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Contents	**Page 02**
Editorial Broad	**Page 03**
Editorial Message	**Page 04**
Message from ACPI	**Page 05**
Articles	**Page 06**

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CONTENTS

Articles

Racial residential segregation and poor health outcome in the U.S. – A myth or a reality? 06

Patel I, Chang J, Srivastava J, Liu CM, Balkrishnan R

Role of Nutraceuticals in management of Malnutrition 12

Ajay Pise, Sreedhar D, Manthan J, Virendra Ligade, Udupa N

Impact of Patient Information Leaflet (PIL) for Diabetes MellitusCounseling in rural South India 18

Harikiran VN, Dixon Thomas, Giri Raja Sekhar, Ram Keshav Reddy, Padmanabha Reddy Y

Social Pharmacy- A New Dimension to Pharmaceutical Care 28

Anup Naha, Sreenivasa Reddy M, Koteshwara KB, Akhil Koundinya, Asim Priyendu

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Editorial

International Journal of Community Pharmacy (IJCP) is one of the online indexed journals. IJCP is officially indexed in Budapest Open Access Initiative and Directory of Open Access Journals. We are in the process of indexing with other groups, so that we can improve the accessibility of our journal to professionals across the world.

Further, I am happy to announce that Golden Jubilee celebrations of Manipal College of pharmaceutical sciences are just started this year. We have wide range of programs. To highlight a few, we have 27th annual convention of Indian Pharmacy Graduates association in January 28th 2012, followed my MCOPS annual day function, IHPA conference in February 2012, Indian Pharmaceutical Association convention to be held in the month of March 2012 and National Pharmacy Cricket league tournament to be held in December 2012. We believe, this is a great opportunity for fellow pharmacist, faculties and students to get together and also to keep them updated with the latest developments in our field. Details regarding the golden jubilee celebrations are available at www.manipal.edu website, also we will keep you updating regarding the same in the forthcoming issues. Further we wish all our readers a happy New Year 2012.

Regards

Prof N Udupa

Editor In Chief, IJCP

MESSAGE FROM ACPI

Community pharmacy across the country has remained insensitive to the raising demands of the patients and challenges which are opportunities for the growth and development has become standstill. There are thousands of schools of pharmacy across the country producing 50000 B.Pharm graduates. These b. pharm graduates are unable to find the matching opportunities for their carrier development. The Job market and availability of human resources is mismatched to the ratio 1:10 . These graduates are either trying to improve their qualification or they are going to any job available to them. For example recently the applications for school teachers in Uttar Pradesh, there were many b.pharm qualified graduates. This trend is very harmful for the profession of pharmacy. In many developed countries, 75% of the workforce pharmacy served as community pharmacist. The quality of community pharmacy practitioner is ensured by making a mandatory candidate professional development programme and renewal of pharmacist registration certificate. Today it is very interesting for pharmacist to learn to be well integrated in health care system and diversifying into the areas of pharmaceutical care medication therapy management , pharmacovigilence ADR monitoring and prescription writing. However in India the community pharmacy is represented by and laws by diploma qualified pharmacist who run family backed community pharmacy wherein exchange of prescription drug happen and are not willing to upgrade professional services qualification. The public are under great distress as there are no practicing pharmacist and drug information center that can cater the needs for the patients. Hence it is high time to put thrust on the upgrading services of community pharmacy as it benefits unemployment issues of graduate and facility of community pharmacy sevices.

Prof Anantha Naik Nagappa,

President,ACPI

RACIAL RESIDENTIAL SEGREGATION AND POOR HEALTH OUTCOMES IN THE U.S. – A MYTH OR A REALITY?

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Abstract

Racial residential segregation has far-reaching effects on the lives and opportunities of minority populations. These effects range from lack of employment and educational opportunities to access to nutritious food and medical services. In this article, the effects of residential segregation on access to health care infrastructure and services are presented. Attempt has been made to not only look at the differences in the quality of health infrastructure and services in such areas from a structural perspective, but also to explore the way social factors, like perception of residentially segregated populations among health care professionals may bias the quality of care they receive. The evident irony in such environments is the uncertainty in the lives of such populations due to poverty and lack of awareness about the health care system being heightened by systematic and non-systematic biases among the health care system and providers. This results in mistrust of the system thus contributing to the confidence and communication deficit between the residentially segregated populations and the health care system. Analysis and implications of these issues are further discussed.

Keywords: residential segregation, insurance, SES, prescribing behavior, African Americans

Introduction:

Racial residential segregation has stratified and structured the American society since decades. One of the less privileged minorities who have been greatly affected by racial residential segregation are the African Americans. Different authors have tried to establish the relationship of residential segregation to health inequity and health disparities by proposing models featuring the interconnection between the biosocial, political, economic and historic factors. According to Massey's spatial assimilation model, wealthy individuals mobilized in order to gain access to

better housing, safer social environment and services. These individuals were at an advantage and further progressed up the ladder of social mobility whereas the African Americans moved to the central city neighborhoods with meager opportunities, placing themselves among a lower social class, characterized by their socioeconomics status (SES) and residential mobility. Over a period of time, due to prevalence of strong anti-African American prejudices, the ladder of economic success and social mobility became inaccessible to African Americans resulting in higher concentration of poverty and racial stratification compared to other groups. African Americans typically live in one of the 3 types of residentially segregated metropolitan areas: hyper segregated (with about 48% concentration) highly segregated (with about 31% concentration) and low or moderately segregated areas (with about 21% concentration). Segregation restricts spatial mobility by restricting social mobility, segmenting African American housing demand by drawing Whites away from African American neighborhoods and creating spatial mismatch between geographic job placement and actual place of residence [1, 2]. Segregation interacts with race and SES to influence the health related factors like exposure, incidence and concentration of risks of diseases [3], quality of life, life expectancy and low birth weight [4]. So overall, racial residential segregation can be explained as an unjust and an unfair treatment meted against people of certain minority races due to the influence of ongoing social, historical and political policies and ideologies. The access to services and provision of housing options, education, employment, health services, neighborhood, infrastructure and medical care plays an important role in shaping the health behaviors of racial minorities [1, 2, 5].
In this article, we will discuss 1) the harmful consequences of inadequate screening facilities for chronic disease conditions and lack of insurance and 2) prevalent racial disparities in medication prescription practices on the health behavior of the African American individuals residing in segregated areas.

