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KNOWLEDGE AND PRACTICES OF POPULATION IN KINGDOM OF SAUDI ARABIA (KSA) TOWARD USING OF ANTIDIABETIC MEDICATIONS FOR WEIGHT LOSS: A CROSS - SECTIONAL STUDY

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Abstract

Background: Obesity has evolved into a major global health concern and it's considered as a significant risk factor for a variety of illnesses. Obesity-related conditions include but not limited to type 2 diabetes mellitus (T2DM), hypertension, cardiovascular diseases, etc. Over the past few decades, the Kingdom of Saudi Arabia (KSA) has witnessed a noticeable transition in living standards and adopted westernized lifestyle and we see the impact of this on population's health. In the near future the number of patients suffering from T2DM is expected to be increased. There were several studies conducted in different regions of Saudi Arabia highlighting the knowledge and attitude of population toward using antidiabetic medications for weight loss. The purpose of this study is to evaluate the knowledge and practices level of using Antidiabetic medications for weight loss among Saudi Arabia population.

Methodology: A descriptive cross-sectional study conducted from July to December 2024. The participants who were recruited they received the questionnaire through social media networks (X platform, WhatsApp, Telegram, etc.). The survey consists of two sections demographic data and other section covered two aspects of the participant's knowledge and practices toward using of antidiabetic medications for weight reduction. The inclusion criteria are KSA residents aged more than 18 years. The minimum sample size is 384 was calculated using the Raosoft online, 95 % confidence level, and 5 % margin of error then analyzed data using SPSS program.

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Results: The study included 384 participants in Saudi Arabia, significant findings emerged. The mean age of the cohort was 32.3 years, predominantly female (68.2%), and 60.2% displayed knowledge about these medications. Notably, 57.3% believed that using antidiabetics for weight loss was inappropriate, while 77.1% had never attempted this approach. Concerns about access and side effects were prevalent, with a mere 5.5% of participants demonstrating high knowledge and only 5.2% reporting high usage practices, highlighting a critical need for improved education in this area. Statistically significant relationships were found between knowledge and demographic factors, as well as practice behaviors.

Conclusion: Our study highlights significant gaps in knowledge and practices regarding the use of antidiabetic medications for weight loss among the population in KSA. The findings underscore the urgent need for targeted educational interventions to address misconceptions and enhance understanding of these medications' benefits and risks.

Keywords: Knowledge, Practice, Antidiabetic medications, Weight loss, Saudi Arabia.

Introduction:

Obesity has evolved into a major global health concern and a significant risk factor for a variety of illnesses [1]. This is a long-term illness that carries a high risk of secondary medical disorders, reduced life expectancy, and financial hardship [2]. Because of certain obesity-related conditions like type 2 diabetes mellitus (T2DM), hypertension, cardiovascular disease, respiratory dysfunction, some cancers, nonalcoholic fatty liver disease, and orthopedic degenerative diseases, obesity is linked to higher mortality and comorbidity [3].

Over the last few decades the Kingdom of Saudi Arabia (KSA) has witnessed a noticeable transition in living standards [4]. KSA has adopted westernized lifestyle and now Saudi society has one of the highest obesity and overweight prevalence rates [5]. Moreover, Saudi Arabia also will have faced growing in the number of patients suffering from T2DM, based on the data from international diabetes federation the prevalence of this disease in KSA was 16.2% in 2011 and estimated to reach 20.8% by 2030 [6].

There were many studies that have been conducted in different regions of Saudi Arabia to estimate knowledge and attitude of population toward antidiabetic medications. AlGamdi et al. reported in their study that the level of Knowledge regarding using antidiabetic medications for weight loss purpose was varied [7]. While other studies demonstrated a limited knowledge on the use of GLP-1 drugs and weight management medications especially i.e., liraglutide (Saxenda) and semaglutide (Ozempic, Wegovy, Rybelsus) [8,9]. In 2021, a study reported that people who administered semaglutide lost their body weight with at least 5% [10]. However, this medication may lead to develop thyroid cancer and tumors which are considered as serious side effects, along with gastrointestinal disturbances, renal disease, inflammation of pancreas, and gallbladder issues [11,12]. Therefore, we conducted this study due to the remarkable increasing in the utilization of these medications for weight loss in Saudi Arabia.

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Objectives:

The study aimed to evaluate knowledge and practice level toward using of antidiabetic medications for weight loss among general population in Saudi Arabia.

Methodology:

Study design and Setting

This is a cross-sectional questionnaire-based internet study was carried out in Saudi Arabia from July 2024 to December 2024. The study's population consisted of KSA residents aged more than 18 years. The participants who were recruited in this study were filed the questionnaire they received through social media networks (X platform, WhatsApp, Telegram, etc.) and they have been met the inclusion criteria.

