

# Development and Evaluation of Community Pharmaceutical Care Program for Type 2 Diabetes Mellitus Patients

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Initiated by **ACPI**

# INTRODUCTION

- **Initiated by:**

**Association of Community Pharmacists of India**

- **Supported by:**

- **Manipal college of Pharmaceutical Sciences, Manipal**

- **Dr. A. V. Baliga Memorial Hospital, Doddanagudde, Udupi**

# PHARMACEUTICAL CARE

**Mikeal et al (1975)**

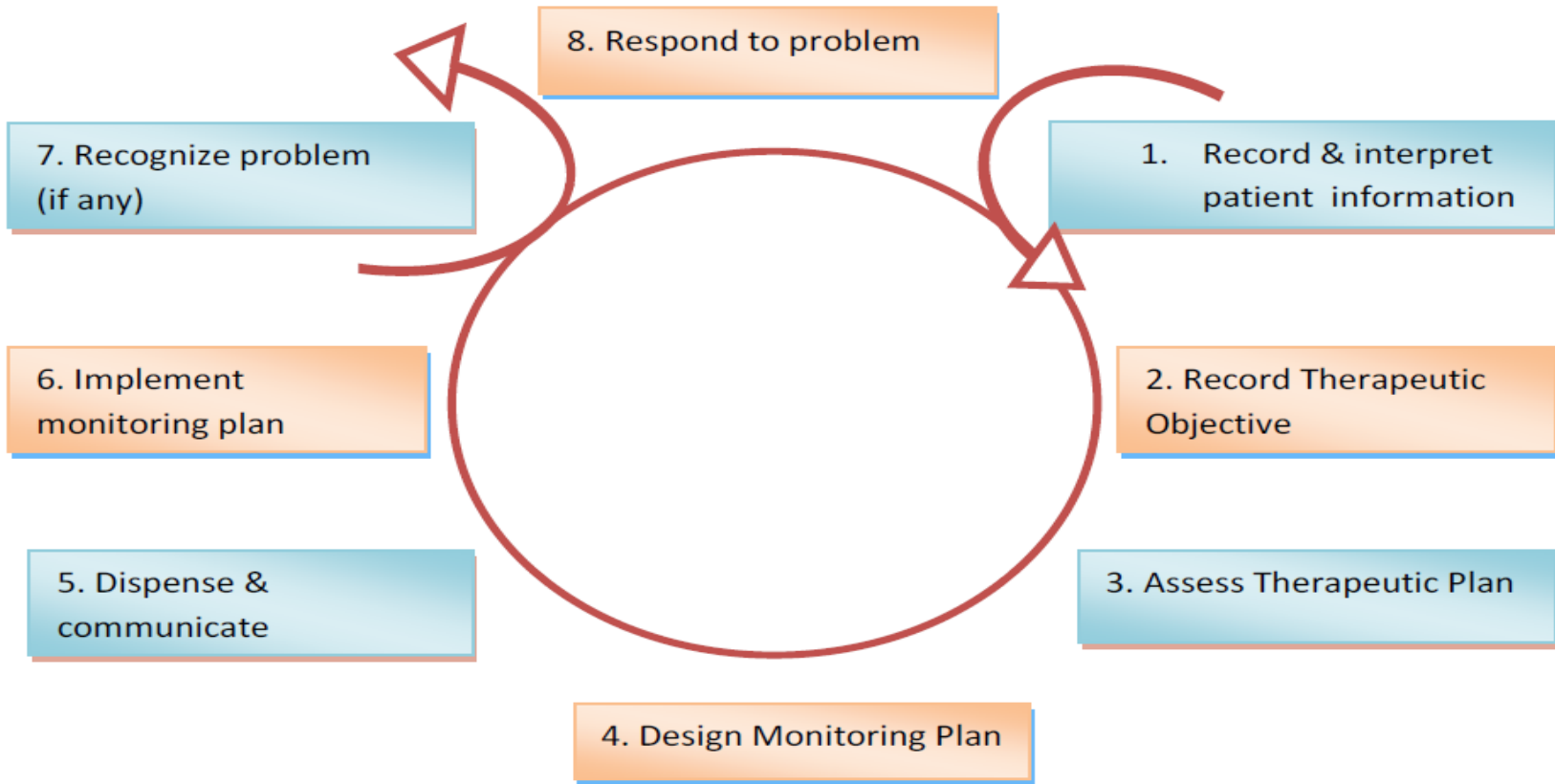
**“The care that a given patient requires and receives which assures safe and rational drug usage.”**