Hurdles posed by lack of adequate screening exams:

Residentially segregated African Americans are prone to acquiring chronic disease conditions due to harmful health behaviors like excessive tobacco and alcohol consumption, fast food consumption and inadequate physical activity. These unhealthy behaviors arise due to lower income and education and lead to a decreased life expectancy. Economic shortcomings and structural hurdles like lack of health care insurance coverage (especially people other than children and pregnant women), geographical distance to the screening facility and access to transportation affect early disease detection, its treatment and palliative care [5, 6]. It has been observed that in high poverty census tracts, compared to Caucasians, African Americans with cancer are more likely to be either diagnosed at the end stage rather than the early stage or receive no treatment at all[6]. Lack of insurance affects screening behaviors since uninsured individuals try to take advantage of free screening clinics. These clinics often have free services for a limited number of patients, have long waits, have unclean and not well kept facilities, and are understaffed and overworked, which ultimately affects the way patients are received and greeted. Besides these hurdles, certain expensive screening sessions might not be totally free and require out of pocket spending, This results in the uninsured poor people residing in the segregated areas reevaluate their decision to approach the hospital or the screening facilities for these sessions, ignore their symptoms of ill health and wait with the hope that they will eventually get better. Lower SES African Americans are less likely to take days off from their work for screening or doctor visits since they need the job money, cannot afford to take sick

leaves and usually their employers don't offer paid sick leaves. Racially segregated areas also tend to have an abundance of single income households so the person paying the bills, is usually supporting more than just himself or herself [7]. All the above factors might influence an individual's decision to not prioritize his or her own health.

Lack of insurance:

African Americans residing in segregated areas are mostly covered by public insurance, if they possess insurance at all. Along with lower education, poor wages and employers providing less or no health insurance coverage, the area of residence plays a decisive factor for healthcare insurance possession. Along with lack of insurance, residential segregation leads to racial differences in SES, limited access to medical care, racial differences in disease and worst health outcomes among the inhabitants. Research shows that compared to Caucasian Medicare beneficiaries, the African American Medicare beneficiaries reside in areas where healthcare medical procedures and quality of life are of a mediocre or poor quality. Residing in segregated urban neighborhoods, poverty and insufficient insurance coverage are some of the contributing factors for African American pregnant mothers towards receiving delayed or no prenatal care, thereby affecting the weight of new born babies and infant survival [8-10]. Among Medicaid and uninsured African American children and mothers; physician visits, utilization of hospital resources, likelihood of undergoing extensive medical procedures and surgeries, prescription refills, recommended medical care like longer postpartum length of stay to prevent readmission and well child care visits are comparatively less whereas unmet needs and delayed care are prominent. Though research suggests that the benefit of regular medical care usage is not that marginal for healthy insured people, the same might not be true for low income, sick, unhealthy, infra marginal and uninsured people. Also, possession of Medicaid insurance benefits does not always assure a more satisfactory treatment compared to the uninsured population since policies and enrollment vary by states and individuals. However, some studies have shown improvement from good to excellent general health status in African American children with Medicaid coverage [8].

Racial disparities in prescribing patterns:

Along with delay in screening of chronic disease conditions, African Americans in the residentially segregated areas receive care in very poorly constructed hospitals from a small group of physicians who are less likely to be board certified and unable to provide high quality care or referrals to specialty care [11]. Physicians often discriminate or profile on basis of nonclinical factors such as prejudiced perception of a patient's compliance with treatment recommendations, personal preferences, biases, race, ethnicity and SES while making clinical recommendations irrespective of the similarity between disease morbidity, severity and symptoms seen in African Americans and Caucasians. Research has shown that Caucasians receive more aggressive disease specific treatment, adjuvant therapy and regular follow up after initial curative treatment [6, 12]. Due to this preferential treatment, African American patient's decision about self care is affected by fatalism and inability to navigate the healthcare system, ultimately leading to distrust in their provider. Limited education also presents a hurdle in proper communication with the physician. Sometimes, physicians do come from a different racial background and might have difficulty relating to the experiences of the patients. Also, when a

healthcare facility is understaffed, physicians might have to treat a number of patients suffering from chronic illness every day. Therefore there is a possibility that the quantity of patients treated affects the quality of the treatment they receive. All these factors culminate in the physician making stereotypical judgments about the patients and eventually treating all the patients in a similar manner irrespective of their myriad racial backgrounds [13]. Previous research has shown that African Americans with cancer, upon visiting the outpatient centers, do not receive adequate palliative care, proper pain management good hospice care and guideline recommended prescriptions for analgesics. Also, the pharmacies in segregated areas have insufficient stock of pain alleviating analgesics compared to the pharmacies in the affluent Caucasian neighborhoods [11, 14].

Conclusion:

