

Awareness Level and Practice of Diabetic Foot Prevention among Diabetic Patients in the Kingdom of Saudi Arabia

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Abstract

Introduction: Diabetes is a group of metabolic illnesses characterized by a substantial increase in blood glucose levels and disruptions to the metabolism of proteins, fats, and carbohydrates. Diabetes is associated with a number of complications, both macro- and micro-vascular. There are more than 463 million diabetics in the world. By 2040, 642 million more people worldwide are expected to have diabetes than already do. We thus prepared this study in the hopes of raising awareness among diabetics, since, despite the fact that diabetic foot is one of the most dangerous consequences of diabetes, there are no awareness programs about it, and diabetics have poor levels of awareness and understanding about it. **Objectives:** The main objective of this study was to measure the knowledge level among diabetic patients about diabetic foot and to assess the adherence level among diabetic patients to foot care. **Materials and Methods:** This cross-sectional observational research was carried out on Saudi Arabian diabetes patients from July 2024 to February 2025. The responses provided by participants served as the source of data. Demographic details, such as age, gender, and educational attainment were included in the T questionnaire. The sample size with a 95% confidence level was determined using the Qualtrics calculator; 384 was the minimum sample size that could be employed. include all people with diabetes mellitus (DM) in the Kingdom of Saudi Arabia who are 18 years of age or older, regardless of gender, including both types 1 and 2 DM. **Results:** This study aimed to assess the awareness and practices regarding diabetic foot care among 469 diabetic patients in Saudi Arabia. Findings revealed a significant knowledge gap, with only 43.9% demonstrating high awareness of essential foot care practices despite 88.3% recognizing the dangers of foot ulcers. While 68.2% exhibited positive attitudes toward foot care, only 16.6% practiced recommended foot care behaviors effectively. Alarmingly, 79.5% only sought foot check-ups when symptomatic, highlighting a critical deficiency in preventive care. Statistically significant relationships were found between knowledge and factors, such as gender and occupational status, indicating the need for targeted educational interventions to improve foot care practices among diabetic patients. **Conclusion:** The study identified significant gaps in both knowledge and practice of diabetic foot prevention among diabetic patients in Al Baha Province. While awareness levels were generally high, this knowledge did not translate into adequate preventive practices, underscoring the need for targeted educational interventions.

Key words: Awareness, knowledge, Saudi Arabia

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INTRODUCTION

Diabetes is a collection of metabolic disorders defined by a significant rise in blood glucose levels and disturbance in the metabolism of lipids, proteins, and carbohydrates.^[1] Numerous consequences are linked to diabetes, which can be categorized as macro- or micro-vascular.^[2] Micro-vascular complications include retinopathy, nephropathy, and neuropathy, while macro-vascular complications include peripheral arterial disease and coronary artery disease.

As to the most recent study published by the International Diabetes Federation, the global population with diabetes exceeds 463 million individuals.^[3,4] Global diabetes prevalence is predicted to increase to 642 million by 2040.^[5]

According to a 2023 study that attempts to evaluate the knowledge, beliefs, behaviors, and risk factors impacting diabetic foot ulcers in people with diabetes. The study subjects showed poor foot care practices and limited information.^[6] While there is a study conducted in 2022, Participants in the study research with diabetes had high knowledge, attitudes, and practice ratings.^[7] Another cross-sectional study was conducted in 2020. The research population's diabetes patients with low incomes, low educational attainment, and unemployment had inadequate foot self-care routines and knowledge.^[8]

Due to the lack of awareness programs about diabetic foot and the low level of awareness and knowledge among diabetics about it, even though diabetic foot is one of the most serious complications of diabetes, we therefore wrote this study in the hope of increasing knowledge among diabetics.

Objectives

The main objective of this study was to measure the knowledge level among diabetic patients about diabetic foot and to assess the adherence level among diabetic patients to foot care.

MATERIALS AND METHODS

This cross-sectional observational research was carried out on Saudi Arabian diabetes patients from July 2024 to February 2025. The responses provided by participants served as the source of data. Demographic details, such as age, gender, and educational attainment were included in the questionnaire. The sample size with a 95% confidence level was determined using the Qualtrics calculator; 384 was the least sample size that could be employed.

The inclusion criteria were all Saudi citizens with diabetes mellitus (DM) in the Kingdom of Saudi Arabia who are

18 years of age or older, regardless of gender, including both types 1 and 2 DM, and who would agree to participate in this study and complete questionnaires, and the exclusion of all non-diabetic population.

Participants were asked if they had been diagnosed with diabetes before or had had diabetic foot, and about the extent of their knowledge of patients with diabetes.^[9] Questions about diabetic foot care and whether they believe that diabetics may suffer from decreased sensation, decreased blood flow, ulcers, or gangrene in the foot. They were also asked if they visit a doctor when they notice any wounds or inflammation in the foot, and their care behavior (washing the foot, wearing socks, appropriate shoes), and if there is anyone in the family suffering from diabetes or diabetic foot.

