



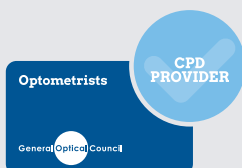
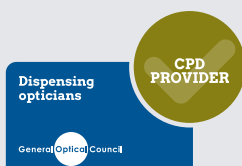
LEARNING DOMAINS



COMMUNICATION

CLINICAL
PRACTICE

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**CLOSING DATE:** 7 June 2022**ANSWERS PUBLISHED:** 1 July 2022**CPD CODE:** C-101055**ONLINE ONLY MCQS**

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CPD CODE: C-101055

Public awareness of diabetes and understanding its effects on ocular health

by Amna Wajid BSc (Hons)

The increasing prevalence of diabetes mellitus amongst the global population is becoming a major health epidemic¹, with an estimated 578 million diabetic adults globally by 2030². The rise of diabetes has resulted in further economic strain on public health services, with Type 2 diabetes alone making up for nine per cent of the UK National Health Service budget, at a cost of more than £8.8bn per year³.

Concurrent with the demographical and epidemiological changes that have occurred over the last decade⁴, diabetes mellitus has become a significant threat to public health and is one of the most prominent causes of vision loss across the world. Notably, diabetes is associated with potentially sight-threatening ocular pathologies such as diabetic retinopathy (Figure 1 - page 2) and diabetic macula oedema⁵ (Figure 2 - page 2).

The World Health Organisation emphasises that diabetic retinopathy is the fifth leading cause of visual impairment and the fourth leading cause of blindness in the world⁶. In the UK alone, it is estimated that 1.5 million people have diabetic retinopathy⁷. Research also indicates that those with diabetes are more likely to develop other eye conditions such as cataract and glaucoma⁸.

The early detection and monitoring of eyecare amongst diabetic patients is, therefore, vital in the prevention of ocular complications, yet this is largely dependent on the current level of knowledge that the public have regarding diabetic eyecare. Additionally, as the forefront of primary eyecare providers in the UK, ophthalmic practices and eyecare professionals solicit a duty of care in augmenting the level of understanding and awareness that diabetic patients have regarding the effects that diabetes can have on their ocular health.

PUBLIC AWARENESS AND UNDERSTANDING

A cross-sectional study was carried out to examine the existing level of public awareness of diabetic eyecare in order to gain a better understanding about the level of knowledge and awareness that diabetic patients have in relation to their diabetes and its effect on ocular health. The research also aimed to highlight how involved local ophthalmic practices were in educating their diabetic patients, and their efficacy in raising public awareness.

The aim of this article is to inform optical professionals of the study results, with a view to enabling relevant improvements to be made to the current approach to diabetic eyecare employed by ophthalmic practices in the UK.

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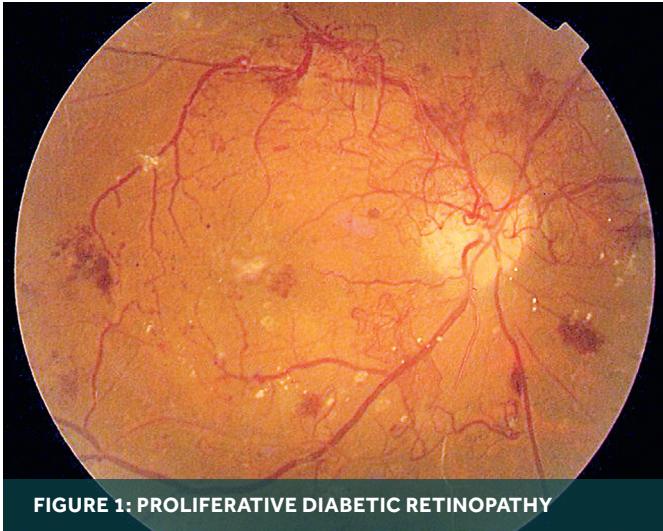


FIGURE 1: PROLIFERATIVE DIABETIC RETINOPATHY



FIGURE 2: DIABETIC MACULA OEDEMA

Images courtesy of Community Eye Health Journal

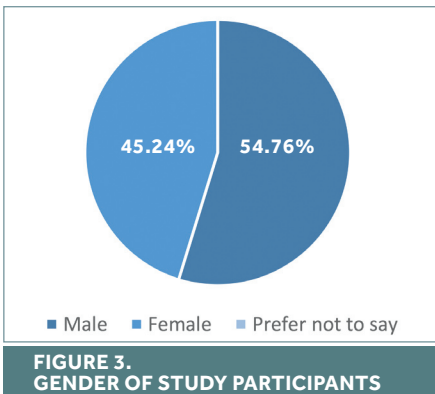


FIGURE 3. GENDER OF STUDY PARTICIPANTS

This cross-sectional study employed a pragmatic, mixed methods approach to research and involved the collection and analysis of both quantitative and qualitative data via self-administrated written questionnaires.