Sample size

The sample size was measured using the Raosoft online calculator. In order to achieve a confidence level of 95% and a 5% margin of error, a total of 384 participants is required.

Inclusion and Exclusion criteria

Saudi population both females and males aged 18 and above were included, and people who were less than 18 years old as well as who did not complete the questionnaire were excluded.

Method for data collection and instrument

The questionnaire was created based on the existing literature review [13–15]. which was distributed in English and Arabic version to the population of Saudi Arabia, it consists of two sections; demographic characteristics of participants (e.g., age, gender, area of residence, education level, etc.), and secondly, the other section covered two important aspects of the participants' knowledge and practices regarding antidiabetic medications for weight reduction purpose.

Scoring system

A total of 32 statements served to estimate the participants' knowledge and practices. 13 statements for demographics, 7 for knowledge, and 12 for practices. It assessed by giving one point for correct answers, and zero point for incorrect answers. The highest score was 46 and sorted as follows; The original Bloom 's cut – off points, 80.0% - 100.0%, 60.0% - 79.0%, and 59.0%. The participants divided into three groups according to their score.

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The knowledge's score ranged from 0 to 19 points and was categorized into three levels as follows; those with a score of 10 or less consider as having a poor level of knowledge, those with scores between 11 - 14 consider as having a moderate level of knowledge, those with scores 15 or greater consider as having a high level of knowledge.

Practice scores ranged from 0 to 12 points and were categorized into three levels as follows; those with a score of 6 or less consider as having poor practice level, those with a scores between 7 - 8 consider as moderate practice level, and 9 or greater consider as having a good practice level toward using of antidiabetic medications for weight loss.

Pilot test

A pre-test of the questionnaire was conducted and 20 volunteers were asked to full the survey to assess if the questions are understandable and unambiguous. In addition, to recognize questions that may biased the participants' answers and to make sure that the questionnaire is accessible and usable. Data of the pilot study was excluded from study's final results.

Analyzes and entry method

Statistical analyses performed using Statistical Package for the Social Sciences (SPSS) version 26.0 software. Categorical variables were presented using descriptive statistics, including total numbers and percentages. Comparison between categorical variables was analyzed using a x2 test. Continuous variables will be presented as means ± standard deviation (SD) if data were found to be normally distributed, A p- value < 0.05 will be considered statistically significant.

Results:

Table (1) displays various demographic parameters of the participants with a total number of (384). Notably, the mean age of the cohort is 32.3 years, and a majority falls in a younger age bracket, 28.1 percent, are aged 24 or under. Gender distribution—predominant female participants (68.2%)—may reflect sampling strategy or socio-cultural factors related to participation. With a boasting educational attainment of a nearly significant 69.3%, however, a small minority of only 1.3% have the primary education. Amongst the total people, marital status has shown that there are little more than half of the people mentioned by the term married (50.8%) while occupational engagement of the participants stated that almost half of them are working and engaged (49.5%). This is interesting as the bulk of the population (34.6%) earns below 1000 SR monthly which presents a socio-economic picture. Further, those experiencing chronic disease are also of concern, especially with diabetes and hypertension being frequently occurring illnesses.

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Table (1): Sociodemographic characteristics of participants (n=384)

Parameter		***No.***	***Percent (%)***
Age ***(Mean:32.3, STD:10.4)***	24 or less	108	28.1
	25 to 30	99	25.8
	31 to 41	92	24.0
	42 or more	85	22.1
Gender	Female	262	68.2
	Male	122	31.8
Residential region	Northern region	20	5.2
	Southern region	157	40.9
	Central region	51	13.3
	Eastern region	81	21.1
	Western region	75	19.5
Educational qualification	Primary school	5	1.3
	Middle school	2	.5
	High school	64	16.7
	Diploma	25	6.5
	Bachelor's degree	266	69.3
	Postgraduate degree	21	5.5
	Uneducated	1	.3
Marital status	Single	177	46.1
	Married	195	50.8
	Divorced	10	2.6
	Widowed	2	.5
Occupation	Student	84	21.9
	Working	190	49.5
	Non-working	91	23.7
	Freelance worker	8	2.1
	Retired	11	2.9
Monthly income	<1000 SR	133	34.6
	1000 - 4999 SR	59	15.4
	5000 - 9999 SR	76	19.8
	10000 - 15000 SR	62	16.1
	>15000 SR	54	14.1
Presence of chronic diseases	No	332	86.5
	Yes	52	13.5
If yes, what are these diseases? (n=52) *	Diabetes	26	50.0