Everybody deserves distributive justice. Government should discourage market oriented health care and encourage progressive financing whereby people can benefit in proportion to their need, not wealth [15]. Insurance companies should understand that co payments consisting of flat fees might be burdensome for people with low SES. Public healthcare payers should strive to prevent fragmentation of the healthcare plan by equalizing the access of health services to both the Medicaid and the privately insured patients [13]. Implementation of "micro insurance" programs in residentially segregated communities might help to cover poor African Americans to a certain extent since it is characterized by lower out of pocket financing and higher risk pooling. Evidence suggests that this program has worked in Senegal, a low income African country. However, for this program to succeed, it is essential that each micro insurance unit or program include people with low and high risk of death and disease in appropriate proportion [16, 17]. In order to counter gestalts, biases, stereotypes, and prejudice on the provider part, provider patient communication resulting in enhanced decision making, improved medication adherence and better navigation of the complex healthcare system should be fostered. Sustainable patient provider relationships can reduce clinical uncertainty and foster trust among patients. Language barriers can be overcome if some funding is made available for reimbursing interpretation services by publicly funded insurance like Medicaid. Also, support of indigenous community health workers can be sort to serve as liaisons between the patient and the provider. Community health workers can be part of multidisciplinary prevention and treatment care teams and help design patient education programs to enhance the uptake of preventive services and primary care, reduce costs, improve general wellness and negotiate services. Research has shown that financial incentives provided to physicians motivates them to engage in disease screening and follow evidence based protocols, ultimately leading to improved patient outcomes for chronic conditions and promotion of equity in healthcare [13]. It is essential that industrious efforts be made to organize screening sessions in accordance with the population size of the African American community in the segregated areas. Arrangement of better transportation to the screening centers is also a must since the population in the non segregated areas can afford and get access to better self care and personal transportation. For the financially burdened people living in the racially segregated areas, poor screening rates can also attributed to two primary reasons: (1) lack of awareness about the importance of screening and (2) cultural embarrassment associated with screening. Usually government agencies avoid dissemination of information related to disease screening in racially segregated area. Owing to lower education level among minorities, they have less probability of knowing the advantages of having screening tests for

various chronic conditions. Culture-based embarrassment about the screening methods such as mammography might be prevalent among minority women. Most of them are unwilling to go for breast cancer screening due to their cultural and social beliefs [18].

Pharmacists, as members of multidisciplinary teams could help fill a gap in health care provision in the racial segregated area as they are specially trained to prevent disease, recommend and monitor medication therapy to achieve desired clinical effects, and reduce adverse health events. Previous articles have regarded physician counseling as the most significant variable for preventive health promotion [19]. However, pharmacists are the target healthcare providers who interact with patients, dispense drugs and play a key role in providing drug information to the patients. Pharmacists could provide more information regarding the advantages of screening such as early detection, thereby preventing early mortality associated with the disease, through individualized counseling or community-based education programs. Moreover, distributing disease prevention pamphlets or self-risk checkup tools could help increase awareness about chronic disease conditions prevalent among minority populations. Pharmacists could play the role of an important healthcare provider with a direct influence on patient's health care outcome [20].

Health equity is an informative concept. In spite of provision of excellent intervention strategies, equal resources and opportunities to minority groups; according to the "law of inverse care", it is really difficult for everyone to equally benefit from them and often the wealthy advantage from them [21]. Mass media can aid in obtaining the 'Nutcracker effect'. It is essential to achieve more concordance between people working on identifying barriers and the ones that that conduct interventions to ensure the betterment of the African Americans [22].

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ROLE OF NUTRACEUTICALS IN MANAGEMENT OF MALNUTRITION

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Abstract:

Malnutrition is the condition that occurs when a person's body is not getting enough nutrients. The condition may result from an inadequate or unbalanced diet, digestive difficulties, absorption problems, or other medical conditions. Malnutrition can occur because of the lack of a single vitamin in the diet, or it can be because a person isn't getting enough food. Starvation is a form of malnutrition. Malnutrition also occurs when adequate nutrients are consumed in the diet, but one or more nutrients are not digested or absorbed properly. Malnutrition may be mild enough to show no symptoms. However, in some cases it may be so severe that the damage done is irreversible, even though the individual survives. Healthcare market includes the provision of medical and related services aimed at maintaining good health, especially through the prevention and treatment of disease. Today, healthcare market around the world is flooded with different new terminologies like Nutraceuticals, Cosmeceuticals, Biopharmaceuticals, Herbaceuticals, Ayuraceuticals, Skinceuticals, Dermaceuticals, Nutri-cosmetics and many more. Among all these, nutraceuticals has gained prime importance for the industry in India and abroad. Nowadays, nutraceuticals is a buzzword in Indian healthcare market which is growing annually with 21% CAGR[5]. Nutraceutical products have proven its uses and applications in management of Malnutrition.

Introduction:

Worldwide, malnutrition continues to be a significant problem, especially among children who cannot fend adequately for themselves. Poverty, natural disasters, political problems, and war all contribute to conditions even epidemics of malnutrition and starvation, and not just in developing countries. Symptoms vary with the specific malnutrition-related disorder. However, some general symptoms include fatigue, dizziness, weight loss and decreased immune response.

A malnourished person finds that their body struggles to do normal things such as grow and resist disease. Physical work becomes very difficult and even learning abilities can be diminished. For women, pregnancy becomes risky and they cannot be sure of producing nourishing breast milk. When a person is not getting enough food or not getting the right sort of food, malnutrition is just around the corner. Disease is often a factor, either as a result or contributing cause. Even if people get enough to eat, they will become malnourished if the food they eat does not provide the proper amounts of micronutrients vitamins and minerals to meet daily nutritional requirements.

The facts[1]: Child malnutrition in India: India is home to 40 percent of the world's malnourished children and 35 percent of the developing world's low-birth-weight infants; every year 2.5

million children die in India, accounting for one in five deaths in the world. More than half of these deaths could be prevented if children were well nourished. India's progress in reducing child malnutrition has been slow. The prevalence of child malnutrition in India deviates further from the expected level at the country's per capita income than in any other large developing country.

The challenge[1]: Accelerating progress in reducing child malnutrition in India: India has many nutrition and social safety net programs, some of which (such as Integrated Child Development Services [ICDS] and the Public Distribution System [PDS]) have had success in several states in addressing the needs of poor households. All of these programs have potential, but they do not form a comprehensive nutrition strategy, and they have not addressed the nutrition problem effectively so far.

Strategic choices for improved child nutrition: India lacks a comprehensive nutrition strategy. Various choices for nutrition strategies can be considered. A review of some of the more successful country experiences suggests that all of them implemented complex, multisectoral actions with more or less emphasis on service-oriented nutrition policies (as in Indonesia), incentive-oriented nutrition policies linked to community or household participation and performance (as in Mexico), or mobilization-oriented nutrition policies (as in Thailand). These choices are not mutually exclusive. India now has the opportunity to "leapfrog" toward innovative nutritional improvement based on the experiences of other countries and on experiences within India itself[1].