In all, 26 statements served to assess the participants' attitudes and degree of knowledge: 10 statements for demographics, 5 for knowledge, 5 for attitudes, and 6 for practice. One point is given for correct answers, and zero points are given for incorrect answers or "I don't know." For scoring, the maximum score was 17 and divided as follows: The original Bloom's cut-off points, 80.0–100.0%, 60.0–79%, and 59.0%. The participants were divided into three groups based on their scores. Knowledge score varied from 0 to 5 points and was classified into three levels as follows: Those with a score of 3 or below (≤ 3) were classified as having a low level of knowledge, those with scores of 4 as having a moderate level of knowledge, and those with scores of (5) as a high level of knowledge.

Attitude scores varied from 0 to 5 points and were classified into three levels as follows: Those with a score of 3 or below (≤ 3) were classified as having a low level of attitudes, those with scores of 4 as having a moderate level of attitudes, and those with scores of (5) as having a high level of attitudes. Practice scores varied from 0 to 6 points and were classified into three levels as follows: Those with a score of 3 or below (≤ 3) were classified as having a low level of practice, those with scores of 4 as having a moderate level of practice, and those with scores 5 or above (≥ 5) as having a high level of practice.

The data were entered using the "Microsoft Office Word" program for Windows (2024). The data were analyzed quantitatively using a cross-sectional study.

Collected data was entered on a computer using Microsoft Word (2024) for Windows. The data were transferred to the Mendeley program. To be assessed statistically.

RESULTS

Table 1 displays various demographic parameters of the participants with a total number of 469. Of note, the mean age of participants is 34.9 years, with a major component

Table 1: Sociodemographic characteristics of participants (n=469)

Parameter	No.	Percentage
Age (mean:34.9, STD:12.3)		
23 or less	124	26.4
24–30	88	18.8
31–45	157	33.5
More than 45	100	21.3
Gender		
Female	331	70.6
Male	138	29.4
Height (mean: 162.8, STD:8.9)		
158 or less	174	37.1
159–169	182	38.8
170 cm or more	113	24.1
Weight (mean:72.4, STD:18.4)		
60 kg or less	137	29.2
61–79 kg	189	40.3
80 kg or more	143	30.5
Occupational status		
Student	137	29.2
Employed	200	42.6
Unemployed	106	22.6
Retired	26	5.5
Nationality		
Saudi	412	87.8
Non-Saudi	57	12.2
Monthly income		
<1000	123	26.2
1000–5000	125	26.7
5001–10000	88	18.8
10001–15000	69	14.7
More than 15000	64	13.6
Residential region		
Northern region	156	33.3
Southern region	97	20.7
Central region	96	20.5
Eastern region	32	6.8
Western region	88	18.8
Marital status		
Single	198	42.2
Married	236	50.3
Divorced	23	4.9
Widowed	12	2.6
Educational level		
Primary school	10	2.1

(Contd...)

Table 1: (Continued)

Parameter	No.	Percentage
Middle school	7	1.5
High school	96	20.5
Diploma	46	9.8
Bachelor's degree	275	58.6
Post-graduate degree	28	6.0
Uneducated	7	1.5
Do you have any family members diagnosed with diabetes?		
No	127	27.1
Yes	342	72.9
Have you been diagnosed with diabetes?		
No	349	74.4
Yes	120	25.6
Have you got diabetic foot?		
No	461	98.3
Yes	8	1.7

STD: Standard deviation

of patients being aged 31–45 years (33.5%). The gender distribution, with the majority of females (70.6%), emphasizes the presence of potential gender-related trends which are important to the interest of the study. Variability in height and weight statistics is shown by the majority being 159–169 cm and 61–79 kg, respectively. 42.6% of participants are employed, and a considerable portion is unemployed or retired. This may suggest that local cultural or environmental factors influencing health outcomes might be the cause for its overwhelmingly Saudi national representation (87.8%). Of note, the high rate of family history of diabetes (72.9%) in combination with a relatively high rate of diagnosis of diabetes in participants (25.6%) emphasizes the public health significance of these findings and their associated extremely low rate of diabetic foot complications reported (1.7%).

As shown in Figure 1, the figure illustrates the practice level associated with diabetic foot care. 56.9% (267 patients) fall into low practice level, meaning more than half of the patients were not following recommended foot care practices. Only 26.4% (124 patients) demonstrate a moderate degree of practice and only 16.6% (78 patients) present with a high degree of adherence to foot care routines. These findings dramatically highlight the gap between knowledge, attitude, and what people actually do.

Table 2 illustrates the knowledge and attitudes of diabetic patients relative to diabetic foot care in a sample of 469 individuals. Interestingly, a large majority, with 65.9% identifying that diabetes can decrease blood flow to the feet and 79.5% understanding that there is a chance that a person can no longer feel a thing. It should also be noted that 88.3% and 88.7% are aware of the dangers of developing foot ulcer and gangrene. This awareness, however, is reflected in that a proportion (50.1%) expressed scepticism as to the need for

routine check-ups in diabetes clinics, indicating a situation of discrepancy between knowledge and proactive healthcare behavior. Another clearly low willingness is the ability to follow self-care practices, as 52.9% believe that they should be able to treat diabetic foot problems independently.

