

Non-parametric Test Analysis on a Questionnaire Investigation for Rare Sugars

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Received: June 16, 2018

Accepted: July 5, 2018

Online Published: July 18, 2018

doi:10.5430/ijba.v9n4p127

URL: <https://doi.org/10.5430/ijba.v9n4p127>

Abstract

The Rare Sugars exist naturally and have many kinds (more than 50). They have good effect for health such as prevention of increasing the blood-sugar level after eating, suppression of fat accumulation, suppression of increasing the blood pressure, and anti-oxidative effect etc. It is in the spotlight for many people especially for those who are in the metabolic syndrome. There are few related papers concerning the marketing research and its utilization of this matter. In this paper, a questionnaire investigation is executed to the student of Kagawa Junior College in order to clarify consumers' current condition and their consciousness, and to seek the possibility of utilizing the Rare Sugars. Fundamental statistical analysis and Non-Parametric Test Analysis are performed. Some interesting and instructive results were obtained.

Keywords: rare sugars, health, consumer, non-parametric test

1. Introduction

The Rare Sugars' study has launched on 1980th by Professor Takeshi Izumori (Kagawa University). The way to the mass production was developed by the method of enzymatic reaction. The International Society of Rare Sugars was established in 2001. Local government of Kagawa Prefecture comes to assist this research activity on this big innovation newly born in Kagawa Prefecture. The Rare Sugars have advantage that a blood-sugar level does not increase so much after eating, in spite of it being a sugar. And it also holds the upturn of the blood pressure. Therefore it is expected as a new functional material for the prevention of metabolic syndrome.

By the way, one kind of the Rare Sugar D-psicose has the following characteristics.

- ① a sweetening made by the natural starch
- ② non calorie and its sweetness is 70% to those of sugar
- ③ organoleptic property of coolness and sharpness in taste

Many medical research papers are published on the Rare Sugars as follows.

Analysis of the function of D-psicose; (Hossain, M.A., *et al.*, 2011; Hayashi, N., *et al.*, 2010; Iida, T., *et al.*, 2010; Miyanishi, N., *et al.*, 2008; Suna, S., *et al.*, 2007; Murao, K., *et al.*, 2007)

Analysis of the function of D-allose; (Yamada, K., *et al.*, 2012; Nakamura, T., *et al.*, n.d.; Kajikawa, T., *et al.*, 2010; Hirata, Y., *et al.*, 2009; Mitani, T., *et al.*, 2009; Yamaguchi, F., *et al.*, 2008; Yamaguchi, F., *et al.*, 2008; Sui, L., *et al.*, 2007)

On the other hand, these are few papers analyzed by the viewpoint from consumers. The Rare Sugars is good for the health and is sold in the market as a sweetening, seasoning or functional ingredient for food.

In this paper, a questionnaire investigation is executed to the student of Kagawa Junior College in order to clarify the recognition level among consumers and to pursue the future possibility of the Rare Sugars. Basic statistical analysis and Non-Parametric Test are conducted.

The rest of this paper is organized as follows. In section 2, outline of the questionnaire investigation and its basic statistical results are exhibited. After that, Non-Parametric Test is performed in section 3, which is followed by the conclusion of section 4.

2. Outline and the Basic Statistical Results of the Questionnaire Research

2.1 Outline of the Questionnaire Research

A questionnaire investigation is executed to the student of Kagawa Junior College in order to clarify the recognition level among consumers and to pursue the future possibility of the Rare Sugars. The outline of the questionnaire research is as follows. The questionnaire sheet is attached in Appendix.

- | | | | |
|-----|------------------------|---|---|
| (1) | Scope of investigation | : | Student of Kagawa Junior College |
| (2) | Period | : | April-June 2015 |
| (3) | Method | : | Leave until called for |
| (4) | Collection | : | Number of distribution 186
Number of collection 186 (collection rate 100.0%)
Valid answer 186 |

2.2 Basic Statistical Results

Now, we show the main summary results by single variable.

Table 1. The main summary results by single variable

		Answerers	Share (%)
Q32 Sex	Male	19	11.0
	Female	154	89.0
	Total	173	100.0
Q33 Age	~19	139	80.3
	20~29	33	19.1
	50~59	1	0.6
	Total	173	100.0
Q34 Occupation	Student	171	98.8
	Housewife	1	0.6
	Not filled in	1	0.6
	Total	173	100.0
Q25 Do you take interest in a diet?	Think it very much	65	38.0
	Slightly think so	52	30.4
	Cannot say either	24	14.0
	Slightly do not think so	15	8.8
	Do not think so	15	8.8
Total	171	100	
Q26 Are you careful for the health?	Think it very much	21	12.2
	Slightly think so	64	37.4
	Cannot say either	65	38.0
	Slightly do not think so	15	8.8
	Do not think so	6	3.5
Total	171	100	

(1) Q1 Do you know the Rare Sugars?

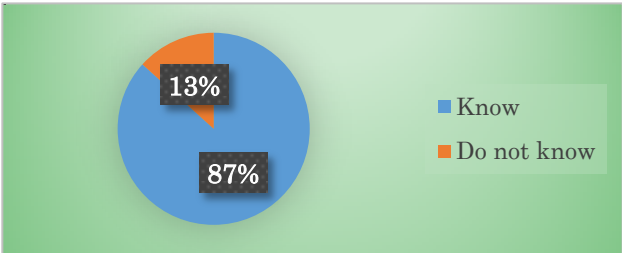


Figure 1. Q1 Do you know the Rare Sugars?

(2) Q6 Have you drunk or eaten the food which includes the Rare Sugar?

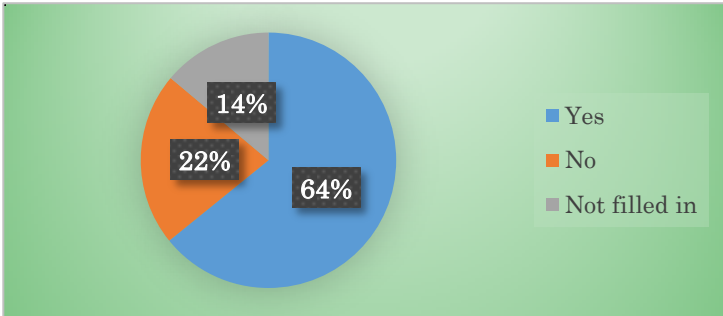


Figure 2. Q6 Have you drunk or eaten the food which includes the Rare Sugar?

(3) Q7 Was the Rare Sugar effective after using it for more than one month?

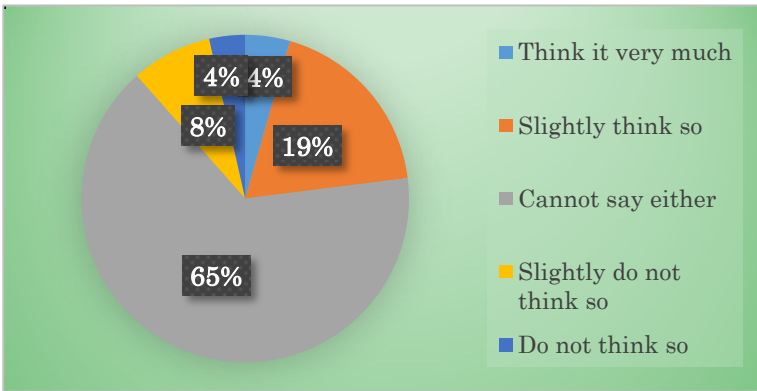


Figure 3. Q7 Was the Rare Sugar effective after using it for more than one month?

(4) Q8 Do you want to try to eat or drink the food in which the Rare Sugar is included?

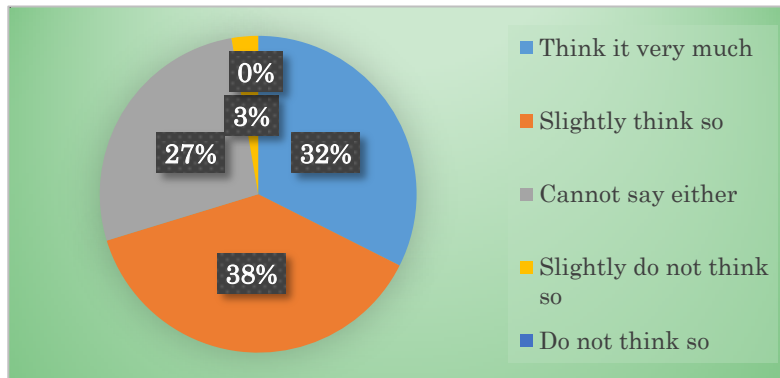


Figure 4. Q8 Do you want to try to eat or drink the food in which the Rare Sugar is included?

(5) Q10-15 How do you want to use the Rare Sugar?