**Hepler and Strand (1990)**

**“Pharmaceutical care is the responsible provision of drug therapy for the purpose of achieving definite outcome that improves quality of life”**

**FIP (1998) adopted this definition with one significant change- amending it to read “Improve or maintain a patient’s quality of life”.**

# PHARMACEUTICAL CARE CYCLE

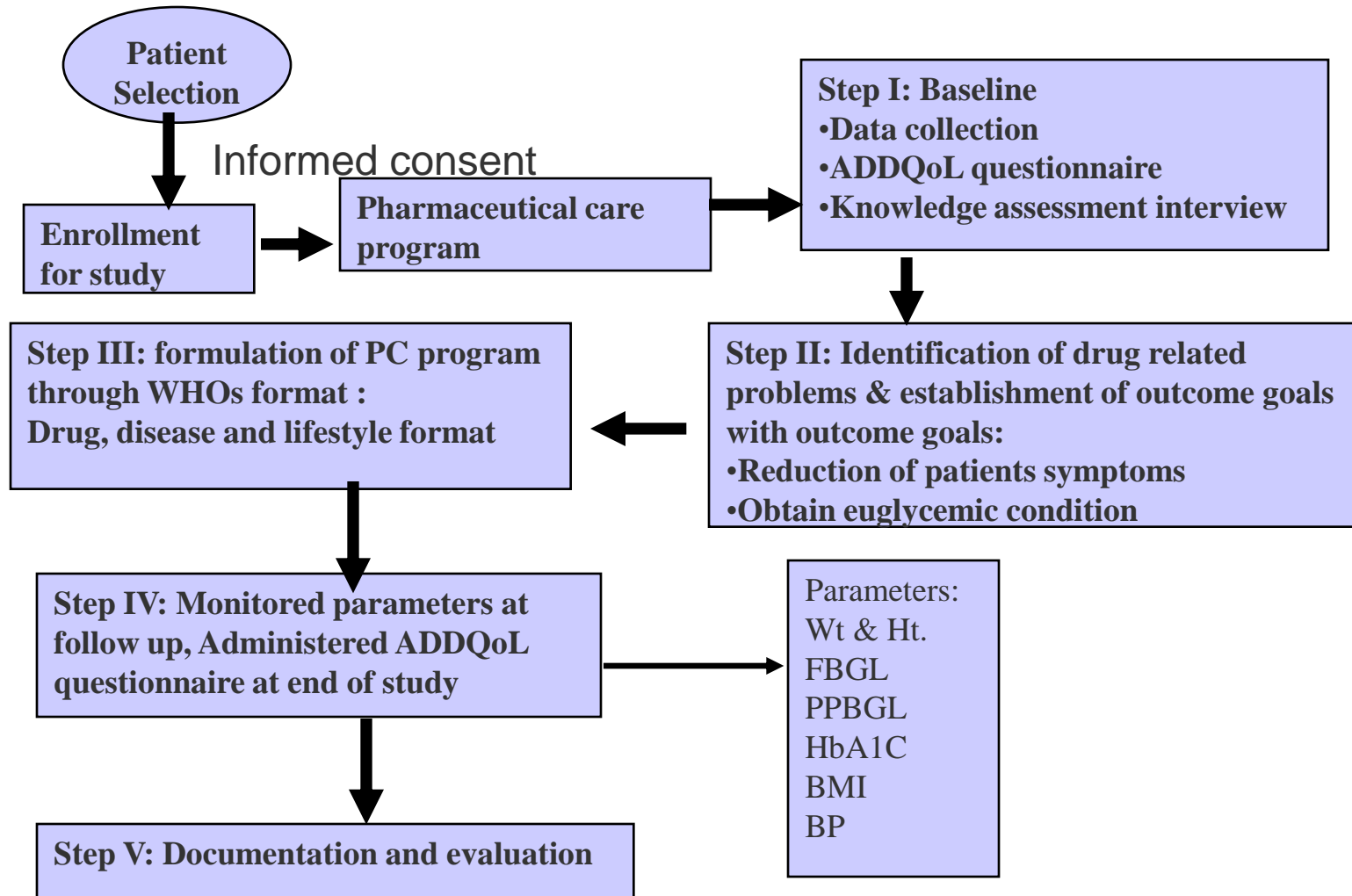


**Hepler's Pharmaceutical care cycle**

# TYPE 2 DIABETES MELLITUS

- ❑ International Diabetes Federation (IDF): 40 million people with diabetes in India in 2007 and this number is predicted to rise to almost 70 million people by 2025.
- ❑ India is becoming the diabetes capital of the world, with an estimated 30 million diabetics today.
- ❑ Diabetes with co-morbid conditions presents a greater treatment challenge due to potential disease synergies, drug interactions, and compromised physiologic reserves.
- ❑ Pharmacist can effectively help to control disease burden of Type 2 DM, through patient education, counseling and monitoring therapy.
