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Knowledge and attitude of parents towards traditional cauterization and its practice on their children in Jazan region, Saudi Arabia

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ABSTRACT

Background: Al-Kai or cauterization is one of the most common practices in Saudi Arabia where parts of the skin are burnt as treatment. In developing countries, cauterization is used by 80 % of the population for prevention or treatment of disease. In this study, we aimed to assess the knowledge, attitude, and practice of the Jazan population regarding traditional cauterization in children. *Methods:* This study is an observational and analytical cross-sectional study that was conducted on a representative sample of Jazan population during the study period in Jazan. The sampling technique that used was convenient sampling technique and the total sample size was 440 participants. Data was collected via questionnaire that contains 37 questions in Arabic language. *Results:* The sample of this study consisted of 477 participants with mean age of 40.36 years old and 54.7 % of them were females. The most reliable source of the information of cauterization was from friends (68.9 %), doctors (25.7 %) and social media (24.5 %). More than half of the sample had high level of knowledge and 33.2 % of them reported using of cauterization for themselves and 21.6 % for their children. Only for 10 % of the participants, doctor in the primary care center was the first choice for treatment of their infant. *Conclusion:* There is a good level of knowledge considering traditional cauterization among populations in Jazan region, Saudi Arabia with moderate level of attitude toward cauterization among their children.

Keywords: Cauterization, Knowledge, children, Al-Kai, traditional treatment.

1. INTRODUCTION

Worldwide, traditional medicine is widely practiced mainly in East Asia and Middle East counties (Azaizeh et al., 2010). Cauterization is considered one of

the most common practices and known in Arabic as (Al-kai) (Azaizeh et al., 2010). In cauterization, parts of the skin are burnt to cure diseases, and the one who perform this procedure is called the traditional healer (Saaiq et al., 2012). The type of disease determines the number of cautery burn points in a single session, where this number ranges from 1-7 points on average (Saaiq et al., 2012). Among patients treated with traditional cautery, most of them reported that they had short-term relieve of symptoms however, this was followed by significant severe pain (Abou-Elhamd, 2009). Cauterization may act as acupunctures by increasing the release of some opioids that generally produced by human and increase the release of other neurotransmitters which help in preventing of the feeling of pain (Abou-Elhamd, 2009). Moreover, we found that a large percent of the population who are living in the developing world have used cauterization for either disease prevention or treatment, and to preserve good health status (Aboushanab and Alsanad, 2018).

In the kingdom of Saudi Arabia (KSA), cauterization was one of the historical therapies used to chase devil spirits causing diseases (MC, 2005). Traditional healers in Saudi Arabia have different cauterization areas for each disease, e.g. Cauterization is performed in the occiput section, cervical spine, patellar region, sacral region and heels and sole for the treatment of brucellosis (Alsanad et al., 2018). Old studies were done to assess population use of cautery in KSA. Of these studies is one done in Buraidah in 1994 and found that out of the participants 68.6% used cautery for psychiatric illnesses while 17.4% of patients used it for both mental and non-mental diseases. Parents were the main advisers for the patients for undergoing cauterization (77.7%), although 17.4% underwent cautery on the advice of other sources including grandparents, friends and brothers (Qureshi et al., 1998).

In 2010, a Cross-sectional study was done in Riyadh region aiming to study the sociodemographic characteristics of alternative and complementary medicine visitors, rate, health problems, and reasons for their visits. Moreover, 1408 participants were included in this study where 60.9 % of them were females and slightly lower than half of them reported that they were consulted with traditional healers before. The elderly people (aged more than 60 years) have the highest percentage of the participants who reported that they were consulted traditional healers. Illiterate participants (46.5%) consulted traditional medicine healers in a percentage higher than university graduates reported (36.7%). The most popular type of traditional medicine was consulting a Sheikh for rehearsing the holy Quran (62.5%% of participants), followed by herb practitioners (42.3%), and (12.4%) used cautery, that was reported to have higher prevalence among suburban areas than that prevalence reported among population living in the cities. Moreover, Mothers were the most common advisors to use traditional healers (38.2 %) followed by relatives other than siblings, friends, fathers and siblings (Al-Rowais et al., 2010).