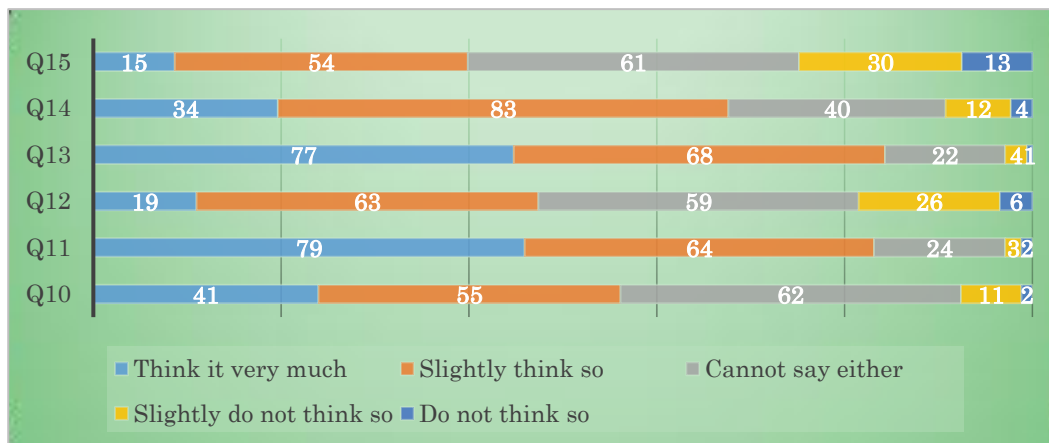


Figure 5. Q10-15 How do you want to use the Rare Sugar?

(6) Q16-22 Do you have a question (doubt) or anxiety for the Rare Sugar?

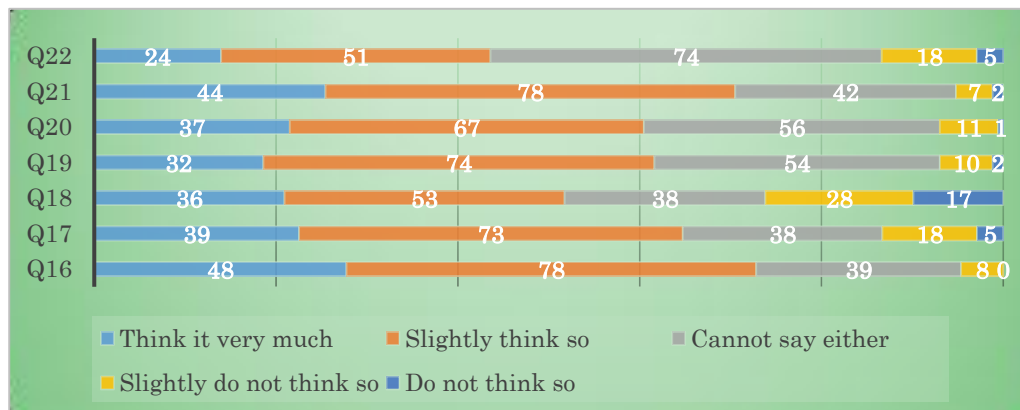


Figure 6. Q16-22 Do you have a question (doubt) or anxiety for the Rare Sugar?

3. Non-parametric Test

Non-Parametric Test is executed concerning Q25 “Do you take interest in a diet?”, Q26 “Are you careful for the health?” and Q27 “Do you take interest in the designated health food?”. Cross tabulation is calculated for the items of Q32 “Sex”, Q33 “Age” and Q36 “Lifestyle”.

Significance probability is calculated as Table 2 ~ Table 4 for each case. Hatched parts in Table 2 ~ Table 4 are the Null Hypothesis rejected cases under 5% (*¹) or 10% (*²) significance level.

As Q7~Q8, Q10~Q22 are under ordinal scale, Kruskal Wallis Test is examined, which reflects order information. χ^2 Test is executed to Q1 • Q3~Q6 as they are under nominal scale.

Table 2. Relation with the Rare Sugar

Item		Relation with the Rare Sugar					
		Q1	Q3	Q4	Q5	Q6	Q7
		Know the Rare Sugar	Know its effectiveness	Heard or used the syrup which includes Rare Sugar "Rare Sugar Sweet"	Have used the Rare Sugar	Have eaten or drunk the food in which the Rare Sugar is included	Effect of the Rare Sugar
Concern	Q25 Diet	0.405	0.157	0.252	0.9	0.604	0.742
	Q26 Health	0.914	0.74	0.149	0.188	0.885	0.035 * ¹
	Q27 Designated Health Food	0.631	0.661	0.033 * ¹	0.754	0.783	0.618
Attribute and Lifestyle	Q32 Sex	0.009 * ¹	0.16	0.474	0.254	0.967	0.076 * ²
	Q33 Age	0.9	0.486	0.27	0.585	0.714	0.218
Q36 Lifestyle	0.225	0.944	0.936	0.092 * ²	0.244	0.329	

From Figure 1, we can observe that the evaluation of Q7 “Effect of the Rare Sugar” is different by the degree of Q26 “Careful for the health” and we can also confirm that Q4 “Awareness of the "Rare Sugar Sweet"” is different by the degree of interest in the designated health food (Q27).

We can also find that there is a difference in the evaluation of Q1 “Do you know the Rare Sugars?” and Q7 “Was the Rare Sugar effective after using it for more than one month?” by the Sex (Q32). Moreover we can find that there is a difference in Q5 “Have you drunk or eaten the food which includes the Rare Sugar?” by the difference of Q36 “Lifestyle”.

Next, we show the graphical charts in which the Null Hypothesis rejected cases under 5% significance level.

① Q1 Do you know the Rare Sugars?

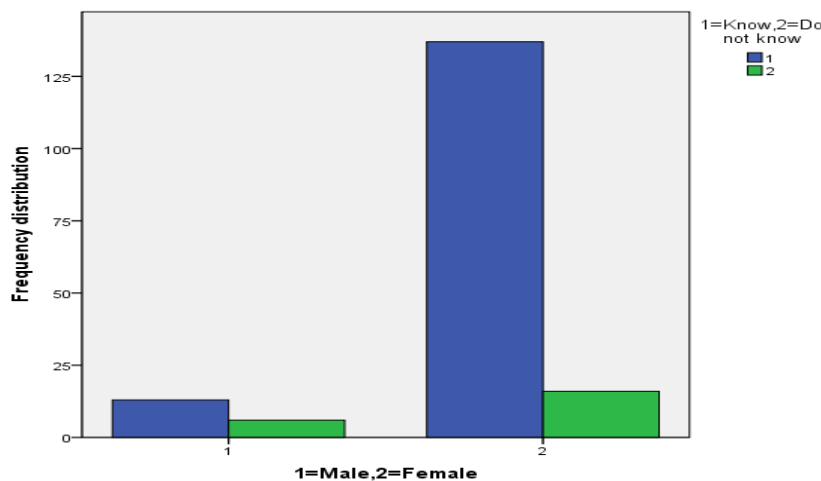


Figure 7. Do you know the Rare Sugars?-By sex

Female is dominant.

② Q4 Have you heard or used the syrup which includes Rare Sugar "Rare Sugar Sweet"?

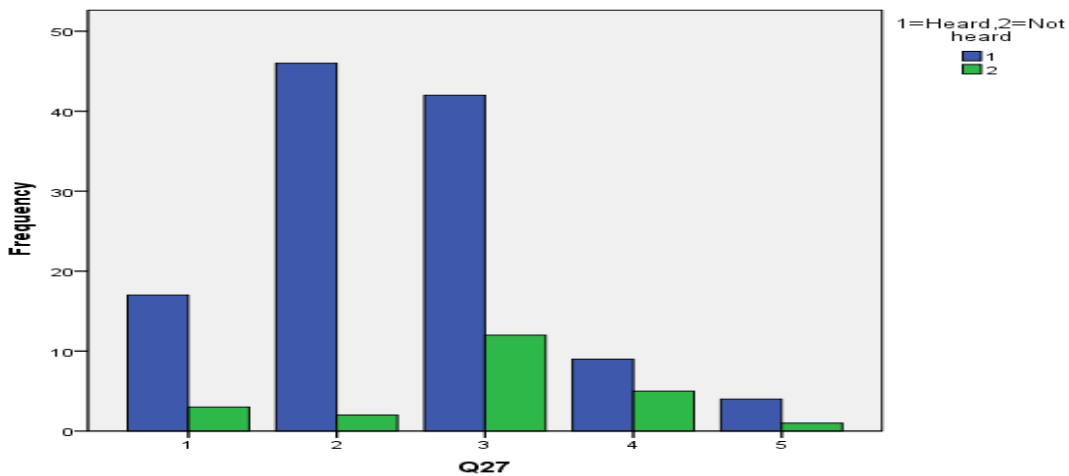


Figure 8. Have you heard or used the syrup which includes Rare Sugar "Rare Sugar Sweet"?-By the degree of interest in the designated health food

Those who have interest in the designated health food have heard or used the syrup which includes Rare Sugar "Rare Sugar Sweet".

