

Exploring the Usage of Herbal Medicine for Children with Type 1 Diabetes

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(Abstract)

- 1. Background:** The use of herbal medicine has become a popular treatment among patients with chronic diseases around the world, and many patients use herbal medicine without consulting their healthcare professionals. Type 1 diabetes mellitus (T1DM) is one of those chronic diseases. In Saudi Arabia, there is a lack of studies related to the use of herbal medicine in children have T1DM.
- 2. The objective:** of this study is to determine the prevalence of herbal medicine use among children with type 1 diabetes in hail city, and its relationship with the educational and employment status of parents. It is expected that the results of the study will help in increasing the community's awareness of the advantages and disadvantages of using herbal medicine according to health controls.
- 3. Methods:** a cross-sectional descriptive study was conducted from February to April 2022 on 178 participants' parents/caregivers of children with type 1 diabetes using a questionnaire to collect data and then using SPSS software to analyze the data.
- 4. Ethical approval:** was abstained from the Research Ethics Committee (REC) at the University of Ha'il (UOH). Consent to participate in the study was obtained from participants at the beginning of the study .

5. Results and conclusion: the mean age of participants was 9.10 years, maximum of the members had a university teaching (59, 34.9%), above half of the job status of parents was an employee (98, 58.0%), and only 13 (7.7%) of the members have once-a-month revenue more than twenty thousand SAR. The highest percentage of the members use herbal medication for therapeutic resolves. Age of contributors had statistically important effects on the opinions on herbal treatments, but on the other indicator education level, job status of parents, level of family income, chronic diseases, and cumulative sugar rate for children had no statistically important effects on opinions on herbal medicines.

Keywords: Herbal. Medicine. Children. Diabetes. T1DM. Hail.

1. Introduction:

1.1. The rationale of the study:

Complementary and alternative therapy (CAM) is a therapeutic product and a wide-ranging set of health care applies. They are not included as a portion of individual old medicine, and there are subgroups of CAM use among the population: body practices and mind (such as massage, yoga, acupuncture, meditation, and healing touch) and natural products (minerals and vitamins, dietary supplements, herbs, probiotics). There has been a noticeable increase in recent years in the use of CAM(1,2).

The most common CAM is herbal medicine (3). Herbal products are extracted from leaves, seeds, roots, berries, bark, flowers, or gums, and hold some phytochemicals such as polyphenols and carotenoids, including glycosides, alkaloids, phenolic acids, saponins, flavonoids, and lignans which are thought to provide health benefits (4). According to the Food and Drug Administration, the regulation and use of herbal substances are regulated by law the Dietary Supplement Health and Education Act (DSHEA) of 1994 (4).

The use of herbs has converted into a popular treatment for patients with chronic diseases around the world, and many patients use herbal medicine without consulting their healthcare professionals (5). Type 1 diabetes mellitus (T1DM) is one of those chronic diseases (5,6); which results in hyperglycemia. It is an autoimmune disease. This disease is characterized by the destruction of the insulin-secreting cells of the islets of Langerhans. The CD4 T regulatory cells (Tregs) are important for the prevention of disease. Treg cells have been found to play a critical role in maintaining self-tolerance and preventing autoimmune diseases. If there is dysfunction and decreased numbers of Tregs cells, that will lead to the cause and development of T1DM (7). Therefore, parents

may resort to using CAM to treat these complications and problems associated with diabetes for their children.

Several studies have reviewed the extent of using these herbs by Saudi patients with chronic diseases (5), especially type 2 diabetes in adults, which is a type of chronic disease caused by metabolic disorders in the endocrine system and characterized by increased blood glucose levels. And also, the basic pathologic characteristics of T2DM are insufficient insulin secretion and insulin resistance (8), as ranges of the prevalence use of CAM is from 5 and 81%, whereas is 18 to 56% in pediatric patients (9).

However, there are few studies on T1DM in children, furthermore; the studies that addressed the physicians' concern and awareness of their patients about the use of HM are rare (5).

1.1.1. Research question:

What is the pervasiveness rate of herbal medicine use among children with type 1 diabetes in the Hail region?

1.1.2. Research aim:

The main goal of this study was to explore the usage of herbal medicine among children with T1DM and to compare with many variables such as age, cumulative sugar rate, potential complications, and socio-cultural/socio-economic background. Also, the study meant to explore families' outlooks that motivated them to use these treatments and the way they deal with the complications of using herbs.