During the year 2015, a cross - case survey was performed at two major government tertiary hospitals in Muscat, Oman. Most doctors (83.5 percent) found complementary, and TM is not healthy for kids. Cautery (76.1 percent) was the first used TM which is followed by the using herbal medicine (59.7 percent) and then spiritual therapy (53.7 percent) were considered to be the most popular treatment between children. Large percentage of pediatricians (67%) were of the view that the practice of complementary and TM adversely influenced the child's medical condition; the negative impacts included failure to comply with prescription drugs provided at the hospital (43.3%), influencing drug response (16.4%) and toxicity (28.4%). On the other hand, the parents gave various reasons to justify using such therapies for using among their children, which includes; makes the child feel good (47.8 percent), not satisfied with modern medicine (46.3 percent), is more normal (26.9 percent) and does not have adverse effects like modern medicine (16.5 percent) (Al Saadoon et al., 2015).

In a study conducted in al-Azaiziah, Riyadh city, KSA, it was revealed that most participants above the age of 26-mainly females-felt Cauterization was "partially effective (Azaizeh et al., 2010). Another study was done in 2019 in KSA and found that 27% of mothers reported using alternative treatments as cauterization to treat their newborn instead of seeking professional health care from available health services (Mohammad et al., 2015). According to a careful literature search, no study was done in Jazan region, KSA to address the attitude as well as practice of residents towards cauterization. This study aimed to assess Jazan residents' knowledge, attitude, and practice (KAP) towards traditional cauterization and its relationship to late presentation to health services.

2. METHODOLOGY

Study design

This is a cross-section-based study that was conducted between December 2020 and May 2021 among people in Jazan region visiting primary healthcare centers.

Research sample size

The sample of this study was calculated by 95% confidence level and 5% confidence interval and 134,764 population by using this equation: d2 /n = z21-α P (P – 1) Where:

- Anticipated population proportion (P)
-Confidence level 95 %
-Absolute precision required on either side of the anticipated population proportion (in percentage points) d = 5% (0.05)
-The anticipated population proportion (P) of the sample is estimated to be 50% because this is the safest choice for (P) since the sample size required is largest when P=50%.
-For 95% confidence level z = 1.96, then the formula becomes as follows: -n = (1.96)2 *0.5 * (1-0.5) / (0.05)2 = 384.16 = 400
-Assuming a non-response rate of 10% = (400) (10) /100 = 40 Total sample size = 400+40= 440.
And the sample was selected from the all people living in Jazan city and was among male and female.

Sampling technique
In this study, we depended on convenient sampling technique in order to select the participants according to the following criteria.

Inclusion criteria
Parents who cauterized their children at the age of fourteen year or younger and have been regularly visiting primary health centers in Jazan region.

Exclusion criteria
Parents who cauterized their children any older than fourteen years and parents that's haven't visited PHC centers in Jazan region.

Data collection method
Data was collected via interview using questionnaire that contains 37 questions. The questionnaire was developed in Arabic and will be reviewed as expected in this area. The questionnaire was tested on a sample of 20 people from the community. The questionnaire was distributed to attendants of PHCS in Jazan region, Saudi Arabia. The questionnaire is divided into four sections: demographic characteristic, knowledge, attitude, and practice towards cauterization.

Statistical analysis
The collected data from the questionnaire was coded, reviewed and entered into a computerized data base and analyzed using SPSS, version 25. Frequencies and percentages (descriptive statistics) was used for analyzing the selected socio-demographic data. The respondents were divided into two groups considering their level of knowledge into lower and higher knowledge where higher knowledge would indicate ability to answer more than 60 % of questions correctly. Chi-squared test was used to determine the significance of the relationship between socio- demographic characteristics and knowledge on traditional cauterization, as well as, to assess the responses of the participants as for the sources of their information on Traditional cauterization. A p-value of equal to or less than 0.05 was considered statistically significant.

3. RESULTS

In this study, we were able to collect 477 responses for our questionnaire with mean age of 40.36 (12.01) years old. 54.7 % of the participants were female and 94.1 % of them were Saudi Arabian. Considering educational status of the participants, we found that 42.1 % of the participants had bachelor's degree while 25.2 % were had secondary school as higher education level. Moreover, 90.6 % of the participants were married and 34.0 % of them were governmental employees while 31.0 % were housewife. Furthermore, 32.5 % of the participants reported having monthly income between 5,000 and 10,000 SR and 32.3 % had less than 5,000 SR monthly. Moreover, 66.5 % of the participants reported having easy access to primary care clinics and 31 % did not need transportation to reach primary care clinics (Table 1).