- ❑ Pharmacist can educate the patient for self monitoring and controlling the life threatening complication of Type 2 DM.

# OPERATION MODALITY



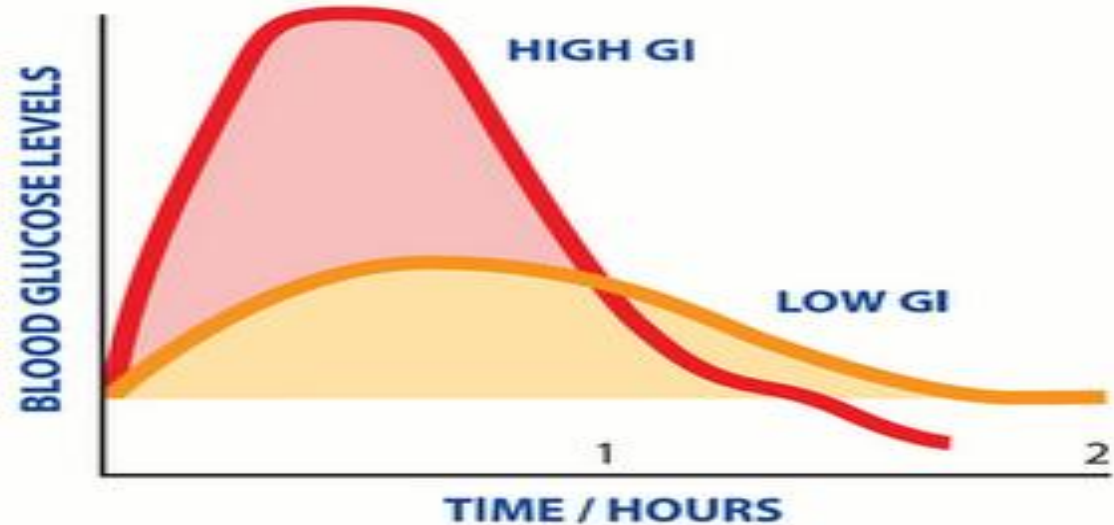
# PHARMACIST'S ROLE IN TYPE 2 DIABETES MANAGEMENT

- **PATIENT COUNSELLING**
  - **Name of drug**
  - **Dosage regimens**
  - **Patient compliance**
  - **Side effects**
  - **Lifestyle modification**
  - **Smoking**
  - **Alcohol consumption**



# DIET

No fats, sugars, red meat and dairy products



The amount of carbohydrate in the reference and test food must be the same.

- High fiber containing diet
- Low glycemic index food



# DIET- NEGLECTED COMPONENTES



# HOME REMEDIES



CLOVE



BLUE BERRIES



CINNAMON



BITTER GAURD



GARLIC



CURRY LEAF

# EXERCISE/PHYSICAL ACTIVITY



Choose right exercise.

**WALKING IS GOOD & CONVINIENT**

Other are:

Swimming

Dancing

Cycling

Playing volley ball and basket ball  
etc....