And will address the previous studies and their results, the objectives of the study, the methods used to collect samples, methods of analyzing information and variables, and the results extracted with a comparison with previous studies and conclusions.

1.2. Objectives:

1.2.1. General objective:

Find out how widespread herbal medicine is used among children with T1DM in Hail city, Kingdom of Saudi Arabia

1.2.2. Specific objectives:

- 1.2.2.1 Identify the extent of awareness of patients and parents about the benefits and harms of using herbal medicine.
- 1.2.2.2 Examine the extent relationship between herbal medicine use for children with T1DM and the education level, job status of parents, and level of family income.
- 1.2.2.3 Increasing community awareness about how to use herbal medicine according to health controls.
- 1.2.2.4 Determine if there is a relationship of use herbals with variables such as age, chronic diseases, and cumulative sugar rate.
- 1.2.2.5 Explore families' expectations that motivated them to use herbal, and the way they deal with the complications of using it.

2. Literature review:

National Health Interview Survey (NHIS) from the Centers for Disease Control and Prevention (CDC) found that approximately 40% of adults and around 10% of children had used CAM treatment (5), while the World Health Organization (WHO) found that many developed countries use some forms of CAM, approximately 70%-80% from the population 3, and in Saudi Arabia, it was estimated to be between 8% and 76% (10). It became a general treatment for chronic diseases patients around the world, especially diabetes mellitus.

Since the incidence of diabetes has been on the rise for decades all over the world, and this is shown in the latest statistical information from the International Diabetes Federation (IDF), the prevalence of the disease is 463 million people with type 2 diabetes, and also published that the incidence of diabetes Type 1 diabetes affects 1.1 million people, of whom patients are less than 20 years old(11).

The Eastern Mediterranean region has the second-highest incidence of diabetes in the population. This is also consistent with what was published by the World Health Organization (WHO), that nearly a quarter of the region's population suffers from diabetes. It was also evident from the Gulf data that the prevalence of type 2 diabetes was 25.7% in Bahrain, 16.1% in Oman, and 21% in Kuwait. As for the statistics on the prevalence of diabetes among the population of the Kingdom of Saudi Arabia, it represents a large area, because the increase in the number is a cause of health concern compared to the past decades. Studies have found that the prevalence of diabetes in the Kingdom of Saudi Arabia is 31.6% of the total population, 14.1% of the workforce, 27.6% of women, and 34.6% of men(12).

The Saudi Health Council published 2020 the prevalence rate of diabetes, after reviewing all the survey studies that were conducted in the different regions of Saudi Arabia from 1982 to 2015 in addition to the survey that was conducted in cooperation between the Saudi Ministry of Health and the University of Washington, the prevalence rate is 13.4%, as for T1DM, it ranges between the 5 to 10% of all people with diabetes (13).

In general, the studies of CAM in T1DM children are uncommon. The few existing studies aimed to reveal the methods of using CAM in T1DM children and compare them with variables such as age, weight, gender, amount of insulin, complications of CAM use in children with T1DM, the background of society and culture, and also with some variables related to parents, such as educational level, employ status, and the family's once-a-month revenue(14).

However, some studies have found a high rate of CAM use among affected children with T1DM, and most of the time they use types of herbs, vitamins, and some nutritional supplements, and for the instructions and knowledge about its use in this category, it is considered limited, and there is a contradiction between the study and the other (14), and whose family income level is considered high. Some studies have found that there is a relationship between the level of education of the mother and the period of diabetes with the rate of use of alternative medicine, with contradictory studies of these results(15).

3. Materials & Methods (Methodology):

3.1 Study Design:

A cross-sectional descriptive study.

3.2 Setting:

Ha'il area.

3.3 Sampling:

3.3.1 Sample size:

The sample size was estimated using a margin error of 5% and with a 95% confidence level for the expected patient population of 329, based on what has been published about the statistical number of type 1 diabetes patients in a recent study conducted at the Diabetes Center at King Salman Specialist Hospital in Hail(16). The sample size was calculated to be 178 randomly selected, and 169 questionnaires were retrieved and it was found that all of them are valid for study.

3.3.2 Inclusion criteria:

Included parents/ caregivers of children who suffer from T1DM from birth to 18 years old.