Diabetic participants were recruited over two independent ophthalmic practices in one region in the North West of the UK over a period of two months, from December 2019 to February 2020. A total sample size of 84 patients was achieved, of which 54.76 per cent (n =46) were male and 45.24 per cent (n=38) were female (Figures 3, 4 and 5).

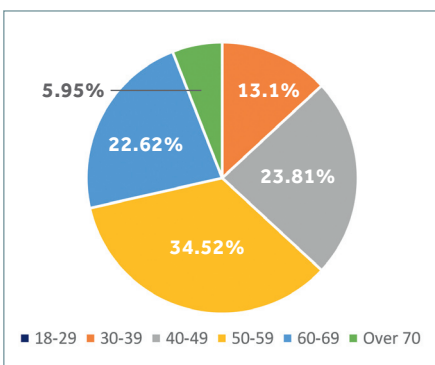


FIGURE 4. AGE OF STUDY PARTICIPANTS

RESEARCH RESULTS AND CONSIDERATIONS

There were six main findings from the data collected in the study, which can be categorised into two areas:

- 1) *What level of understanding and awareness do patients with diabetes have on how diabetes can affect their eye health;* and
- 2) *What is the patient perception of the primary eyecare and optical professionals in their patient care.*

FINDING ONE

Finding one relates to the correlation between how long a patient has had diabetes, and their thoughts as to whether diabetes has affected the health of their eyes.

Participants who had diabetes for more than five years were found to increasingly share the view that diabetes did have an

effect on ocular health, when compared to those who had diabetes for five years and under (Figure 6). This finding reflects the results of similar studies by Ullah *et al*⁹, Foreman *et al*¹⁰ and Gupta *et al*¹¹, which also found a relationship between longer duration of diabetes and better levels of patient knowledge.

This association may be justified by suggesting that a longer time period of having diabetes may be accompanied with increased levels of experience due to a generally greater number of eye-related appointments. As a result, these patients may have received advice from their healthcare professionals regarding diabetic eyecare a greater number of times. This implies that those who have had diabetes for longer may have a statistically higher chance of being aware of the fact that diabetes can have an effect on eye health.