# EDUCATE PATIENT



**Foot care**



**Monitor blood pressure and glucose level**



**Dental care**



**Eye care**



# MANAGEMENT HYPOGLYCEMIA

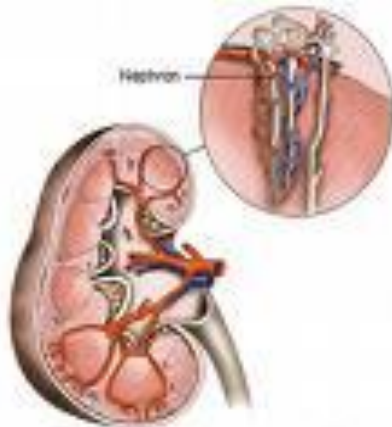


## SYMPTOMS OF HYPOGLYCEMIA

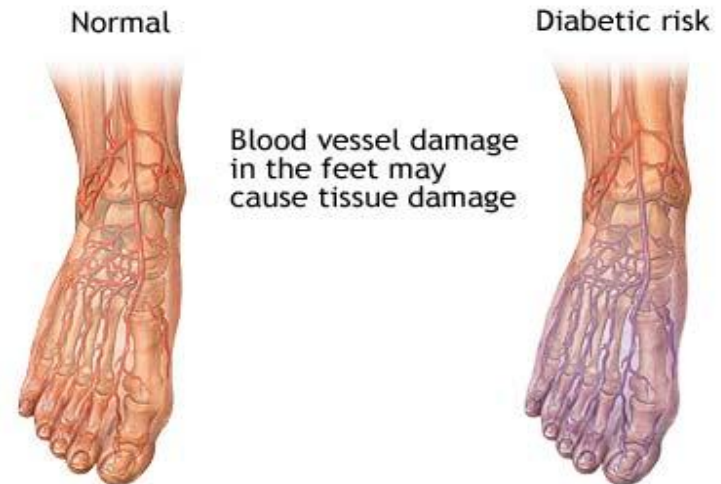
## MANAGEMENT OF HYPOGLYCEMIA



# DIABETES COMPLICATIONS



- Diabetic Neuropathy
- Diabetic Retinopathy
- Diabetic Nephropathy
- Diabetic foot
- Infection



# MONITORING PARAMETERS

- Blood pressure
- BMI
- FBG
- PPBG
- HbA1c



## Fasting Plasma Glucose Tolerance Test



No food or drink  
8 to 12 hours  
prior to test



Blood is drawn and  
tested for the level  
of glucose in blood

High glucose level = potential diabetes

ADAM.

