WE CAN MAKE A DIFFERENCE: THE NEED FOR OPTOMETRISTS TO REACH OUT TO THE UNDERPRIVILEGED WITH EYECARE AND EDUCATION

SENIOR RESEARCH PROJECT
ANN MARIE BOYKE
APRIL 9, 1993

We Can Make A Difference: The need for optometrists to reach out to the underprivileged with eyecare and education

Abstract:

This paper discusses the results of a random glaucoma screening involving primarily low income, black individuals and reveals the overwhelming need for optometrists to reach out to this population with eyecare and education. This random glaucoma screening was instituted on site at the three satellite clinics of Comprehensive Health Services of Detroit, Inc. (CHSD) which is a health maintenance organization serving the Wayne County Detroit area. The screening involved a brief medical history with questions regarding medications used, length of time since the participant's last eye examination by a licensed eye care practitioner, personal medical history, history of glaucoma (self and family), direct ophthalmoscopy with evaluation of C/D ratio and overall health of the optic nerve, noncontact tonometry. Three licensed optometrists along with myself, a fourth year optometry student, performed the previously stated procedures with the assistance of CHSD Medical Assistants. We screened 395 individuals: 276 female and 119 male with majority being over the age of eighteen years old. The subjects participated in the screening on a volunteer basis, however, it must be noted that the majority of the participants were CHSD members due to the location of the screening sites. After evaluating the screening results it was apparent there was a high prevalence of hypertension, diabetes(NIDDM and IDDM), and glaucoma(positives or suspects) within this population as well as low compliance with eye examinations, therefore, revealing the great need for optometrists to screen and educate this population. This paper's data was obtained from a very small sector of the Detroit inner-city population and it can be assumed that the majority of the individuals that did not participate in the screening are the ones that are acquiring the least amount of medical care, therefore, needing our services the most. A few of the many ways optometrists can reach out to this population with education and eyecare are also presented in this paper.

INTRODUCTION

The lack of utilization of health care by the black low income population is an vastly growing problem. The traditional solutions of health education and low-cost health care have done very little to change the outcomes of increased morbidity and mortality due to disease(1). Health care professionals need to confront the problem of inadequate health care not only by research and the restructuring of our health care delivery system, but by reaching out to the low income population with public education and screenings. This paper specifically discusses the need for optometrists, as the primary eye care providers within their community, to educate this population on the devastating effects that hypertension, diabetes and glaucoma can have on their vision. These diseases can have detrimental ocular effects if the systemic or ocular disease is not well controlled and closely monitored. Some factors that may be the cause for the black race's low utilization of available medical care: cultural isolation, individual and group attitudes, perception of resource availability, actual resources, socioeconomic status, peer behavior, educational level and public awareness (1). The last factor mentioned is one that could be eliminated if the public was educated on the importance of preventive health care. The data that this paper is based on was obtained from a public glaucoma screening on site at the three locations of Comprehensive Health Services of Detroit, Inc.(CHSD). CHSD is a health maintenance organization that provides services to medicaid recipients in the Wayne County Detroit area. The participants in the screenings were primarily black, low income individuals over the age of eighteen years old.

RISK FACTORS AND PREVALENCE OF HTN, DM AND GLAUCOMA

HYPERTENSION

Hypertension is often associated with one or several other cardiovascular risk factors or metabolic disturbances. Some of the risk factors associated with hypertension are: excess body weight, elevated serum cholesterol, low high density lipoprotein cholesterol, high triglycerides, high plasma insulin levels, lack of physical exercise, alcohol intake, excess dietary sodium, reduced dietary potassium and psychosocial influences (2). It has been proven that many of the hypertension risk factors stated previously are associated highly with the black community regardless of their social status(2). One study in particular showed that there is a lesser potential for effective diet and weight loss among blacks due to the black population's limited income, ambivalence about weight control, multiple health problems and most importantly their high fat high sodium diets with low fiber (3). In a study by Newell et al. it

was shown that blacks, of both sexes, had the highest cholesterol intakes and black males had the highest saturated fat intakes out of the Caucasian, Mexican and negro populations studied(4).

Other than the dietary risk factors there is also a direct association between unfavorable psycho-emotional factors in the life environment and the origin of hypertension. One psycho-emotional factor that is quite prevalent within the low income population if unemployment(5). Unemployment is now widely recognized as a health hazard and an increased risk of cardiovascular disease has been noted in those individuals that are unemployed in comparison to those in employment(5). For example, a two year study was conducted to examine the blood pressure change in individuals who became unemployed in Norrbotten Sweden due to a decision not to build a planned steel plant. This study strongly showed that there was a correlation between unemployment and an increase in blood pressure (5).