Table 1 Demographic factors of the participants (N=477)

		N	N %
Gender	Male	216	45.3%
	Female	261	54.7%
Nationality	Saudi	449	94.1%
	Non-Saudi	28	5.9%
Educational status	Illiterate	50	10.5%

	Primary	22	4.6%
	Intermediate	39	8.2%
	Secondary	120	25.2%
	Bachelor	201	42.1%
	Postgraduate	15	3.1%
	Diploma	30	6.3%
Social status	Married	432	90.6%
	Divorced	23	4.8%
	Widowed	22	4.6%
Job	Retired	38	8.0%
	Governmental employee	162	34.0%
	Private sector employee	30	6.3%
	Business owner	22	4.6%
	Housewife	148	31.0%
	Unemployed	20	4.2%
	Ministry sector employee	29	6.1%
	Other	28	5.9%
Monthly income	Less than 5000	154	32.3%
	Between 5000 and 10000	155	32.5%
	Between 10000 and 15000	110	23.1%
	More than 150000.	58	12.2%
Accessibility of primary care clinic	Easy access	317	66.5%
	Transportation is not needed (available)	148	31.0%
	Transportation is needed but not available	12	2.5%

According to the participants, information from the friends is the most reliable source of information considering traditional cauterization (68.9 %), followed by doctors (25.7 %) and social media (24.5 %), websites (20.6 %), books (16.0 %) and TV (12.6 %). In general, 52.6 % of the participants had high level of knowledge considering traditional cauterization. Considering knowledge toward indications of traditional cauterization, we found that almost third of the participants indicated that they did not know however, the main indications known by the participants were backache (45.8 %), throat pain, URTI, Asthma and chest pain (35.8 %), and chronic migraine (29.8 %). Moreover, the main complications of traditional cauterization known by the participants were wound infection (64.6 %), inflammation (64 %), and burn (61.8 %). Considering knowledge toward contraindications toward traditional cauterization known by the participants were uncontrolled diabetes (55.8 %), elderly patients with multiple serious conditions (54.4 %) and unstable cardiac diseases (51.2 %) (Table 2).

Table 2 Knowledge of the participants considering traditional cauterization.

	Yes		No		I don't know	
	Count	N %	Count	N %	N	N %
Knowledge considering indications for traditional cauterization						
Fascial paralysis	99	19.8%	226	45.2%	175	35 %
Throat pain, URTI, Asthma and Chest pain	179	35.8 %	188	37.6 %	133	26.6 %

Chronic migraine	149	29.8 %	182	36.4 %	169	33.8 %
Obesity (Wrong)	18	3.6 %	323	64.6 %	159	31.8 %
Seizure disorders	87	17.4 %	229	45.8 %	184	36.8 %
Otalgia (earache)	93	18.6 %	248	49.6 %	159	31.8 %
Stroke (Wrong)	90	18 %	247	49.4 %	163	32.6 %
Entropion (eyelid folds inward)	64	12.8 %	240	48 %	196	39.2 %
Splenic diseases	73	14.6 %	244	48.8 %	183	36.6 %
Paralysis (inability to walk) (Wrong)	119	23.8 %	231	46.2 %	150	30 %
Edema	91	18.2 %	221	44.2 %	188	37.6 %
Cancer (Wrong)	19	3.8 %	295	59 %	186	37.2 %
Backache	229	45.8 %	150	30 %	121	24.2 %
Knowledge considering complications of traditional cauterization						
Inflammation	320	64 %	89	17.8 %	91	18.2 %
Wound infection	323	64.6 %	90	18 %	87	17.4 %
Alzheimer's disease (Wrong)	24	4.6 %	296	59.2 %	180	36 %
Bleeding	156	31.2 %	198	36.6 %	146	29.2 %
Scar	330	66 %	77	15.4 %	93	18.6 %
Autism (Wrong)	33	6.6 %	281	56.2 %	186	37.2 %
Injury to blood vessels and nerves	173	34.6 %	151	30.2 %	176	35.2 %
Transmission of infectious diseases	127	25.4 %	198	39.6 %	175	35 %
Vitiligo disease (Wrong)	37	7.4 %	268	53.6 %	194	38.8 %
Burns	309	61.8 %	98	19.6 %	93	18.6 %
Spread of cancer cells	44	8.8 %	231	46.2 %	225	45 %
Cauterization can lead to gangrene among people with diabetes	210	42 %	121	24.2 %	169	33.8 %
Sterility (Wrong)	22	4.4 %	261	52.2 %	217	43.4 %
Tetanus	32	6.4 %	206	41.2 %	262	52.4 %
Multiple spleen abscess	45	9 %	206	41.2 %	249	49.8 %
Cancer (Wrong)	20	4 %	260	52 %	220	44 %
Permanent unilateral blindness	63	12.6 %	222	44.4 %	215	43%
Death	70	14 %	224	44.8 %	206	41.2 %
Knowledge considering contraindication of traditional cauterization						
Uncontrolled diabetes	279	55.8 %	87	17.4 %	134	26.8 %
Unstable cardiac disease	256	51.2 %	86	17.2 %	158	31.6 %
Scar	141	28.2%	179	35.8 %	180	36 %
Elderly patient with multiple serious disease	272	54.4 %	84	16.8 %	144	28.8 %
Coma	226	45.2 %	101	20.2 %	173	34.6 %
Severe anemia	209	41.8 %	103	20.6 %	188	37.6 %

