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A Study of Effect of Knowledge, Attitude and Practice on The Diabetic Patient with Counselling as Intervention in a Non-Randomized Community-Based Trial from Gujarat

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ABSTRACT

Introduction: Lifestyle modification is key to management of diabetes. Behavioural change is key to adopt lifestyle modification. The current study was planned with objective to assess the impact of counselling on knowledge, attitude, and practices among patients with diabetes mellitus in rural and urban areas of Gujarat.

Method: It was a non-randomized interventional study conducted in the state of Gujarat, India. Known cases of diabetes were enrolled for the study. Two equal size groups of study participants from urban and rural area were divided equally for intervention group (N=77; 28 urban +49 Rural) and control group (N=77; 28 urban +49 Rural). Regular counselling on role of diet in DM management, self-care, deaddiction, role of physical activity, and drug compliance was given by community physician for three months to 6 months. Pre and post intervention KAP score was collected and evaluated.

Result: The knowledge, attitude and practice score were increased among counselling group in comparison to traditional treatment group in both urban and rural area. The score increased from 5.4 to 10.4 in knowledge; 3.07 to 5.07 in attitude and 5.07 to 8.92 in practice among urban participants. Similarly, the score increased from 4.14 to 7.16 in knowledge, 2.57 to 3.67 in attitude and 4.73 to 7.42 in practice among rural participants.

Conclusion: With counselling the knowledge, practice and attitude of chronic patients are improving. The study recommended that counselling services should be available to all diabetes patients. It should be available to patients at their doorstep if possible as study depict.

Key words: Counselling, rural, urban, knowledge, attitude, practice

INTRODUCTION

Diabetes mellitus (DM) is the significant public health problem of world including country like India. The total number of people with diabetes is estimated to increase from 463 million in 2019 to 578 million by 2030 and 700 million by 2045.[1] Diabetes mellitus is a chronic disease of lifetime extent, and its treatment and aversion of diabetes complication require an essential change in the patient's routine.[2] Behaviour change is most challenging and demanding for long term improvement of quality of life among diabetes patients. Along with that, outcome in terms of long-term morbidity and disability among diabetic patient is majorly dependent of good self-care and appropriate behaviour of the patient. Doctors are prescribing medicine, and they cannot daily observe life style and behaviour of diabetic patient at home and routine, so it is expected that apart from prescribing medicine and indoor patient care, diabetic patients follow standard care and precautionary measure to reduce further worsen of glucose control and to improve quality of life of diabetes patient.[3]

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Though, it is challenging to have behaviour and lifestyle changes among diabetic patient, but not an impossible task at all. The big answer to overcome this challenge is counselling. Counselling is the process where patient is empowered to take positive decision and develop healthy lifestyle. Many hospital-based studies showed positive impact of counselling on patients' behaviour. Such studies have proved that counselling has positive effect in change of behaviour in various areas like promote physical activity in type 2 diabetes mellitus[4]; effect of counselling among weight loss among type 2 DM[5]; improved drug compliance among DM patient with pharmacist counselling[6] and many more[7,8,9]. But non study was found on community-based counselling and its impact on knowledge, practice score of patients. If at community level at rural or urban level, someone act as counsellor to change behaviour, it will be big help to prevent and control DM complication.

Looking to these studies and positive outcome, it was decided to see impact of counselling on overall knowledge, attitude, and practice (KAP) practice of patient in rural urban both community and at community level. The present study conducted with objective,

OBJECTIVE

Objectives of this study was to assess the effect of counselling on knowledge, attitude, and practices among patients with diabetes mellitus in rural and urban areas of Gujarat.

METHODOLOGY

The study was conducted in the field practice area of Community Medicine Department of Smt. B. K. Shah Medical Institute and Research Centre. Rural Health Training Centre – RHTC of SBKS MIRC is situated at Bahadarpur village of Chhotaudepur district, while Urban Health Training Centre – UHTC is situated at Kothi area of Vadodara city.