DIABETES

Diabetes is a leading cause of death in Jamaica, with it's predominantly black African-origin population, and similar rates were found in people from these groups who migrated to cities within The United Kingdom and The United States (6). Two household interview studies, NHANES II and HHANES were conducted to study the incidence of NIDDM in blacks, Hispanics and whites. These studies showed that the black and Hispanic populations had the highest incidence of NIDDM out of the three groups studied(6). There are many factors that could cause this high incidence of NIDDM within the black and Hispanic populations. However, out of the many factors influencing the increased incidence of NIDDM the two main factors to be mentioned are genetics and socioeconomic status. It is a known fact that Hispanics and blacks constitute a high percentage of the low socioeconomic population (7). This low socioeconomic status, as well as acculturation, are major determinants of lifestyle (ie: shared values and tastes). Many aspects of lifestyle have a direct impact on health and a few of these factors are: food preference, daily caloric intake, alcohol consumption, type and frequency of physical activity, levels of stress and modes of relaxation(8). The main factors concerning NIDDM are food preference and daily caloric intake. Recent studies have shown that dietary fat's effect on insulin secretion and hepatic clearance is one of the main causes of ethnic variation rates of new NIDDM. When an individual is on a high fat diet, as is the majority of the black low income population, insulin secretion has to rise to suppress hepatic glucose production or the individual's serum glucose level becomes elevated (6).

In the United States where infectious eye diseases are not as prevalent as in the third world countries, glaucoma has become one of the leading causes of blindness (9). One of the most informative studies on the prevalence of this devastating disease within the black population is the Baltimore Eye Survey which was conducted from January 1985 through November 1988(9). This study involved screening over 5000 individuals, both female and male, and the results revealed the overwhelming prevalence of POAG within the black community. Overall, 39.1% of the black participants and 28.6% of the white participants were found to have POAG. One very interesting finding was that for those aged 70 years or greater 1:10 blacks in comparison to 1:50 whites had POAG. It was concluded that blacks have a higher frequency of POAG and glaucomatous blindness than whites. This conclusion was found to be true regardless of strictness of the disease definition and was consistent across all age and sex categories. This high rate of disease, combined with the documented high rate of blindness and visual impairment among old black Americans, dramatizes the magnitude of this problem(9).

METHODS

The random glaucoma screening took place on site at the three CHSD locations. The participants were primarily black and over the age of 18 years old. The screening was on a volunteer basis, however, it must be noted that the participants were primarily CHSD members due to the screening location. The screening was conducted by three licensed optometrists and myself, a senior optometry intern from Ferris State University College of Optometry, with assistance from CHSD Medical Assistants. The information collected included the person's name, address, phone number, CHSD identification number if applicable, age, sex, race, length of time since last eye examination by a licensed eyecare provider (ECP), a medical history, intraocular pressure by noncontact tonometry, direct ophthalmoscopy to determine C/D ratio and overall health of the individual's optic nerve heads. Patients were advised to visit a licensed ECP if any of the following criteria were met:

-IOP of 21mmHg or greater
-Variation in IOP of 5mmHg or greater between the two eyes.
-C/D of .5 or greater in the horizontal or vertical meridian.

-Asymmetrical C/D ratio between the two eyes of .2 or greater.
-Notching of the optic nerve rim tissue.
-Had not visited an ECP within the last year.
-Positive history of systemic illness requiring ocular health evaluation regularly.

An attempt was made to contact all screening fails to ensure proper eyecare was available and had been sought.

RESULTS

GENDER

Comparing men and women in regards to how often they visit an ECP the women had better compliance. Out of the men participating in the random screening 33% (N=39) had visited a ECP within the last year compared to 42%(N=116) of the women participants. In addition to fewer of the male gender visiting an ECP within the last year, as compared to the female gender, there was also a higher percentage of men who had never had an eye examination (men=7% women=2%).

