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Factors associated with regular interprofessional interaction by doctors of optometry in management of patients with diabetes mellitus

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ABSTRACT

Interprofessional interaction is important in the care of patients with diabetes. This study investigated factors associated with doctors' of optometry regular and ongoing interprofessional interaction for patients with diabetes and their satisfaction with interprofessional interaction.

A cross-sectional electronic survey was conducted in 2016 with 9607 doctors of optometry. The survey included consent, demographics, and interprofessional interaction. Univariate and multivariate logistic regression models were used to investigate factors associated with regular interprofessional interaction.

The survey was completed by 668 doctors of optometry who examined patients with diabetes in the previous year. The average age of respondents was 47 years and 54.7% were male. Half (46.0%) practice in the private setting, and 15.7% manage ≥30 patients with diabetes per week. The majority of respondents (96.9%) interact with other healthcare professionals at least once a year and 59.4% interact regularly; 65.6% are satisfied with their interprofessional interaction. Controlling for other factors, doctors of optometry who practice in a rural area [Odds ratio (OR) (95% CI) = 2.81 (1.78–4.44)], spend ≥40% of practice time managing ocular diseases [2.56 (1.75–3.73)], manage ≥30 diabetes patients per week [1.88 (1.07–3.31)], have residency training [1.64 (1.11–2.42)], or have a greater number of years in practice [1.02 (1.01–1.04)] were associated with higher likelihood of regular interprofessional interaction. Doctors of optometry who regularly participate in interprofessional interaction were more likely to be satisfied with their interactions [3.54 (2.54–4.95)] and more likely to believe that team-based care makes a difference in patient outcomes [2.15 (1.01–4.57)] and in patient satisfaction [1.81 (1.00–3.26)]. The barriers to caring for patients with diabetes included patients' lack of diabetes knowledge (41.6% greatly impact/entirely impact) and lack of access to medical information (30.5% greatly impact/entirely impact).

1. Introduction

Diabetes mellitus (DM) is a complex disease with many sequelae resulting in further complications and comorbidities. Diabetic eye diseases, including retinopathy, are common sequelae of DM and can lead to significant morbidity in the form of visual impairment and blindness. In addition, diabetic retinopathy is highly correlated with other types of diabetic microvascular disease, such as nephropathy, dermopathy, and neuropathy,[1–3] making interprofessional interaction crucial when there is evidence of microvascular disease within one system. In addition, many patients with diabetes, or pre-diabetes, may present for eye care as their primary point of contact in the health care community, prompting the doctor of optometry to inquire and investigate the disease.

According to the Bureau of Labor, there are approximately 40,600 doctors of optometry licensed in the US.[4] In the US, doctors of optometry are primary eye care providers, meaning that they are the first provider to assess eye and vision issues. In the US, doctors of optometry manage DM eye disease, up until the point that ophthalmic surgery is required. The American Optometric Association recommendations include that doctors of optometry practice

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collaborative care of patients with DM.[5]

Interprofessional interaction is utilized in eye care for patients with DM by communication and collaboration between eye care providers (doctors of optometry or ophthalmologists), and other members of the DM care team, including the patients' primary care provider, endocrinologist, diabetic educator, dietician, podiatrist, physical therapist, and dentist, among many other providers. In some care systems, there are electronic health care alerts that require a provider to order a diabetes eye exam (which also prompts communication back to the ordering provider that the exam was completed) so that a provider, usually an optometrist or primary care provider, can turn off a diabetes exam reminder. Other typical communication between providers regarding diabetes eye care can occur in written form alerting providers to the status of the patients' eye health and need for follow-up care, one-on-one provider conversations about patient concerns, or team meetings. Therefore, it is widely understood that interprofessional interaction and collaborative care are imperative in the care of a patient with DM,[5–7] though communication about DM care between providers as well as patients remains a concern.[8]

Studies have shown that optimal provider communication and collaboration improve patient outcomes in patients with DM[9] as well as in other conditions,[10,11] improves satisfaction of patients[11,12] and improves the satisfaction level of providers.[13,14] In particular, communication between eye care providers and primary care providers significantly increases patient adherence with DM eye examination recommendations[15]; however, lack of communication from eye care providers to primary care providers was noted by primary care providers as a significant barrier to eye care referrals.[16] Other barriers to optimal multidisciplinary care include patients' financial barriers,[8,16] patients' reluctance to see multiple providers,[14] care coordination,[16] institutional barriers,[16,17] provider attitude differences,[18] provider lack of time,[17] provider "turf" issues,[17] and provider lack of understanding of others' roles.[17]

This study investigated: 1) provider-related factors associated with doctors' of optometry regular and ongoing interprofessional interaction of patents with DM, 2) doctors' of optometry self-reported satisfaction in interprofessional interaction, and 3) doctors' of optometry perceived barriers to interprofessional interaction.