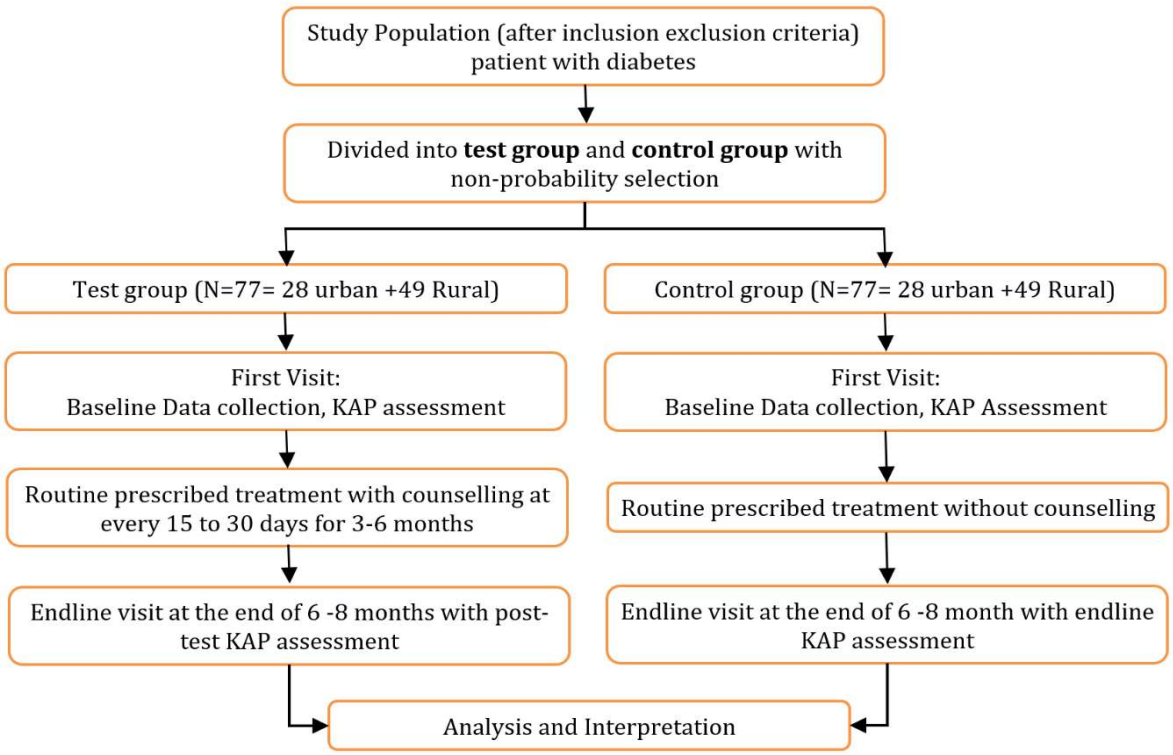
The current study was a non-randomized interventional study. The study is registered with Clinical Trial Registry - India registration number CTRI/2019/01/017355.

Community Medicine Department has line listing of all the members of family of concerned field practice area, which also mention about having chronic disease to the patients. From that line listing, all the known cases of diabetes from both the study site – RHTC and UHTC area - were included as study participants.

Inclusion criteria were Type 2 diabetic patient who provided the written informed consent; Type 2 diabetic patient equal to or greater than 18 years of age and Type 2 diagnosed cases of diabetic patient in RHTC & UHTC area.

Exclusion criteria were Diabetes patient with serious illness means hospitalized at the time of base line study; A patient who mentally not sound and unable to understand importance of study; A pregnant leady with DM; A patient who is not willing to consent for study and A locked house even after 3 times visit of researcher.

Flow chart of study



After obtaining the permission from ethical committee of institute, study was started. Pilot study was done to validated pre-designed questionnaire. Study questionnaire included information regarding demographic profile and questions on knowledge, attitude, and practice of study participants.

Study follows as per diagram above, separately in Urban and Rural area. In urban and rural area as per family survey and after applying inclusion and exclusion criteria, 56 and 98 diabetes patients were found to fit in study in urban and rural area, respectively. Using convenient sampling two equal size groups were formed, one group as intervention, and second one as control group, in both study sites. So, in urban 28 study participants in each group and, in rural area 49 study participants in each group were allocated. Among them one group was allowed to continue with their physician care as usual (control group) and second group was supplied repeated counseling as intervention in addition their routine physician care (experimental group). The routine care was not given by investigator; it was as routine as they were taking. As it is community-based trial, the sample distribution was done without considering any age or gender match in sampling.