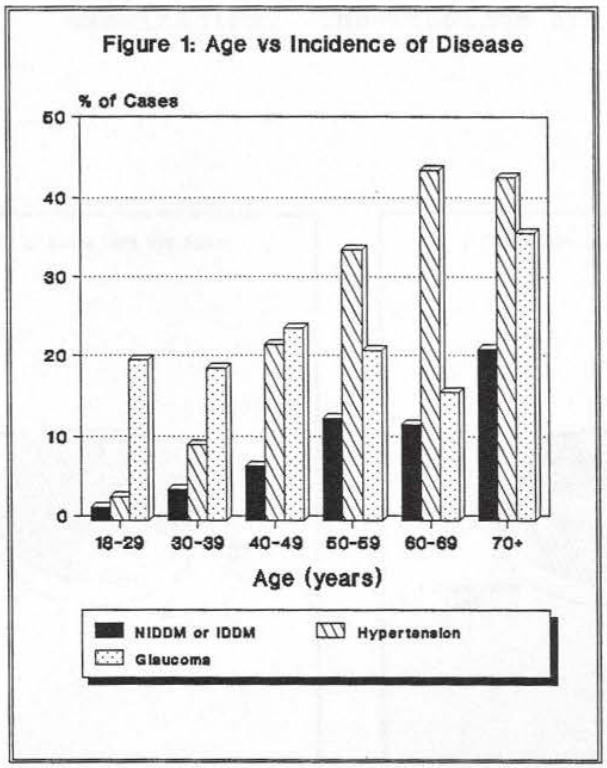
When comparing men and women in regards to the incidence of HTN, GL and DM there was no significant difference. Therefore, results concerning disease prevalence are mentioned as a total.

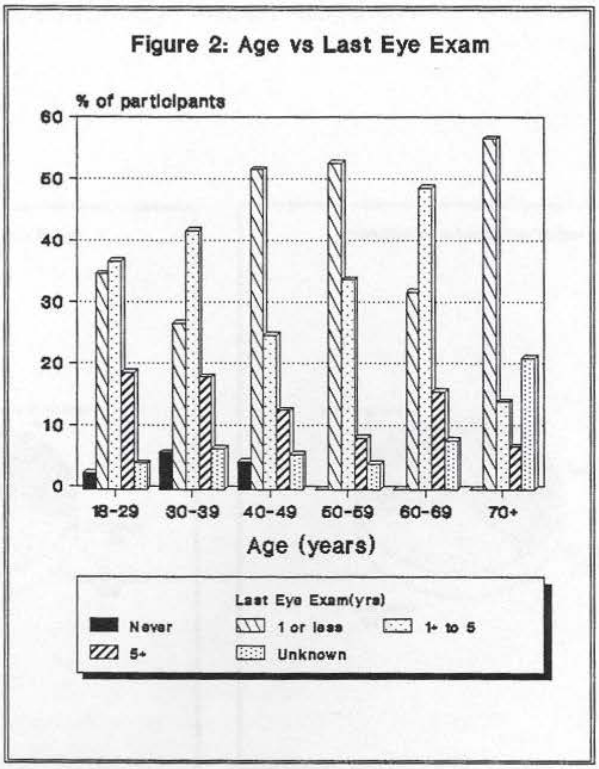
AGE

There is an apparent relationship between the duration of time since the participant's last eye examination and their age (looking at men and women as one group). There are two age groups that stand out in regards to the duration of time since their last eye examination. The first group to be mentioned are those aged 30-39 in which 66% had not visited an ECP within the last year and 6% had never visited an ECP. The second group to be mentioned is the 70 and over age group in which only 21.5% of it's members had not visited an ECP within the last year and o% had never had an eye examination. Overall, the participants between the age of 18 and 39 had poor compliance with annual eye examinations, however, beginning at age 40 and continuing through those aged 70 and older the duration of time since their last eye examination improved which is reflected in figure #2.

The incidence of disease within each age group had an inverse relationship with the duration of time since their last eye examination(see figure#1). For example, those aged 18-29 came in second to those aged 30-39 with poor annual eye examination compliance, however, the youngest group also

had the lowest incidence of HTN and DM out of all the ages studied. The 30-39 age group, which had the poorest compliance with annual eye examinations, came in second with the lowest incidence of HTN(9.5%) and DM(4%). In contrast, those aged 70 and over had the highest incidence of DM(22%) and GL(36%) out of the five age groups and was in close seconds to the 60-69 age group with regards to HTN(60-69=4% and 70<=43%). However, those aged 70 and greater had the highest percentage of participants that visited their ECP within one year from the date of the screening, as was mentioned previously.