# RESULTS

### Patient Number

■ Patient Number

32



22



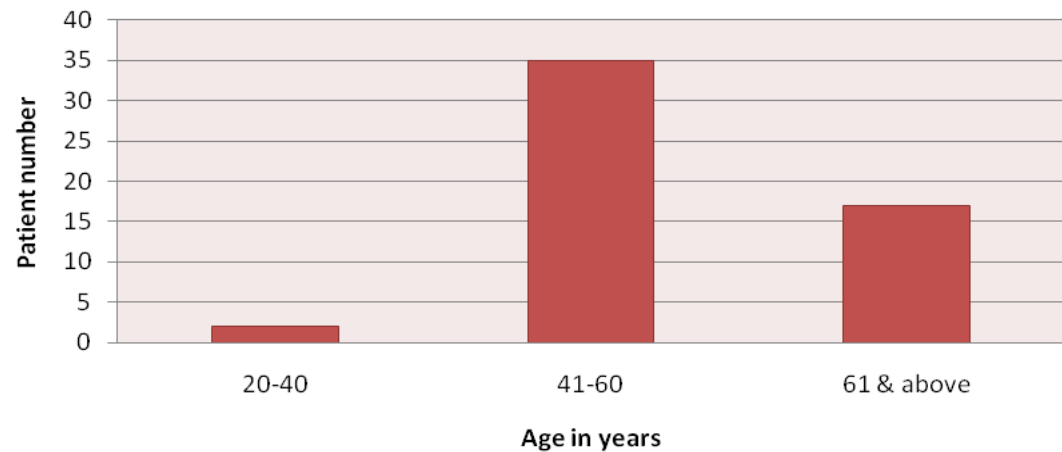
Male

Female

Three months single group pretest – posttest study

Pharmaceutical care provided to 54 patients

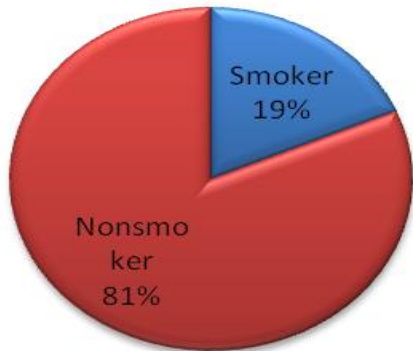
### Age wise distribution of patients



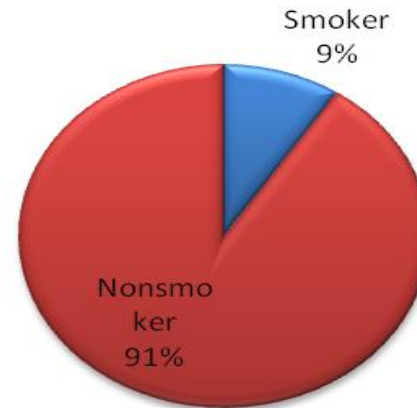