2. Methods

A cross-sectional study was conducted using a survey instrument that was hosted on the website www.surveymonkey.com, which is an internet-based platform. This survey was developed by modifying an instrument that was used in a previous study that evaluated interprofessional interaction in pharmacy.[19] Kritikos et al. developed a 29-item questionnaire to understand pharmacists' perception of their role in asthma management, identify barriers of asthma care, and inter-professional contact regarding the care of patients with asthma. The validation study results showed that the survey showed a strong internal consistency (Cronbach's alpha coefficient of 0.84), and a good construct validity with higher factor loadings. We added three additional questions to the interprofessional satisfaction and team based care, modified questions regarding barriers to "diabetes" care, and added "doctor of optometry" role in diabetes management. Prior to sending the survey to the full subject list, a draft of the survey was sent to 4 doctors of optometry and 1 endocrinologist for review and modifications. The modifications included adjusting the order of questions in the survey, adding (5) demographic questions, adjusting the wording of (6) questions, splitting (3) questions into separate parts, removing (1) question, adding additional answer choices for one domain, and adding (7) additional variables to one domain.

2.1. Survey instrument

After consent, the survey contained 20 questions, including 9 multi-part questions, in the following domains: demographics; interprofessional interaction, satisfaction and beliefs of care of patients with DM; barriers to DM management in 3 areas (my practice setting, healthcare system, and patient); and my role as a doctor of optometry in 3 clinical areas (history taking and review of systems, examination, management) (Appendix I). Three-point or five-point Likert scales were used to capture responses to the survey items.

Regular interprofessional interaction was determined by the question "how often do you interact with the following providers for your patients with diabetes or pre-diabetes?" Responses of "Regular and ongoing interactions" with any providers were defined as regular interprofessional interaction. Doctors' of optometry satisfaction in interprofessional interaction was determined the question "I am satisfied with my contact with other health care providers in regards to the care of my patients with diabetes". Strongly agree or agree responses were defined as "satisfied" with their interprofessional interaction.

2.2. Data collection

The study targeted all practicing doctors of optometry in the US. E-mail addresses were collected to reach the highest number of practicing doctors of optometry. E-mail addresses were obtained from publicly available sources such as the American Academy of Optometry membership database and the database of doctors of optometry practicing in the Veterans' Health Administration; listservs that the investigators had access to, including doctors of optometry employed by academic institutions, doctors of optometry who have inquired about continuing education courses at the investigators institution; and positive response to queries for e-mail addresses for doctors of optometry licensed in the states of Arizona, California, North Carolina, New Jersey and Washington. Further, the e-mail invitation to participate in the survey asked potential subjects to forward the survey to other practicing doctors of optometry who may qualify for participation. Participation was voluntary, confidential, and anonymous. The survey was sent to practicing doctors of optometry from January to March of 2016, via an e-mailed electronic survey link to 9607 doctors of optometry.

2.3. Data analysis

Subjects were excluded if they did not report seeing any patients with DM, were less than 18 years of age, or if they did not provide an answer for the following domains: interprofessional satisfaction and team-based care, barriers in DM management, and my role as an optometrist in DM management.

Descriptive statistics were conducted to summarize survey responders' (doctors of optometry) characteristics. Item analysis was conducted and the items with total correlation value of 0.3 or higher were retained. Internal consistency via Cronbach's alpha for each domain and for the entire scale was examined. Univariate and multivariate logistic regression models were used to investigate factors associated with regular interprofessional interaction.

2.4. Ethical considerations

This study was approved by Western University of Health Sciences Institutional Review Board, and the tenets of the Declaration of Helsinki were followed.