Cooperation for policy actions[1]: To accelerate progress in reducing child malnutrition, India should focus on the following four cross-cutting strategic approaches:
Ensuring that economic growth and poverty reduction policies reach the poor
Redesigning nutrition and health policies and programs by drawing on science and technology for nutritional improvement, strengthening their implementation, and increasing their coverage
Increasing investments and actions in nutrition services for communities with the highest concentration of poor; and focusing programs on girls' and women's health and nutrition.
IFPRI, in collaboration with Indian experts and international networks, could bring much-needed experience with programs and policies around the world to bear on this effort. An evidence-based, research-intensive approach with "learning while implementing"- which has shown success in other countries-is recommended. There is no time or reason to wait for taking action.

According to a UNICEF report, half of the world's undernourished children live in South Asia. In India, 30 per cent of children are born with low birth weight and almost 50 per cent remain underweight by the age of three. One of the Millennium Development Goals is to eradicate extreme poverty and hunger by 2015[2], which would mean halving the proportion of children who are underweight for their age. UNICEF has warned that the world is not on track to meet that goal. "India should be worried" Experts reiterate that child malnutrition is not only responsible for 22 per cent of India's disease burden - and for 50 per cent of the 2.3 million child deaths in India -but is also a serious economic hazard.

A growing number of developing countries must shoulder a double burden of malnutrition: the persistence of undernutrition, especially among children, along with a rapid rise in overweight,

obesity and diet-related chronic diseases. The growing burden of non-communicable diseases (NCDs) in both developed and developing countries, and the associated rise in public health and social expenditures, were reviewed at a special session of FAO's (Food and Agricultural Organization of the United Nations) intergovernmental Committee on Agriculture (COAG) to provide governments with policy advice on nutrition and healthy diet to prevent NCDs, and requested a thorough assessment of the linkages between the diseases and changing food consumption patterns. According to new report by FAO's Nutrition and Consumer Protection Division (AGN) countries like China, Egypt, India, Mexico, the Philippines and South Africa the market trends over the past 20 years has shifted to diets high in saturated fat, sugar and refined foods.

Conclusion:

Nutraceuticals like Spirulina products, Ginseng, Natural Vitamin Supplements, are highly useful in management of malnutrition. Spirulina is recognized as one of the oldest algal species, not less than 3.4 bn years, which supported life on earth. It is being used as food product from centuries in different parts of the world. Aztecs and Mayas already knew about the healing effects of spirulina and used it every day as a food supplement. Research progress was intensified in last two decades on spirulina. Today it is legally approved as a food and food supplement in U.S, Europe, Japan, India and many other countries around the globe.

Research shows that spirulina contains, Proteins - 65% (includes Phycocyanin - 15%), Lipids-6% (includes GLA-1%, Sulfolipids 2-5%), Minerals-8%, Carbohydrates-15%, Vitamins-0.75%, Beta Carotene-0.20%, Xanthophylls-0.25%, Chlorophyll-1%, and Moisture-3.80%. It is known as world's richest concentrated natural source of valuable protein, iron, vitamins, antioxidants and minerals. Spirulina contains five times more protein than eggs, 20 times more calcium than milk, 25 times more Beta-carotene than carrots, chlorophyll content is 5-30 times richer than alfalfa or wheat grass and its GLA content is three times richer than evening prime rose oil.

Spirulina has a high biological value protein with a superior complete amino acid profile contained in the correct proportion of all eight essential amino acids and an additional 10 nonessential amino acids that makes spirulina unique. Its B-12 content is two to six times richer than any other available food; it is nature's richest whole-food source of vitamin E. Its Pro-Vitamin 'A' helps in protecting eyesight and it has anti oxidant and anti ageing properties. Research shows that it has possibility of keeping people young. It is also recognized as world's richest natural source of GLA, which is known to stimulate prostaglandin, master hormone that regulates every cell of body. It helps to reduce cholesterol and benefits the heart.

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IMPACT OF PATIENT INFORMATION LEAFLET (PIL) FOR DIABETES MELLITUS COUNSELING IN RURAL SOUTH INDIA

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Abstract

Objective: This main objective of the study was to evaluate the effect of Patient Information Leaflet (PIL) in diabetic patients undergoing treatment for diabetes mellitus denovo. Also we planned to analyze the characteristics of PIL through expert opinion.
Methods: This study was conducted at a rural secondary level care hospital, Anantapur, South India, during the period of February 2011-August 2011. This is a non randomized Cohort study in which patient were selected and divided in to control and test groups, with a matching of literacy levels. Control group patients were given counseling regarding the disease, medication, nutrition, exercise, foot care, eye care, personal hygiene, self care and phone number of counselor. The test group was provided with PIL in addition to all the same services in the control group. An online survey about the characteristics of PIL was done. Google spread sheet was prepared with 9 questions and e-mailed to 100 physicians, pharmacists and nurses. It was also posted in www.pharmainfo.net and the data was collected in Microsoft Excel software.
Results & discussion: Patients enrolled in the study include 120 with 60 for test & 60 for control. Some patients were not followed up due to non co-operation. Age group of 31-50 years was found to co-operate more with PIL as directed. PIL was influencing in better glycemic controls but it was not a statistically significant change. For diabetes associated complications in test & control group, a *P*-value (0.0368) was found to be significant. So, PIL have an influence in decreasing the complications associated with diabetes. According to expert opinion the most sought after characteristic of PIL was the pictorial representation.
Conclusion: Using PIL as a counseling aid to rural population with high illiteracy and attitudes influenced by myths was a challenging experience. PIL was found to be effective in improving outcome in diabetes at varying levels. Better strategies have to be made to make PIL more effective in Diabetes Mellitus.