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	Hypertension	20	38.5
	Thyroid disorder	12	23.1
	Dyslipidemia	9	17.3
	Cardiovascular disease	1	1.9
	Obesity	15	28.8
Body weight (Mean:70.1, STD:22.2)	59 kg or less	123	32.0
	60 to 75	144	37.5
	76 kg or more	117	30.5
Height (Mean:162.8, STD:9.0)	158 cm or less	131	34.1
	159 to 165 cm	123	32.0
	166 cm or more	130	33.9
Exercise	Daily	45	11.7
	Intermittently weekly	117	30.5
	Intermittently monthly	94	24.5
	I don't exercise	128	33.3
Smoking	Yes	27	7.0
	No	341	88.8
	Previously smoke	16	4.2

Results may overlap

As shown in figure 1, Data from a sample of 384 respondents on their perception of use of anti-diabetics for weight loss revealing that a sizable proportion i.e almost 57.3 percent i.e 220 respondents are of the understanding that this doesn't represent the best way to utilize the anti-diabetic drugs. On the contrary 108 respondents or 28.1% strongly agree with this, 56 respondents or 14.6% disagree to this and the rest are 140 respondents or 36.3% who are not in consensus.

Figure (1): Illustrates whether participants think that using anti-diabetic medications for weight loss is for everybody.

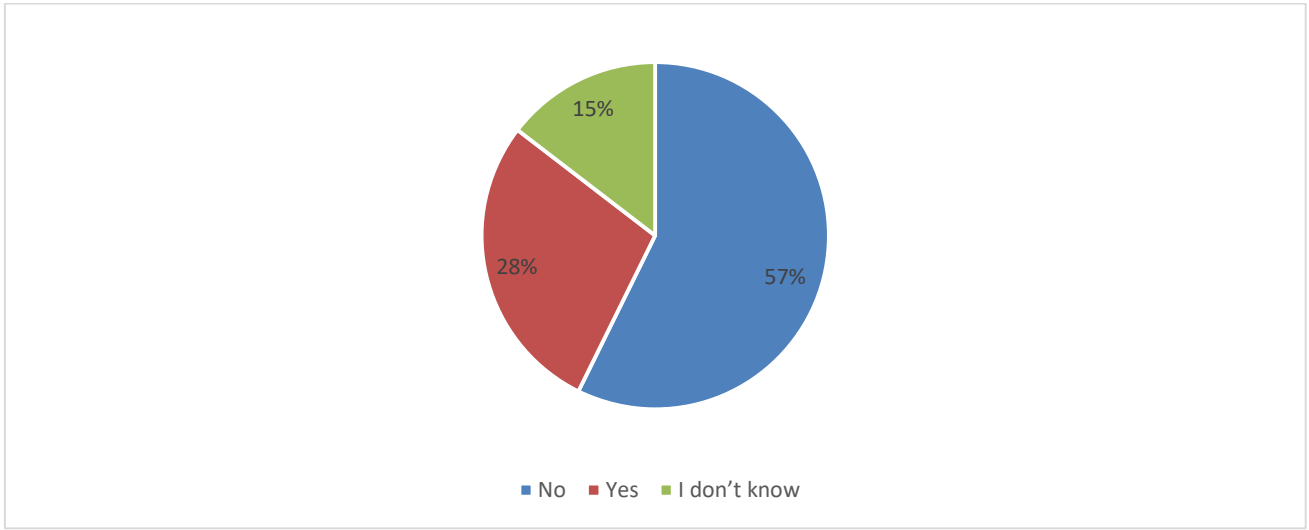

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Table 2 shows detailed knowledge and perceptions of Saudi Arabian population on the utilization of anti-diabetic medications for weight loss using a sample size of 384 respondents. Interestingly 60.2 per cent had knowledge on anti-diabetic medication. Health care providers and the internet were the main sources of information for 56.3% and 50.6% respectively, which indicate the high place of both health professionals and informational media in spreading medical knowledge. Yet there seems to be a fair bit of scepticism about these medicines for weight loss, as just 42.7 percent of respondents felt that they were generally applicable for weight loss. Specific insights into medication list provide us with the fact that Semaglutide (53.9%) and Tirzepatide (55.9%) were amongst the most recognized for their promise in the weight management. particularly noteworthy, 42.2% showed uncertainty about the BMI criterion for using these drugs, which indicates a lack of understanding of the clinical basis of these drugs. In addition, 63.3% were aware of the side effects of nausea and vomiting, but a large proportion is not aware of comprehensive list of possible risks which emphasises the urgent need to provide better patient education-in-this-area.