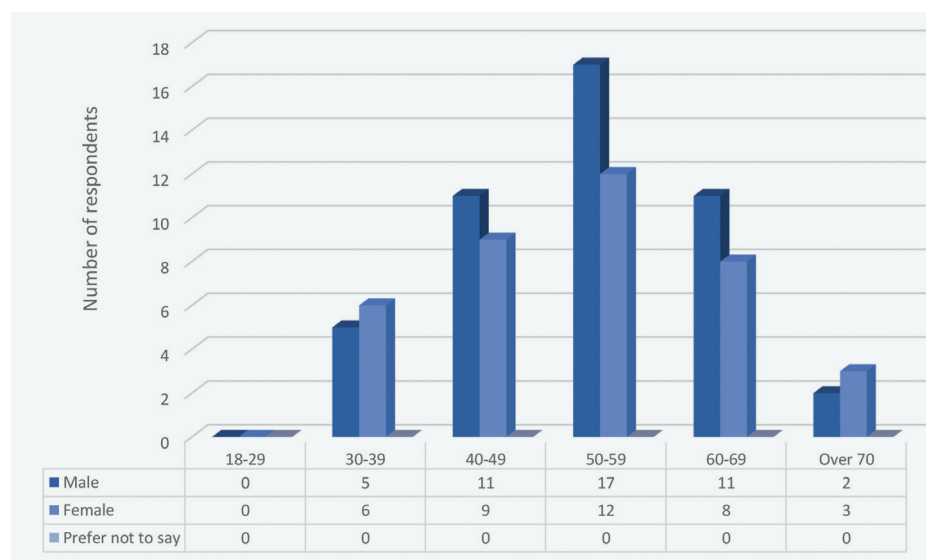


FIGURE 5. GENDER AND AGE DISTRIBUTION OF STUDY PARTICIPANTS

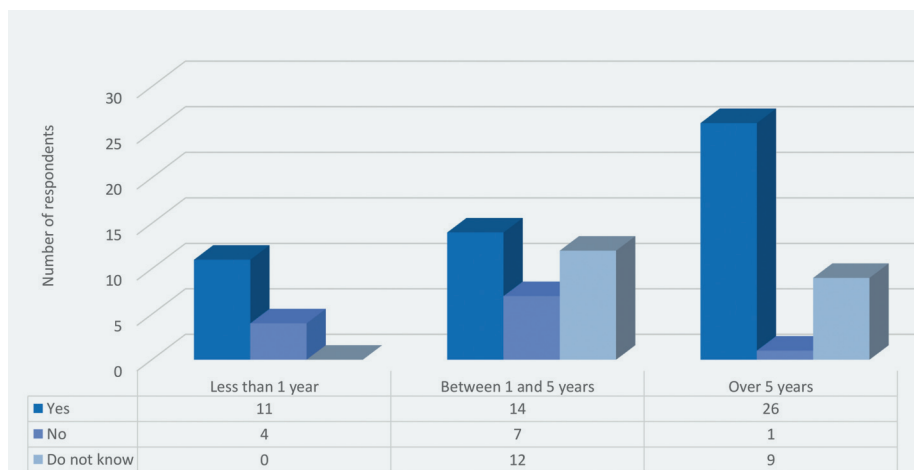


FIGURE 6. CORRELATION BETWEEN DURATION OF DIABETES AND IF PARTICIPANTS THOUGHT IT HAD AN AFFECT ON THE HEALTH OF THEIR EYES

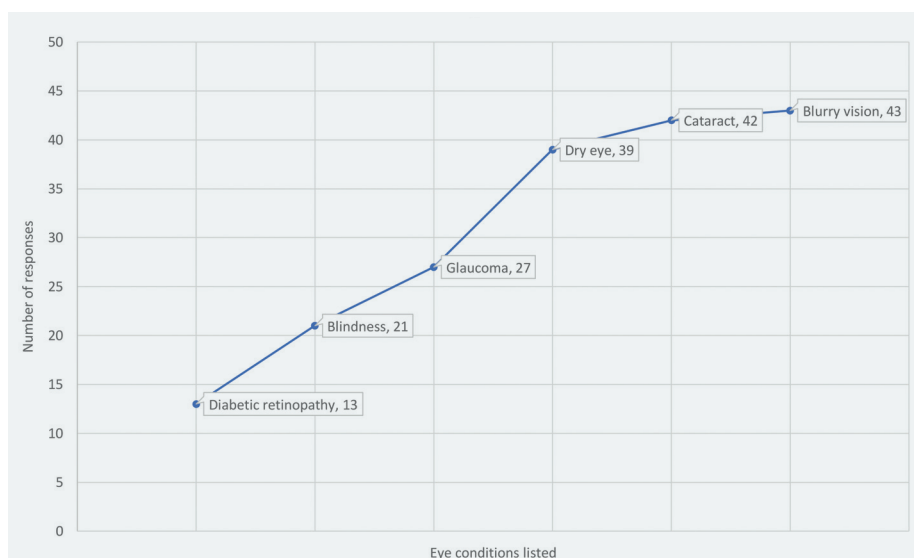


FIGURE 7. RESPONSES GIVEN TO THE QUESTION: "Please list any eye conditions that you think are related to diabetes"