As shown in Figure 2, the data on the frequency of foot checkups among diabetic patients, with a total sample size of 469, reveals suboptimal healthcare-seeking behavior. Alarming, 79.5% (373 patients) report going for foot checkups only when they are ill, highlighting a reactive rather than proactive approach to foot care. Only 5.1% (24 patients) attend checkups once a month, which aligns with recommended practices for early detection and prevention of complications. In addition, 11.1% (52 patients) go for checkups every 6 months, while 4.3% (20 patients) do so once a year.

Table 3 demonstrates the data of 469 people that presents the foot care practices of diabetic patients. None of this is surprising; a strikingly high percentage, 95.9%, reported that they washed their feet every day – a fundamental commitment to hygiene which is paramount in diabetes management. The combined

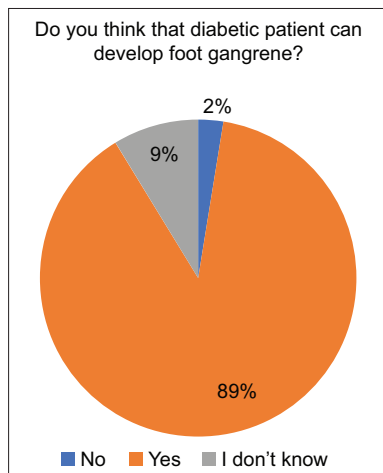


Figure 1: Illustrates practice level associated with diabetic foot care among participants

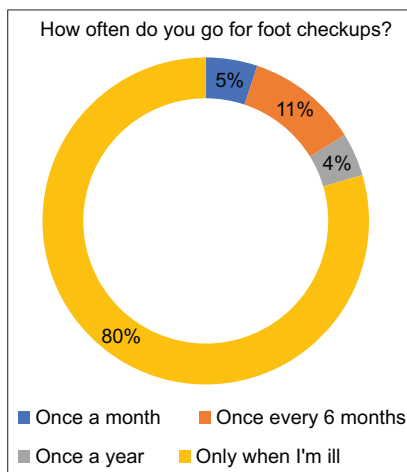


Figure 2: Rate of doing foot checkups among participants

Table 2: Parameters related to knowledge and attitude of diabetic patients regarding diabetic foot care (n=469)

Parameter	No.	Percentage
Do you think that diabetes can reduce blood flow to the diabetic patients' feet?		
No	25	5.3
Yes	309	65.9
I don't know	135	28.8
Do you think that a diabetic patient can develop a lack of sensation on their feet?		
No	15	3.2
Yes	373	79.5
I don't know	81	17.3
Do you think that a diabetic patient can develop foot ulcers?		
No	16	3.4
Yes	414	88.3
I don't know	39	8.3
Do you think that a diabetic patient can develop foot gangrene?		
No	12	2.6
Yes	416	88.7
I don't know	41	8.7
Do you think that smoking can reduce blood flow to the feet?		
No	29	6.2
Yes	286	61.0
I don't know	154	32.8
A diabetic patient must examine his feet for any wounds every day		
Strongly agree	333	71.0
Agree	115	24.5
Disagree	19	4.1
Strongly disagree	2	0.4
Diabetic patients have to visit the doctor when there is an infection or wound on his feet		
Strongly agree	372	79.3
Agree	91	19.4
Disagree	5	1.1
Strongly disagree	1	0.2
A diabetic patient must wear special shoes based on his doctor instructions to avoid diabetic foot		
Strongly agree	341	72.7
Agree	113	24.1
Disagree	10	2.1
Strongly disagree	5	1.1
I don't think that the diabetic patient should go for routine checkups in the diabetes clinic		

(Contd...)

Table 2: (Continued)

Parameter	No.	Percentage
Strongly agree	69	14.7
Agree	28	6.0
Disagree	137	29.2
Strongly disagree	235	50.1
I believe that I could treat myself, if I got diabetic foot without the need of a doctor consultation		
Strongly agree	44	9.4
Agree	40	8.5
Disagree	137	29.2
Strongly disagree	248	52.9

Table 3: Practice of diabetic patients regarding diabetic foot care (n=469)

Parameter	No.	Percentage
Do you wash your feet daily?		
No	19	4.1
Yes	450	95.9
Do you continuously wear cotton socks?		
No	220	46.9
Yes	249	53.1
Do you walk barefoot frequently?		
No	231	49.3
Yes	238	50.7
How often do you change your footwear?		
When slippers are damaged	149	31.8
Once a year	64	13.6
More than once a year	256	54.6
How often do you go for foot checkups?		
Once a month	24	5.1
Once every 6 months	52	11.1
Once a year	20	4.3
Only when I'm ill	373	79.5
What would you do if you find an abnormality on your feet?		
Manage it by yourself	126	26.9
Consult a doctor	328	69.9
Ignore and don't treat it	15	3.2

result that almost half don't wear cotton socks all the time is a cause for concern, not least because of the fabric's ability to soak up moisture, which is essential to the health of the feet. Frequent walking barefoot is also popular, in about 50.7% of participants, potentially leading to injury or infection. Almost half of the participants replace their shoes more than once a year, signaling awareness of the need for a pair of good footwear. The alarming fact is that 79.5% only go to a foot checkup when they are ill, showing a huge hole in preventive care.