Key words: PIL, rural, adherence, diabetes mellitus

Introduction

Diabetes mellitus is the most common endocrine disorder. It is a chronic condition, characterized by hyperglycemia due to impaired insulin secretion with or without insulin resistance. Type 2 diabetes is more common in more common above age of 40.[1]

The two major classifications of DM are type 1 (insulin deficient) and type 2 (combined insulin resistance and relative deficiency in insulin secretion). They differ in clinical presentation, onset, etiology, and progression of disease. Both are associated with microvascular and macro vascular disease complications. Goals of therapy in diabetes mellitus are directed toward attaining normoglycemia, reducing the onset and progression of retinopathy, nephropathy, and neuropathy complications, intensive therapy for associated cardiovascular risk factors, and improving quality and quantity of life. [2]

Nowhere is the diabetes epidemic more pronounced than in India as the World Health Organization (WHO) reports show that 32 million people had diabetes in the year 2000. The International Diabetes Federation (IDF) estimates the total number of diabetic subjects to be around 40.9 million in India and this is further set to rise to 69.9 million by the year 2025.[3]

Causes of type 2 diabetes: Environmental factors, Immunology and inflammation, Abnormalities of insulin secretion and action.[4] Multiple risk factors for the development of type 2 DM have been identified, including family history parents or siblings with diabetes; obesity ; habitual physical inactivity; race or ethnicity; hyperlipidemia.[2]

Clinical manifestations:

The symptoms of type 1 and type 2 diabetes are similar but they usually vary intensity. Many patients with diabetes have an insidious onset of hyperglycemia, with few or no classic symptoms. Occasionally patients with type 2 diabetes present with diabetic ketoacidosis, especially in severe infections.[2]

Diabetic emergencies: Hypoglycemia and extreme hyperglycemia, causing diabetic ketoacidosis or hyperosmolar nonketotic hyperglycemia, constitute the three acute emergencies associated with diabetes. Macro vascular complications of diabetes mellitus include cerebrovascular disease, abnormal ECG, hypertension, Absent foot pulses, Intermittent claudication. Micro vascular complications of diabetes mellitus includes retinopathy, nephropathy, erectile dysfunction, Ischemic skin changes (foot), abnormal vibration threshold (foot).[1]

Adherence can be defined as the extent to which a person's behavior - taking medication and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider. Many patients, especially patients with a chronic illness, experience difficulties in following treatment recommendations. Adherence to long-term therapy for chronic illnesses in developed countries averages only 50%. As a result of poor adherence, patients do not receive optimal benefit from their drug therapy. Suboptimal treatment can lead to increased use of health care services, reduction in patient's quality of life, and increase healthcare costs. Thus, improving adherence receives world-wide attention.[5]

Community pharmacists are crucial focal points for health care in the community. Patients counseling can be considered as a skill or an art to improve patients out comes. [6] Clinical pharmacist imparted patient education in hospital settings through counseling improved Quality Of Life (QOL) through knowledge and adherence to therapy.[7] Counseling programs if fine-tuned and implemented in diabetes management programs could definitely have immense impact on

the profession of pharmacy, giving it an even greater place in the medical management of patients.[8]

There is also a huge scope to establish the cost benefits of pharmacist intervention on type 2 DM.[9] Expert opinion has value in determining experiential benefits of patient counseling.[10] Education and counseling can improve attitudes of patients towards management of chronic diseases.[11] Clinical reviews may be effective at decreasing the cost of our patient's medication regimen. [12] The development of strategic interventions to improve adherence will be critical in achieving optimum outcomes in diabetes.[13]

Pharmacist-managed diabetes medication therapy adherence shows glycemic control and low density lipoprotein cholesterol, improvement of these clinical markers will eventually delay or decrease the incidence of unwanted complications of diabetes mellitus and patient adherence to medication regimens improved significantly.[14]
Pharmacist provided patient counseling has an effect in improving the perception about the diet, life style modification, glycemic control, and empower patients and consumers to actively manage their health in diabetes mellitus.[15, 16]

Several factors ranging from dose omission, forgetfulness, high cost and fear of side effects of some oral hypoglycemic medications, to an array of difficulties encountered during filling and ingestion of prescribed medications constitute barriers to medication adherence among patients with type 2 diabetes.[17]

New therapies such as the incretins offer potential benefits to patients with diabetes.[18] Initiatives targeting improved medication adherence in patients with type 2 diabetes are important to patient care and health plans. [19]

There is need to design strategies to help patients understand their drug regimens in order to improve their adherence. The access to medicines should be uninterrupted in diabetes mellitus. [20] However, before introducing non adherence information in routine clinical practice, it is critical to ensure that such information can be obtained economically and is associated with meaningful clinical outcomes. [21]

This study aims at studying the effect of Patient Information Leaflet (PIL) in diabetic patient undergoing treatment in rural secondary level care hospital in South India.

The key objectives of the study include assessing impact of PIL in the complications of the diabetic patient, Fasting Blood Sugar (FBS), Post Prandial Blood Sugar (PPBS), usage of PIL. And we planned to collect expert opinion on characteristics of PIL.

Methods

This study was conducted at rural secondary level care hospital in South India during the period of February-August 2011. This is a cohort study carried out to determine the Impact of Patient Information Leaflet (PIL) in diabetes mellitus and to evaluate the complications of the diabetic patient, Fasting Blood Sugar (FBS), Post Prandial Blood Sugar (PPBS).

Inclusion Criteria: Patients of either sex aged above 20 years with or without co-morbidities, Patients who are diagnosed as type 2 diabetic and are on oral medication therapy. Exclusive criteria: Patients who are at other system of medicine (Ayurveda, homeopathic medications, etc). Data was collected from patient data book, prescription, laboratory investigations and direct interview. Oral concern was taken from the subjects who were diagnosed with type 2 diabetes mellitus and included in the study. The study patients (95) were divided into two groups. 1. Test group and 2.Control group. Test group receive patient counseling regarding disease, medication, nutrition, exercise, foot care, eye care, personal hygiene, self monitoring of glucose and self care, phone number of the counselor and Patient Information Leaflet (PIL), whereas the control group receives patient counseling regarding disease, medication, nutrition, exercise, foot care, eye care, personal hygiene, self monitoring of glucose and self care and phone number of the counselor. The only difference between test group and control group is the patient information leaflet (PIL). At baseline patients were interviewed to obtain their medical and medication history and their details were noted in a data collection form. All baseline parameters were also recorded. Variations in the FBS and PPBS in test and control groups were checked for its significance by using the software Graph pad calculator.