Table (2): Parameters related to knowledge of population in KSA toward using of antidiabetic medications for weight loss (n=384).

Parameter		***No.***	***Percent (%)***
Do you have any information about anti-diabetic medications?	No	153	39.8
	Yes	231	60.2
What is the source of information? * (n=231)	Internet	117	50.6
	Relatives/Friends	102	44.2
	Television	16	6.9
	Health care provider	130	56.3
	Books	51	22.1
Do you think that anyone can use anti-diabetic medications to lose weight?	No	220	57.3
	Yes	108	28.1
	I don't know	56	14.6
To the best of your information, which of the following medications might aid you lose weight? *	Semaglutide (Ozempic)	207	53.9
	Liraglutide (Saxenda)	125	32.6
	Glimepiride (Amaryl)	17	4.4
	Tirzepatide (Mounjaro)	215	55.9
	Metformin (Glucophage)	80	20.8
	Insulin	24	6.3
	I don't know	105	27.3
According to your information what is a percentage of body mass index that allows the use of this medication in people who have disease-free	BMI greater than or equal to 25	49	12.8
	BMI greater or equal to	90	23.4

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health? *	30		
	BMI greater or equal to 35	88	22.9
	BMI greater or equal to 40	84	21.9
	I don't know	162	42.2
In your opinion, what is the mode of action of anti-diabetic drugs on human body? *	Promote satiety	129	33.6
	Reduce appetite	210	54.7
	Reduce insulin resistance	166	43.2
	I don't know	77	20.1
To the best of your information, what are the side effects associated with anti-diabetic medications used for weight loss? *	Nausea and Vomiting	243	63.3
	Diarrhea	126	32.8
	Abdominal pain	138	35.9
	Headache	126	32.8
	Weight gain	14	3.6
	Skin swelling or injection site reaction	66	17.2
	Pancreatitis	45	11.7
	Thyroid tumor	56	14.6
	Water retention	30	7.8
	I don't know	120	31.3

Results may overlap

As shown in figure (2), Going through the total sample of 296 people with data about the reasons for not using antidiabetic medications for weight loss shows that the majority, 77.7% (230 people) understand that they do not need such medication. Such awareness or belief that nonpharmacological processes would be sufficient to meet their weight management needs is very high. However, a smaller portion even though still significant of the sample expressed their concerns related to medication access and affordability as 7.1% (21 participants) resulted to stating that these medications are only dispensed with a prescription while 3.4% (10 individuals) expressed that this is a barrier. They also reported side effects for 11.8% (35 participants) who were all too complex of medication acceptance in this demographic.

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Figure (2): Illustrates reasons for not using antidiabetics medicines for weight loss among participants.