3.3.3 Exclusion criteria:

Patients with T1DM above 18 years old or have other types of diabetes. 10 participants who did not meet the study requirements were excluded.

3.4 Sampling procedures:

The selection of 178 samples was random after the approval of King Salman Specialist Hospital in the Hail region to take the data of children with type 1 diabetes to distribute the research questionnaire randomly among them online.

3.5 Methods of data collection:

The data was collected from the parents/caregivers of children who suffer from T1DM from February to April 2022, by using an online survey questionnaire, which was validated, and reliability was tested. It is adapted from a pre-designed questionnaire from a previous study(3).

Divided into four sections. The first section includes sociodemographic health and medical-related questions, followed by a second section about the degree of the knowledge of the contributors around herbal medicine, the third one about the participants' perception of herbal medicine, and the last one is the impact of a demographic variable quantity of contributors on their opinions around herbal medicine.

The questionnaire was translated into Arabic, and then back-translated into English by an academic, and the content was reviewed by an expert in the field.

3.6 Statistical Analysis:

The data collected was entered in the Statistical Package for the Social Sciences (SPSS) to provide descriptive statistics for the characteristics of patients. The data was explored both for their descriptive statistics and categorical variables, calculation of weighted average (Mean), and Standard Deviation (SD). Relationship among variables was assessed using Chi-square test at 95% confidence ($p < 0.05$).

3.7 Ethical Consideration:

This study was conducted after getting approval from the Research Ethics Standing Committee (REC) at the University of Ha'il. Participants were provided with informed consent before filling out the questionnaire. Respondents' anonymity and confidentiality of information provided were assured. The data remained confidential and protected from any access by third parties.



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4. Results:

4.1 Data Analysis:

This study included 169 Saudi participants with a mean age of 9.10 years, and a half (91, 53.8%) of the children are males, and 78 (46.2%) were female. The mean height of participants was 117.97 cm and the mean weight was 37.87 kg. The greatest of the members' parents have an academic degree or above (59, 34.9%), and 18 (10.7%) of them were unschooled. More than half of the parents were an employee (98, 58.0%). Only 13 (7.7%) of the contributors have a once-a-month revenue of more than twenty thousand SAR, while 156 of them have a once-a-month revenue of less than twenty thousand SAR. All the members (100%) in this study informed that they have diabetes type 1. Around 20% of the children and adolescents were obese, and 11.9% have other diseases in addition to that the average cumulative glucose test of the participants was 8.04 g/dl. Table (1).

Table 1:- Spreading of the Contributors According to Preliminary Data:

| Variable | Description | Frequency | Percent |
|---------------------------------|-----------------------|-----------|-------------|
| Age (years) | Below 5 years | 37 | 21.9 |
| | 5-below 9 years | 41 | 24.3 |
| | 9 – below 13 years | 47 | 27.8 |
| | 13 years and above | 44 | 26.0 |
| Height (cm) | Less than 100(cm) | 36 | 21.3 |
| | 100-less than 120(cm) | 46 | 27.2 |
| | 120-less than 130(cm) | 16 | 9.5 |
| | 130(cm) and above | 71 | 42.0 |
| Weight (kg) | Less than 25 Kg | 39 | 23.1 |
| | 25-less than 35 Kg | 26 | 15.4 |
| | 35-less than 45 Kg | 57 | 33.7 |
| | 45 Kg and above | 47 | 27.8 |
| Gender | Male | 91 | 53.8 |
| | Female | 78 | 46.2 |
| Educational Level of Parents | Uneducated | 18 | 10.7 |
| | Primary | 21 | 12.4 |
| | Intermediate | 32 | 18.9 |
| | Secondary | 39 | 23.1 |
| | University and more | 59 | 34.9 |
| Job Status of Parents | Employee | 98 | 58.0 |
| | Unemployed | 26 | 15.4 |
| | Retired | 45 | 26.6 |

| | | | |
|----------------------------|------------------------------------------|-----|--------------|
| Monthly Household Income | <10,000 SR | 61 | 36.1 |
| | 15,000-20,000 SR | 52 | 30.8 |
| | >15,000-20,000 SR | 43 | 25.4 |
| | > 20,000 SR | 13 | 7.7 |
| Chronic Diseases | I do not suffer from any chronic disease | 0 | 0.0 |
| | Diabetes type 1 | 169 | 100.0 |
| | Obesity | 31 | 18.3 |
| | Other | 20 | 0.0 |
| Last Cumulative | Less than 7 | 30 | 17.8 |
| Sugar Test of Child (g/dl) | 7- less than 8 | 28 | 16.6 |
| | 8-less than 9 | 69 | 40.8 |
| | 9 and above | 42 | 24.9 |