An online survey about the characteristics of PIL was done. Google spread sheet was prepared with 9 questions in such a way that they can be answered easily. It was e-mailed to 100 physicians, pharmacists and nurses. On the other hand the link was posted in www.pharmainfo.net and the data was collected in Microsoft Excel format for further proceedings to prepare the results.

Table No.1: Follow up status of the patients.

	1st follow up	2nd follow up	3rd follow up	4th follow up	5th follow up
Test	43	31	23	12	5
Control	52	37	24	13	6

Graph: 1 Showing No. of patients follow up.

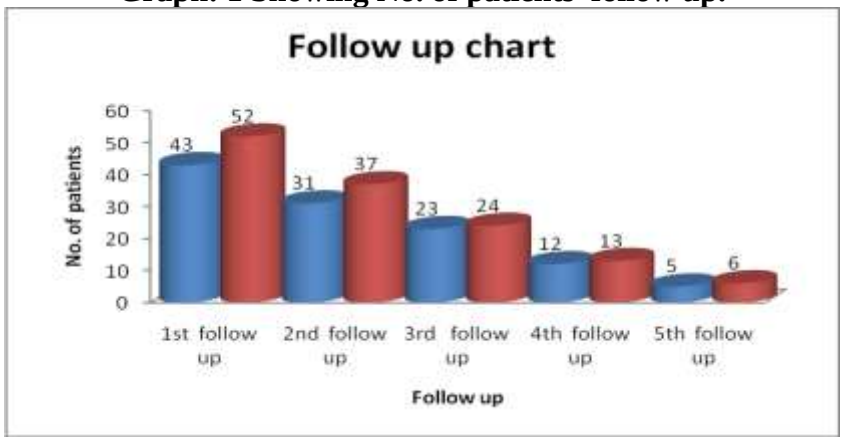


Table No. 2: Usage of PIL in age groups

Age group	31-40	41-50	51-60	61-70
Display of PIL in living area	3	4	6	3
Not displayed Deliberately	2	3	4	4
PIL lost	1	2	4	2
Remembering contents of PIL	1	2	2	0

Table 3: Difference between PPBS and FBS

Parameters	First follow up		Second follow up		Third follow up		Fourth follow up		Fifth follow up	
	Test	Control	Test	Control	Test	Control	Test	Control	Test	Control
Mean	121.51	110	127.68	106.43	103.70	96.96	92.50	81.08	84.80	66.50
SD	72.36	61.36	75.67	56.05	56.31	57.72	52.42	55.35	40.89	58.03
SEM	11.03	8.51	13.59	9.22	11.74	11.78	15.13	15.35	18.28	23.69
P-value	0.4035		0.1887		0.6875		0.6021		0.5690	
DF	93		66		45		23		9	
Standard error of difference	13.718		15.997		16.643		21.606		30.959	

Statistical methods:

By using Student's t-test the results are calculated.

Results

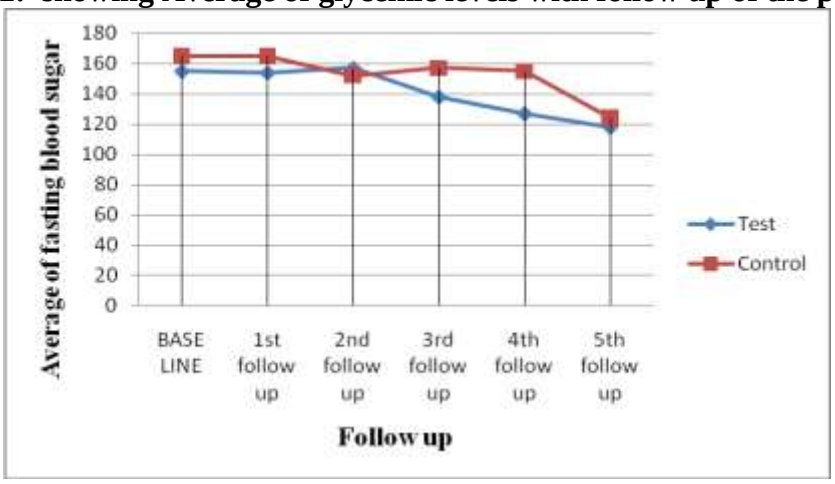
Patients were enrolled into the study were 120 and among them 25 patients are excluded in the study period because of not attending to the regular follow up.

In the total 43 test group patients the usage of PIL in different age groups was assessed. It was found that most of the people in age group of 31-50 used it properly and the most of the people in the age group of 50-70 misused the PIL.

After comparing the fasting glycemic levels between test and control groups the average fasting glycemic levels were decreased when compared with the base line.

Student's t-test was used to find out the significance of the unpaired data difference between FBS and PPBS among test and control groups for 5 follow ups. None of the difference was statistically significant.

Graph 2: showing Average of glycemic levels with follow up of the patients.



For diabetes associated complications in test & control group, a *P*-value (0.0368) was found to be significant. So, PIL have an influence in decreasing the complications associated with diabetes.

As the complications of diabetes play an important role, some common complications involved were compared between the test and control group. It was found that control group patients had more complications than test group. Hypertension was the most commonly observed complication in both the groups.

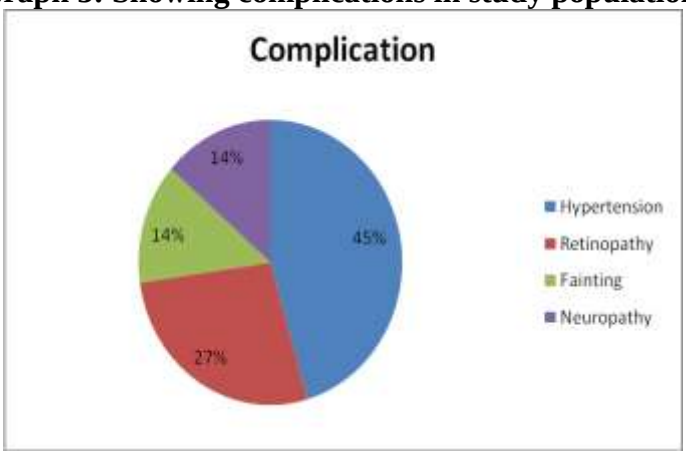
The results of online survey say that majority of health care professionals (physician, pharmacist, nurse and others) said that PIL plays a significant role in the management of diabetes.