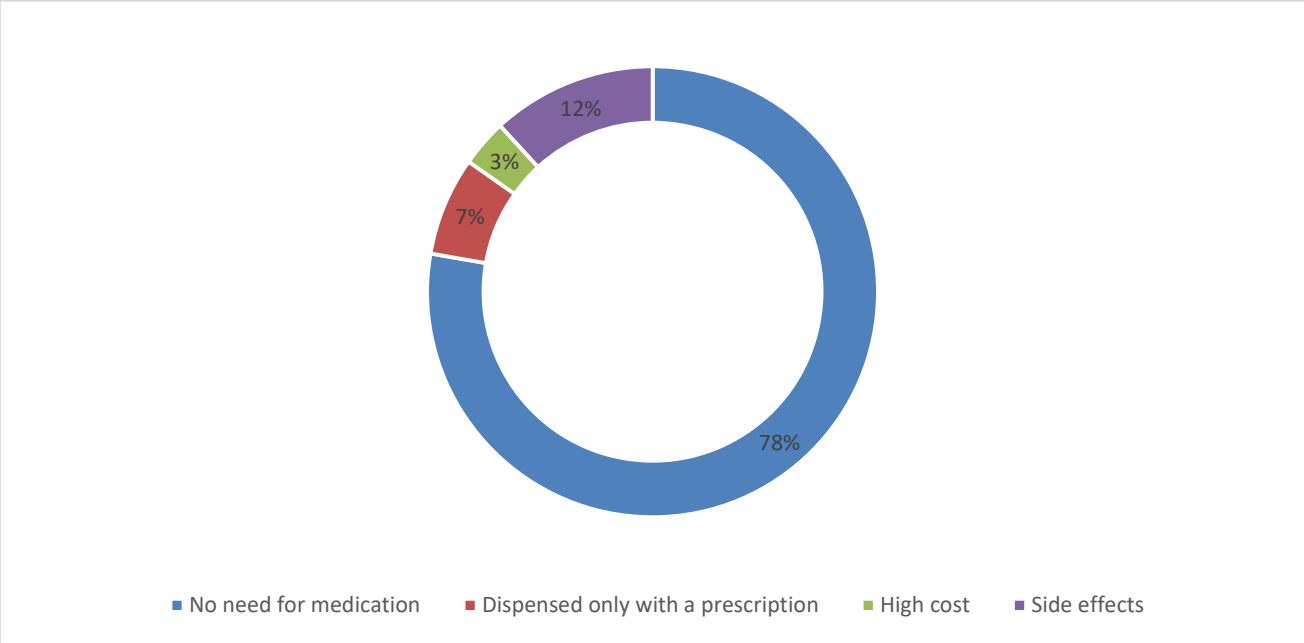

Table 3 presents data of participants' practices with respect to the use of antidiabetic medications for weight loss in Saudi Arabia and sheds light on major trends and attitudes in this demographic. What's especially intriguing is that a very impressive 77.1 percent of those surveyed have never used these drugs to lose weight, indicating a widespread perception or a sense of what these drugs are for. Among those who have used antidiabetic medications as an adjunct to weight management, obesity (60.2%) was the most common reason they did so. Frequently used medications are Tirzepatide (Mounjaro) and Semaglutide (Ozempic), which represent the modern trend in diabetes treatment centered on weight loss as a therapeutic aim. In addition to this, the data also shows that many people did not see a healthcare professional before taking on this self-directed treatment. However, there was a very large majority, around 84.1 percent, seeking about the medications themselves, showing that they were aware of the necessity of informed usage. The high rate of weight regains following cessation and high incidence of side effects reported suggest the complexity of maintaining beneficial effects and safety in the long term with the use of antidiabetic medications as weight loss agents.

Table (3): Participants' practice in KSA toward using of antidiabetic medications for weight loss (n=384).

Parameter		***No.***	***Percent (%)***
Have you ever used anti-diabetic medications for weight reduction?	No	296	77.1
	Yes	88	22.9

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What is the reason for using of anti-diabetic medications? (n=88)	Obesity	53	60.2
	Diabetes	19	21.6
	Hypertension	1	1.1
	Obesity and diabetes	15	17.0
Which the anti-diabetic medications have you used for weight reduction? (n=88)	Semaglutide (Ozempic)	21	23.9
	Liraglutide (Saxenda)	9	10.2
	Tirzepatide (Mounjaro)	33	37.5
	Metformin (Glucophage)	25	28.4
Duration of use antidiabetic medicine? (n=88)	Less than 1 month	14	15.9
	1-3 months	32	36.4
	3-6 months	17	19.3
	More than 6 months	25	28.4
What it is your way in using anti-diabetic medications? (n=88)	Antidiabetic medicine + exercise + diet	36	40.9
	Antidiabetic medicine + exercise	15	17.0
	Antidiabetic medicine only	37	42.0
What was the rate of weight loss after using antidiabetic medications? (n=88)	Less than 5%	34	38.6
	5%-10%	35	39.8
	10%-15%	11	12.5
	More than 15%	8	9.1
What is the source of these medications? (n=88)	Pharmacy	41	46.6
	Hospitals	45	51.1
	Social media (X platform, Facebook, WhatsApp, etc.)	2	2.3
Did you consult a doctor before using these medications? (n=88)	No	13	14.8
	Yes	75	85.2
After you stopped using anti-diabetic medications, did you notice gain any weight back? (n=88)	No	39	44.3
	Yes	49	55.7
Have you experienced any side effects associated with using these medications? (n=88)	No	30	34.1
	Yes	58	65.9
Did you read medical information about these antidiabetic medications you use to lose weight? (n=88)	No	14	15.9
	Yes	74	84.1
Reason for not using of antidiabetic medicines for weight reduction? (n=296)	No need for medication	230	77.7
	Dispensed only with a prescription	21	7.1

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	High cost	10	3.4
	Side effects	35	11.8

Table 4 shows significant insights into the extent to which people know how to use antidiabetic meds for weight reduction. Very notably, 5.5% of participants had high knowledge level 20.1 % had moderate knowledge level about this subject matter. The majority, 74.5%, said they had a low level of knowledge alarmingly.

Table (4): Shows knowledge toward using of antidiabetic medications for weight loss score results.