# SMOKING STATUS

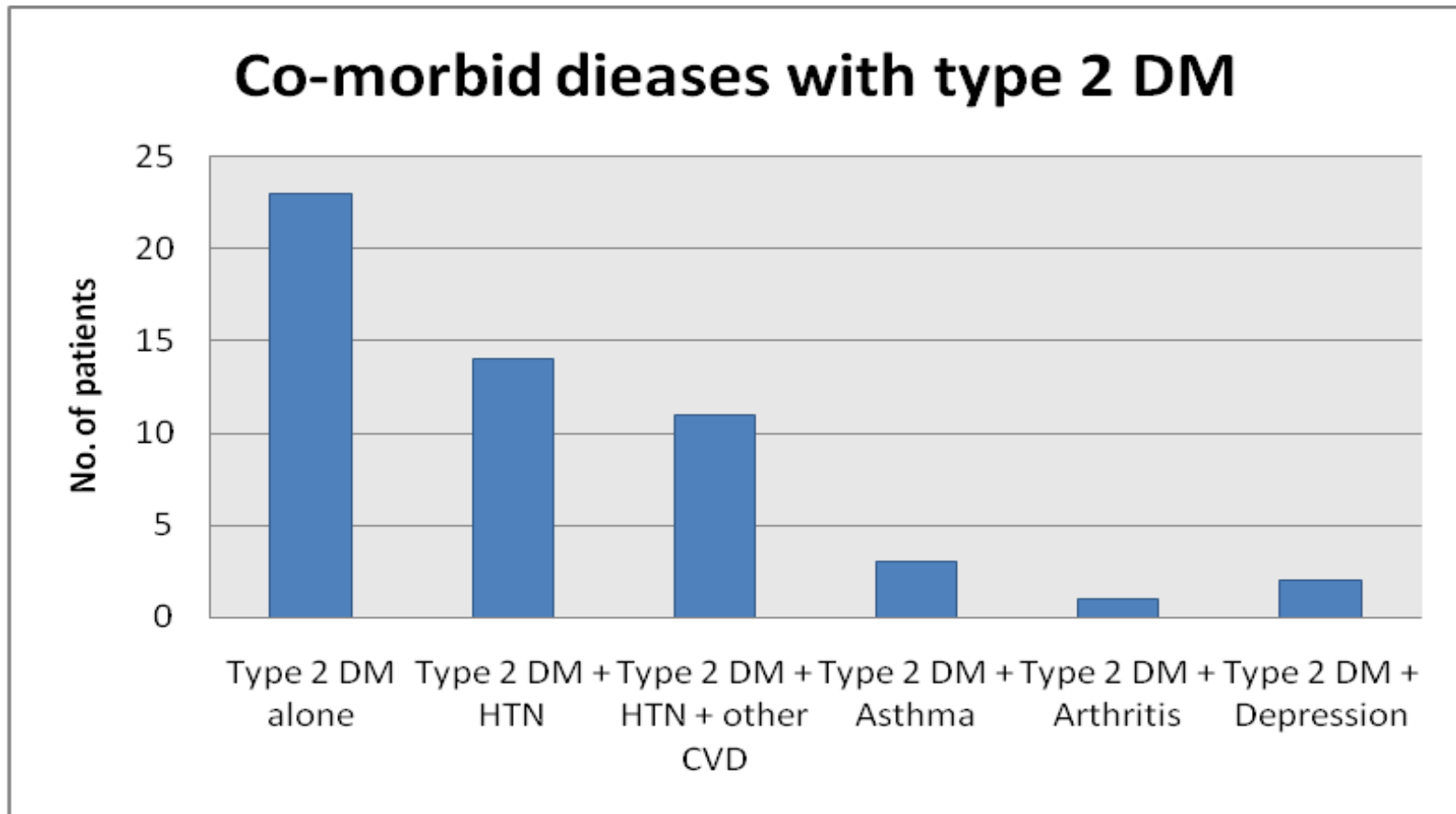
**Smoking status before  
PC**



**Smoking status after  
PC**



# CO-MORBID CONDITION ALONG WITH TYPE 2 DIABETES MELLITUS

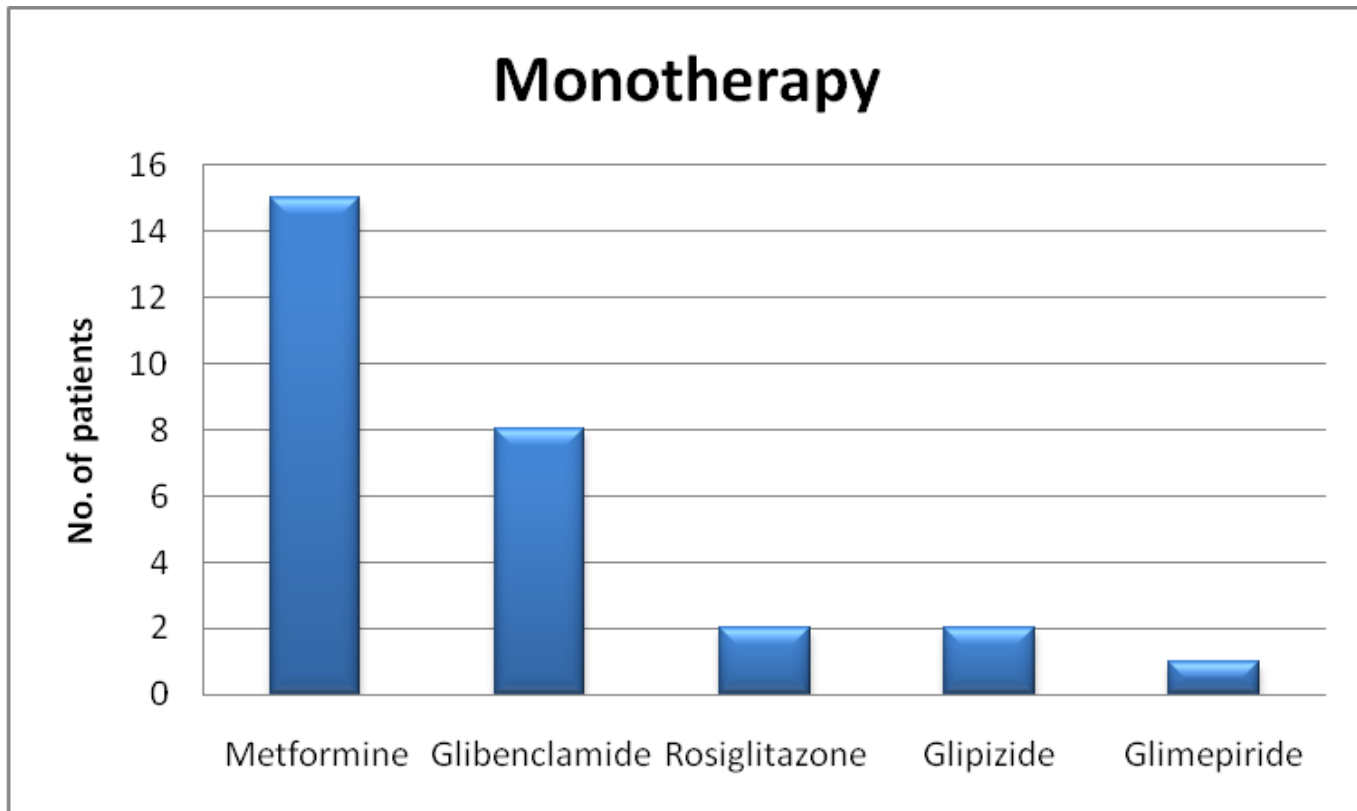