Table 4: Knowledge of diabetic patients regarding diabetic foot care score results

Knowledge level	Frequency	Percentage
High knowledge level	206	43.9
Moderate knowledge	108	23.0
low knowledge level	155	33.0
Total	469	100.0

Table 5: Attitude of diabetic patients regarding diabetic foot care score results

Attitude level	Frequency	Percentage
High attitude level	320	68.2
Moderate attitude	87	18.6
Low attitude level	62	13.2
Total	469	100.0

Table 6: Practice of diabetic patients regarding diabetic foot care score results

Practice level	Frequency	Percentage
High practice level	78	16.6
Moderate practice	124	26.4
Low practice level	267	56.9
Total	469	100.0

Table 4 shows how diabetic patients' knowledge of diabetic foot care will differ. In addition, only 43.9% of patients had high levels of knowledge for important foot care practices, implying that a large portion of people are informed about basic foot care. The moderate knowledge level (23%) as well as the low level (33%) indicate, however, that over half of the patients are not aware enough.

Table 5 looks at attitudes of diabetic patients toward diabetic foot care, which overall give fairly positive results. An astounding 68.2% of patients have a high attitude level, showing a strong "attitude" and a positive "approach" regarding foot care practices. This is a promising finding because adherence to preventative measures is dependent on attitude. However, the 13.2% with low attitudes and the 18.6% moderate attitudes indicate room for improvement.

Table 6 shows a concerning practice of diabetic foot care in our patients. Only 16.6% manage to produce a high level of practice, indicating a very small proportion of individuals who actually practice recommended foot care. While a majority of 56.9% are low practice, 26.4% are moderate, and 5.7% practice fully. There is substantial gap between knowledge, attitude, and practice which means that there is a lack of awareness and positive attitudes into consistent action.

Table 7 shows that knowledge of diabetic foot prevention among diabetic patients has a statistically significant relation

Table 7: Relation between knowledge of diabetic foot prevention among diabetic patients and sociodemographic characteristics

Parameters	Knowledge level		Total (n=469)	P-value*
	High knowledge level	Moderate or low		
Gender				
Female	128 62.1%	203 77.2%	331 70.6%	0.0001
Male	78 37.9%	60 22.8%	138 29.4%	
Age				
23 or less	53 25.7%	71 27.0%	124 26.4%	0.373
24–30	34 16.5%	54 20.5%	88 18.8%	
31–45	68 33.0%	89 33.8%	157 33.5%	
More than 45	51 24.8%	49 18.6%	100 21.3%	
Height				
158 or less	65 31.6%	109 41.4%	174 37.1%	0.005
159–169	77 37.4%	105 39.9%	182 38.8%	
170 cm or more	64 31.1%	49 18.6%	113 24.1%	
Weight				
60 kg or less	50 24.3%	87 33.1%	137 29.2%	0.094
61–79 kg	86 41.7%	103 39.2%	189 40.3%	
80 kg or more	70 34.0%	73 27.8%	143 30.5%	
Occupational status				
Student	69 33.5%	68 25.9%	137 29.2%	0.0001
Employed	96 46.6%	104 39.5%	200 42.6%	
Unemployed	27 13.1%	79 30.0%	106 22.6%	
Retired	14 6.8%	12 4.6%	26 5.5%	
Nationality				
Saudi	185 89.8%	227 86.3%	412 87.8%	0.250
Non-Saudi	21 10.2%	36 13.7%	57 12.2%	

(Contd...)

Table 7: (Continued)

Parameters	Knowledge level		Total (n=469)	P-value*
	High knowledge level	Moderate or low		
Monthly income				
<1000	45 21.8%	78 29.7%	123 26.2%	0.061
1000–5000	51 24.8%	74 28.1%	125 26.7%	
5001–10000	39 18.9%	49 18.6%	88 18.8%	
10001–15000	34 16.5%	35 13.3%	69 14.7%	
More than 15000	37 18.0%	27 10.3%	64 13.6%	
Residential region				
Northern region	57 27.7%	99 37.6%	156 33.3%	0.036
Southern region	55 26.7%	42 16.0%	97 20.7%	
Central region	44 21.4%	52 19.8%	96 20.5%	
Eastern region	13 6.3%	19 7.2%	32 6.8%	
Western region	37 18.0%	51 19.4%	88 18.8%	
Marital status				
Single	86 41.7%	112 42.6%	198 42.2%	0.864
Married	105 51.0%	131 49.8%	236 50.3%	
Divorced	11 5.3%	12 4.6%	23 4.9%	
Widowed	4 1.9%	8 3.0%	12 2.6%	
Educational level				
Primary school	1 0.5%	9 3.4%	10 2.1%	0.037
Middle school	2 1.0%	5 1.9%	7 1.5%	
High school	38 18.4%	58 22.1%	96 20.5%	
Diploma	16 7.8%	30 11.4%	46 9.8%	
Bachelor's degree	133 64.6%	142 54.0%	275 58.6%	

(Contd...)