More than 60 % of the members use herbal medication for therapeutic resolves (106, 62.7%), and 66 (39.1%) of them have faith in mixing herbs will be led to extra effective outcomes. About 70 % (n=116) of the members trust that there are restrictions and instructions taken when using herbs. Additionally, 86 (50.9%) of them have faith in the side effects of using herbal medicine, although 50 (29.6%) accept as true that there are no side effects, and 33 (19.5%) do not know.

The greatest public source for gaining information about herbs among the members was parents and relatives (47, 27.8%), TV and scientific programs follow it (39, 23.1%), study and learning, and friends and colleagues (16, 9.5%) was least source. Table (2).

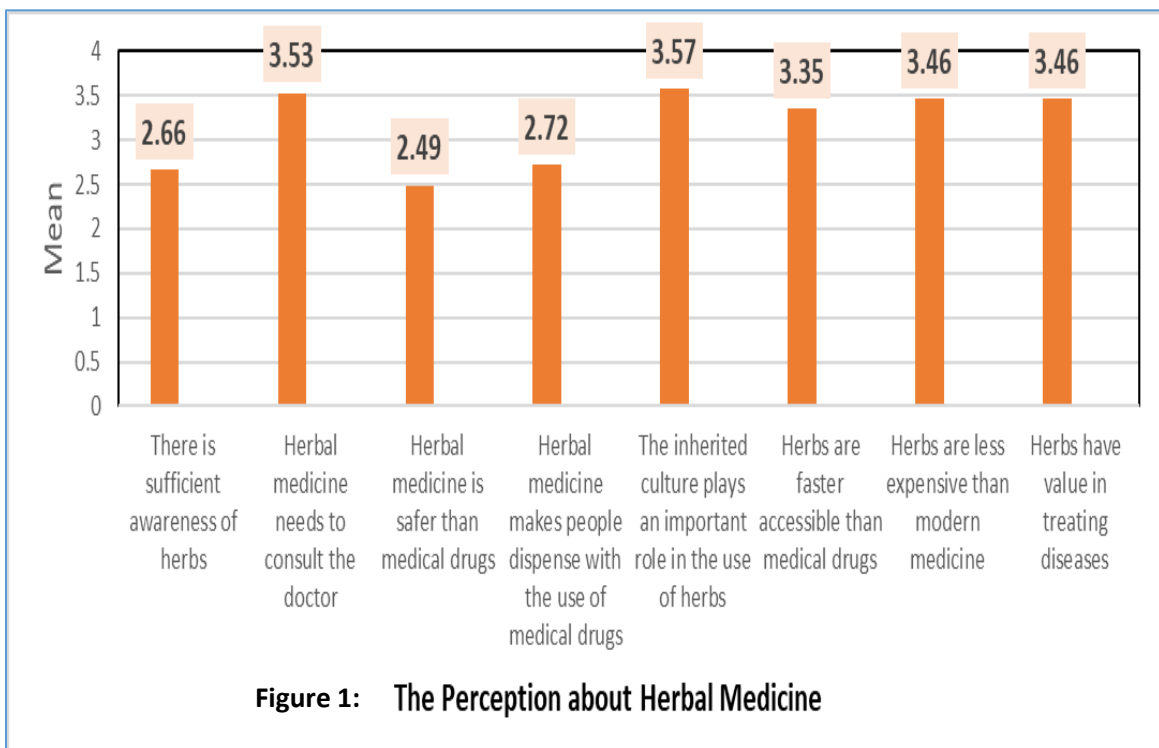
Table 2- The Degree of the Knowledge of the Contributors around Herbal Medicine:

| Question | Answer | Frequency | Percent |
|----------|--------|-----------|---------|
|----------|--------|-----------|---------|