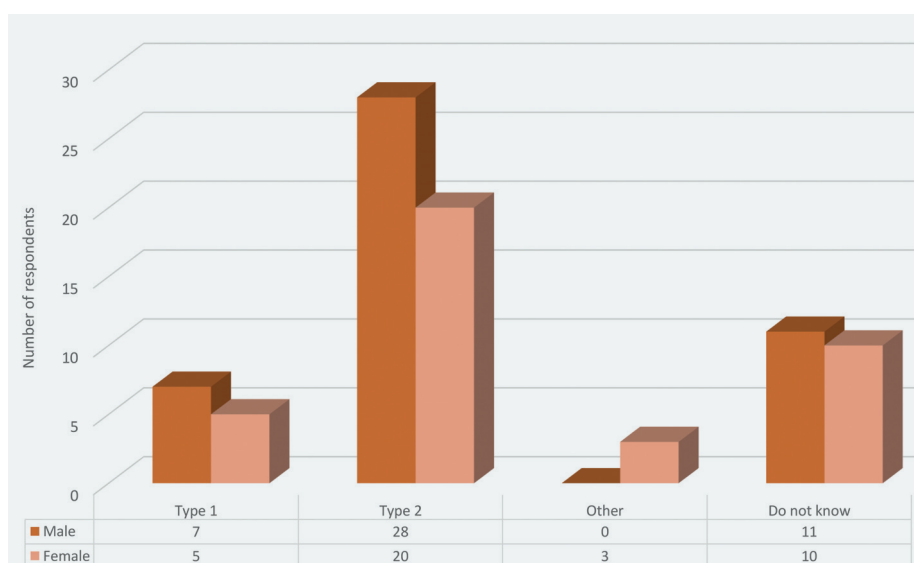


FIGURE 8. TYPE OF DIABETES IN RELATION TO THE GENDER OF STUDY PARTICIPANTS

Equally however, similar studies by Fenwick *et al*¹² and Achigbu *et al*¹³ found no statistical significance between the duration of diabetes and patient knowledge. Therefore, in order to confirm the validity and reliability of this finding, it is recommended that a cross-national, longitudinal study be conducted to more accurately determine whether the duration of diabetes has a significant association with the level of knowledge that diabetic patients have regarding their eyecare.

FINDING TWO

Finding two covers the responses given by participants when asked to list eye conditions they thought were related to diabetes.

Blurry vision, cataract and dry eye were listed as the most prevalent responses, whilst diabetic retinopathy and blindness were cited the least (**Figure 7**). These results are in accord with the findings from similar studies by Hartnett *et al*¹⁴, Achigbu *et al*¹³ and Srinivasan *et al*¹⁵, which also affirmed a lack of knowledge regarding eye pathologies related to diabetes, notably diabetic retinopathy and blindness.

This finding has highlighted the need for increased efforts to be made in augmenting patient awareness about diabetes related eye conditions. This may be achieved through the implementation of educational programmes, which should be made easily accessible to the general public.

Although the UK has implemented campaigns such as Diabetes Week and National Eye Health Week, it could be suggested that the development of online educational programmes on diabetic eyecare may be more effective in engaging with a wider demographic at a faster rate. This is due to the recent rise in digital technology and online learning across both the younger and older generations¹⁶.

The importance of providing educational programmes for the public on diabetic eyecare extends for both diabetic and non-diabetic patients, as studies have shown that those who are educated on diabetes are more likely to provide guidance to family members and friends who are diabetic⁹.

Thus, evaluating the current methods utilised in educating the public on diabetic eyecare and considering a more digital and online approach, may be the way forward in increasing public levels of knowledge

and encouraging patients to actively engage in their eyecare. Indeed, educating the public is a fundamental preventative step in decreasing the number of complications related to diabetes¹⁷.

FINDING THREE

Twenty-five per cent of participants did not know which type of diabetes they had (Figure 8). This finding further emphasises the importance of educating the public on their diabetes and supports the results from a similar study by Huang *et al*¹⁸. The latter study found that 13.2 per cent of participants were unaware of their diabetes status, and 83.4 per cent of participants with diabetic retinopathy were unaware of having the eye disease.

FINDING FOUR

The majority of participants were more knowledgeable regarding the regularity of their diabetic screening recall, compared to their eye examination recall. (Figures 9 and 10).

In line with guidance from the College of Optometrists¹⁹, patients with diabetes who are part of a diabetic retinopathy monitoring scheme have a recommended minimum re-examination interval of two years; those who are not part of a diabetic retinopathy monitoring scheme have a recommended recall of every one year.

A comparatively reduced awareness of eye examination recall demonstrates the need for ophthalmic practices to examine and evaluate the efficacy of the current protocols employed by primary eyecare professionals in informing patients regarding their eye examination recall, and to consider applying additional strategies to ensure that diabetic patients are aware of their recall intervals. Better patient awareness of when they are due for their eye test, and the reason it is important as a patient with diabetes, may increase the attendance of eye examinations, and thereby enable the continued monitoring of eye health in diabetic patients²⁰.

One of the recommendations would be through the development of continued professional development courses for primary eyecare professionals on how to more effectively communicate with diabetic patients, to make them more aware of their eye examination recalls by emphasising on the reasons why regular monitoring of eye health is of such vital importance to prevent ocular complications.