Counselling was done by eclectic counselling method, which is a combination of directive (in which choice is given by counsellor) and non-directive technique (in which basket of choices is given by counsellor and beneficiaries allow to choose) of counselling depending upon the situational factor. In intervention group, investigator visited five times during intervention period. First visit with baseline data collection, second visit with counselling on medication and self-care, third visit with drug compliance and deaddiction, fourth visit with role of physical activity and sugar control and last visit with follow up data collection. The counselling period was of three to six months depending on time and availability of participants. In intervention group 3 to 4 counselling sessions were arranged at home of patients. Here for the study the counsellor was the qualified physician with post-graduate in community medicine. The counselling time was usually 10 to 15 min, depending on topic and discussion. In control group visits were done on baseline and the endline of study. In present study the investigator was the qualified community physician and did meticulous follow up and capacity building of the clients at community level.

Knowledge, attitude, and practice score was developed for the evaluation of counselling for the study. There were 14 questions in knowledge section focusing on type of diseases, role of sugar in DM, association of Obesity and DM relation, risk factors for DM, diagnosis of DM, complication of DM, association of smoking and DM etc; 6 questions in attitude section with focusing role of drug compliance, weight management, addiction, physical activity, foot care etc; and 12 questions in practice area with focusing on blood sugar monitoring, visit for eye care, diet practice, hypoglycaemia management, weight management, exercise, smoking etc. This score was evaluated pre-counselling and post-counselling to assess the impact of counselling among study participants.

RESULTS

Table 1 and 2 shows the basic socio-demographic profile of rural and urban study participants. They are not exactly matching, as this is the community-based trial where it was not possible to match as clinical trial. This can be considered as limitation of study.

Table 1 and 2 are demonstrating the socio-demographic profile of both group study populations in urban and rural area. Majority of diabetes population (46%) is from age group 60-74 years in rural area, whereas similar number of people are in age group 45 to 59 years' age from urban area. Thus, urban area has younger diabetes patients than rural. In rural area 55% female DM patient compared to 45% in rural area. Availability of BPL care is quite dominant in urban area (42%) compared to rural area (22.5%).

The table 3 and 4 are showing the various mean score of knowledge, attitude, and practice of patient at baseline of study and after one year of intervention group and control group. The knowledge score which was 5.4± 1.99 at baseline among study group; raised to 10.42±3.063 at the end of study in urban area. The raise is statistically significant. Same time it was not found statistically significant among control group. Similarly, all knowledge, attitude and practice score mean were found statistically significant among intervention group in compared to control group of both urban and rural area. (Table 3 and 4).

Thus, it was observed that continuous counselling at community level has quite positive impact on knowledge, attitude, and practice of Diabetes care among rural and urban patient. Last column of both tables shows the mean difference between two groups on endline with 95% confidence interval, which is showing the positive score of knowledge, attitude, and practice.

DISCUSSION

Diabetes is gradually a major public health problem. Once diagnosed patient has to take regular and long-time treatment. Not only treatment they need to take care of various aspects like diet modification, drug compliance, self-care, deaddiction, and physical activity. Doctors are usually giving this advice while diagnosis and starting treatment. But it was observed that the drug compliance following doctor advice was quite poor. This was known fact even proved by S Mukherjee et al in their study[9]. Thus, it is big challenge to consider only doctor advice for the various aspects of diabetes management.

Table 1: Demographic Details of Study Participants (Rural Area)