Table 7: (Continued)

Parameters	Knowledge level		Total (n=469)	P-value*
	High knowledge level	Moderate or low		
Post-graduate degree	15 7.3%	13 4.9%	28 6.0%	
Uneducated	1 0.5%	6 2.3%	7 1.5%	
Do you have any family members diagnosed with diabetes?				
No	47 22.8%	80 30.4%	127 27.1%	0.066
Yes	159 77.2%	183 69.6%	342 72.9%	
Have you been diagnosed with diabetes?				
No	155 75.2%	194 73.8%	349 74.4%	0.716
Yes	51 24.8%	69 26.2%	120 25.6%	
Have you got diabetic foot?				
No	205 99.5%	256 97.3%	461 98.3%	0.071
Yes	1 0.5%	7 2.7%	8 1.7%	

*P-value was considered significant if ≤ 0.05

to gender ($P = 0.0001$), height ($P = 0.005$), occupational status ($P = 0.0001$), residential region ($P = 0.036$), and educational level ($P = 0.037$). It also shows a statistically insignificant relation to age, weight, nationality, monthly income, marital status, having a family member suffering from diabetes, themselves suffering from diabetes, and whether the participants have diabetic foot.

Table 8 shows that the attitude of diabetic foot prevention among diabetic patients has a statistically significant relation to nationality ($P = 0.017$) and whether the participants have diabetic foot ($P = 0.008$). It also shows a statistically insignificant relation to gender, age, occupational status, height, weight, residential region, educational level, monthly income, marital status, having a family member suffering from diabetes, and themselves suffering from diabetes.

Table 9 shows that the practice level of diabetic foot prevention among diabetic patients has a statistically significant relation to gender ($P = 0.0001$) and weight ($P = 0.030$). It also shows a statistically insignificant relation to age, height, occupational status, nationality, monthly income, residential region, marital status, educational level, having a family member suffering from diabetes, themselves suffering from diabetes, and whether the participants have diabetic foot.

DISCUSSION

The worldwide increase of DM remains a major public health problem due to its major health complications, including diabetic foot.^[10-12] This study established its main goal to study diabetic foot prevention practices alongside awareness among diabetic patients across Al Baha Province. Our discussion ties present study results to previous research publications while emphasizing the findings' significance and explains the constraints observed throughout our work.

Results showed that a large number of participants possessed an understanding about diabetes-related foot blood flow reduction (65.9%) as well as diminished sensation (79.5%), similar to awareness levels reported in other population studies. The research conducted by Seid *et al.* showed that 50.8% of diabetic patients practiced an excellent foot self-care strategy.^[13] Research by McInnes *et al.* showed that assessment of patient knowledge specifically affects their ability to maintain proper foot care.^[14] The participants' understanding concerning diabetes complications' dangers rated highly, but only 49.9% recognized the importance of consulting with diabetes clinics regularly. The research shows a practice-knowledge disconnect comparable to what Magbanua and Lim-Alba documented in their findings about diabetic patients.^[15]

Table 8: Attitude level of diabetic foot prevention among diabetic patients in association with sociodemographic characteristics

Parameters	Attitude level		Total (n=469)	P-value*
	High attitude level	Moderate or low		
Gender				
Female	234 73.1%	97 65.1%	331 70.6%	0.076
Male	86 26.9%	52 34.9%	138 29.4%	
Age				
23 or less	78 24.4%	46 30.9%	124 26.4%	0.282
24–30	59 18.4%	29 19.5%	88 18.8%	
31–45	108 33.8%	49 32.9%	157 33.5%	
More than 45	75 23.4%	25 16.8%	100 21.3%	
Height				
158 or less	122 38.1%	52 34.9%	174 37.1%	0.104
159–169	130 40.6%	52 34.9%	182 38.8%	
170 cm or more	68 21.3%	45 30.2%	113 24.1%	
Weight				
60 kg or less	102 31.9%	35 23.5%	137 29.2%	0.178
61–79 kg	124 38.8%	65 43.6%	189 40.3%	
80 kg or more	94 29.4%	49 32.9%	143 30.5%	
Occupational status				
Student	89 27.8%	48 32.2%	137 29.2%	0.219
Employed	132 41.3%	68 45.6%	200 42.6%	
Unemployed	78 24.4%	28 18.8%	106 22.6%	
Retired	21 6.6%	5 3.4%	26 5.5%	
Nationality				
Saudi	289 90.3%	123 82.6%	412 87.8%	0.017
Non-Saudi	31 9.7%	26 17.4%	57 12.2%	

(Contd...)