| | | | |
|-----------------------------------------------------------------------------------------------------|----------------------------|-----|------|
| What is the purpose of using herbal medicine? | Immunotherapy | 80 | 47.3 |
| | Therapeutic | 106 | 62.7 |
| | Cosmetic | 48 | 28.4 |
| | Other | 21 | 12.4 |
| Is mixing herbs lead to a more effective result? | Yes | 66 | 39.1 |
| | No | 49 | 29.0 |
| | I don't know | 54 | 32.0 |
| Are there any instructions and restrictions to be taken into consideration when using herbs? | Yes | 116 | 68.6 |
| | No | 35 | 20.7 |
| | I don't know | 18 | 10.7 |
| Are there any side effects to using herbal medicine? | Yes | 86 | 50.9 |
| | No | 50 | 29.6 |
| | I don't know | 33 | 19.5 |
| What is the source of information you have about herbs? | Parents and relatives | 47 | 27.8 |
| | Doctors and herbalists | 18 | 10.7 |
| | TV and scientific programs | 39 | 23.1 |
| | Study and learning | 16 | 9.5 |
| | Friends and colleagues | 16 | 9.5 |
| | Internet and social media | 33 | 19.5 |

The subjective means of members' views of herbal medicine extended from 2.49 to 3.57. The subjective means show that the hereditary values play a highly vital part in the use of herbs with a weighted mean (of 71.4%). The interpretations of the members on herbal medicine, whose subjective average shows that they are high were: herbal medicine requirements to refer the doctor, herbs have a role in disease treatment, herbs are not as expensive as current medicine, and herbs are faster available than therapeutic drugs. The assessments of the contributors whose subjective average shows that it is moderate: herbal makes individuals dispense with the use of medical treatments, and there is adequate responsiveness of herbs. The interpretations of the members whose weighted means indicate that it is low if herbal medicine is harmless than medications with a weighted mean of 49.8%.

Table 3 shows that half (88, 52.1%) of the participants had never used herbs, and below half (81, 47.9%) of them use herbs. 23 (13.6%) used herbs six weeks ago, or less, and 21 (12.4%) used them just two days ago or less. The frequency of use of herbs with 51



(30.2%) only when needed, and 9 (5.3%) used herbs daily. The outcomes as well exposed that 63 (37.3%) of the contributors used herbs affording to exact doses, while 40 (23.7%) of them used it without exact doses. Fewer than half of the members (54, 32.0%) use the leaves of herbs, and half of them (85, 50.3%) use herbs for a drink or to eat. Nearly half of the participants (67, 39.6%) choose the treatment of diseases as the goal for use of herbs. A great part of the members (46, 27.2%) reported that they sense better afterward using herbs and 31 (18.3%) reported that they did not sense any change in their condition afterward using it. Less than half of the members (48, 28.4%) get the herbs from shops of herbal, and 43 (25.4%) get them from parents and relatives.

The majority of the participants (121, 71.6%) stated that they will go to the doctor in event of developed side effects minor to using herbs, 31 (18.3%) of them will treat these effects with another type of herb. About half of the contributors usually used herbs for treating diabetes (56, 33.14%), followed by constipation (27, 15.98%). Half of the members (85, 50.3%) used herbs during a health exposure, and another half before a health exposure (34, 20.1%), and after a health exposure (50, 29.6%).

More than half (101, 59.8%) of the participants go to the doctor directly after constricting the disease, while less than half (68, 40.2%) use it for the disease treatment. Nearby half (84, 49.7%) of the members have somebody who uses herbs for the aim of medicine in their family, another half (45, 26.6%) of them have no one who uses herbs in their families, and (40, 23.7%) they do not know. Also close to half (81, 47.9%) use herbs for the aim of medicine from friends or colleagues, another half (43, 25.4%) do one who uses herbs with their friends or colleagues, and 45 (26.6%) do not know. A little more than half (89, 52.7%) of the members do not use herbal for their kids, while 62 (36.7%) use herbal for their kids. The outcomes exposed that 63 (37.3%) of the members recommend others to use herbs, while 49 (29.0%) do not recommend others to use herbs, and 57 (33.7%) say sometimes.