	Frequency	**Percent**
High knowledge level	21	5.5
Moderate knowledge level	77	20.1
Low knowledge level	286	74.5
Total	384	100.0

Table 5 presents a concerning usage trend of antidiabetic medications in the studied population for weight loss purposes alone. Over 80.5 percent of respondents reported a low level of practice in this area, reflecting a substantial knowledge gap or that there are barriers to using these medications appropriately for weight management. Instead, they showed only a meager 5.2 percent with a high level of practice and 14.3 percent are at moderate practice level.

Table (5): Shows practice toward using of antidiabetic medications for weight loss score results.

	Frequency	**Percent**
High practice level	20	5.2
Moderate practice	55	14.3
Low practice level	309	80.5
Total	384	100.0

Table (6) shows that knowledge toward using of antidiabetic medications for weight loss has statistically significant relation to age (P value=0.002), residential region (P value=0.0001), educational qualification (P value=0.015), monthly income (P value=0.049) and weight (P value=0.023). It also shows statistically insignificant relation to gender, marital status, occupation, presence of chronic diseases, height, exercise and smoking.

Table (6): Relation between knowledge toward using of antidiabetic medications for weight loss and sociodemographic characteristics.

Parameters	***Knowledge level***			***Total (N=384)***	***P value****
	High	**or**	**Low**		

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		moderate knowledge level	**knowledge level**		
Gender	Female	60	202	262	0.084
		61.2%	70.6%	68.2%	
	Male	38	84	122	
		38.8%	29.4%	31.8%	
Age	24 or less	27	81	108	0.002
		27.6%	28.3%	28.1%	
	25 to 30	33	66	99	
		33.7%	23.1%	25.8%	
	31 to 41	29	63	92	
		29.6%	22.0%	24.0%	
	42 or more	9	76	85	
		9.2%	26.6%	22.1%	
Residential area	Northern region	4	16	20	0.0001
		4.1%	5.6%	5.2%	
	Southern region	32	125	157	
		32.7%	43.7%	40.9%	
	Central region	15	36	51	
		15.3%	12.6%	13.3%	
	Eastern region	37	44	81	
		37.8%	15.4%	21.1%	
	Western region	10	65	75	
		10.2%	22.7%	19.5%	
Educational qualification	Primary school	0	5	5	0.015
		0.0%	1.7%	1.3%	
	Middle school	0	2	2	
		0.0%	0.7%	0.5%	
	High school	10	54	64	
		10.2%	18.9%	16.7%	
	Diploma	1	24	25	
		1.0%	8.4%	6.5%	
	Bachelor's degree	80	186	266	
		81.6%	65.0%	69.3%	
	Postgraduate degree	7	14	21	
		7.1%	4.9%	5.5%	
	Uneducated	0	1	1	
		0.0%	0.3%	0.3%	

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Marital status	Single	52	125	177	0.290
		53.1%	43.7%	46.1%	
	Married	42	153	195	
		42.9%	53.5%	50.8%	
	Divorced	3	7	10	
		3.1%	2.4%	2.6%	
	Widowed	1	1	2	
		1.0%	0.3%	0.5%	
Occupation	Student	18	66	84	0.468
		18.4%	23.1%	21.9%	
	Working	55	135	190	
		56.1%	47.2%	49.5%	
	Non-working	22	69	91	
		22.4%	24.1%	23.7%	
	Freelance worker	2	6	8	
		2.0%	2.1%	2.1%	
	Retired	1	10	11	
		1.0%	3.5%	2.9%	
Monthly income	<1000 SR	30	103	133	0.049
		30.6%	36.0%	34.6%	
	1000 - 4999 SR	12	47	59	
		12.2%	16.4%	15.4%	
	5000 - 9999 SR	24	52	76	
		24.5%	18.2%	19.8%	
	10000 - 15000 SR	23	39	62	
		23.5%	13.6%	16.1%	
	>15000 SR	9	45	54	
		9.2%	15.7%	14.1%	
Presence of chronic diseases	No	82	250	332	0.351
		83.7%	87.4%	86.5%	
	Yes	16	36	52	
		16.3%	12.6%	13.5%	
Weight	59 kg or less	30	93	123	0.023
		30.6%	32.5%	32.0%	
	60 to 75	28	116	144	
		28.6%	40.6%	37.5%	
	76 kg or more	40	77	117	
		40.8%	26.9%	30.5%	

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Height	158 cm or less	29	102	131	0.153
		29.6%	35.7%	34.1%	
	159 to 165 cm	28	95	123	
		28.6%	33.2%	32.0%	
	166 cm or more	41	89	130	
		41.8%	31.1%	33.9%	
Exercise	Daily	8	37	45	0.530
		8.2%	12.9%	11.7%	
	Intermittently weekly	34	83	117	
		34.7%	29.0%	30.5%	
	Intermittently monthly	24	70	94	
		24.5%	24.5%	24.5%	
	I don't exercise	32	96	128	
		32.7%	33.6%	33.3%	
Smoking	Yes	6	21	27	0.069
		6.1%	7.3%	7.0%	
	No	84	257	341	
		85.7%	89.9%	88.8%	
	Previously smoke	8	8	16	
		8.2%	2.8%	4.2%	