Particulars	Rural Area		Total (%) (N= 98)
	Control Group (%) (N= 49)	Study Group (%) (N= 49)	
Age Distribution			
30-44	3 (6.1)	3 (6.1)	6 (6.1)
45-59	25 (51.0)	13 (26.5)	39 (39.8)
60-74	19 (38.8)	27 (55.1)	45 (45.9)
75-89	2 (4.1)	6 (12.3)	8 (8.2)
Gender wise Distribution			
Female	23 (46.9)	20 (40.8)	43 (43.9)
Male	26 (53.1)	29 (59.2)	55 (56.1)
Marital Status wise Distribution			
Married	46 (93.9)	38 (77.6)	84 (85.7)
Unmarried	0 (0)	2 (4.1)	2 (2.1)
Widower	3 (6.1)	9 (18.4)	12 (12.2)
Education wise Distribution			
Illiterate	11 (22.5)	10 (20.4)	21 (21.4)
Just Literate	13 (26.5)	3 (6.1)	16 (16.3)
Primary	6 (12.2)	10 (20.4)	16 (16.3)
Secondary	9 (18.4)	8 (16.3)	17 (17.4)
Higher Secondary	5 (10.2)	8 (16.3)	13 (13.3)
Graduate including diploma	4 (8.2)	10 (20.4)	14 (14.3)
Postgraduate	1 (2.0)	0 (0.0)	1 (1.0)
Occupation wise Distribution			
Semi-Skilled worker	0 (0)	2 (4)	2 (2)
Skilled worker	0 (0)	4 (8.2)	4 (4.1)
Clerk/Farmer/Shopkeeper/Vendor	26 (53.1)	15 (30.6)	41 (41.8)
Semiprofessionals	0 (0)	4 (8.2)	4 (4.1)
Professionals	0 (0)	1 (2.1)	1 (1)
Homemaker	23 (46.9)	20 (40.8)	43 (45)
Pensioner	0 (0)	2 (4.1)	2 (2.1)
Religion wise Distribution			
Hindu	49 (100)	43 (87.7)	92 (93.9)
Muslim	0 (0)	6 (12.2)	6 (6.1)
BPL Card Availability			
Yes	18 (36.7)	4 (8.2)	22 (22.5)
No	31 (63.3)	45 (91.8)	76 (77.6)
Type of Family			
Nuclear	34 (69)	33 (67)	67 (68)
Joint	15 (31)	14 (33)	29 (32)

The current study participants were from urban and rural community. There may be assumed bias that urban patients are more informed as they have better facility and access to doctors. So, on baseline knowledge, attitude and practice score can be matched and found statistically not significant (Table 3 and 4). The study was conducted in non-randomization fashion due to the geographical limitation. In current study the participants were divided area-wise in intervention and control group with help of quota sampling.

The counselling is proven tool to fight chronic disease issues. The current study has found counselling as best tool to fight against disease like diabetes various aspects of management and improve practice. This tool was found effective for urban and rural population.

The knowledge, attitude and practice score of participants was increased to almost double in endline score in intervention group compared to control group. These three scores were statistically significant with $p < 0.001$ level for urban and rural both area in intervention group compared to control group. This shows the quite positive impact of counselling on the knowledge of participants in current study. Similar observation found in R Malathy et al study which was done in South India. They found that counselling by pharmacist to diabetic patient is helping to improve the knowledge, attitude and practice score.[7] AK George et al reported in their hospital-based study that patient counselling has marked improve the knowledge and practice for diabetes management and also help the glycaemic control.[10]

RC Puvvada et al reported in their hospital-based intervention study where they used leaflet-based counselling for patients. In this study they found that not only KAP is improving but the quality of life also improving following counselling.[11]

Table 2: Demographic Details of Study Participants (Urban Area)

Particulars	Urban Area		Total (%) (N= 56)
	Control Group (%) (N= 28)	Study Group (N= 28)	
Age wise Distribution			
30-44	1 (3.57)	7 (25)	8 (14.29)
45-59	17 (60.71)	9 (32.14)	26 (46.43)
60-74	8 (28.57)	7 (25)	15 (26.79)
75-89	2 (7.14)	5 (17.86)	7 (12.5)
Gender wise Distribution			
Female	16 (57.14)	15 (53.57)	31 (55.36)
Male	12 (42.86)	13 (46.43)	25 (44.64)
Marital Status wise Distribution			
Married	27 (96.43)	21 (75)	48 (85.71)
Widower	1 (3.57)	7 (25)	8 (14.29)
Education wise Distribution			
Illiterate	4 (14.29)	10 (35.71)	14 (25)
Just Literate	4 (14.29)	3 (10.71)	7 (12.5)
Primary	14 (50)	10 (35.71)	24 (42.86)
Secondary	4 (14.29)	4 (14.29)	8 (14.29)
Higher Secondary	1 (3.57)	(0)	1 (1.79)
Graduate including diploma	1 (3.57)	1 (3.57)	2 (3.57)
Occupation wise Distribution			
Semi-Skilled worker	0 (0)	1 (3.57)	1 (1.79)
Skilled worker	2 (7.14)	4 (14.29)	6 (10.71)
Clerk/Farmer/Shopkeeper/Vendor	9 (32.14)	6 (21.43)	15 (26.79)
Semiprofessionals	1 (3.57)	1 (3.57)	2 (3.57)
Homemaker	16 (57.14)	15 (53.57)	31 (57.14)
Religion wise Distribution			
Hindu	26 (92.86)	28 (100)	54 (96.43)
Muslim	2 (7.14)	(0)	2 (3.57)
BPL Card Availability			
Yes	9 (32.14)	15 (53.57)	24 (42.86)
No	19 (67.86)	13 (46.43)	32 (57.14)
Type of Family			
Nuclear	17 (60.71)	22 (78.57)	39 (69.64)
Joint	11 (39.29)	6 (21.43)	17 (30.36)