Table 3- Prevalence and Usage of Herbal Medicine:

| Question | Answer | Frequency | Percent |
|--------------------------------------------------------------------------|---------------------------------|-----------|---------|
| Have you used herbs for a diabetic child? | Yes | 81 | 47.9 |
| | No | 88 | 52.1 |
| When was the last time you used herbs for a diabetic child? | Each day | 1 | .6 |
| | Two days before, or fewer | 21 | 12.4 |
| | A week or less before | 19 | 11.2 |
| | A month or less back | 16 | 9.5 |
| | Six weeks before, or less | 23 | 13.6 |
| | Not use herbs | 89 | 52.7 |
| What is the incidence of your use of herbs for a diabetic child? | Daily | 9 | 5.3 |
| | Weekly | 19 | 11.2 |
| | Monthly | 13 | 7.7 |
| | Only when needed | 51 | 30.2 |
| | Not use herbs | 77 | 45.6 |
| Does your use of herbs have exact amounts for the diabetic child? | Yes | 63 | 37.3 |
| | No | 40 | 23.7 |
| | Sometimes | 66 | 39.1 |
| What kind of herbs do you use? | Leaves | 54 | 32.0 |
| | Seeds | 19 | 11.2 |
| | Roots | 32 | 18.9 |
| | Not use herbs | 66 | 39.1 |
| How do you use herbs? | In the method of a drink or eat | 85 | 50.3 |

| | | | |
|------------------------------------------------------------------------------------------------------|---------------------------------|-----|-------|
| | External use | 42 | 24.9 |
| | Not use herbs | 42 | 24.9 |
| What is the aim of your use of herbs? | Enhance Health | 28 | 16.6 |
| | Treatment of diseases | 67 | 39.6 |
| | Cosmetic | 16 | 9.5 |
| | Enhance physical functions | 39 | 23.1 |
| | Not use herbs | 19 | 11.2 |
| How does your child with diabetes feel after using herbs? | Better | 46 | 27.2 |
| | Worse | 24 | 14.2 |
| | No change | 31 | 18.3 |
| | Not use herbs | 68 | 40.2 |
| Where do you take the herbs, you use most often? | Parents and relations | 43 | 25.4 |
| | Friends | 28 | 16.6 |
| | Herbs shops | 48 | 28.4 |
| | Websites | 17 | 10.1 |
| | Herbalists | 17 | 10.1 |
| | Other places | 16 | 9.5 |
| What to do if a kid has a side result due to the use of a large dose of herbs thru treatment? | Treated with another herb | 31 | 18.3 |
| | Go to the doctor | 121 | 71.6 |
| | Other | 17 | 10.1 |
| What are the most public bags where herbs are used? | Fractures | 20 | 11.83 |
| | Diabetes | 56 | 33.14 |
| | Hypertension | 10 | 5.92 |
| | High temperature | 23 | 13.61 |
| | Malaria and infectious diseases | 23 | 13.61 |

| | | | |
|---------------------------------------------------------------------------------------------|---------------------------------|-----|-------|
| | Headaches | 6 | 3.55 |
| | Constipation | 27 | 15.98 |
| | Other | 17 | 10.06 |
| When herbs are often used by a person? | Earlier health exposure | 34 | 20.1 |
| | Thru health exposure | 85 | 50.3 |
| | Later from health exposure | 50 | 29.6 |
| Do you take the child to the doctor as soon as has a disease or rely on herbs first? | Go to the specialist | 101 | 59.8 |
| | Use herbs | 68 | 40.2 |
| Is there anybody who uses herbs for the goal of medication in your family? | Yes | 84 | 49.7 |
| | No | 45 | 26.6 |
| | I don't know | 40 | 23.7 |
| Is there anybody who uses herbs for the goal of medication from your friends? | Yes | 81 | 47.9 |
| | No | 43 | 25.4 |
| | I don't know | 45 | 26.6 |
| Do you use herbal for your kids? | I do not have a kid | 18 | 10.7 |
| | I have kids and I do not use it | 89 | 52.7 |
| | I used it once or more | 62 | 36.7 |
| Do you recommend others to use herbs? | Yes | 63 | 37.3 |
| | No | 49 | 29.0 |
| | Sometimes | 57 | 33.7 |

4.1 Hypothesis Test:

There is a relative between the opinions of members about herbal medicine and the variables of study (education level, job grade of parents, and monthly household income and also other variables such as age, chronic diseases, and cumulative sugar rate of children).

