

ORIGINAL ARTICLE

Health Benefits of Honey: Knowledge, Attitude and Perception (KAP) Among the Community in Malaysia.

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Abstract

Background: Honey is a sticky, jelly-like natural substance produced by honeybees (*Apis mellifera*; *Apidae*) from blossom nectar. According to current scientific research, honey may be beneficial and protective in treating various medical illnesses.

Objective: This study aimed to identify usage patterns of honey among Malaysian and evaluate their KAP toward the health benefits of honey.

Method: A cross-sectional study was conducted using a self-administered, face-validated online questionnaire distributed among 400 participants aged 18 years and above recruited using convenience sampling between January and May 2022. The questionnaire consists of five domains: demographic characteristics, honey's usage pattern, knowledge, attitude, and perception of the health benefits of honey. Sections 1 and 2 consist of multiple-choice questions while each KAP part comprises 2-7 items Likert scale questions. The overall score for each KAP section is calculated and the level is classified by using Bloom's cut-off point. The statistical analysis methods for this study were analyzed using the SPSS version 23. Descriptive statistics were performed using SPSS version 22 and the data were presented in frequency and percentage.

Results: Most of the respondents were single (83.9%), female (58%) university students (36.5%) with bachelor's degree (66%). Among Malaysian, Tualang (n=218) is the most frequently consumed honey for the purpose of suppressing cough (n=342) with an expenditure of more than RM60 per month (n=162). Results also showed that participants have a good knowledge (n=185, 46.3%), optimistic attitude (n=275, 68.8%) and positive perception (n=276, 69%) toward the health benefit of honey.

Conclusion: The majority of the study participants were knowledgeable about honey and awareness of its benefit must be directed to the public.

Keywords: Knowledge, Attitude, Perception, Honey, Benefits

Introduction

Honey has been used by humans since ancient times and nowadays, apitherapy or known as the practice of using bee products such as honey is part of the recognised traditional medicine [1]. According to current scientific research, honey may be beneficial and protective in treating various medical illnesses [2]. Honey has been demonstrated to possess antioxidant, anti-inflammatory, antibacterial, antidiabetic, and protective qualities for the respiratory, gastrointestinal, cardiovascular, and nervous systems [3]. Numerous individuals are completely unaware of the multiple benefits that honey can provide in their daily lives. Due to a lack of understanding about honey's health advantages, most people utilize it solely as a food sweetener or condiment.

According to consumer research findings, the desire to maintain a healthy lifestyle through nutrition and the growing trend of consuming honey as a healthy food has increased the demand for this product. One study reported that 65% of the consumers living in urban areas perceived honey as being a healthy food as the reason for consumption [4]. The current trend in honey consumption necessitates conducting an exploratory study to assess the knowledge of the local community. The study's findings may aid in raising public awareness of honey and its applications, as well as public perception of honey.

Methods

A cross-sectional survey was conducted online with respondents from 14 Malaysian states using a structured, self-administered questionnaire. The invitation to participate was distributed via social media. The study's data collection period was from March to April 2022. The sample size calculation was determined using the Raosoft online sample size calculator with a confidence level of 95% and a margin of error of 5%. The convenience sampling approach was employed to

determine the sample size in this investigation. The questionnaire was designed and sent via a Google form. The researchers distributed the link to the online Google form to a prospective group of respondents, community leaders, and social influencers via social media and communication apps such as WhatsApp, Facebook, Instagram, and Twitter, and through their professional and personal networks.

The questionnaires were adapted from a study by Wahab et al 2017 [5]. The questionnaire was written in Malay and English and translated into both languages. Two experts with experience in the respective field were invited to review the questionnaire to ensure face and content validity [6]. The questionnaire was also pilot tested, and a reliability test was performed using Cronbach alpha (0.615) in Statistical Package for Social Sciences (SPSS version 22). Statistical Package for Social Sciences (SPSS version 22) was used for all statistical analyses. The significance level was set at a p -value of less than 0.05. Descriptive statistics have been used to describe the data; continuous data has been presented as mean \pm standard deviation (SD), and categorical data will be expressed as numbers with percentages.

