Knowledge and Perceived *barriers* about Diabetic Retinopathy and Dilated eye exam in patients with Diabetes

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INTRODUCTION

Diabetes as an epidemic

- According to the WHO, there will be a steep rise in the prevalence of type II diabetes mellitus both in the developed and developing countries within the next two decades. The projected increase is 46 % in the developed world and 150% in the developing nations.
-Diabetic retinopathy (**DR**) is the **leading cause of blindness** among the working age population in the US.
-A diabetic is 25 times more likely to go blind than a person in the general population.
-The number of people with DR is expected to increase from 5.5 million in 2005 to 16 million in 2050, and the number with VTDR (Vision Threatening DR) is expected to increase from 1.2 million in 2005 to 3.4 million in 2050 in US.
-Ten years after diagnosis the prevalence of retinopathy is 40-50% and after 20 years the prevalence is 90%

Screening Guidelines

AAO Guidelines

Recommended Eye Examination Schedule for Patients with Diabetes Mellitus

Diabetes Type	Recommended Time of First Examination	Recommended Follow – Up*
Type 1	3-5 years after diagnosis	Yearly
Type 2	At time of diagnosis	Yearly

*Abnormal findings may dictate more frequent follow-up examinations.

ADA Guidelines

The American Diabetes Association (ADA) follows similar guidelines, and also suggests that the follow-up can be **every 2 years** in both types of diabetes among low risk patients with normal eye exams in the past.

Project Goals and Objectives:

- To measure the awareness level of diabetic retinopathy (DR) and a dilated fundus exam (DFE) in diabetic patients.
- To evaluate the association between knowledge of DR and DFE with behavior of getting a DFE in the past two years.
-To identify potential barriers and facilitating factors to getting a DFE in an urban academic primary care practice.

Significance:

-Healthy People 2020 objective- Increase the proportion of adults with diabetes who have an annual dilated eye exam

-Diabetic retinopathy – which damages small blood vessels in the back of the eye – causes up to **24,000** new cases of blindness each year. And it's ***preventable***.

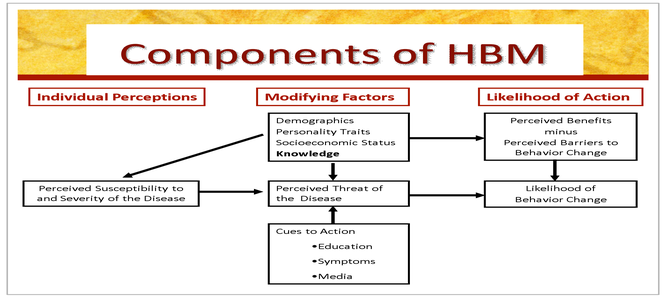
EXPERIMENTAL APPROACH

STUDY DESIGN:
Cross-sectional study

Setting: Jefferson Family Medicine Associates (JFMA)
Eligibility criteria: patients receiving primary care at JFMA within age range of 18-64 years and H/O Diabetes .

THEORETICAL BASIS OF SURVEY

The Health Belief Model (HBM)



SAMPLE SIZE AND STATISTICAL POWER

-The probability is 80% that the study will detect a difference of 20% between the independent and dependent variables at a two-sided 5% significance level

-Simple random sampling technique using Microsoft Excel was used to select 200 participants. All the subsequent data analysis was done using SAS.

STUDY POPULATION

-The lists of diabetic patients from 3 insurance companies were received (Private {*Aetna*, Independence Blue Cross *IBC}* and Medicaid {Keystone Mercy Health Plan *KMHP}*). These cover the largest population of JFMA patients.

-Simple random sampling technique using Microsoft excel was used to select 67 patients each from Aetna and IBC and 66 from KMHP to obtain a total of 200 patients.

METHODS:

A complete package of the survey sheet, a cover letter (printed on the letter head from JFMA) and a self addressed return envelope was **mailed** to the selected participants.

RESULTS

Participant Characteristics

-Fifty-six (28%) responses out of 200 mailed surveys were received.
-Gender: 70 % were females and 30 % males
-Race: 75% African American, 23% Caucasians, 2% Asian
-Ethnicity: 9% Hispanic
-Type of diabetes: 85% have type II diabetes, 7.4% have type I diabetes and 7.4% were not sure.
-Employment status: 50% are currently employed

Most Recent DFE

-68% (n=38) of the patients got their last dilated eye exam within 1 year,
-12.5% (n=7) between 1-2 years,
-12.5% (n=7) more than 2 years ago,
-7% (n=10) had never got it done or were not sure.

Self Reported Reasons for getting a DFE

- 48% knew it was their time to get this done,
- 30% had some eye problems,
- 27% were told by their doctors to get the exam,
- 13% were told by their diabetes educators,
- 4% received a reminder in mail, and
- 2% were told by their family/ friends.

Self Reported Reasons for NOT getting a DFE

- 36% were fearful to get it done,
- 27% felt that their eyes were ok and they didn't need to get a dilated eye exam
- 18% had cost as a problem (high co- pay),
- 18% had transportation issues,
- 18% had difficulty in getting an appointment,
-9% said they don't have time for it.

Knowledge of diabetic retinopathy vs. dilated eye exam within 2 years (p=0.166)

Dilated Fundus exam	Low Knowledge	Medium Knowledge	High Knowledge
No	38%	20%	6%
Yes	62%	80%	94%

Knowledge of dilated eye examination vs. dilated eye exam within 2 years (p=0.012)

Dilated Fundus exam	Low Knowledge	Medium Knowledge	High Knowledge
No	55%	19%	6%
Yes	45%	81%	94%

Relationship between type of insurance and decision to get an eye exam (p=0.015)

Dilated Fundus exam	Aetna	IBC	KMHP
No	6%	11%	40%
Yes	94%	89%	60%

CONCLUSIONS

-The results of this study suggest that 68% of the population from this primary care practice got a dilated eye exam within a year. *Facilitators* were awareness/ knowledge about the DR and DFE , eye problems and information from their doctors.
-About 20% of the patients did not get an eye exam as recommended. Various *barriers* included cost, transportation issues, time constraint issues, lack of symptoms of the disease, and fear of the exam.
-There is a significant difference in getting an eye exam by the type of insurance with a smaller percentage of Medicaid recipients (60%) meeting the guidelines compared to Private (94% and 80 %) ***(p=0.01)***
-Improved provider education efforts that address patient barriers may increase adherence to the recommendations for getting a DFE.
- Information and support on diabetic retinopathy and the importance of a dilated eye exam can help motivate diabetes patients to be examined by ophthalmologists.