The following statistical hypothesis was tested with the chi-squared test to assess this relation: the results are shown in table (4). It was found that there were no statistically important changes at ($P < 0.05$) between the arithmetic means of example responses about the use of herbal medicine due to demographic variables (education level, job

Table 4-: Impact of Demographic Variable Quantity of Contributors on their Opinions Around Herbal Medicine:

status of parents, monthly household income, chronic diseases, and cumulative sugar rate of children) this means that their sight on medicinal herbs was equal. However, it shows that the age of members had statistically important effects on participants' views about HM at ($P < 0.05$).

| Variable | Chi-Square Test | DF | P-value |
|--------------------------------------------|-----------------|----|--------------|
| Age | 8,981 | 3 | 0.03 |
| Educational Level of Parents | 3.209 | 4 | 0.523 |
| Job Status of Parents | 0,420 | 2 | 0,811 |
| Monthly Household Income | 5,670 | 3 | 0,129 |
| Chronic Diseases | 3.945 | 6 | 0,684 |
| Last Cumulative Sugar Test of Child (g/dl) | 1,337 | 3 | 0,720 |

5. Discussion:

5.1 Research Discussion:

In our study, a high ratio of contributors said that they use herbal medicines for therapeutic purposes, which is consistent with the findings of the other two studies conducted in Saudi Arabia.

This indicates that people choose herbs as an alternative to chemical treatments.

It also shows that there is a high use of CAM in chronic diseases all over the world, as mentioned in a study conducted in Oman on the use of herbs for the diabetic disease at a rate of the half, with a solid belief in its efficiency in treating the disease(17).

The Kingdom of Saudi Arabia is one of the countries in which the use of traditional and complementary medicine (T&CM) is widespread, between 17.4% and 64%. The prevalence rate of using T&CM by diabetic patients in all previously published studies was 32.18% in Saudi Arabia. Herbs and honey were the most used among the T&CM group. The prevalence of use of T&CM among diabetics in Saudi Arabia compared with the other countries, where they spread in Saudi Arabia represents half of the spread in other countries, such as India (67.8%), Malaysia (62.5%), Bahrain (64%), Oman (42%), Lebanon (38%). There is a lack of information about the prevalence of use of T&CM among diabetics in most Arabic countries(18), also the numeral of studies on the use of CAM with T1DM in Saudi is inadequate.

The use of CAM is affected by the characteristics of children and their parents, but as we mentioned previously, studies conducted on CAM use in children with type 1 diabetes are very limited. There is also a difference between these studies regarding the results related to the characteristics of the participants and the use of CAM, where some studies

concluded that the level of the monthly income of the family affects the use of herbs, and this result is in contradiction to the results that appeared in our study, where concluded that there is no relationship between the level of the monthly income of the family with the use(6,14).

Some studies have found that there is an effect on the use of herbs in terms of some characteristics of the participants such as age, gender, duration of diabetes for children, and the age and education level of parents, and these results agree with us in terms of the effect of children's age on the use of herbs, And it differs with us in terms of the effect of the education level of parents on the use of herbs, as we concluded that there is no relationship between the use of herbs and the level of education of parents(15).

On the other hand, some studies agreed with us about the no effect of the educational level of parents on use with other characteristics such as gender, the level of the monthly income of the family, the number of children in the family, the presence of some other diseases, and the age of the parents, also agreed with us about the fact that the last cumulative sugar rate of the child, was not affected by the use of herbs(15)

Health care providers should provide diabetic children and their parents with training and advice on how to use herbs within health restrictions, with knowledge of their advantages and disadvantages and hope in the future there will be more studies on this topic.

5.2 Research Limitations

The limitation of our study is its small sample size; a study with a larger sample size must be performed to identify the factors that affect HM use. Other limitations of this study are that it was a cross-sectional study that can expose the association among variables but not the casual relations. The use of a predesigned survey to gather data could have a recall



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prejudice. To compare results with other studies since the studies conducted on HM use in children with T1DM are limited in Saudi Arabia and the region.

6. Conclusion:

6.1. Conclusion:

A high section of the members used herbal medicine for therapeutic aims. Age of participants had statistically important effects on the opinions on HM, but on the other hand, education level, job status of parents, level of family income, chronic diseases, and cumulative sugar rate for children had no statistically important effects on opinions on HM.

6.2. Recommendations:

There is a necessity to increase responsiveness about instructions and restrictions for the public when using HM. Hope in the upcoming there will be more studies to assess the incidence of HM usage in other Saudi regions.

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