From table 3, we found that 31% of the participants were agree or strongly agree with the safety and effectiveness of traditional cauterization while 33.8% of them were agree or strongly agree that traditional cauterization is harmful and should be stopped.

Moreover, 35.2% of the participants support submitting to cauterization in the future if necessary and 35.6 % of them supported the opening of traditional cauterization clinics in the primary health care center (Figure 1).

Moreover, we found that 450% of the participants did not know about the educational campaigns that conducted about traditional cauterization however, 22.2% of the participants rated it as week and 22.8% as good. Furthermore, 34.8% of the participants reported that they did not trust the published information about traditional cauterization on social media while 27.2% reported good trust in it. According to the participants, the main reason for using of cautery as first step in treatment was basing on other people's experience (48.2%) followed by the widespread use of cauterization (28.0%). Moreover, we found that 46% of the participants reported that they thought that cauterization make diseases better while 14.6 % thought that cauterization make the disease worse. The main mechanism of action based on participants' opinion was by relieving the pain (41.8%) and destroying of unhealthy tissue and diseased area (28.6%) (Table 3).

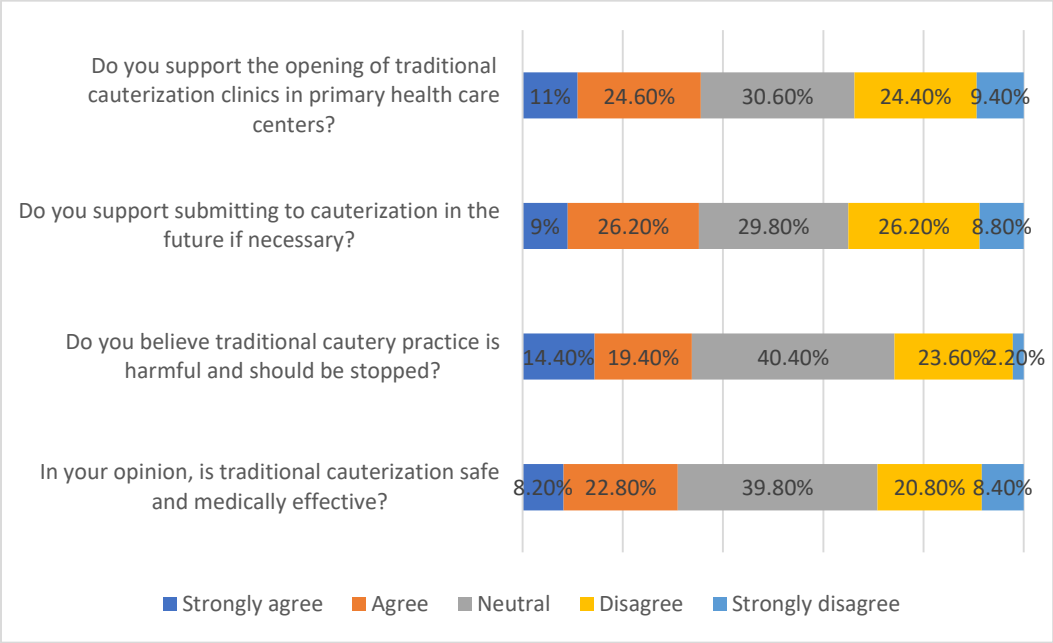

Figure 1 Attitude of the participants considering the usage of traditional cauterization