③ Q7 Was the Rare Sugar effective after using it for more than one month?

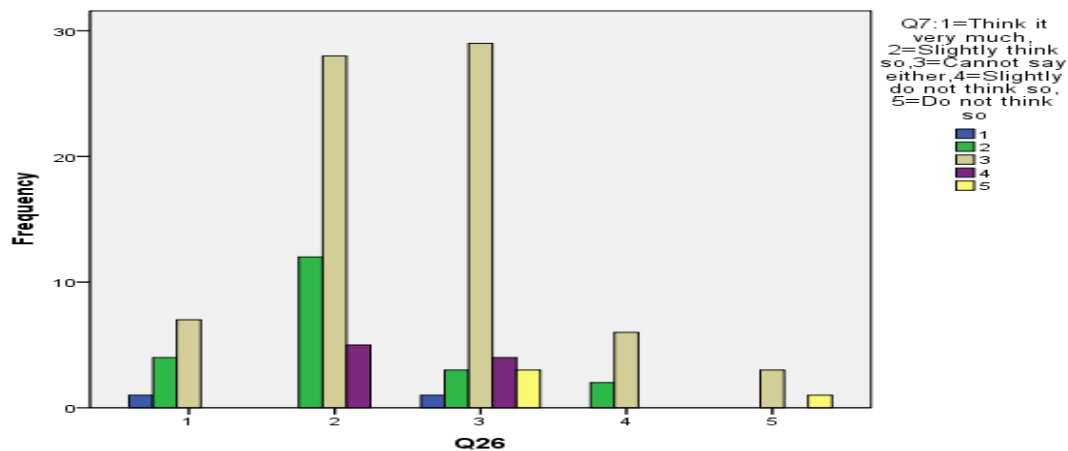


Figure 9. Was the Rare Sugar effective after using it for more than one month? By the degree of interest for the health

Those who have interest for the health evaluate the effectiveness of the Rare Sugar.

5.2 Q8-15 What Kind of Food Do You Want to Eat if the Rare Sugar Is Included?

For about the needs and the requirement about how to use the Rare Sugar, Q25 "Diet", Q26 "Health", Q27 "Designated Health Food", Q32 "Sex", Q33 "Age", Q36" Lifestyle" are placed and made crosstabs. Hypothesis Testing is executed for each case (Table 3).

Table 3. Needs and requirement about how to use the Rare Sugar

Item			Needs and requirement about how to use the Rare Sugar						
			Q8	Q10	Q11	Q12	Q13	Q14	Q15
			Want to eat and drink the Rare Sugar	Want to use the Rare Sugar in the cooking	Can easily use it if there is a recipe	Want to know where I can buy it because I want to use it as a seasoning	Want to know where I can get information because I want to use it as a supplement	Want to know the hospital where the Rare Sugar is used as a tool for treatment	Want to know how long I should use it in order to confirm the effectiveness
Concern	Q25	Diet	0.163	0.015 * ¹	0.251	0.13	0.002 * ¹	0.091 * ²	0.902
	Q26	Health	0.137	0.036 * ¹	0.325	0.016 * ¹	0.106	0.024 * ¹	0.151
	Q27	Designated Health Food	0.046 * ¹	0.001 * ¹	0.042 * ¹	0.99	0.287	0.526	0.171
Attribute and Lifestyle	Q32	Sex	0.153	0.713	0.191	0.804	0.798	0.753	0.513
	Q33	Age	0.113	0.65	0.031 * ¹	0.749	0.521	0.116	0.651
	Q36	Lifestyle	0.152	0.535	0.772	0.596	0.232	0.745	0.829

From Table 3, we can observe that such users requests as Q10 “Want to use it in the cooking”, Q13 “Want to know where I can get information because I want to use it as a supplement”, Q14 “Want to know the hospital where the Rare Sugar is used as a tool for treatment” are different by the degree of interest for diet (Q25). And we can observe that such users’ requests as Q10 “Want to use it in the cooking”, Q12 “Want to know where I can buy it because I want to use it as a seasoning”, Q14 “Want to know the hospital where the Rare Sugar is used as a tool for treatment” are different by the degree of interest for the health (Q26). We can also find that there is a difference among Q8 “Want to try to eat or drink the food in which the Rare Sugar is included”, Q10 “Want to use it in the cooking”, Q11 “Can easily use it if there is a recipe” by the degree of interest in the designated health food (Q27).

As for the attribute, there is a difference in Q11 “Can easily use it if there is a recipe” by the difference of age (Q33). Next, we show the graphical charts in which the Null Hypothesis rejected cases under 5% significance level.

- ① Q8 Want to try to eat or drink the food in which the Rare Sugar is included-By the degree of interest in the designated health food

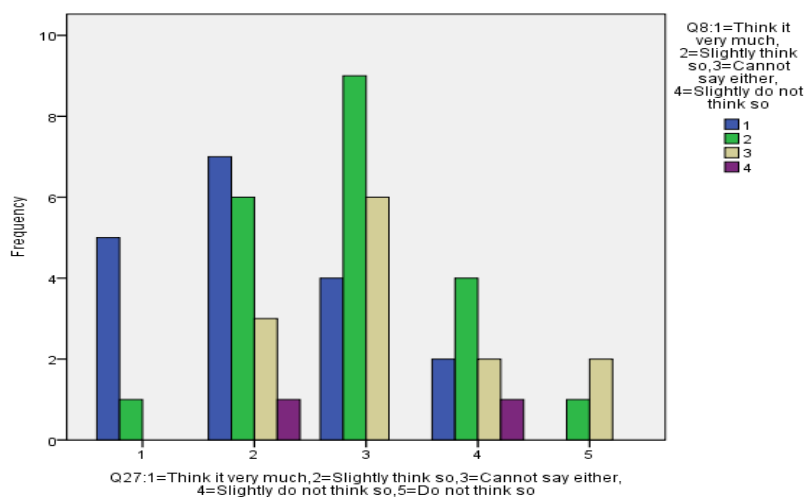


Figure 10. Q8 Want to try to eat or drink the food in which the Rare Sugar is included-By the degree of interest in the designated health food

Those who have in the designated health food want to try to eat or drink the food in which the Rare Sugar is

included-By the degree of interest

② Q10 Want to use the Rare Sugar in the cooking-By the degree of interest for the diet

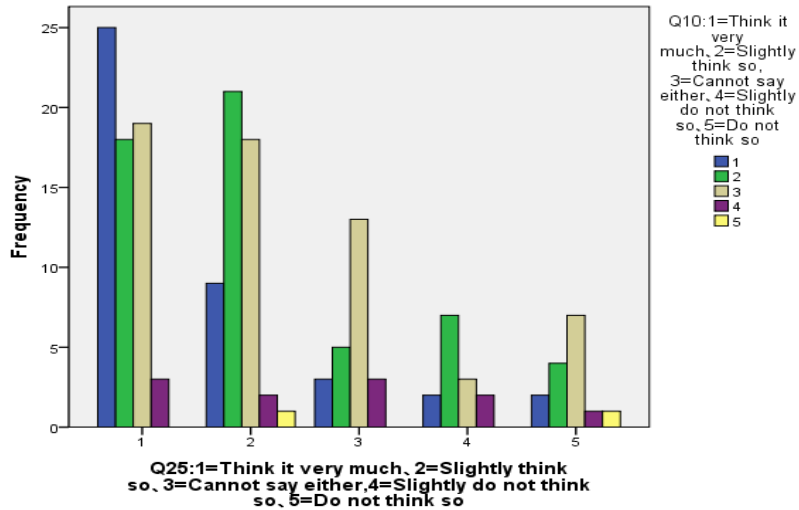


Figure 11. Q10 Want to use the Rare Sugar in the cooking - By the degree of interest for the diet

Those who have interest for the diet want to use the Rare Sugar in the cooking.