The results of online survey say that half of the health care professionals (physician, pharmacist, nurse and others) suggested that the PIL should have all the characteristics like it should be simple, informative, native language, pictorial representation, phone number of diabetes counselor and colorful.

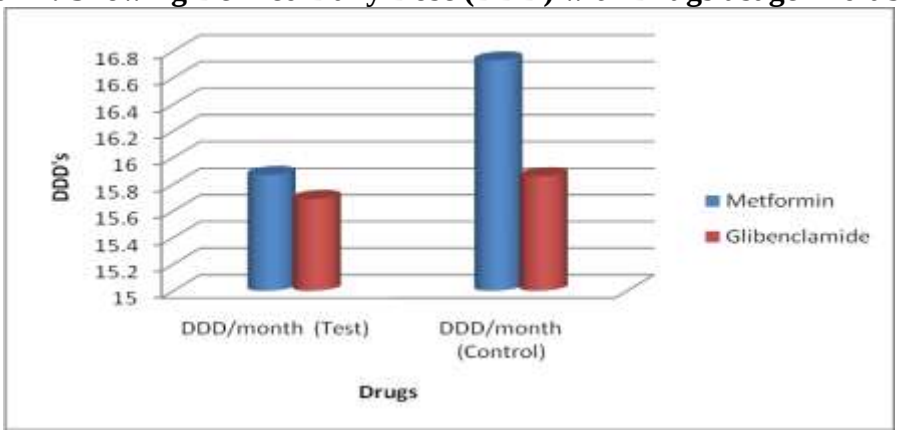
Table.4: Significance of the PIL: Online survey

Health care professionals	Yes	Percentage (%)	No	Percentage (%)
Physician	8	80	2	20
Pharmacist	36	94.7	2	5.3
Nurse & others	8	100	0	0

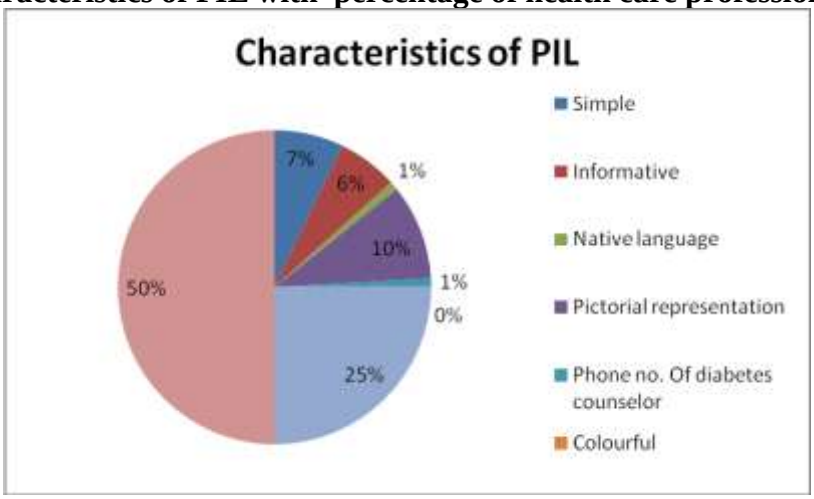
Graph 3: Showing complications in study population.



Graph 4: Showing Defined Daily Dose (DDD) with Drugs usage in diabetes.



Graph 5: Characteristics of PIL with percentage of health care professional suggestion



Discussion

It is challenging condition in achieving high adherence rates for the patients in rural setup. Diabetes mellitus is a chronic disease which needs lifelong management and development of life-threatening complications should be prevented. Quality of life is important to be maintained by including patient also in the healthcare team for the effective management. But patients in such rural setup are less aware of consumer rights and feel not easy to co-operate with highly qualified healthcare professionals. Whatever patient counseling given would be accepted by the patients and when they go home they don't comply with the directions. That situation made us to introduce PIL to the patient counseling and check its impact. The online survey conducted to learn about the characteristics of PIL could gather expert opinion from doctors, nurses and pharmacists from different rural areas of India. One of the major issues was that there were a significant number of patients who don't know how to read (illiterate). So the PIL was made very pictorial and matching was done to distribute illiterate patients in test as well as control group.

The number of patients who came for follow up gradually decrease by time. There is considerable amount of avoidance to the PIL was also noticed. As graphs show there are some improvements in the FBS and PPBS for the patients in test group. But these values are not significantly different in proving the efficacy of PIL in diabetes outcomes. But in the complications of diabetes there was a statistically significant improvement in the test with a *P*-value of 0.0368. But further studies are required to find out its clinical significance. There was lot of factors influencing the study results like ignorance of the patients, difficulty in communication, non co-operation. More systematic studies including higher number of patients is necessary to make more conclusive evidence. Most common complication of diabetes was hypertension.

Metformin and glibenclamide were the two heavily prescribed oral hypoglycemic agents. Those were the only drugs in that category as per the hospital formulary.

Most sought after single characteristic of PIL was pictorial representation and the least were to make to colorful. The other important characteristics include simple, informative, native language and contact phone number. Even though at lesser rates most of the professionals thought PIL can make a difference in the diabetes mellitus management.

Conclusion

This study was done on rural patients who are living far from scientific improvements or consumer rights, some of them were illiterate. Most of the patients consume medicines without knowing why they have to take a particular medication. It is challenging to make such patients to be adherent to the therapeutic plan as the work need to be started with constructing health care attitudes in compliance to modern science. The preliminary study on finding the impact of PIL was handicapped with low co-operation from the patients, but the things learned from the study is valuable in implementing better health care strategies in the area. PIL was found to be effective in improving outcome in diabetes at varying levels. Better strategies to be made to make PIL more effective.