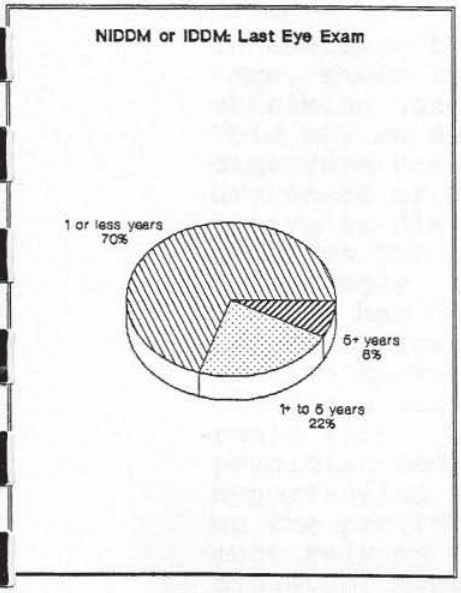


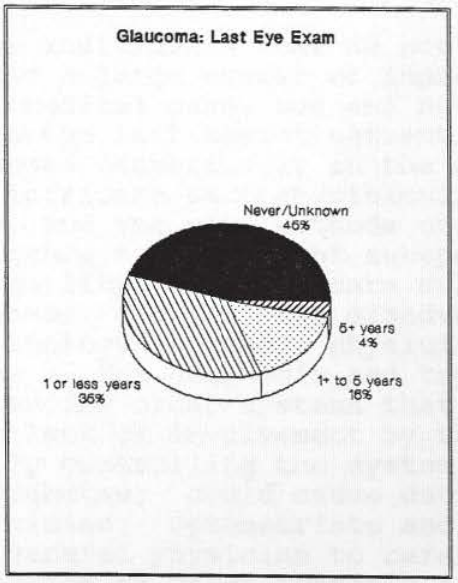


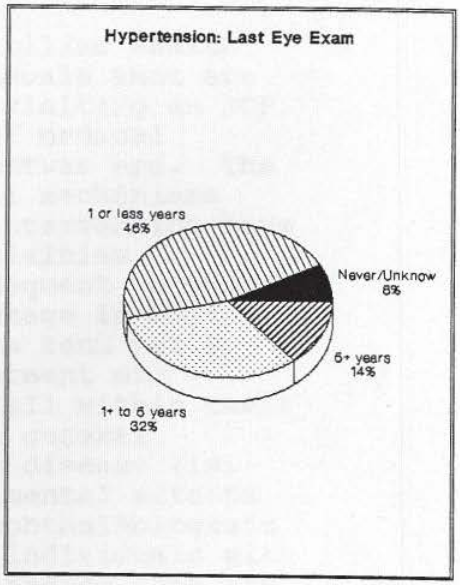
DISEASE PREVALENCE VS. LAST EYE EXAMINATION

Out of all the information collected during the screening the results that were most intriguing, therefore, luring me to investigate this area more carefully, was the duration of time since the participant's last eye examination. Asking the question "When was the last time you were examined by a licensed eyecare practitioner?" resulted in a wide variety of responses. The duration of time since the participants' last eye examination ranged from two weeks to never having an eye examination. The percentage of individuals that had not seen their ECP within the last two years was quite overwhelming--51%(N=202). The 51% did not include the 4%(N=13) that had never visited an ECP.

Knowing that the black population had a high prevalence of DM, HTN and GL, I crossed those individuals effected by these diseases with the length of time since their last eye examination. The findings are definitely worth noting:







As illustrated in the previous pie charts, there is a large percentage of individuals who need to obtain ocular health evaluations more regularly. Out of the 83 individuals that had been diagnosed with glaucoma, or that were suspects according to the screening criteria, only 45% had seen an ECP within the last year and 4% stated they had never visited an ECP. The group that had the highest percent of individuals visiting an ECP within the last year were those diagnosed with diabetes(N=23), this group showed 70% with 0% stating they had never visited an ECP.

DISCUSSION

As can be noted in the results of this study, there is a great need for medical professionals to reach out to the low income population within their community with public health care and education. The majority of this study's participants were low income blacks and it is this population that has shown a decrease in the use of health care services. Studies have shown that the differences in the use of health care for blacks, in comparison to whites, were believed to have occurred because blacks were disproportionately found in groups that used less medical care (ie: low income groups, the uninsured and those without a usual source of care) (2).

In addition to the individuals that do not utilize health care, there is also a large number of individuals that are obtaining general medical care, but are not visiting an ECP. This may be due to the fact that treatment of medical disorders has changed dramatically in the postwar era. The awareness of the intricate pathophysiological mechanisms active in disease, and the many methods of intervention have demanded the emergence and growth of subspecialties. Accordingly, the quality of health care subsequent to these changes has increased. However, one disadvantage is that unless obvious pathology is noted, physicians tend not to involve themselves in the diagnosis and treatment of disorders not affecting organ systems that fall within their realm (10). This lack of involvement by the general physician medically controlling the systemic disease (ie: hypertension or diabetes) could cause detrimental effects on the patient's vision. Optometrists and ophthalmologists must rely on the general physician to refer individuals with diabetes, hypertension or other systemic illnesses that can cause detriment to the visual system. It is apparent after reviewing the results from this study that there are a number of individuals within this high risk group that are not being referred to an ECP or the individuals are not following through with the referral.