③ Q10 Want to use the Rare Sugar in the cooking-By the degree of interest for the health

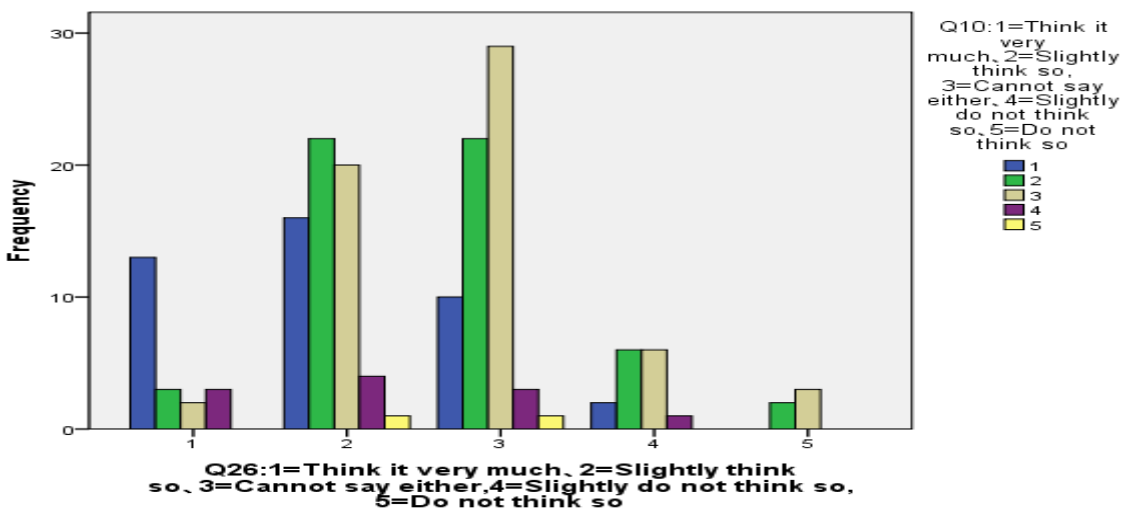


Figure 12. Q10 Want to use the Rare Sugar in the cooking-By the degree of interest for the health

Those who have interest for the health want to use the Rare Sugar in the cooking.

④ Q10 Want to use the Rare Sugar in the cooking- By the degree of interest in the designated health food

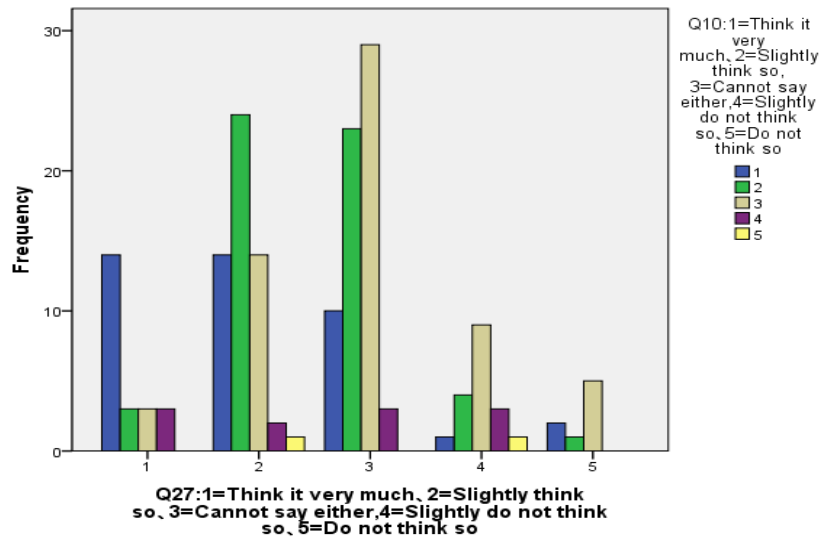


Figure 13. Q10 Want to use the Rare Sugar in the cooking- By the degree of interest in the designated health food

Those who have interest in the designated health food want to use the Rare Sugar in the cooking.

⑤ Q11 Can easily use it if there is a recipe-By the degree of interest in the designated health food

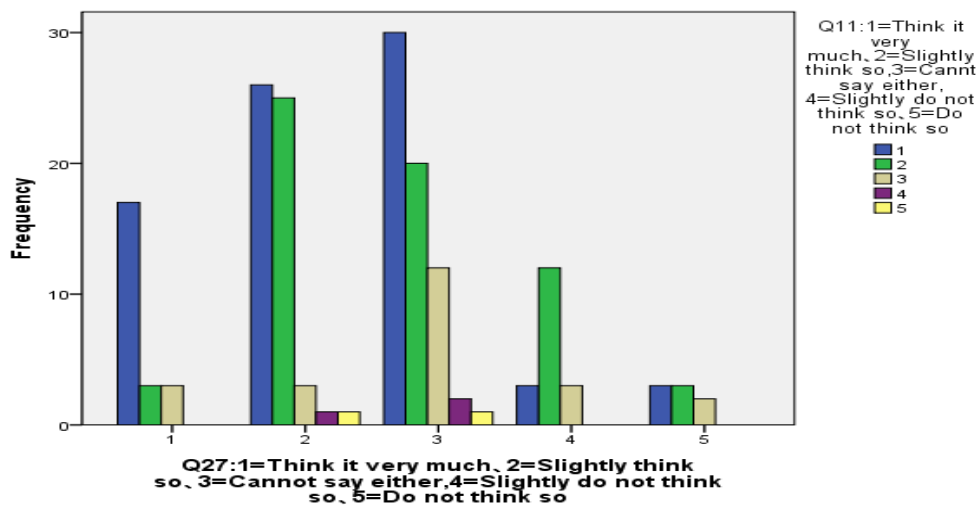


Figure 14. Q11 Can easily use it if there is a recipe-By the degree of interest in the designated health food

Those who have interest in the designated health food can easily use it if there is a recipe.

⑥ Q11 Can easily use it if there is a recipe-By age

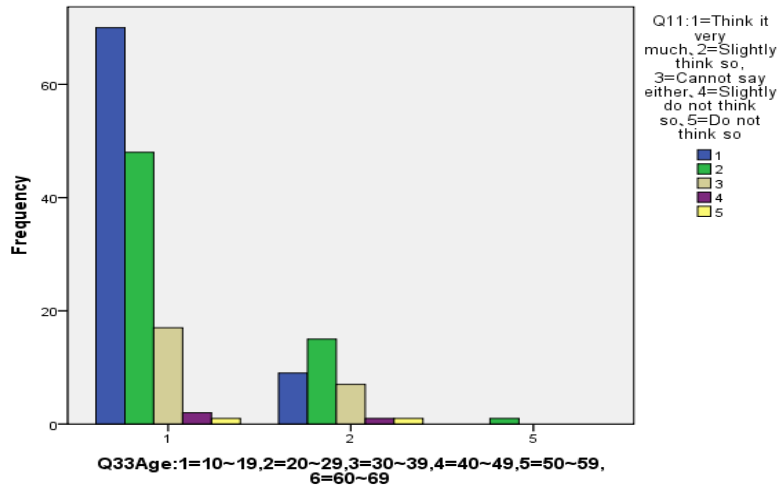


Figure 15. Q11 Can easily use it if there is a recipe-By age

Those who are 10th can easily use it if there is a recipe.

⑦ Q12 Want to know where I can buy it because I want to use it as a seasoning - By the degree of interest for the health

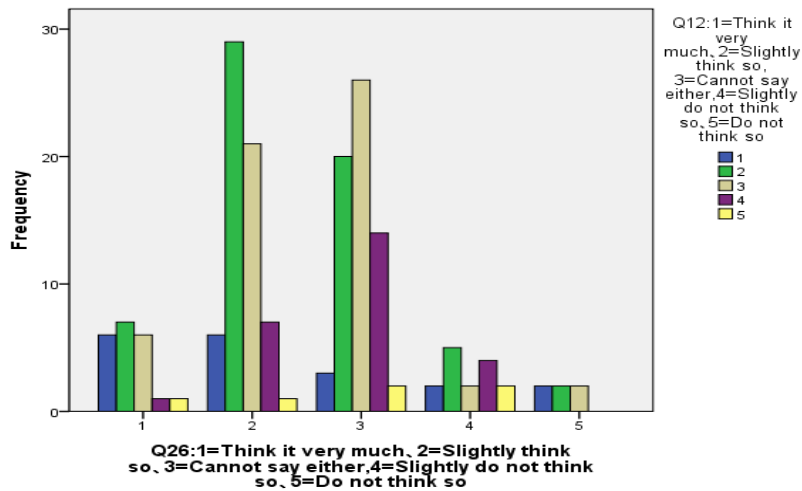


Figure 16. Q12 Want to know where I can buy it because I want to use it as a seasoning-By the degree of interest for the health

Those who have interest for the health want to know where they can buy it because they want to use it as a seasoning.

- ⑧ Q13 Want to know where I can get information because I want to use it as a supplement-By the degree of interest for the diet

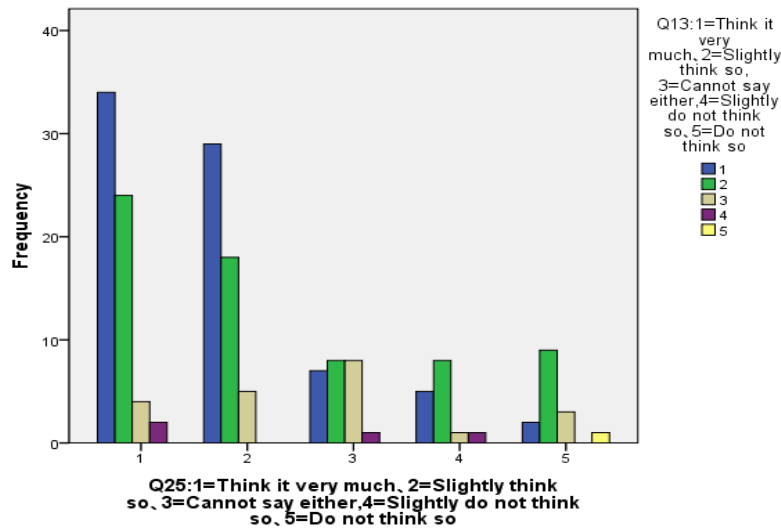


Figure 17. Q13 Want to know where I can get information because I want to use it as a supplement-By the degree of interest for the diet

Those who have interest for the diet want to know where they can get information because they want to use it as a supplement.