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SOCIAL PHARMACY – A NEW DIMENSION TO PHARMACEUTICAL CARE

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Abstract

Pharmacists with their knowledge of medicines contribute to the quality use of medicine. Knowledge of only natural science may not be enough to explain the practice of pharmacy among the users. In social pharmacy the drug sector is studied from scientific and humanistic perspective. The social, emotional, psychological effects along with the therapeutic effects leads to the total drug effect in patients. The basic line of difference between the pharmacy practice and the social pharmacy appears to be very thin on a broader view. A number of sociological theories have been developed to explain the relation between pharmacy practice and social pharmacy. The aim of social pharmacy research is to contribute to the responsible and rational use of medicines in society and the individual. Pharmacy education of our country shall include social pharmacy in the future curriculum to prepare our pharmacy students to serve the community better.

Key words: pharmacist, society, social pharmacy

Introduction

Pharmacist plays an important role in health care team. Pharmacy practitioners, with their knowledge of medicines contribute to the quality use of medicine. The pharmacist's professional expertise is dependent on the knowledge of medications and their effects on body. Practice of pharmacy is carried out among human beings referred to as customers or patients. These customers or patients are connected to each other through family relationships, organizational relationships or through cultural bondings of a country. Thus, knowledge of only natural science may not be enough to explain the practice of pharmacy among the users. It needs to be supplemented with the knowledge of social and humanistic sciences also. And there comes the concept of social pharmacy into practice.

Social pharmacy is the practice of pharmacy in society. As medicines continue to form a important part in people's life, social aspects cannot be separated from technical and scientific aspects of medicine. In social pharmacy the drug sector is studied from scientific and humanistic perspective. All social factors such as medicine related beliefs, attitude, family relationships and all other factors which influences the quality use of medicine are covered under social pharmacy. In today's world social justice is not carried out while the distribution or administration of medicines. Studies have shown that the dreaded diseases like AIDS, cancer may not be cured only through medicines, but they need proper social care along with medication. The patient's

physical and mental ability can be improved by the intervention of pharmacist via social pharmacy, by actively promoting healthy living and educating patients on use of medicine.

Role of Social Pharmacy in Improving Patients Health

Medicines are social and cultural phenomena. The social, emotional, psychological effects along with the therapeutic effects leads to the total drug effect in patients. According to Emmanuel Augis, professor of moral theology and philosophical Ethics, University of Malta, the practice of pharmacy is a personal and human activity traditionally guided by companion, justice, dignity and truth. Recently these have been overshadowed by new innovations in pharmaceutical sciences like pharmacogenetics, pharmacotherapeutics, pharmacokinetics. Human values are so completely integrated with modern health policies that the idea of only technical practice of pharmacy is neither feasible nor desirable. So the objective of social pharmacy is to make people socially aware about the medicines. In social pharmacy practice one considers the role of society in improving the health of patients. Social pharmacists are doing educational programmes in society educating people about the need of medicines in curing deadly disease in addition to common ailments like cold and cough. This will benefit the society, and will also improve the image of the pharmacist as a health care provider in the society. The social reforms of medicine undertaken by pharmacist also comes under social pharmacy.

In social pharmacy the health care practice is mediated through social relationships and social structures. The practice of pharmacy, the use of medicines by the patients, interaction between pharmacists and patients , and the organisational and the institutional structure of pharmacy services are all areas ripe for sociological analysis. Patient-focused care provided by an interprofessional team has long been presented as the preferred method of primary care delivery. Community pharmacists should and can provide leadership for many clinical and managerial activities within the primary care team. The way in which the pharmacy services are formally organised and funded is likely to have an important influence on their provision and of course on patient's use of such services.

Social Pharmacy And Pharmacy Practice

Pharmacy practice is concerned with the upliftment of the role of a pharmacist as a core health-care team member. The society has no doubt been benefitted from the pharmacy practice but still when we look back, it is the pharmacist rather than the patient who has gained more from this concept of pharmacy practice. It has proved to be more self-centred and less inclined towards the society. Pharmacy practice includes the therapeutic and at most the economical aspects of the medicine and has its limitations but social pharmacy includes along with the therapeutic and economical aspects, the medicine related beliefs, social taboo attached to drugs and therapy etc. The basic line of difference between the pharmacy practice and the social pharmacy appears to be very thin on a broader view but the difference between the two is essentially very conspicuous and forms the total basis of the need of social pharmacy. Just like in case of a government-run charitable institution and a non government organisation(NGO)- run charitable institution, the basic aim of the two is same but the level of their functioning differs and so does their approach to the same cause of work. The NGOs work on the ground level and meet the needy and take appropriate steps to solve their problems and the approach is a more humane one but in the case

of a government – run institute, it is the needy who has to approach the institute for help. So, as compared to the NGOs, the approach of government run institute is limited. Same can be observed in the case of social pharmacy and pharmacy practice.

The pharmacy practice in this way is limited in its approach to the society as each and every member of the society is not able to avail the benefits of the profession but the approach of social pharmacy is entirely different and is totally oriented towards the well being of not just a patient but the people related to him and thus the whole society comes into the picture. A number of sociological theories have been developed to explain the relation between pharmacy practice and social pharmacy.

Research Areas in Social Pharmacy

The research focuses on the role of medicines at the level of individual, group/organization and society as well as the role of the pharmacy profession in health care and spans a variety of themes from the experiences and perceptions of the medicine user to national and international drug policy. Within social pharmacy, theories and methods from humanities, social science and natural science are applied in a cross-disciplinary manner. The aim of social pharmacy research is to contribute to the responsible and rational use of medicines in society and the individual

Conclusion:

Social Pharmacy is a new concept which deals with an interdisciplinary approach towards the patient care. Pharmacist can help in improving the patients health via social pharmacy by creating awareness about healthy living and by imparting health education to the people. Pharmacy education of our country shall include social pharmacy in the future curriculum to prepare our pharmacy students to serve the community better.

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