **Patient Specific Monitoring:**

Recommendations were made to the clinician to monitor the patients having major drug interactions.

### **Miscellaneous Recommendations:**

Some patients with chronic diseases (HTN, DM, CAD, COPD, etc.) were continuing to smoke and drink alcohol. The clinical pharmacist took the opportunity to offer some alcohol and smoking cessation counselling.

### **Discussion:-**

The drug interactions with below 3 interactions were seen in 180(90%) patients and above 3 interactions were seen in 20(10%) patients. Drug interactions (average):  $2.75\pm1.09$ . Knowledge assessment score was improved after education (counseling and digital update) by clinical pharmacist ( $2.75\pm1.21$ ;  $7.15\pm0.94$ , p value 0.02). Morrisky medication Adherence scale (MMAS-8) score was significantly increased after education (counseling and digital update) by clinical pharmacist ( $2.75\pm1.21$ ;  $7.15\pm0.94$ , p value 0.02). Morrisky medication Adherence scale (MMAS-8) score was significantly increased after education (counseling and digital update) by clinical pharmacist ( $2.83\pm1.79$ ;  $7.60\pm0.66$ , p value 0.001). Quality of lifeED-5D-5L score was improved after education (counseling and digital update) by clinical pharmacist ( $1.01\pm0.78$ ;  $2.94\pm1.25$ , p vale 0.003). We performed Pearson correlation coefficient test to analyze the correlation between poly pharmacy and quality of life (QOL), We observed that, individuals who consumed polypharmacy were found with decreased quality of life (r = -0.72; p value = 0.003). This might be due to adverse side effects caused by multiple medications. Among the 200 patients digital counselling by WHATSAPP along with Call and E-mail was done to 16% of patients, WHATSAPP and Call was done to 44% of patients, WHATSAPP and E-mail was done to 2% of patients, WHATSAPP was done to 17% of patients, Call was done to 21% of the patients. Patient satisfaction score with clinical pharmacist by Direct counseling 42% ( $9.02\pm3.90$ ) and Digital counseling 58% ( $12.29\pm3.83$ )

# **Conclusion:-**

The utilization of digital counselling has become an increasingly popular mode for giving counselling. However, little is thought about its effectiveness. This study is an initial effectiveness study on digital counselling. Members who had gotten digital counselling from a phone appraised the adequacy of digital counselling and the nature of their counseling relationship. Generally, respondents demonstrated that digital counseling was useful and that the patient were happy with the counselling they got. There was an improvement found in the personal satisfaction of participants and their knowledge with respect to chronic condition and poly-pharmacy. The participants understood the significance of medication adherence for poly-pharmacy in chronic conditions participants were made mindful of suspected adverse drug reaction, drug-drug interaction, medication blunders, prescription excess, and so forth.

It is just through the combine effort of the clinical pharmacist and the overall doctors promoting the service, that community trust in clinical pharmacy can be won.

Since our study pointed that polypharmacy is a developing issue, however didn't propose and quantify approaches to reducepolypharmacy. Further studies are expected to locate the best method to lessen this phenomenon, but also to limit the adverse clinical consequences induced by poly-pharmacy. Older individuals need to have their awareness raised of the reality of their disease. Older individuals should be educated about the threat of utilizing over the counter medication (OTC) irrationally, and the significance of informing their doctors in the event that they do. Role of the other health staff particularly pharmacists and medical attendants should be underlined to decrease polypharmacy and its consequences.

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