Table 3 Trust of the participants toward cauterization

Variables		Frequency (Percent)
How do you rate awareness and educational campaigns about traditional cauterization?	Excellent	50 (10.0%)
	Good	114 (22.8%)
	Week	111(22.2%)
	I don't know	225(45.0%)
To what extent is your trust in published information about traditional cauterization on social media?	Excellent trust	34(6.8%)
	Good trust	136(27.2%)
	Weak trust	156(31.2%)
	No trust	164(34.8%)
Why do most people use cautery as first step in treatment when there is medical treatment for the disease?	Medical treatment is expensive	56 (11.2%)
	The cauterization is safe and effective	36(7.2%)
	The widespread use of cauterization	140(28.0%)
	The disease cures completely with cauterization	27(5.4%)
	Based on other people's experiences	241(48.2%)

In your opinion, how effective is cauterization?	The disease is completely cured	58(11.6%)
	The disease gets better	230(46.0%)
	No improvement	138(27.6%)
	The disease gets worse	73(14.6%)
In your opinion, the mechanism of cauterization stands upon which method?	Stimulate circulation	94(18.8%)
	Relive pain	209(41.8%)
	Destroy unhealthy tissue and diseased area	143(28.6%)
	to achieve hemostasis by Clotting the small bleeding vessels.	54(10.8%)

Considering practice of the participants, we found that 33.2 % of the participants reported using of traditional cauterization in past and 21.6 % of the participants had used cauterization for their children. Moreover, we found that10.0 % of the participants would seek for doctor in the primary care center when they felt that their son was sick as first choice while only 0.6 % of total sample would apply traditional medicine therapist as first option (Table 4).

Table 4 The practice of the participants toward using of traditional cauterization

Variables		Frequency (Percent)
Have you ever been cauterized in the past?	Yes	166(33.2%)
	No	333(66.6%)
Have you ever used traditional cauterization for your child in the past?	Yes	108(21.6%)
	No	391 (78.2%)
How many of your children have been exposed to cauterization?	1	77(15.4%)
	2	19(3.8%)
	3	5(1.0%)
	4	6(1.2%)
How often do you expose your child to cauterization?	1	66(13.2%)
	2	22(4.4%)
	3	12(2.4%)
	4	7(1.4%)
When you felt that your son was sick, who was your first choice to go for treatment?	Complementary and traditional medicine therapist (unlicensed)	11(2.2%)
	A doctor in the PHC	50(10%)
	A doctor in a government hospital	21(4.2%)
	A doctor in a private center or hospital	18(3.6%)
	Pharmacies	4(.8%)
	Traditional medicine therapist (licensed)	3(.6%)

From table 5 we found that, gender had no significant effect on the participants' knowledge neither their nationality nor their accessibility of primary care clinic. The only demographic factors significantly affect the knowledge was the monthly income of them were higher monthly income is related with better knowledge among the participants (P=0.001). Moreover, we found that participants who had better knowledge of traditional cauterization are more likely to think that cautery is harmful (P=0.000) while they are more likely to had cauterization before (P=0.000).

Table 5 The relation between knowledge of the participants and their demographic factors, attitude, and practice of traditional cauterization

		Lower knowledge		Higher knowledge		
		Count	Row N %	Count	Row N %	
Gender	Male	103	47.7%	113	52.3%	0.906
	Female	123	47.1%	138	52.9%	
Nationality	Saudi	208	46.3%	241	53.7%	0.065
	Non-Saudi	18	64.3%	10	35.7%	
Monthly income	Less than 5000	91	59.1%	63	40.9%	0.002*
	Between 5000 and 10000	71	45.8%	84	54.2%	
	Between 10000 and 15000	43	39.1%	67	60.9%	
	More than 150000.	21	36.2%	37	63.8%	
Accessibility of primary care clinic	Easy access	153	48.3%	164	51.7%	0.566
	Transportation is not needed (available)	66	44.6%	82	55.4%	
	Transportation is needed but not available	7	58.3%	5	41.7%	
Do you believe traditional cautery practice is harmful and should be stopped?	Strongly agree	17	26.2%	48	73.8%	0.000*
	Agree	34	36.2%	60	63.8%	
	Neutral	122	62.6%	73	37.4%	
	Disagree	48	42.9%	64	57.1%	
	Strongly disagree	5	45.5%	6	54.5%	
Have you ever had cauterization in the past?	Yes	72	44.2%	91	55.8%	0.001*
	No	154	49.2%	159	50.8%	
Have you used a traditional cauterization for your child in the past?	Yes	49	45.4%	59	54.6%	0.618
	No	177	48.1%	191	51.9%	