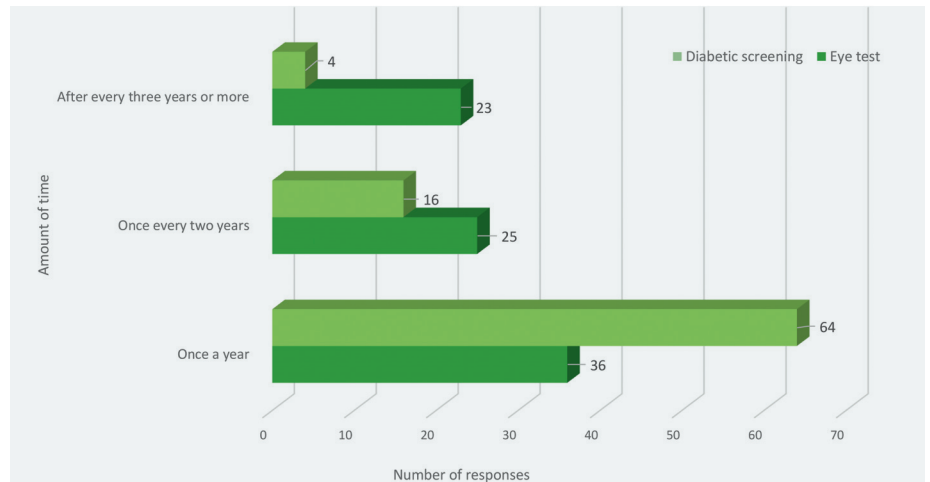


FIGURE 9. COMPARISON BETWEEN RESPONSES TO HOW OFTEN PARTICIPANTS THOUGHT THEY WERE DUE FOR AN EYE TEST AND DIABETIC SCREENING

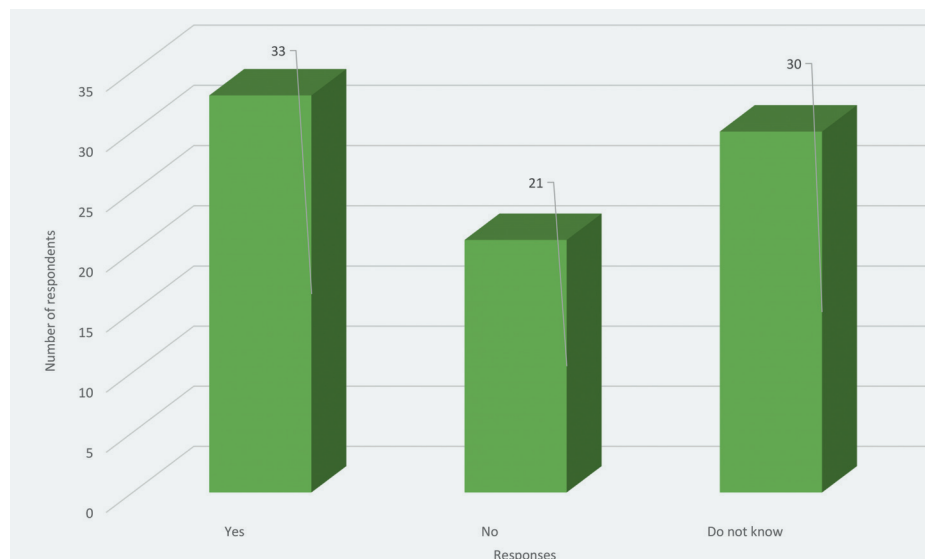


FIGURE 10. RESPONSES GIVEN TO THE QUESTION: "Do you think there is a difference between a diabetic screening and an eye test?"