Table 8: (Continued)

Parameters	Attitude level		Total (n=469)	P-value*
	High attitude level	Moderate or low		
Monthly income				
<1000	78 24.4%	45 30.2%	123 26.2%	0.640
1000–5000	91 28.4%	34 22.8%	125 26.7%	
5001–10000	60 18.8%	28 18.8%	88 18.8%	
10001–15000	47 14.7%	22 14.8%	69 14.7%	
More than 15000	44 13.8%	20 13.4%	64 13.6%	
Residential region				
Northern region	106 33.1%	50 33.6%	156 33.3%	0.229
Southern region	64 20.0%	33 22.1%	97 20.7%	
Central region	74 23.1%	22 14.8%	96 20.5%	
Eastern region	22 6.9%	10 6.7%	32 6.8%	
Western region	54 16.9%	34 22.8%	88 18.8%	
Marital status				
Single	128 40.0%	70 47.0%	198 42.2%	0.521
Married	166 51.9%	70 47.0%	236 50.3%	
Divorced	17 5.3%	6 4.0%	23 4.9%	
Widowed	9 2.8%	3 2.0%	12 2.6%	
Educational level				
Primary school	7 2.2%	3 2.0%	10 2.1%	0.159
Middle school	5 1.6%	2 1.3%	7 1.5%	
High school	62 19.4%	34 22.8%	96 20.5%	
Diploma	24 7.5%	22 14.8%	46 9.8%	
Bachelor's degree	200 62.5%	75 50.3%	275 58.6%	

(Contd...)

Table 8: (Continued)

Parameters	Attitude level		Total (n=469)	P-value*
	High attitude level	Moderate or low		
Post-graduate degree	18 5.6%	10 6.7%	28 6.0%	
Uneducated	4 1.3%	3 2.0%	7 1.5%	
Do you have any family members diagnosed with diabetes?				
No	86 26.9%	41 27.5%	127 27.1%	0.884
Yes	234 73.1%	108 72.5%	342 72.9%	
Have you been diagnosed with diabetes?				
No	237 74.1%	112 75.2%	349 74.4%	0.798
Yes	83 25.9%	37 24.8%	120 25.6%	
Have you got diabetic foot?				
No	318 99.4%	143 96.0%	461 98.3%	0.008
Yes	2 0.6%	6 4.0%	8 1.7%	

*P-value was considered significant if ≤ 0.05

The research demonstrated that 95.9% of participants washed their feet every day, but showed concern with the fact that 50.7% frequently chose to walk without footwear, which led to numerous potential foot difficulties. Several research-based observations show that well-established hygiene habits cannot guarantee full self-care behaviors. A research study by Negash *et al.* demonstrated that patients who did not practice good foot self-care measures increased their risk of developing ulcers because poor knowledge combined with faulty self-care applications.^[16] Research shows that knowledge of incorrect foot care practices differ from actual practice behavior among patients because only 20.5% follow necessary foot care practices.^[14,17]

Research findings show that actual diabetic foot care protocol adherence was below concerns levels because only 16.6% of participants followed best practice guidelines. Adequate knowledge by itself fails to guarantee proper foot care actions according to research findings from previous studies.^[3,15] The research results from this study displayed significant differences compared to findings that showed positive effects from educational interventions in other clinical settings. Research by Beiranvand *et al.* demonstrated that specific educational programs produced positive effects on patient foot care knowledge as well as resulting practices.^[11]

Our study shows that most participants belong to the 30-year-old range, and female constituents make up 70.6% of the

studied group. A gender difference emerged in the study when female participants demonstrated better knowledge than males, although practice consistency proved difficult for both groups.^[18,19] The high percentage of patients with diabetes in their family (72.9%) indicates heredity serves as an essential factor that healthcare providers must account for during the development of education and intervention initiatives.

Results show that self-assessed foot care knowledge did not consistently lead to proper foot care actions in practice, as seen in multiple research studies. Systematic evidence presented by Bonner *et al.* demonstrated that diabetic foot self-care routines often fail to reach expectations because patients continue to misunderstand proper care practices.^[13] The study findings show that 68.2% of participants displayed positive attitudes toward foot care, but observed practices pointed toward other obstacles that hinder good practice.

Our research faced a significant limitation through the use of self-reported data because these reports might contain bias and show inconsistent results when measuring actual conduct. Studies reveal that when people self-report their results tend to overestimate their adherence levels.^[20] Researchers cannot prove the relationship between education about foot care and proper foot care activities due to the cross-sectional study's restrictions. Analysis of our results demonstrates that practitioners who demonstrate a thorough understanding also achieve better practice results, but we need longitudinal data

Table 9: Practice level of diabetic foot prevention among diabetic patients in association with sociodemographic characteristics

Parameters	Practice level		Total (n=469)	P-value*
	High or moderate practice	Low practice level		
Gender				
Female	162 80.2%	169 63.3%	331 70.6%	0.0001
Male	40 19.8%	98 36.7%	138 29.4%	
Age				
23 or less	51 25.2%	73 27.3%	124 26.4%	0.953
24–30	38 18.8%	50 18.7%	88 18.8%	
31–45	70 34.7%	87 32.6%	157 33.5%	
More than 45	43 21.3%	57 21.3%	100 21.3%	
Height				
158 or less	85 42.1%	89 33.3%	174 37.1%	0.077
159–169	77 38.1%	105 39.3%	182 38.8%	
170 cm or more	40 19.8%	73 27.3%	113 24.1%	
Weight				
60 kg or less	71 35.1%	66 24.7%	137 29.2%	0.030
61–79 kg	79 39.1%	110 41.2%	189 40.3%	
80 kg or more	52 25.7%	91 34.1%	143 30.5%	
Occupational status				
Student	57 28.2%	80 30.0%	137 29.2%	0.334
Employed	90 44.6%	110 41.2%	200 42.6%	
Unemployed	48 23.8%	58 21.7%	106 22.6%	
Retired	7 3.5%	19 7.1%	26 5.5%	
Nationality				
Saudi	178 88.1%	234 87.6%	412 87.8%	0.875
Non-Saudi	24 11.9%	33 12.4%	57 12.2%	

(Contd...)