- ⑨ Q14 Want to know the hospital where the Rare Sugar is used as a tool for treatment- By the degree of interest for the health

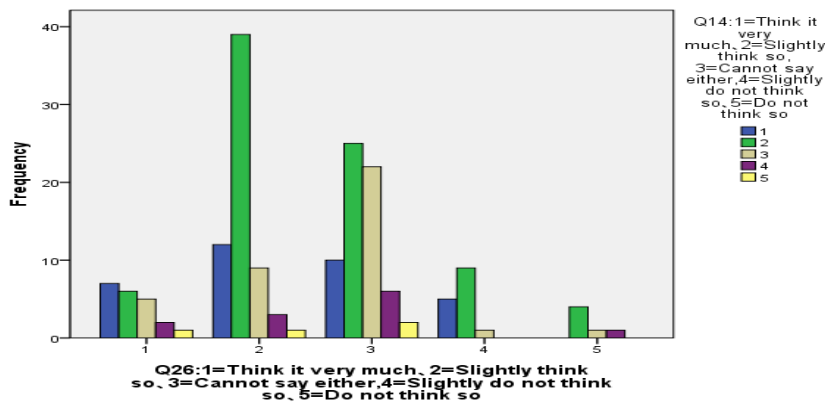


Figure 18. Q14 Want to know the hospital where the Rare Sugar is used as a tool for treatment-By the degree of interest for the health

Those who have interest for the health want to know the hospital where the Rare Sugar is used as a tool for treatment.

5.3 Q16~23 Do You Have a Question (Doubt) or Anxiety for the Rare Sugar?

For about the question(doubt) or anxiety for the Rare Sugar, Q25 “Diet”, Q26 “Health”, Q27 “Designated Health Food”, Q32 “Sex”, Q33 “Age”, Q36” Lifestyle” are placed and made crosstabs. Hypothesis Testing is executed for each case (Table 4).

Table 4. Do you have a question(doubt) or anxiety for the Rare Sugar?

Item		question(doubt) or anxiety for the Rare Sugar							
		Q16	Q17	Q18	Q19	Q20	Q21	Q22	
		Not so popular	Seems to be expensive	Cannot grasp the concrete effect	Cannot have confidence that it is safe for anybody	Surrounding people do not use it so often	Cannot find the food in the shop in which the Rare Sugar is included	Cannot guess how I should use the Rare Sugar to what kind of cooking	
Concern	Q25	Diet	0.138	0.009 * ¹	0.701	0.022 * ¹	0.008 * ¹	0.014 * ¹	0.05 * ¹
	Q26	Health	0.017 * ¹	0.146	0.4	0.029 * ¹	0.051 * ²	0.11	0.001 * ¹
	Q27	Designated Health Food	0.498	0.885	0.772	0.895	0.74	0.958	0.077 * ²
Attribute and Lifestyle	Q32	Sex	0.043 * ¹	0.121	0.002 * ¹	0.127	0.215	0.281	0.004 * ¹
	Q33	Age	0.194	0.011 * ¹	0.176	0.569	0.561	0.366	0.297
	Q36	Lifestyle	0.242	0.333	0.125	0.73	0.417	0.501	0.422

From Table 4, we can observe that such users requests as Q17 “Seems to be expensive”, Q19 “Cannot have confidence that it is safe for anybody”, Q20 “Surrounding people do not use it so often”, Q21 “Cannot find the food in the shop in which the Rare Sugar is included”, Q22 “Cannot guess how I should use the Rare Sugar to what kind of cooking” are different by the degree of interest for diet (Q25). We can also find that there is a difference among Q16 “Not so popular”, Q19 “Cannot have confidence that it is safe for anybody”, Q20 “Surrounding people do not use it so often”, Q22 “Cannot guess how I should use the Rare Sugar to what kind of cooking” by the degree of interest in the designated health food (Q26). Moreover we can also find that there is a difference in Q22 “Cannot guess how I should use the Rare Sugar to what kind of cooking” by the degree of interest for the health (Q27). And we can also find that there is a difference among Q16 “Not so popular”, Q18 “Cannot grasp the concrete effect”, Q22 “Cannot guess how I should use the Rare Sugar to what kind of cooking” by the sex (Q32).

As for the attribute, there is a difference in Q17 “Seems to be expensive” by the difference of age (Q33).

Next, we show the graphical charts in which the Null Hypothesis rejected cases under 5% significance level.

a) Q16 Not so popular-By the degree of interest for the health

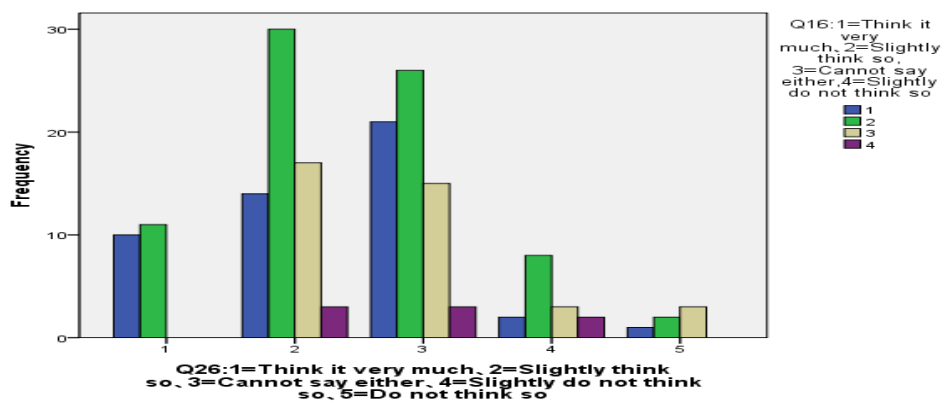


Figure 19. Q16 Not so popular-By the degree of interest for the health

Those who have interest for the health feel anxiety that it is not so popular.

b) Q16 Not so popular-By Sex

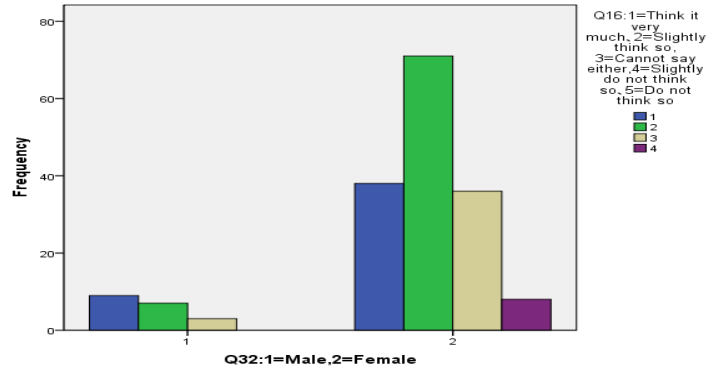


Figure 20. Q16 Not so popular-By Sex

Those who are male feel anxiety that it is not so popular.

c) Q17 Seems to be expensive-By the degree of interest for the diet

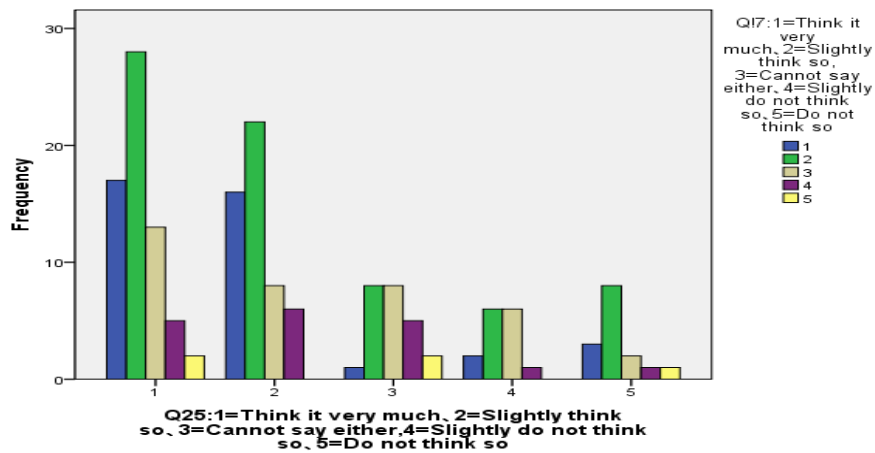


Figure 21. Q17 Seems to be expensive-By the degree of interest for the diet

Those who have interest for the diet feel anxiety that it seems to be expensive.