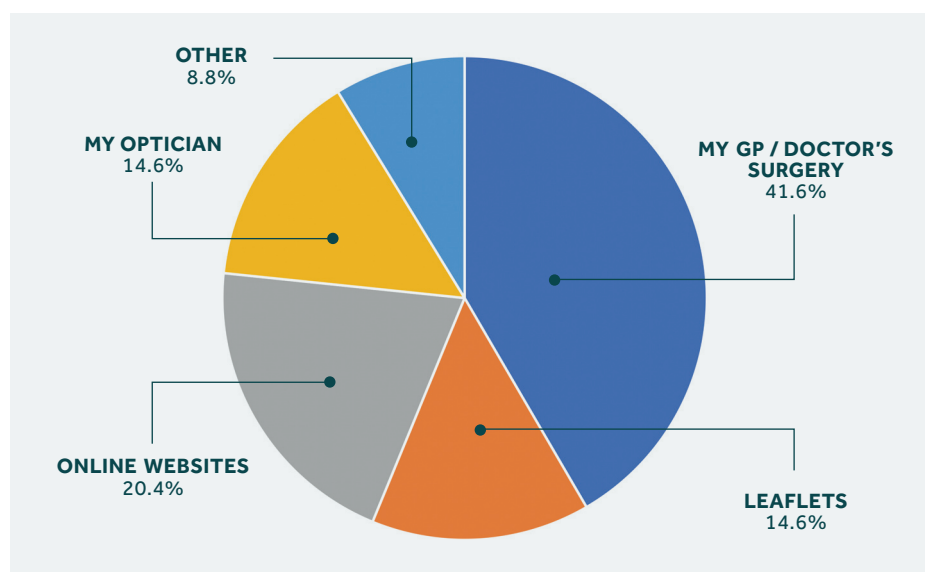


FIGURE 11. RESPONSES GIVEN TO THE QUESTION: "What source(s) do you think have provided you with the most information regarding your diabetes and eyecare?"

Another recommendation would be for optical practices to implement patient-focused booking systems, in order to improve patient awareness of their eye examination recall and to encourage better levels of attendance.

Patient-focused booking is a method of organising medical appointments that is currently being utilised in hospitals for consultant outpatient appointments in Wales, Scotland and Northern Ireland²¹. It involves advising patients to book in their appointments at a maximum of four to six weeks before their recall interval, and has proven to reduce the number of non-attendees²² as patients are able to book an appointment closer to their due date, thereby increasing patient memorability of when their appointment is due²³.

Thus, implementing patient-focused booking in ophthalmic practices may aid in improving patient memorability of their eye examination recall, and ensure that diabetic patients are seen at the correct interval. As articulated by Khohomela and Maluleke²⁴, eye examinations at specific regular intervals are a preventative measure for ocular complications and, as such, patient awareness of their eye examination recall is profoundly essential in ensuring the regular monitoring of eye health.

HOW CAN EYECARE PROFESSIONALS PLAY A PART?

FINDING FIVE

Another important finding attained from this study, were the responses given by participants when asked which sources provided them with the most information about their diabetes and eyecare. The most cited source was their GP or doctor's surgery (41.6 per cent). Participants had received more information from online sources compared to their opticians. (Figures 11, 12 and Table 1).

Additionally, participants were asked what more they thought their opticians could do to ensure that they had better levels of awareness regarding diabetic eyecare. For this qualitative question, the majority of participants stated that receiving written advice via leaflets and booklets would aid in increasing their ability to retain the information given by their optician. These responses relate to the results from a similar study by Hartnett *et al*¹⁴, in which clinicians

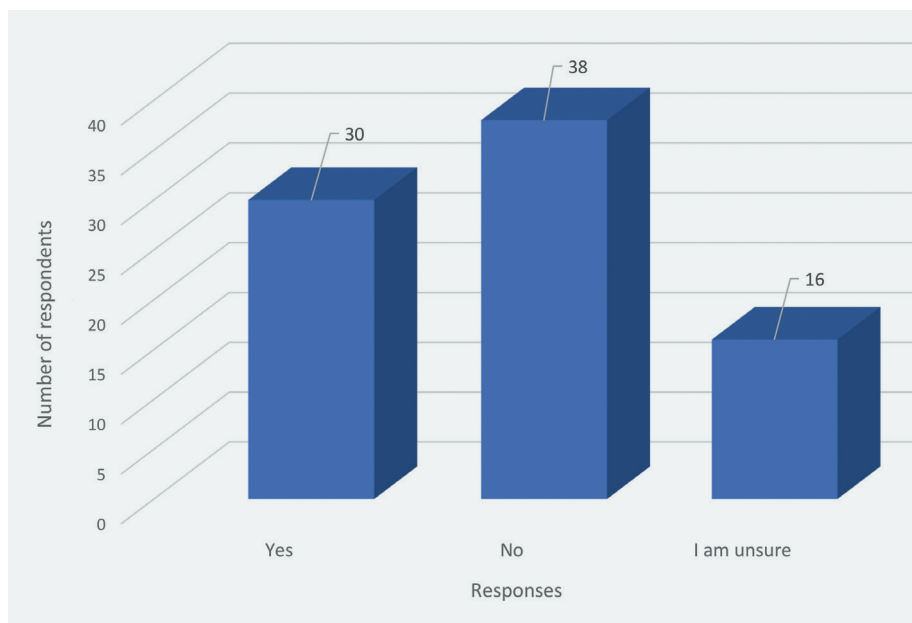


FIGURE 12: RESPONSES GIVEN TO THE QUESTION: "Have you ever received any advice or information from your opticians regarding your diabetes and eyecare?"

concluded that more informative educational methods using written and visual materials were required to improve patient knowledge on the effects that diabetes can have on ocular health.