Table 9: (Continued)

Parameters	Practice level		Total (n=469)	P-value*
	High or moderate practice	Low practice level		
Monthly income				
<1000	56 27.7%	67 25.1%	123 26.2%	0.418
1000–5000	53 26.2%	72 27.0%	125 26.7%	
5001–10000	35 17.3%	53 19.9%	88 18.8%	
10001–15000	25 12.4%	44 16.5%	69 14.7%	
More than 15000	33 16.3%	31 11.6%	64 13.6%	
Residential region				
Northern region	62 30.7%	94 35.2%	156 33.3%	0.271
Southern region	39 19.3%	58 21.7%	97 20.7%	
Central region	51 25.2%	45 16.9%	96 20.5%	
Eastern region	14 6.9%	18 6.7%	32 6.8%	
Western region	36 17.8%	52 19.5%	88 18.8%	
Marital status				
Single	80 39.6%	118 44.2%	198 42.2%	0.498
Married	104 51.5%	132 49.4%	236 50.3%	
Divorced	13 6.4%	10 3.7%	23 4.9%	
Widowed	5 2.5%	7 2.6%	12 2.6%	
Educational level				
Primary school	4 2.0%	6 2.2%	10 2.1%	0.091
Middle school	3 1.5%	4 1.5%	7 1.5%	
High school	29 14.4%	67 25.1%	96 20.5%	
Diploma	25 12.4%	21 7.9%	46 9.8%	
Bachelor's degree	122 60.4%	153 57.3%	275 58.6%	
Post-graduate degree	15 7.4%	13 4.9%	28 6.0%	

(Contd...)

Table 9: (Continued)

Parameters	Practice level		Total (n=469)	P-value*
	High or moderate practice	Low practice level		
Uneducated	4 2.0%	3 1.1%	7 1.5%	
Do you have any family members diagnosed with diabetes?				
No	53 26.2%	74 27.7%	127 27.1%	0.721
Yes	149 73.8%	193 72.3%	342 72.9%	
Have you been diagnosed with diabetes?				
No	153 75.7%	196 73.4%	349 74.4%	0.566
Yes	49 24.3%	71 26.6%	120 25.6%	
Have you got diabetic foot?				
No	197 97.5%	264 98.9%	461 98.3%	0.263
Yes	5 2.5%	3 1.1%	8 1.7%	

*P-value was considered significant if ≤ 0.05

to specify if knowledge improves performance or if good practice leads to better understanding.

The geographical boundaries of our study might influence how widely the obtained results can be applied. The results obtained from Al Baha may lack applicability to other Saudi Arabian regions and international areas because cultural and healthcare system factors remain significant. Future studies must include broader demographic groups and regions across the country to increase the validity of research data about diabetic foot care practice.

The designed questionnaire possibly fails to identify all key elements that shape patient self-care behaviors. Qualitative research methods provide better access to patients' motivational factors and beliefs and barriers to diabetic foot care according to previous studies.^[21-23] This information allows researchers to develop educational programs that fit individual patient backgrounds and actual circumstances.

CONCLUSION

In conclusion, the study identified significant gaps in both knowledge and practice of diabetic foot prevention among diabetic patients in Al Baha Province. While awareness levels were generally high, this knowledge did not translate into adequate preventive practices, underscoring the need for targeted educational interventions. Future research should focus on longitudinal and qualitative studies to explore the

factors influencing patients' ability to implement effective self-care practices. Addressing these gaps is crucial for reducing the incidence of diabetic foot complications and enhancing the overall management of diabetes in our population.

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ETHICAL APPROVAL

After fully explaining the study and emphasizing that participation is optional, each participant gave their informed consent. The information gathered was safely stored and utilized exclusively for study.

INFORMED CONSENT

Written informed consent was acquired from each individual study participant.

DATA AND MATERIALS AVAILABILITY

All data associated with this study are present in the paper.