d) Q17 Seems to be expensive-By age

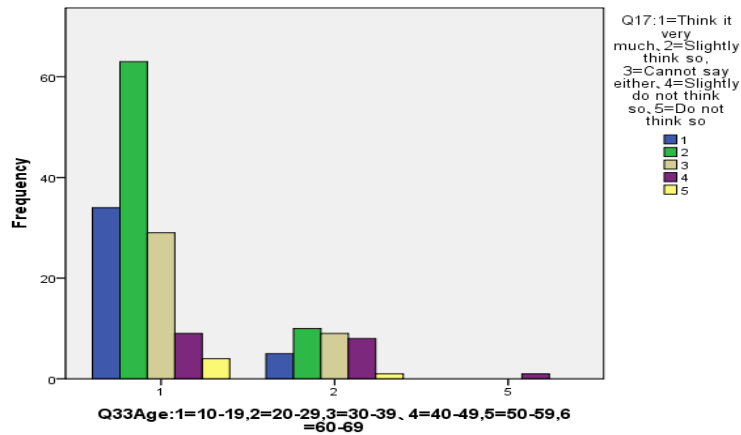


Figure 22. Q17 Seems to be expensive-By age

Those who are young feel anxiety that it seems to be expensive.

e) Q18 Cannot grasp the concrete effect-By Sex

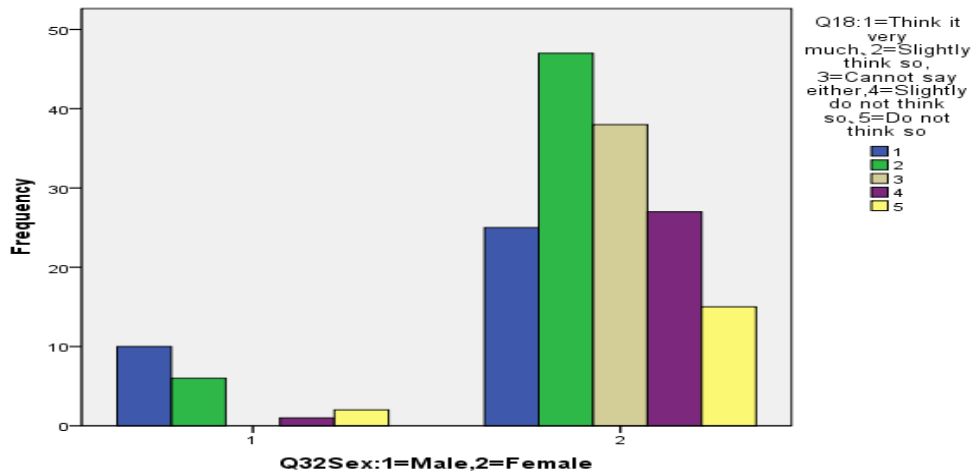


Figure 23. Q18 Cannot grasp the concrete effect-By Sex

Those who are male feel anxiety that they cannot grasp the concrete effect.

f) Q19 Cannot have confidence that it is safe for anybody-By the degree of interest for the diet

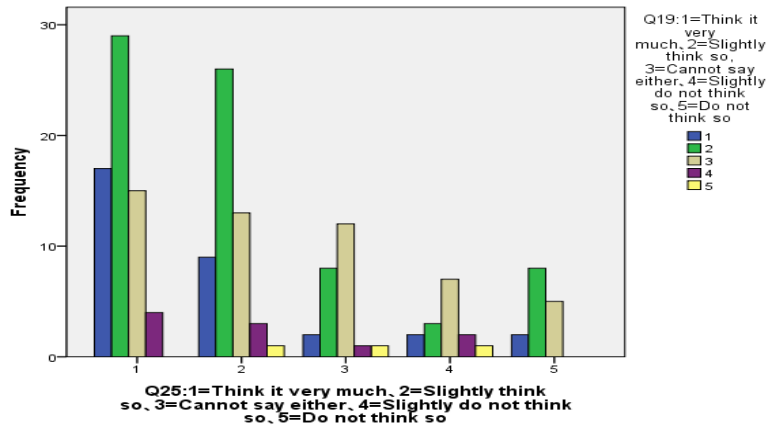


Figure 24. Q19 Cannot have confidence that it is safe for anybody-By the degree of interest for the diet

Those who have interest for the diet cannot have confidence that it is safe for anybody.

g) Q19 Cannot have confidence that it is safe for anybody-By the degree of interest for the health

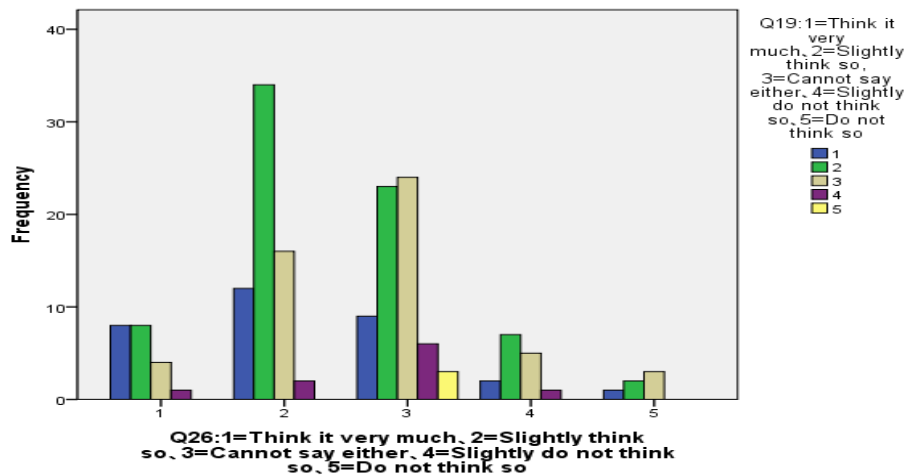


Figure 25. Q19 Cannot have confidence that it is safe for anybody-By the degree of interest for the health

Those who have interest for the health cannot have confidence that it is safe for anybody.

h) Q20 Surrounding people do not use it so often-By the degree of interest for the diet

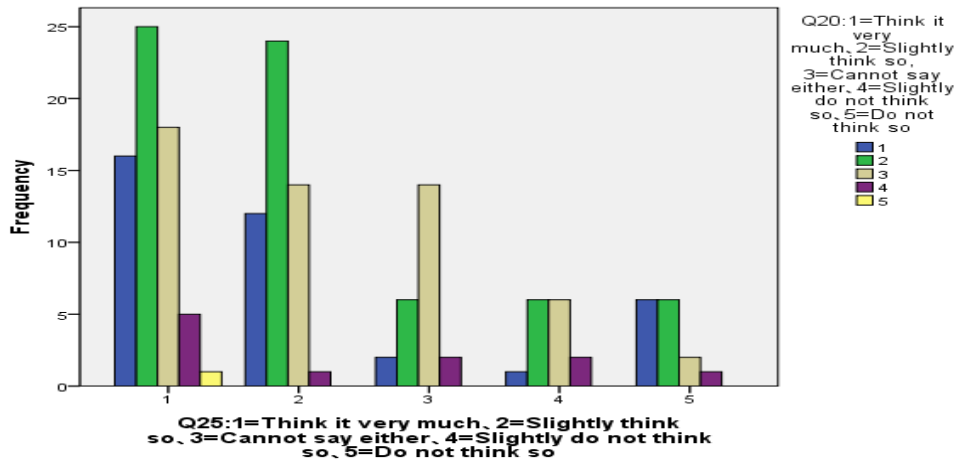


Figure 26. Q20 Surrounding people do not use it so often-By the degree of interest for the diet

Those who have interest for the diet feel anxiety that surrounding people do not use it so often.

i) Q21 Cannot find the food in the shop in which the Rare Sugar is included-By the degree of interest for the diet