This finding indicates the need for ophthalmic practices to consider providing patients with more written resources in order to increase patient knowledge of diabetic eyecare. This may include increased emphasis on providing all diabetic patients with additional materials after their eye examinations, such as information leaflets available from the College of Optometrists or handouts published by the National Eye Institute.

It may also be suggested that the development of information brochures on diabetic eyecare in a wider range of languages may enable more people to be educated.

FINDING SIX

The final question in the research questionnaire sought to determine patient perceptions of their own level of knowledge regarding diabetic eyecare, using the Likert scale (Table 2). Contrary to expectations, only 14.29 per cent considered their level of knowledge to be below average, indicating that patients believe they have adequate knowledge regarding diabetic eyecare. However, their responses to other questions within the questionnaire do not reflect this.

This finding demonstrates the significant improvements that may be required to bridge the gap between many patients' low current knowledge on diabetic eyecare and the information that is actually available for them. This further reinforces the need to better educate the public about diabetes and its effects on eye health.

TABLE 1 - RESPONSES GIVEN TO THE QUESTION: "What method of advice or information have you received from your local optician? Please tick all that apply"

VERBAL ADVISE	LEAFLET OR BOOKLET	OTHER PLEASE SPECIFY
24	5	1

TABLE 2 - RESPONSES GIVEN TO THE QUESTION: "How would you describe your level of knowledge regarding diabetes and eyecare?"

1 POOR	2	3 AVERAGE	4	5 EXCEPTIONAL
9	3	30	22	20

CONCLUSION AND RECOMMENDATIONS

The empirical findings in this study enhance our understanding of the level of knowledge that diabetic patients have in relation to their eyecare. They also provides a greater insight into the perceived role that dispensing opticians and optometrists in ophthalmic practices have in bridging the gap between patients and their awareness.

Whilst this study may not confirm the responses as a representative of the national diabetic population due to the relatively small sample size of 84 participants, it does partially substantiate in enabling common themes to be identified and showcases some interesting statistical findings. The findings of this study suggest a general lack of coherent knowledge of diabetic eyecare amongst participants, and provides motivation for a cross-national study to be conducted, involving a greater sample size to achieve more valid and reliable results.

Notwithstanding its limitations, this study makes several recommendations for practical applications on how the implications from the findings may be implemented, in order to improve patient

knowledge about diabetic eyecare in the UK. These include the development of online educational courses for the public, and additional training for primary eyecare professionals.

This study also introduces the idea of implementing patient-focused booking systems in ophthalmic practices to improve patient memorability of their eye examination recalls, and recommends for more written resources to be deployed by ophthalmic practices to encourage patients to actively engage in their eyecare.

The research concludes that ophthalmic practices may need to enhance and develop a patient-centred approach to primary diabetic eyecare, in order to improve patient levels of knowledge and enable better management and prevention of ocular complications relating to diabetes.

AMNA WAJID is a first-class BSc (Hons) ophthalmic dispensing graduate and a student optometrist. Her diligence and passion for optics has led her to choose to qualify as both a dispensing optician and optometrist, with a special interest in clinical research.

LEARNING OUTCOMES FOR THIS CPD ARTICLE

DOMAIN: Communication

2.1: *Formulate appropriate communication strategies to assist diabetic patients in developing their understanding of the ocular pathology implications of diabetes and how to support their own care.*

DOMAIN: Clinical Practice

5.3: *Develop a greater understanding of research into diabetic patients; their awareness of related ocular pathology and their understanding of how diabetic and ocular care are linked, and how eyecare practitioners may be able to support their diabetic patients in optical practice.*

5.4: *Reflect on your practice in relation to diabetic patients and communication – and seek to improve the quality of your work through activities such as reviews, audits or risk assessments.*

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