A total of 23 questions were included in the final questionnaire. Part 1 represented six close-ended questions on sociodemographic characteristics while four questions were constructed to identify the pattern of honey use on health benefits. 13 Likert-scale questions were added in the last part of the questionnaire for the KAP domain, following Bloom's original cut-off point to classified their level into good, moderate and poor. (Table 1) The Likert scale was rated on a five-point scale: strongly agree (SA), agree (A), neutral (N), disagree (D), and strongly disagree (SD) with scores of five (5), four (4), three (3), two (2), and one (1) respectively.

The knowledge section comprised of 7 statements and respondents' knowledge was classified as good if the score was in the range of 80 to 100% (>28points), moderate if the score was in the

range of 60 to 79% (21-27 points) and poor if the score was below 59% (<21 points).

In the second section of KAP, respondents' attitude was identified as "good" if the score was between 80 – 100% (8-10 points), "moderate" if the score was between 60 – 79% (5-7 points), and "poor" if the score was less than 59% (<5points).

With a total of 20 points, respondents were considered to have a 'good' perception if they scored at least 16 points (80 – 100%), moderate perception if they scored between 12-15 (60 – 79%), and poor perception if the total score is less than 12 (59%).

Results

Socio demographic characteristics of respondents

Out of 400 respondents, higher female respondents 168 (42%) were involved in the study. The finding also showed the majority of respondents aged between 20 to 30 years old (n=206), and the lowest (1.3%) was recorded among those elderly more than 60 years old and above. The results also showed that most of the respondents came from Selangor with 153 respondents (35.3%) and nearly all of the respondents lived in the urban area (n=323, 80.8%). The largest proportion of respondents were having the status of single (n=355, 83.9%). and most of them came from university students (36.5%) with bachelor's degrees (n=264).

Honey usage pattern

The respondents' pattern of honey use on health benefits of honey is illustrated in Table 2 Among Malaysian, Tualang (n=218) is the most frequently consumed honey, followed by Kelulut 191 (47.8%), Acacia 53 (13.3%) and Manuka 51 (12.8%). Most of the respondents utilised honey as a cough suppressant (n=342, 85.5%), followed by other purposes such as maintaining healthy gut flora (55.3%), weight loss (47.8%), and lowering

cholesterol level (43.0%). 162 of 400 respondents were reported to have an expense of more than RM60 per month to buy honey and 40.3% of them responded to consuming honey very frequently.

Respondents' Level of Knowledge towards the health benefit of honey

Table 3 represented the respondents' feedback concerning their knowledge of the health benefits of honey. Most respondents agreed with the statements on knowledge of the health benefits of honey. A total of 299 (74.8%) respondents agreed that honey can relieve upper respiratory infection symptoms in children. In addition, up to 210 respondents approved of honey's weight-loss effect on humans and the majority of them supported honey's ability in reducing Body Mass Index (BMI) (50.5%) and increasing high-density lipid-protein (HDL) cholesterol (n=227). Likewise, 254 (63.6%) respondents agreed that quercetin in honey can be considered a protective agent against cardiovascular disease (CVD). Moreover, the statement that honey contains prebiotics(n=270, 67.6%) and can boost CD4 counts in HIV patients for immunity (n=250, 62.%) are approved by most respondents in the study. Overall, results showed that the majority of the participants have a good knowledge (n=185, 46.3%) towards the health benefits of honey.

Respondents' Level of Attitudde towards health benefits of honey

Respondents' attitude to the health benefits of honey was evaluated in Domain 4 of the research instrument with two statements (Table 4). The first statement on this section was constructed to explore the desire of participants to buy honey and most of them (n=296, 74%) agreed with the statements. For the attitude of participants toward the essentialness of honey for their family and themselves, the result showed the majority of the participants (n=279, 69.8%) approved of it. Overall, results showed that the majority of the

participants have an optimistic attitude (n=275, 68.8%) towards the health benefits of honey.