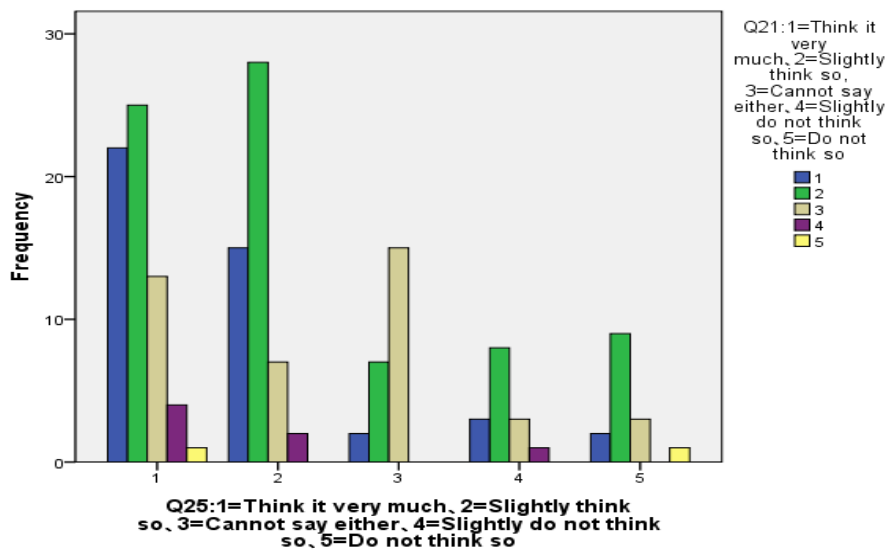


Figure 27. Q21 Cannot find the food in the shop in which the Rare Sugar is included-By the degree of interest for the diet

Those who have interest for the diet feel anxiety that they cannot find the food in the shop in which the Rare Sugar is included.

j) Q22 Cannot guess how I should use the Rare Sugar to what kind of cooking-By the degree of interest for the diet

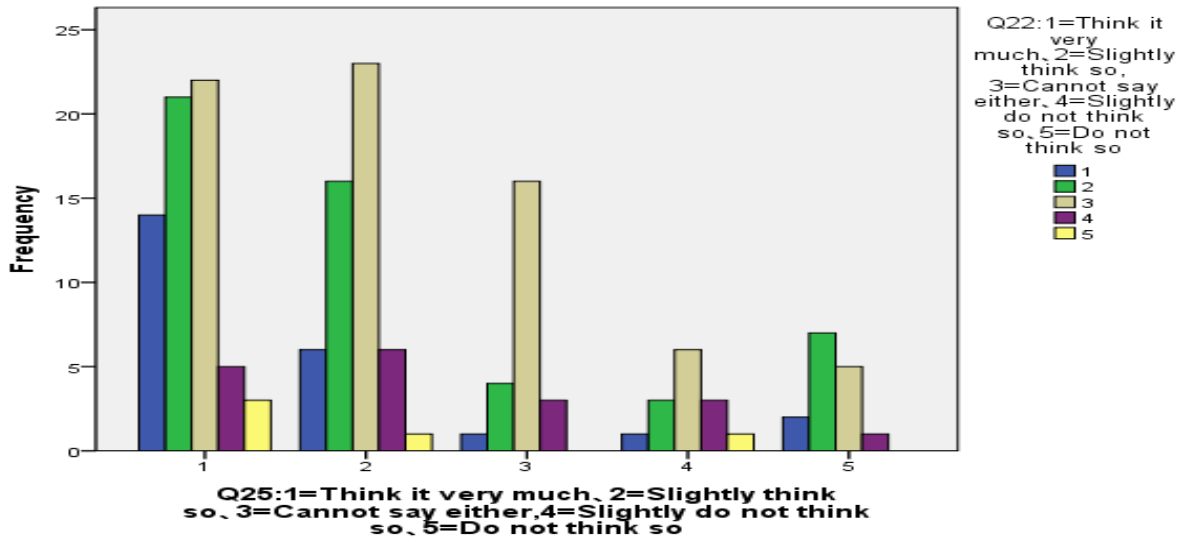


Figure 28. Q22 Cannot guess how I should use the Rare Sugar to what kind of cooking- By the degree of interest for the diet

Those who have interest for the diet feel anxiety that they cannot guess how they should use the Rare Sugar to what kind of cooking.

Q22 Cannot guess how I should use the Rare Sugar to what kind of cooking- By the degree of interest for the health

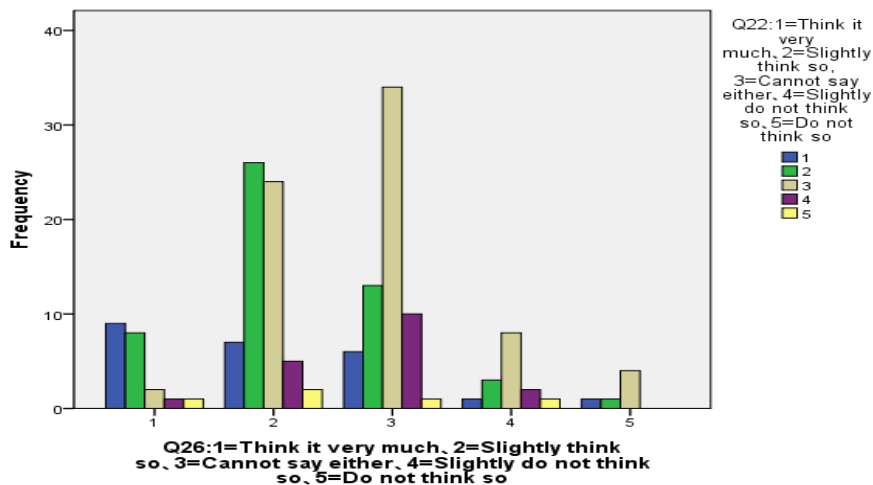


Figure 29. Q22 Cannot guess how I should use the Rare Sugar to what kind of cooking-By the degree of interest for the health

Those who have interest for the health feel anxiety that they cannot guess how they should use the Rare Sugar to what kind of cooking.

Q22 Cannot guess how I should use the Rare Sugar to what kind of cooking-By Sex

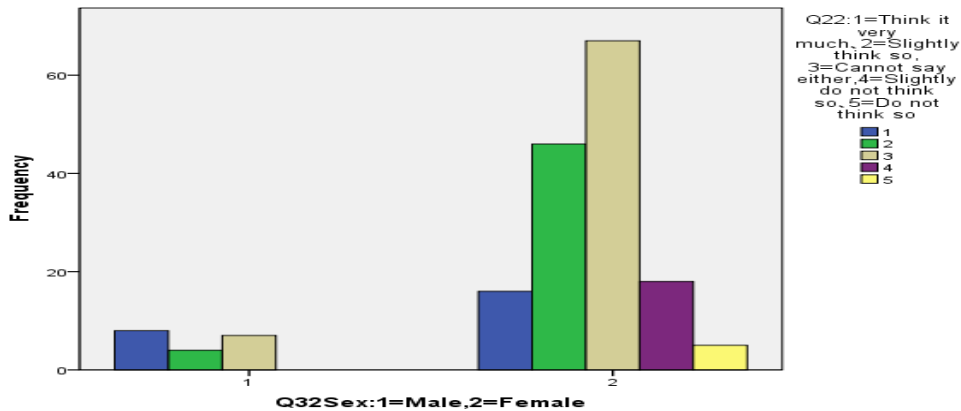


Figure 30. Q22 Cannot guess how I should use the Rare Sugar to what kind of cooking-By Sex

Those who are male feel anxiety that they cannot guess how they should use the Rare Sugar to what kind of cooking.

4. Conclusion

The Rare Sugars exist naturally and have many kinds (more than 50). They have good effect for health such as prevention of increasing the blood-sugar level after eating, suppression of fat accumulation, suppression of increasing the blood pressure, and anti-oxidative effect etc. It is in the spotlight for many people especially for those who are in the metabolic syndrome. There are few related papers concerning the marketing research and its utilization of this matter. In this paper, a questionnaire investigation was executed to the student of Kagawa Junior College in order to clarify consumers' current condition and their consciousness, and to seek the possibility of utilizing the Rare Sugars. Fundamental statistical analysis and Non-Parametric Test Analysis were performed.

From the Non-Parametric Test, we could derive the following results.

(1) We can observe that the evaluation of Q7 "Effect of the Rare Sugar" is different by the degree of Q26 "Careful for the health" and we can also confirm that Q4 "Awareness of the "Rare Sugar Sweet"" is different by the degree of interest in the designated health food (Q27).

We can also find that there is a difference in the evaluation of Q1 "Do you know the Rare Sugars?" and Q7 "Was the Rare Sugar effective after using it for more than one month?" by the Sex (Q32). Moreover we can find that there is a difference in Q5 "Have you drunk or eaten the food which includes the Rare Sugar?" by the difference of Q36 "Lifestyle".

(2) We can observe that such users requests as Q10 "Want to use it in the cooking", Q13 "Want to know where I can get information because I want to use it as a supplement", Q14 "Want to know the hospital where the Rare Sugar is used as a tool for treatment" are different by the degree of interest for diet (Q25). And we can observe that such users' requests as Q10 "Want to use it in the cooking", Q12 "Want to know where I can buy it because I want to use it as a seasoning", Q14 "Want to know the hospital where the Rare Sugar is used as a tool for treatment" are different by the degree of interest for the health (Q26). We can also find that there is a difference among Q8 "Want to try to eat or drink the food in which the Rare Sugar is included", Q10 "Want to use it in the cooking", Q11 "Can easily use it if there is a recipe" by the degree of interest in the designated health food (Q27).