WHY WE NEED TO REACH OUT

Out of the 395 individuals screened, 17% were hypertensive, 26% were glaucoma suspects or positives and 6% had diabetes (NIDDM or IDDM). It is not solely the percentage of people affected by these diseases that is significant, more overwhelming is the noncompliance with proactive and reactive eyecare. As previously illustrated, 51% of those effected by glaucoma, 46% of those with hypertension and 29% of the diabetics had not visited an ECP within the previous year. When noting this high rate of noncompliance to ocular health evaluations and the overwhelming risk this group is at for diabetes, hypertension and glaucoma it is quite evident that optometrists have an obligation to reach out to this underprivileged group.

HOW WE CAN REACH OUT

Although there may be many reasons for this population's noncompliance to preventive eyecare, the best way to resolve it is through educating the public on the detrimental effects these diseases have on their vision. Hypertension, diabetes and glaucoma can exist without significant clinical symptoms, therefore, causing a high rate of noncompliance to drug therapy and high dropout rates concerning medical care. These high rates of noncompliance are even higher in the inner-city populations where illiteracy, poverty, homelessness and high rates of chemical dependency combine to exacerbate an already serious problem (7). The severity of end organ damage and vision loss in these patients mandate that more effective public health measures be taken to help educate those effected by these diseases. The different ways that optometrists can get involved is limited only by the optometrist's professional ingenuity. Optometrists can reach out by conducting screenings (ie: as in the screening this study was based on). These screenings must be located at sites that are accessible to the population being targeted. For example, CHSD had three sites for their screening, one inner-city and two near the suburbs. The inner-city site had the highest success in reaching the medically needy individuals due to it's easy access. You must remember that low income individuals rely highly on city transit for transportation, therefore, they are not likely to go out of their way to attend a screening if it is not conveniently located.

In addition to the local screenings, optometrists can also visit prominent groups and organizations within the black low income community with educational seminars utilizing slide presentations and visual aids. For example, one study was conducted that revealed the effectiveness of targeting a very dominant organization within the black community--the church. This study involved educating the children within

the church on the risks of hypertension and taught them how to take blood pressure readings (11). Overall, the study was very successful at educating the children and having the children bring their knowledge and learned skills to the home.

Overall, it is very important for optometrists to get involved in the visual well being of their community--especially the low income population. This involvement requires more than putting in time at the practice and calling it a night. There are individuals within every city that need optometrists to reach out and let them know they are at risk of losing their vision to diseases so many ignore. Vision loss due to uncontrolled systemic or ocular disease can be reduced if optometrists became more involved in preventive public education...WE CAN MAKE A DIFFERENCE!!!

REFERENCES

1. Haywood L.J. "Hypertension in the minority populations. Access to care." American Journal of Medicine. 88:175-205, 1990 Mar 12.

2. Cornelius L.J. "Access to medical care for black Americans with an episode of illness." Journal of the National Medical Association. 83:617-26, 1991 Jul.

3. Kumanyika S.K. "Theoretical and baseline considerations for diet and weight control of diabetes among blacks." Diabetes Care. 13:1154-62, 1990 Nov.

4. Newell G.R. "Nutrient intakes of whites, blacks, and Mexican Americans in southeast Texas." Preventive Medicine. 17:622-33, 1988 Sept.

5. Janlert U. "Unemployment and blood pressure in Swedish building labourers." Journal of Internal Medicine. 231:241-46, 1992 Mar.

6. Cruickshank J.K., Cooper J., Burnett M., et al. " Ethnic differences in fasting plasma C-peptide and insulin in relation to glucose tolerance and blood pressure." The Lancet. 338:832-38, 1991 Oct 5.

7. Francis C.K., "Hypertension, cardiac disease, and compliance in minority patients." American Journal of Medicine. 91:295-365, 1991 Jul 18.

8. Hazuda H.P., Haffner S.M., Stern M.P., et al. "Effects of acculturation and socioeconomic status on obesity and diabetes in Mexican Americans: The San Antonio Heart Study." American Journal of Epidemiology. 128:1289-1300, 1988 Dec.

9. Tielsch J.M., Sommer A., Katz J., et al. "Racial variations in the prevalence of primary open-angle glaucoma:The Baltimore Eye Survey." The Journal of the American Medical Association. 266:369-74, 1991 Jul 17.

10. Greenidge K.C., Dweck M., Vanhalla. "Glaucoma in the black population:a problem of blindness." Journal of the National Medical Association. 80:1305-09, 1988.

11. Jackson A.L., "Operation Sunday School--educating caring hearts to be healthy hearts." Public Health Reports-Hyattsville. 105:85-8, 1990 Jan-Feb.