Table 3: Difference of pre and post counselling on knowledge, practice, and attitude score about diabetes in Urban area

Score Domain	Study Group (n=28) Mean score ± SD		Control Group (n=28) Mean score ± SD		Mean difference score on endline
	Baseline	Endline	Baseline	Endline	Mean ±SD
Knowledge Score	5.4± 1.99	10.42±3.063	5.35±1.76	5.5±1.4	4.9 ± 3.7
(Max score-14)	(CI=4.663 -6.137)	(CI=9.28-11.55)	(CI=4.68-6.00)	(CI=4.98-6.01)	(CI=3.5 – 6.2)
Paired t value, p value	*7.267, <0.0001**		*0.352, 0.725*		
Attitude	3.07±0.99	5.07±1.53	2.71±1.15	3.1±1.49	1.96±2.58
(Max score 6)	(CI=2.70-3.47)	(CI=4.50-5.63)	(CI=2.28-3.13)	(CI=2.54-3.65)	(CI=1.00-2.91)
Paired t value, p value	*7.777, < 0.00001**		*1.096, 0.2778*		
Practice	5.071±1.36	8.928±2.71	5.57±1.73	5.5±1.66	3.42±2.3
(Max score-12)	(CI=4.56-5.57)	(CI=7.91-9.92)	(CI=4.92-6.21)	(CI=4.88-6.11)	(CI=2.56-4.27)
Paired t value, p value	*7.746, <0.00001**		*0.155, 0.8778*		

*p-value <0.05 is statically significant; CI 95% Confidence Interval

One more pharmacist based counselling study which was conducted by R Adepu et al reported that pharmacist based counselling improves the perception about disease, diet, life style change with glycaemic control and quality of life.[8]

Thus, counselling is playing positive role to improve knowledge, attitude, and practice at any level. The current study even adds one more aspect of counselling that is community-based counselling. At community level community physician did this study and found quite useful for improving knowledge, attitude, and practice. But if community physician is not available and local health workers or volunteers; either from government or some private agency under supervision of doctor with regular follow up can improve the consistent knowledge of patient with adding improve practice of management in area of self-care, drug compliance and lifestyle change. This is required to keep in mind at large rural India or urban slum area.

Table 4: Difference of pre and post counselling on knowledge, practice, and attitude score of diabetes in Rural area

Score Domain	Study Group (n=49) Mean score ± SD		Control Group (n=49) Mean score ± SD		Mean difference score on endline
	Baseline	Endline	Baseline	Endline	Mean ±SD
Knowledge Score (Max score-14)	4.14±2.94 (CI=3.31-4.96)	7.16±4.40 (CI=5.92-8.39)	3.10±2.21 (CI=2.48-3.71)	3.42 ±2.44 (CI=2.73-4.10)	3.73 ±3.9 (CI=2.63-4.82)
Paired t value, p value	*3.994, <0.0001**		*0.693, 0.489*		
Attitude (Max score 6)	2.57±1.16 (CI=2.24-2.89)	3.67±1.55 (CI= 3.23-4.10)	2.265±1.156 (CI=1.93-2.58)	2.367±1.155 (CI=2.03-2.68)	1.30 ±1.64 (CI=0.85-1.74)
Paired t value, p value	*3.977, <0.0001**		*0.406, 0.685*		
Practice (Max score-12)	4.73±2.03 (CI=4.16-5.29)	7.42±3.34 (CI=6.48-8.35)	4.02±2.189 (CI=3.14-4.63)	3.938±2.938 (CI=3.11-4.75)	3.48 ±3.7 (CI=2.44-4.51)
Paired t value, p value	*4.812, <0.0001**		*0.172, 0.863*		