As for the attribute, there is a difference in Q11 "Can easily use it if there is a recipe" by the difference of age (Q33).

(3) We can observe that such users requests as Q17 "Seems to be expensive", Q19 "Cannot have confidence that it is safe for anybody", Q20 "Surrounding people do not use it so often", Q21 "Cannot find the food in the shop in which the Rare Sugar is included", Q22 "Cannot guess how I should use the Rare Sugar to what kind of cooking" are different by the degree of interest for diet (Q25). We can also find that there is a difference among Q16 "Not so popular", Q18 "Cannot grasp the concrete effect", Q22 "Cannot guess how I should use the Rare Sugar to what kind of cooking" by the degree of interest in the designated health food (Q26). Moreover we can also find that there is a difference in Q22 "Cannot guess how I should use the Rare Sugar to what kind of cooking" by the degree of interest for the health (Q27).

As for the attribute, there is a difference in Q17 “Seems to be expensive” by the difference of age (Q33).

These are utilized for constructing a much more effective marketing policy. Although it has a limitation that it is restricted in the number of research, we could obtain the fruitful results. To confirm the findings by utilizing the new consecutive visiting records would be the future works to be investigated.

Further study on this should be executed such as Bayesian Network Analysis. Various cases should be investigated here after.

Acknowledgements

The authors are grateful to all those who supported us for answering the questionnaire investigation.

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Appendix. Questionnaire about the Rare Sugars

◆ Questionnaire about the Rare Sugars ◆

2015/6/15

The Rare Sugars exist naturally and have many kinds (more than 50). They have good effect for health such as prevention of increasing the blood-sugar level after eating, suppression of fat accumulation, suppression of increasing the blood pressure, and antioxidative effect etc. It is in the spotlight for many people especially for those who are in the metabolic syndrome.

Please select the appropriate item in each column. (Plural answers are allowed for Q2, 9, 24, 28. Select ①~⑤ in the right column for Q7, 8, 10-23, 25-27.)						
1. We ask you about the Rare Sugars.						
1-1. Do you know the Rare Sugars?						
Q1	① Know ② Do not know (⇒ Proceed to Q8 who has selected ② and answer until to the last.)					
1-2. We ask you who have selected ①. Where did you know the Rare Sugar? [Plural answers are allowed]						
Q2	① TV ② Magazine ③ Newspaper ④ Shop ⑤ Vending Machine ⑥ Seminar ⑦ Internet ⑧ Hear from another person ⑨ Miscellaneous ()					
1-3. Do you know that the Rare Sugar has effect on obese prevention and/or diabetes prevention etc.?						
Q3	① Know ② Do not know					
1-4. Have you heard or used the syrup which includes Rare Sugar "Rare Sugar Sweet"?						
Q4	① Heard ② Not heard					
Q5	① Used ② Not used					
1-5. Have you drunk or eaten the food which includes the Rare Sugar?						
Q6	① Yes ② No					
Q7	1-6. We ask you who have selected ① in Q6. Was the Rare Sugar effective after using it for more than one month? (⇒ Proceed to Q9)	① Think it very much	② Slightly think so	③ Cannot say either	④ Slightly do not think so	⑤ Do not think so
Q8	1-7. We ask you who have selected ② in Q1, ② in Q6. Do you want to try to eat or drink the food in which the Rare Sugar is included?	① Think it very much	② Slightly think so	③ Cannot say either	④ Slightly do not think so	⑤ Do not think so
1-8. What kind of food do you want to eat if the Rare Sugar is included? [Plural answers are allowed]						
Q9	① Cake ② Juice ③ Japanese food ④ Western food ⑤ Chinese food ⑥ Miscellaneous ()					
1-9. How do you want to use the Rare Sugar?						
Q10	a. I want to use it in the cooking.	① Think it very much	② Slightly think so	③ Cannot say either	④ Slightly do not think so	⑤ Do not think so
Q11	b. I can easily use it if there is a recipe.	① Think it very much	② Slightly think so	③ Cannot say either	④ Slightly do not think so	⑤ Do not think so
Q12	c. I want to know where I can buy it because I want to use it as a seasoning.	① Think it very much	② Slightly think so	③ Cannot say either	④ Slightly do not think so	⑤ Do not think so
Q13	d. I want to know where I can get information because I want to use it as a supplement.	① Think it very much	② Slightly think so	③ Cannot say either	④ Slightly do not think so	⑤ Do not think so
Q14	e. I want to know the hospital where the Rare Sugar is used as a tool for treatment.	① Think it very much	② Slightly think so	③ Cannot say either	④ Slightly do not think so	⑤ Do not think so
Q15	f. I want to know how long I should use it in order to confirm the effectiveness.	① Think it very much	② Slightly think so	③ Cannot say either	④ Slightly do not think so	⑤ Do not think so
1-10. Do you have a question(doubt) or anxiety for the Rare Sugar?						
Q16	a. It is not so popular.	① Think it very much	② Slightly think so	③ Cannot say either	④ Slightly do not think so	⑤ Do not think so
Q17	b. It seems to be expensive.	① Think it very much	② Slightly think so	③ Cannot say either	④ Slightly do not think so	⑤ Do not think so
Q18	c. I cannot grasp the concrete effect.	① Think it very much	② Slightly think so	③ Cannot say either	④ Slightly do not think so	⑤ Do not think so
Q19	d. I cannot have confidence that it is safe for anybody.	① Think it very much	② Slightly think so	③ Cannot say either	④ Slightly do not think so	⑤ Do not think so
Q20	e. Surrounding people do not use it so often.	① Think it very much	② Slightly think so	③ Cannot say either	④ Slightly do not think so	⑤ Do not think so
Q21	f. I cannot find the food in the shop in which the Rare Sugar is included.	① Think it very much	② Slightly think so	③ Cannot say either	④ Slightly do not think so	⑤ Do not think so
Q22	g. I cannot guess how I should use the Rare Sugar to what kind of cooking?	① Think it very much	② Slightly think so	③ Cannot say either	④ Slightly do not think so	⑤ Do not think so
Q23	h. Miscellaneous ()	① Think it very much	② Slightly think so	③ Cannot say either	④ Slightly do not think so	⑤ Do not think so
1-11. Choose the drink that you are interested in. [Plural answers are allowed]						
Q24	① Aojiru ② OS-1 (oral rehydration solution/Drink for sports) ④ designated health drink ⑤ drink with the Rare Sugar ⑥ None ⑦ Miscellaneous ()					
Q25	1-12. Do you take interest in a diet?	① Think it very much	② Slightly think so	③ Cannot say either	④ Slightly do not think so	⑤ Do not think so
Q26	1-13. Are you careful for the health?	① Think it very much	② Slightly think so	③ Cannot say either	④ Slightly do not think so	⑤ Do not think so
Q27	1-14. Do you take interest in the designated health food?	① Think it very much	② Slightly think so	③ Cannot say either	④ Slightly do not think so	⑤ Do not think so
1-15. Which method would be suitable for the Rare Sugar to become popular?						
Q28	① TV CM ② Use Twitter, Facebook ③ Advertisement by the company ④ Spread the way of cooking ⑤ Sell candy with the Rare Sugar ⑥ Sell juice with the Rare Sugar ⑦ Restaurant at which the Rare Sugar is used in the cooking ⑧ Use it in the food at the hospital ⑨ Sell it as a supplement ⑩ Make promotion by utilizing famous sportsmen or entertainers ⑪ Miscellaneous ()					
2. What is your hobby? (Select only one in the right hand column)						
Q29	2-1. Playing Sports: ① Baseball ② Football ③ Tennis ④ Golf ⑤ Miscellaneous ()	① Like it very much	② Slightly like it	③ Ordinary level		
Q30	2-2. Watching Sports: ① Baseball ② Football ③ Tennis ④ Golf ⑤ Miscellaneous ()	① Like it very much	② Slightly like it	③ Ordinary level		
Q31	2-3. Drinking: ① Beer ② Wine ③ Japanese wine-sake ④ Japanese liquor-shochu ⑤ Whisky ⑥ Miscellaneous ()	① Like it very much	② Slightly like it	③ Ordinary level		

3. We ask you questions about your current condition.	
Q32	3-1. Sex: ①Male ②Female
Q33	3-2. Age: ①~19 ②20~29 ③30~39 ④40~49 ⑤50~59 ⑥More than 60
Q34	3-3. Occupation: ①Student ②Officer ③Company Employee ④Clerk of Organization ⑤Independents ⑥Part-timer ⑦Housewife ⑧Miscellaneous()
Q35	3-4. Address: ①Prefecture() ②City()
Q36	3-5. What kind of lifestyle do you like?: ①Outdoor ②Indoor ③Not either