# EVALUATION OF DRUG RELATED PROBLEMS

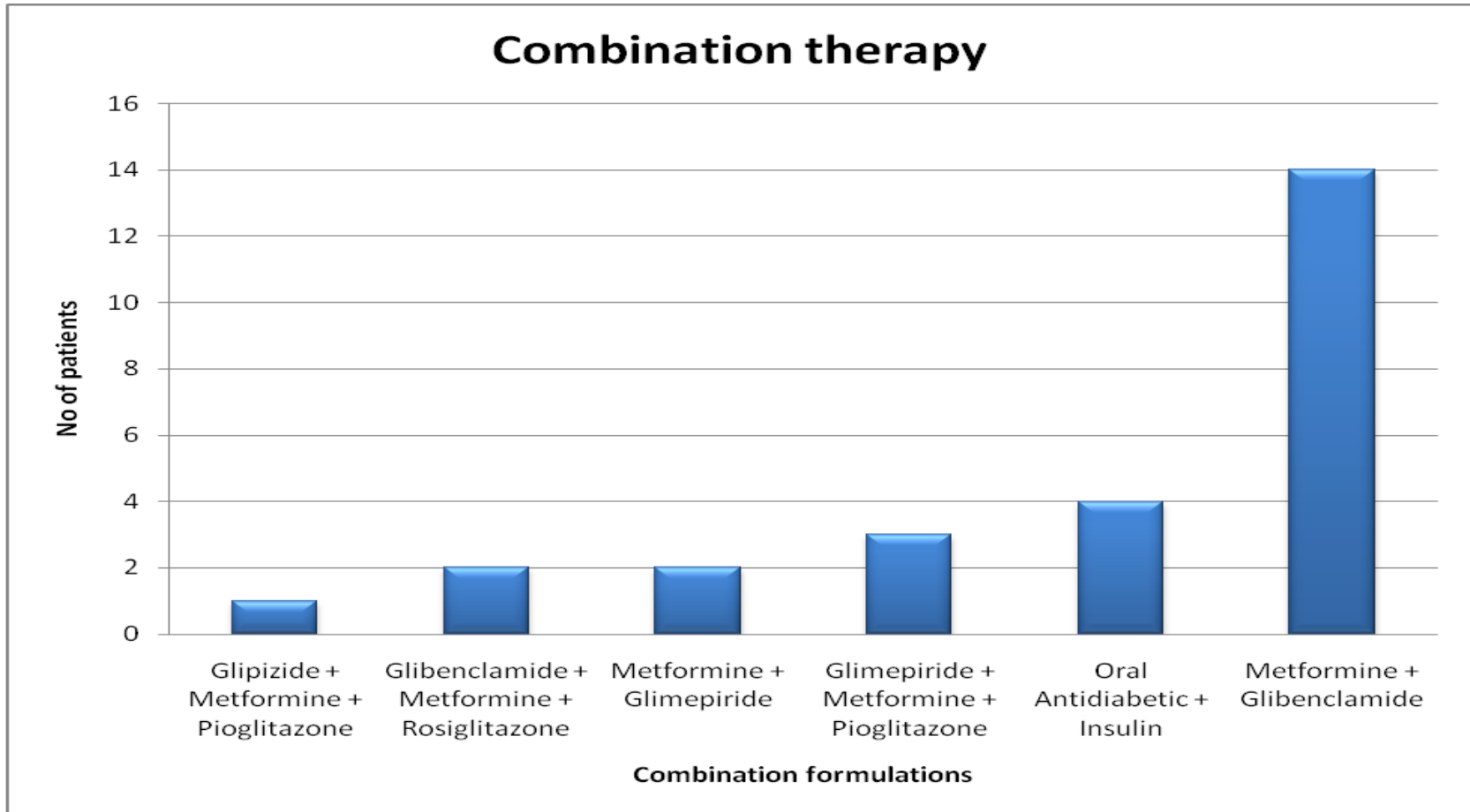
S. No.	Intervention type	Patient No.
1	Addition of drug	6
2	Discontinuation of drug	3
3	Change to another class	5

S. No.	Drug related problems	No. of Patients
1	Noncompliance	12
2	ADR	-
3	Wrong dose	6
4	No indication for drug	2
5	No drug for valid problem	3