Respondents' Level of Perception towards health benefits of honey

Table 5 showed the perception of the health benefits of honey among the Malaysian community. Four items were discussed in this section. Majority of respondents perceived honey has health benefits (n=329, 82.3%) and is associated with no side effects (n=246, 61.5%). They also agreed with the consumption of honey as a food additive (n=276) and strongly believed more information should be provided to the public regarding the health benefits of honey (82.3%). Overall, results showed that majority of the participants have a positive perception (n=276, 69%) toward the health benefit of honey.

Discussion

The result showed that most respondents to this survey were female as per previously reported, this gender was described to be more willing to utilize honey as a treatment if sufficient evidence supports its effectiveness [7]. A previous study also had shown significant gender differences indicating that females are more than the man in responding to the survey of honey study. From the study, the author concluded that women are more prone to try honey than men [5].

Among Malaysian, the usage pattern is quite predictable. Our findings showed that Tualang is the most frequently consumed honey. This might be due to the multi-floral jungle honey had been gaining recognition given its high antioxidant, anti-inflammatory, and antibacterial properties [8,9]. As the most preferred indication of honey in our study, we can relate to research published in 2019. The author has provided evidence for the benefit of using honey due to its therapeutic properties in the treatment of cough [10].

Results also showed that participants have good knowledge, an optimistic attitude, and a positive perception of the health benefit of honey. The good knowledge of most respondents of honey in this study showed a significant impact on their decision-making to purchase it. The finding is aligned with a study published in 2020 whereby the authors concluded it was found that the more knowledgeable a consumer is about honey, the more positive the impact on willingness to purchase honey [11]. Contradictory to the local study, it was noted that the knowledge of local honey is negatively related to the decision to purchase local honey [12].

Our finding also indicates that the majority of participants is having the right attitude toward the health benefits of honey. This indicates a high value of respondents consuming honey at home, thus showing a good attitude towards honey. The result can be supported by previous research conducted in Northern Italy that showed that approximately 66% of honey consumers show a strong interest in honey's functional properties [13]. The positive image of honey also has been reported previously by Oravec et al (2019) as the respondents in the study regarded honey as healthy food [14].

Conclusion

The current study's findings demonstrated that the majority of the study participants were knowledgeable about honey and awareness of its benefit must be directed to the public. However, this study is based on the respondents' knowledge, attitude, and perception. Therefore, the self-assessment of the respondent on the health benefits of honey may be biased. Future studies may use other methods of data collection, such as interviews.

Table 1. Bloom's cut-off points for respondent's total score

The Level of Respondents' Knowledge According to Bloom's Cut-Off Point		
Score	Total score (%)	Level
>28	80-100	Good
21-27	60-79	Moderate
<21	<79	Poor
The Level of Respondents' Attitude According to Bloom's Cut-Off Point		
Score	Total score (%)	Level
8-10	80-100	Good
5-7	60-79	Moderate
<5	<79	Poor
The Level of Respondents' Perception According to Bloom's Cut-Off Point		
Score	Total score (%)	Level
>15	80-100	Good
12-15	60-79	Moderate
<12	<79	Poor