REFERENCES

1. Khudhair SS, Ahmed SA. Type 2 diabetic patients' knowledge regarding preventive measures of diabetic foot. *Iraqi Natl J Nurs Spec* 2022;35:22-30.
2. Alsaigh SH, Alzaghran RH, Alahmari DA, Hameed LN, Alfurayh KM, Alaql KB. Knowledge, awareness, and practice related to diabetic foot ulcer among healthcare workers and diabetic patients and their relatives in Saudi Arabia: A cross-sectional study. *Cureus* 2022;14:e32221.
3. Alghamdi AH, Agwa RH, Alherz SH, Alzahrani AA, Alghamdi MF, Alqahtani SM, *et al.* Extent of awareness of diabetic foot care in diabetic patients and their families at Al Baha city, Saudi Arabia. *Med Sci* 2022;26:1-10.
4. Mekonnen Y, Hussien N. Self-care related knowledge, attitude, and practice and associated factors among patients with type 2 diabetes in JMC, Ethiopia. *Diabetes Metab Syndr Obes* 2021;5:535-46.
5. Adam HM, Elmosaad YM, Ahmed AE, Khan A, Mahmud I. Dietary knowledge, attitude and practice among type 2 diabetes mellitus patients in Sudan: A hospital-based cross-sectional study. *Afr Health Sci* 2021;21:32-40.
6. Al-Harbi NY, Elmaghraby DA, Aljubair SS, Gimani MH, Alqahtani AM, Alsaïdan AM, *et al.* Awareness of foot care among diabetic patients in Eastern Province, Saudi Arabia: A cross-sectional study. *Saudi J Med* 2023;8:519-31.
7. Albalawi MA, Sheikh WA. Knowledge, attitude and practice about foot care among adult diabetic patients at Prince Abdul-Aziz bin Majid Diabetes Center in Al Madinah City, Saudi Arabia. *Egypt J Hosp Med* 2022;87:1864-71.
8. Khan L, Al-Nami A, Al-Gaseer H, Al-Neami I. Foot self-care knowledge and practice evaluation among patients with diabetes. *J Diabetol* 2020;11:169.
9. Metwally AS, Aljohani ZA, Maashi MI, Alrehaili AA, Alhejaili BM, Aljabri AM, *et al.* Knowledge, attitude, and practice regarding the risk of diabetic feet among diabetic patients in the Madinah Region, Saudi Arabia. *Cureus* 2023;15:e49933.
10. Algshanan M, Almuhanha M, Almuhanha A. Diabetic foot awareness among diabetic patients in Saudi Arabia. *Egypt J Hosp Med* 2017;68:1289-90.
11. Bonner T, Foster M, Spears-Lanoix E. Type 2 diabetes-related foot care knowledge and foot self-care practice interventions in the United States: A systematic review of the literature. *Diabet Foot Ankle* 2016;7:29758.
12. Bell R, Arcury T, Snively B, Smith S, Stafford J, Dohanish R, *et al.* Diabetes foot self-care practices in a rural triethnic population. *Diabetes Educ* 2005;31:75-83.
13. Seid MA, Worku EZ, Mideksa HB. Patients' awareness and extent of self-reported foot care practices in diabetes population. *Int J Sci Rep* 2019;5:246-53.
14. McInnes A, Jeffcoate W, Vileikyte L, Game F, Lucas K, Higson N, *et al.* Foot care education in patients with diabetes at low risk of complications: A consensus statement. *Diabet Med* 2011;28:162-7.
15. Magbanua E, Lim-Alba R. Knowledge and practice of diabetic foot care in patients with diabetes at Chinese general hospital and medical center. *J ASEAN Fed Endocr Soc* 2017;32:123-31.
16. Negash W, Assefa T, Sahiledengle B, Tahir A, Regassa Z, Feleke Z, *et al.* Prevalences of diabetic foot ulcer and foot self-care practice, and associated factors in adult patients with diabetes in South-East Ethiopia. *J Int Med Res* 2022;50:3000605221129028.
17. Muhammad-Lutfi AR, Zaraiyah MR, Anuar-Ramdhan IM. Knowledge and practice of diabetic foot care in an in-patient setting at a tertiary medical center. *Malays Orthop J* 2014;8:22-6.
18. Qadi MA, Zahrani HA. Foot care knowledge and practice among diabetic patients attending primary health care centers in Jeddah city. *J King Abdulaziz Univ Med Sci* 2011;18:55-71.
19. Saurabh S, Sarkar S, Selvaraj K, Kar S, Kumar S, Roy G. Effectiveness of foot care education among people with type 2 diabetes in rural Puducherry, India. *Indian J Endocrinol Metab* 2014;18:106-10.
20. Olson JM, Hogan MT, Pogach LM, Rajan M, Raugi GJ, Reiber GE. Foot care education and self management behaviors in diverse veterans with diabetes. *Patient Prefer Adherence* 2009;3:45-50.
21. Muhsin A, Xu P, Msesa D, Kafi L, Ngwali A, Hamad H. Challenges and Expectations on Diabetic Foot Care among Diabetic Patients Attending Diabetic Clinics in Zanzibar: A Qualitative Study [Preprint]; 2024.
22. Jayaprakash P, Bhansali S, Bhansali A, Dutta P, Anantharaman R. Magnitude of foot problems in diabetes in the developing world: A study of 1044 patients. *Diabet Med* 2009;26:939-42.
23. Beiranvand S, Fayazi S, Asadizaker M. Effect of educational programs on the knowledge, attitude, and practice of foot care in patients with diabetes. *Jundishapur J Chronic Dis Care* 2015;4:e30039.

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