*p-value <0.05 is statically significant

There are many limitations of the study. Like the study was non-randomized study as it was community based. Study conducted with limited funds without any help of government or other agency. Limited fund was the big limitation to monitor impact on HbA1C, self-control strategies and other. The study may have various subjective biases like recall bias and other. Also, the study excludes the gestational DM and complicated DM. As the study conducted with community physician, which may not possible strategy at large level, but they can utilize such services with at least qualified trained doctors.

CONCLUSION

Counselling is playing vital role in management of diabetes like chronic diseases. The current study supports the role of counselling in improving the knowledge, attitude, and practice of diabetes management at patient level. There are various studies which said that counselling can be given by nurses, pharmacist, or health workers. But the current study tested the effect of counselling by community physician at doorstep level and it has quite positive result. This new area of opportunity for community physician needs to keep in mind though it is difficult and feasibility issue of manpower availability.

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REFERENCES

1. Saeedi P, Petersohn I, Salpea P, Malanda B, Karuranga S, Unwin N, et al. Global and regional diabetes prevalence estimates for 2019 and projections for 2030 and 2045: Results from the International Diabetes Federation Diabetes Atlas, 9th edition. Diabetes Res Clin Pract. 2019 Nov;157:107843.
2. Shrivastava SR, Shrivastava PS, Ramasamy J. Role of self-care in management of diabetes mellitus. J Diabetes Metab Disord. 2013 Mar 5;12:14.
3. Trikkalinou A, Papazafiropoulou AK, Melidonis A. Type 2 diabetes and quality of life. World J Diabetes. 2017 Apr 15;8(4):120–9.
4. Di Loreto C, Fanelli C, Lucidi P, Murdolo G, De Cicco A, Parlanti N, et al. Validation of a Counseling Strategy to Promote the Adoption and the Maintenance of Physical Activity by Type 2 Diabetic Subjects. Diabetes Care. 2003 Feb 1;26(2):404–8.
5. Tate DF, Jackvony EH, Wing RR. Effects of Internet Behavioral Counseling on Weight Loss in Adults at Risk for Type 2 DiabetesA Randomized Trial. JAMA. 2003 Apr 9;289(14):1833–6.
6. Suppapitiporn S, Chindavijak B, Onsanit S. Effect of diabetes drug counseling by pharmacist, diabetic disease booklet and special medication containers on glycemic control of type 2 diabetes mellitus: a randomized controlled trial. J Med Assoc Thail Chotmaihet Thangphaet. 2005 Sep;88 Suppl 4:S134-141.
7. Malathy R, Narmadha M, Ramesh S, Alvin JM, Dinesh BN. Effect of a diabetes counseling programme on knowledge, attitude and practice among diabetic patients in Erode district of South India. J Young Pharm JYP. 2011;3(1):65–72.
8. Adepu R, Rasheed A, Nagavi BG. Effect of patient counseling on quality of life in type-2 diabetes mellitus patients in two selected South Indian community pharmacies: A study. Indian J Pharm Sci. 2007;69(4):519.
9. Mukherjee S, Sharmasarkar B, Das KK, Bhattacharyya A, Deb A. Compliance to Anti-Diabetic Drugs: Observations from the Diabetic Clinic of a Medical College in Kolkata, India. J Clin Diagn Res JCDR. 2013 Apr;7(4):661–5.
10. George AK, Vg J, Manohar M, Kumar SP, Muneerudeen J. IMPACT OF PATIENT COUNSELLING ON KNOWLEDGE, ATTITUDE, PRACTICES OF PATIENTS WITH TYPE 2 DM AT A TERTIARY CARE TEACHING HOSPITAL. Asian J Pharm Clin Res. 2017;293–6.
11. Puvvada RC, Muthukumar VA. Impact of Patient Counselling on The Knowledge, Attitude, Practice and Quality of Life in Patients with Hypertension with Diabetes Mellitus-II. Indian J Pharm Educ Res. 52(2):6.