Table 2. Respondents' pattern of honey uses on health benefits of honey

Responses, n (%)								
	Tualang		Acacia		Kelulut		Manuka	
What type of honey do you like?	Yes	No	Yes	No	Yes	No	Yes	No
	218	182	53	347	191	209	51	349
	(54.5)	(45.5)	(13.3)	(86.8)	(47.8)	(52.3)	(12.8)	(87.3)
What do you think of the indication of honey usage?	Suppress cough		Weight loss		Lower cholesterol level		Maintain healthy gut flora	
	Yes	No	Yes	No	Yes	No	Yes	No
	342	58	191	209	172	228	221	179
	(85.5)	(14.5)	(47.8)	(52.3)	(43.0)	(57.0)	(55.3)	(44.8)
How much do you spend on honey per month?	<RM20		RM20 – RM40		RM41 – RM 60		>RM 60	
	103 (25.8)		71 (17.8)		64 (16.0)		162 (40.5)	
How frequently do you consume honey?	Very frequent		Occasionally		Sometimes		Rarely	
	161 (40.3)		63 (15.8)		89 (22.3)		87 (21.8)	

Table 3. Respondents' knowledge on health benefits of honey

	Responses, n (%)					Total Score	Mean (SD)
	SA	A	N	D	SD		
Honey can relieve symptoms of upper respiratory infection in children.	177 (44.3)	122 (30.5)	67 (16.8)	31 (7.8)	3 (0.8)	4.10 (0.99)	27.04 (7.31)
Honey is believed to have a weight-loss effect on humans	133 (33.3)	77 (19.3)	139 (34.8)	50 (12.5)	1 (0.3)	3.73 (1.06)	
Honey can reduce Body Mass Index (BMI) of people when consumed	134 (33.5)	68 (17.0)	141 (35.3)	53 (13.3)	4 (1.0)	3.69 (1.10)	
Honey may increase High-density lipid-protein (HDL) cholesterol.	140 (35.0)	87 (21.8)	111 (27.8)	54 (13.5)	3 (2.0)	3.74 (1.13)	
Quercetin in honey can be considered as a protective agent in cardiovascular disease (CVD)	143 (35.8)	111 (27.8)	106 (26.5)	37 (9.3)	3 (0.8)	3.89 (1.02)	
Honey contains probiotics.	165 (41.3)	105 (26.3)	99 (24.8)	31 (7.8)	0	4.01 (0.99)	
Honey can boost CD4 counts in HIV patients for immunity boosting	145 (36.3)	105 (26.3)	113 (28.3)	35 (8.8)	2 (0.5)	3.89 (1.02)	

Table 4. Respondents' attitude on health benefits of honey

	response	(n)	(%)
I desire to buy honey in my life.	Strongly disagree	3	0.8
	Disagree	30	7.5
	Neutral	71	17.8
	Agree	102	25.5
	Strongly agree	194	48.5
	Mean	4.135	Std Dev: 1.007
Honey is essential food to my family and I.	Strongly disagree	3	0.8
	Disagree	37	9.3
	Neutral	81	20.3
	Agree	101	25.3
	Strongly agree	178	44.5
	Mean	4.035	Std Dev: 1.042
Overall mean: 4.085 Overall Std Dev: 1.025			

Table 5: Respondents' perception on health benefits of honey

	Responses	(n)	(%)
I consume honey as a food additive.	Strongly disagree	5	1.3
	Disagree	44	11.0
	Neutral	75	18.8
	Agree	115	28.8
	Strongly agree	161	40.3
	Mean	3.958	Std Dev: 1.069
I believe honey has health benefits.	Strongly disagree	1	0.3
	Disagree	28	7.0
	Neutral	42	10.5
	Agree	84	21.0
	Strongly agree	245	61.3
	Mean	4.348	Std Dev: 0.932
More information should be provided to the public regarding health benefits of honey	Strongly disagree	1	0.3
	Disagree	28	7.0
	Neutral	42	10.5
	Agree	84	21.0
	Strongly agree	245	61.3
	Mean	4.360	Std Dev: 0.945
Honey has no side effects	Strongly disagree	7	1.8
	Disagree	49	12.3
	Neutral	98	24.5
	Agree	81	20.3
	Strongly agree	165	41.3
	Mean	3.870	Std Dev: 1.136
Overall mean: 4.134 Overall Std Dev: 1.021			

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