# MONOTHERAPY



# COMBINATION DRUG THERAPY

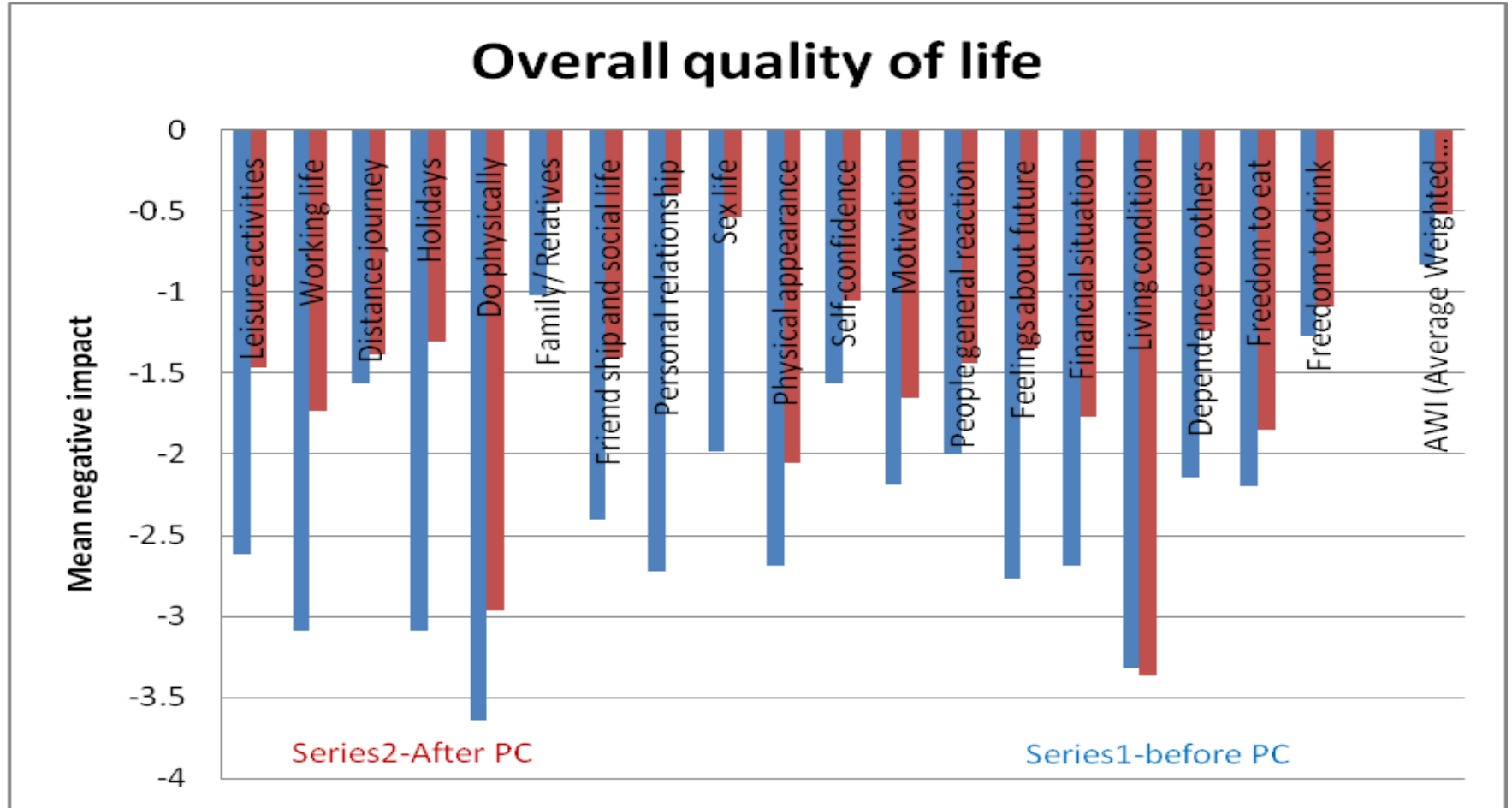


# STATISTICAL SIGNIFICANCE FOR MONITORING PARAMETERS

S. No	Parameter	Median Before PC	Median After PC	P value
1	Weight	64	62.5	< 0.001
2	BMI	25.42	25.215	< 0.001
3	Systolic BP	150	140	< 0.001
4	Diastolic BP	90	80	< 0.001
5	FBG	134	108	< 0.001
6	PPBG	265	204	< 0.001
7	HbA1c	7.8	6.6	= 0.001

# OVER ALL QUALITY OF LIFE

## ADDQoL-19 (Audit diabetes Dependent Quality of Life)



## CONCLUSION

- Pharmacist provided community PC benefited the patients
- Effectiveness of pharmacist provided PC in community setting in management of chronic disease like type 2 DM
- Significant improvements in knowledge of patients about disease, medication and lifestyle for management of disease.
- PC also involves detecting, resolving and preventing drug related problems and reinforcing non-pharmacological measures.
- significant improvement in the quality life after implementation of PC program.



**THANK YOU**