****P value was considered significant if ≤ 0.05.***

Table (7) shows that practice toward using of antidiabetic medications for weight loss has statistically significant relation to gender (P value=0.047), age (P value=0.008), marital status (P value=0.004), occupation (P value=0.004), monthly income (P value=0.011), presence of chronic diseases (P value=0.0001) and weight (P value=0.0001). It also shows statistically insignificant relation to residential area, educational qualification, height, exercise and smoking.

Table (7): Practice toward using of antidiabetic medications for weight loss in association with sociodemographic characteristics.

Parameters		***Practice level***		***Total (N=384)***	***P value****
		High or moderate practice level	**Low practice level**		
Gender	Female	44	218	262	0.047
		58.7%	70.6%	68.2%	
	Male	31	91	122	
		41.3%	29.4%	31.8%	
Age	24 or less	11	97	108	0.008

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		14.7%	31.4%	28.1%	
	25 to 30	17	82	99	
		22.7%	26.5%	25.8%	
	31 to 41	24	68	92	
		32.0%	22.0%	24.0%	
	42 or more	23	62	85	
		30.7%	20.1%	22.1%	
Residential area	Northern region	5	15	20	0.817
		6.7%	4.9%	5.2%	
	Southern region	30	127	157	
		40.0%	41.1%	40.9%	
	Central region	12	39	51	
		16.0%	12.6%	13.3%	
	Eastern region	13	68	81	
		17.3%	22.0%	21.1%	
	Western region	15	60	75	
		20.0%	19.4%	19.5%	
Educational qualification	Primary school	0	5	5	0.398
		0.0%	1.6%	1.3%	
	Middle school	0	2	2	
		0.0%	0.6%	0.5%	
	High school	10	54	64	
		13.3%	17.5%	16.7%	
	Diploma	3	22	25	
		4.0%	7.1%	6.5%	
	Bachelor's degree	55	211	266	
		73.3%	68.3%	69.3%	
	Postgraduate degree	7	14	21	
		9.3%	4.5%	5.5%	
	Uneducated	0	1	1	
		0.0%	0.3%	0.3%	
Marital status	Single	21	156	177	0.004
		28.0%	50.5%	46.1%	
	Married	51	144	195	
		68.0%	46.6%	50.8%	
	Divorced	2	8	10	
		2.7%	2.6%	2.6%	
	Widowed	1	1	2	

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		1.3%	0.3%	0.5%	
Occupation	Student	9	75	84	0.004
		12.0%	24.3%	21.9%	
	Working	44	146	190	
		58.7%	47.2%	49.5%	
	Non-working	15	76	91	
		20.0%	24.6%	23.7%	
	Freelance worker	1	7	8	
		1.3%	2.3%	2.1%	
	Retired	6	5	11	
		8.0%	1.6%	2.9%	
Monthly income	<1000 SR	17	116	133	0.011
		22.7%	37.5%	34.6%	
	1000 - 4999 SR	11	48	59	
		14.7%	15.5%	15.4%	
	5000 - 9999 SR	12	64	76	
		16.0%	20.7%	19.8%	
	10000 - 15000 SR	18	44	62	
		24.0%	14.2%	16.1%	
	>15000 SR	17	37	54	
		22.7%	12.0%	14.1%	
Presence of chronic diseases	No	50	282	332	0.0001
		66.7%	91.3%	86.5%	
	Yes	25	27	52	
		33.3%	8.7%	13.5%	
Weight	59 kg or less	8	115	123	0.0001
		10.7%	37.2%	32.0%	
	60 to 75	16	128	144	
		21.3%	41.4%	37.5%	
	76 kg or more	51	66	117	
		68.0%	21.4%	30.5%	
Height	158 cm or less	20	111	131	0.272
		26.7%	35.9%	34.1%	
	159 to 165 cm	25	98	123	
		33.3%	31.7%	32.0%	
	166 cm or more	30	100	130	
		40.0%	32.4%	33.9%	
Exercise	Daily	14	31	45	0.065

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		18.7%	10.0%	11.7%	
	Intermittently weekly	21	96	117	
		28.0%	31.1%	30.5%	
	Intermittently monthly	12	82	94	
		16.0%	26.5%	24.5%	
	I don't exercise	28	100	128	
		37.3%	32.4%	33.3%	
Smoking	Yes	9	18	27	0.137
		12.0%	5.8%	7.0%	
	No	62	279	341	
		82.7%	90.3%	88.8%	
	Previously smoke	4	12	16	
		5.3%	3.9%	4.2%	

P value was considered significant if ≤ 0.05.