4. DISCUSSION

Traditional medicine includes knowledge, techniques, and a diversity of medical practices that are based on religious beliefs and practices, and the culture of a community (Gureje et al., 2015). (Pieroni et al., 2005) defined ethnology as the science which studies the traditional interpretation of health and aim to record the healing practices which help in better understanding and documentation of traditional healing practices. This study was conducted in order to assess the knowledge, attitudes, and behaviors of the people of Jazan regarding cultural precautions in children. Cauterization (al-kaiy in Arabic) involves using a hot iron (nail or metal bar) to apply the skin. Conventional cauterization is very painful where permanent scarring is the result of every traditional quadrant session (MC, 2005). The ancient Egyptians practiced ironing, dating back to 1550 BC. It is mentioned in the Eybor papyrus. Traditional medicine was a common remedy in ancient Greek, Indian, and Chinese healing practices (Kalam et al., 2020).

Most of information obtained about traditional cauterization according to the participants in our study was gained from friends. This indicated that maximum of the information obtained about cauterization was depended on personal experiences and its transfer from one generation to another. In this study, we reported that more than half of the sample had good levels of knowledge mainly in complication and contraindications of cauterization and low levels of knowledge considering indications. The main indications known by the participants were backache (45.8%), throat pain, URTI, Asthma and chest pain (35.8%), and chronic migraine (29.8%). In the kingdom of Saudi Arabia and other Arabic countries, traditional healers thought that there are specific points for each medical conditions where for example, in order to treatment of bruises, sprains, strains, heels and shoes pain, the

treatment should include care for both sides of the knee (Khan, 2000). In addition, bladder disease can be preserved with care at a number of points below the actual cost margin. There are many misconceptions and entrenched beliefs associated with iron ore.

Furthermore, in another Arabic country-Oman- that contributes with Saudi Arabia with many thoughts and believes, most of the people believe that Wasm (one technique of cauterization) could cure some of the autoimmune conditions that modern medicine fails to manage. Moreover, among Omani population, some of them seek for traditional cauterization heelers because of their believe in the results with or without experience with modern management (Ghazanfar, 1995). Some healers thought that childhood medical diseases are driven by supernatural forces, which include the devil and the evil eye (Abdullah, 1993). The seek for traditional cauterization may relate with believes and religions of population where many Muslims and followers of other religions thought that demons, witchcraft and the evil eue could lead to many medical conditions that could be treated by modern treatment and more than 90 % of the world's population believe in evil. For example, cauterization was one of the traditional methods used to get red of the evil spirits in Saudi Arabia (Aboushanab and Alsanad, 2018; MC, 2005).

However, in this study, we reported a low level of attitude and low pattern of practice toward cauterization especially when considering children where only 33.2 % of participants were experienced cauterization and 21.6 % of parents reported applying cauterization for their children. Moreover, most of the participants would seek help from doctors at primary care clinics before seeking help from others. In a study by (Alduraywish et al., 2020), the authors found that 87.6% (283/323) of the participants were selected as the primary source of information and that the majority of the population (326/411, 79.3%) had full confidence. Pharmacists was the second most frequently used source (112/194, 57.7%), partially trusted by 41.4% (159/384) participants. Moreover, having experience of applying cauterization will increase the level of knowledge among the participants.

Several adverse events and cauterization problems have been reported (Abou-Elhamd, 2009; Al-Wahbi, 2006; Raza et al., 2009). Late cancer diagnosis and skin disease have been reported due to cauterization (Abou-Elhamd, 2009). Kamal and al-Mansour (2015) reported a number of complications related to quaternation, including severe burns, contaminated balloons, severe constipation, hemorrhage, worsening of the disease, weight loss, septic shock, diabetic foot gangrene, blindness, and delayed treatment. In our study, the main complications of traditional cauterization known by the participants were wound infection (64.6 %), inflammation (64 %), and burn (61.8 %).

This study included some limitations including depended on self-reported questionnaire which could lead to some personal bias. Moreover, some questions depend on history information which may lead to some recall bias.

5. CONCLUSION

We found that third of the participants had experience with traditional cauterization and more than half of them had good knowledge especially with contraindications and complications of traditional cauterization. More investigations are required to understand the prevalence of using traditional cauterization in different regions of Saudi Arabia.

Author Contribution

All authors contributed in the process of data curation. All authors contributed in supervision, methodology, Analysis, writing, and editing. All authors accomplished final revision and drafting for publication.

Ethical approval

The study was approved by the Medical Ethics Committee of the Ministry of Health (ethical approval number: No.2046).

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Conflicts of interest

The authors declare that there are no conflicts of interests.

Data and materials availability

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

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