Discussion:

The purpose of this study was to evaluate the population in the Kingdom of Saudi Arabia (KSA) knowledge and practices related to the use of antidiabetic drugs for weight loss. The study finds that knowledge, perception, and actual practices surrounding these medications are complicated, as they need further study in light of past work.

This is where we came to find that a large proportion of those involved (57.3%) found their questioning of the efficacy of antidiabetic papers in regard to weight management. This skepticism is consistent with other studies which have found patients are generally reluctant to use pharmacological interventions for weight loss, instead tending to favor lifestyle modifications [16]. For example, patients with type 2 diabetes (T2DM) as described in the study by Lean et al. will often prioritize non pharmacological approaches, which is implicate in a wider tendency in how patients approach weight management [16]. Our finding that 11.8% of participants said side effects was a barrier to the use of antidiabetic drugs suggests that they had preference for lifestyle change rather than medication per se. Similarly, previous research has demonstrated that adverse effects that include gastrointestinal disturbances and risk of hypoglycemia substantially limit patient adherence to diabetes medications [17,18].

It's interesting: 60.2% of our respondents were aware of antidiabetic medications, but only 42.7 percent thinks that such drugs are suitable for weight loss. This discrepancy fits into a difference that has existed in other studies as well. For example, Zhou et al. observed that many patients with T2DM lacked comprehensive knowledge regarding the benefits and risks of medications they took, that could lead to underutilization of effective treatments [19]. Additionally, our study observed that only 5.5% of participants had a high knowledge of the right use of these medications, confirming a statement by Ambrosi et al., that improved patient education should improve understanding of and proper use of antidiabetic therapies [20].

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Awareness of new treatment options remains growing, with 53.9 percent of participants recognizing Semaglutide and 55.9 percent identifying Tirzepatide. While this 42.2 percent of respondents indicate being uncertain regarding BMI criteria based upon which these medications can be used demonstrates a pressing need for targeted educational initiatives. This is a particularly concerning gap in knowledge since effective weight management is critical to improving glycemic control and diabetes related complications [21]. Furthermore, our results are consistent with the findings of Garvey et al., who have reported that many patients who receive treatment with GLP1 receptor agonists are not aware of the potential weight loss benefits of such therapy, an effect which is increasingly recognized as allowing successful management of T2DM patients who are obese [18].

In practice, our study revealed that 77.1% of participants had not used antidiabetic medications for weight loss. This matches previous research suggesting a significant proportion of T2DM patients don't use pharmacological weight management strategies, typically because of misconceptions about the role of the drugs [22,23]. That those who had tried using these drugs because they were obese (60.2%) served as the primary motivation suggested that there was need for clearer communication about the intended use of antidiabetic drugs. Given the rising prevalence of obesity in KSA, lifestyle changes that have provoked an increase in obesity-related illnesses [24,25] this is particularly pertinent.

Our study also must acknowledge the limitations. First, self-reported data introduces the possibility of bias from participants' overestimation of knowledge or practices with antidiabetic medications. In addition, the cross-sectional design prevents us from inferring causation between knowledge, attitudes and practices. Moreover, the study's sample was composed of majority of females (68.2 percent), and so females' views and practices on use of antidiabetic medications may not fully reflect the perspectives and practices of the male population. It would be of future research to increase the generalizability by having a more balanced demographic.

Additionally, we recruited participants via social media platforms and while this approach enables us to limit participant 'timing', it may also have inadvertently excluded individuals who are less 'technologically savvy' or just don't use social media platforms, potentially biasing results. A wider recruitment strategy might provide a broader understanding of what the population knows and what they do. Finally, the study period may not cover the dynamics of new generation of drug, usage in community and its acceptance.

Conclusion:

We find important gaps in knowledge and practice regarding the prescribing and use of antidiabetic medications for weight loss in the population of KSA. The findings highlight the critically needed development of targeted educational interventions to correct misconceptions and clarify understanding of this medication's benefits and risks. A more informed patient population has the potential to increase adherence to treatment regimens, and, importantly, offer the opportunity to improve health outcomes in individuals with T2DM. At this time, given the increasing prevalence of obesity and diabetes, addressing these gaps in knowledge and practice will be important with regard to the management and prevention of these conditions.

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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.

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Conflict of interests:
The authors declare no conflict of interest.

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.

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