



International Microbiota Observatory



Methods

Methods

This international survey was conducted online in **7 countries** from March 21st - April 7th 2023. **6,500 people** were interviewed in the 7 countries, among representative samples of the population aged 18 y.o. and more in each country :

-  United States of America (n=1000)
-  Brazil (n=1000)
-  Mexico (n=1000)
-  France (n=1000)
-  Portugal (n=500)
-  Spain (n=1000)
-  China (n=1000)

An automated selection from the Ipsos Panel ensured representative samples in each country (gender, age, employment status and country region) based on quota method.

Comments



ALL COUNTRIES

(n=6500)

= Average response for all 7 countries.



= Focus on detailed results according to different criteria such as gender or age.

 Significant differences vs total - superior

 Significant differences vs total - inferior

= These indications show results that are statistically different (above or below) the average for all respondents.



All results are presented in %.

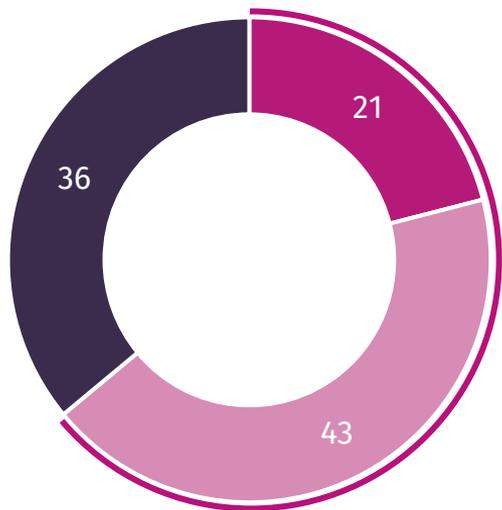


A matter of "words": a very poor understanding of the terms used to talk about the microbiota.

Although 2/3 of people have already heard about microbiome, only 1/5 know precisely what it is.

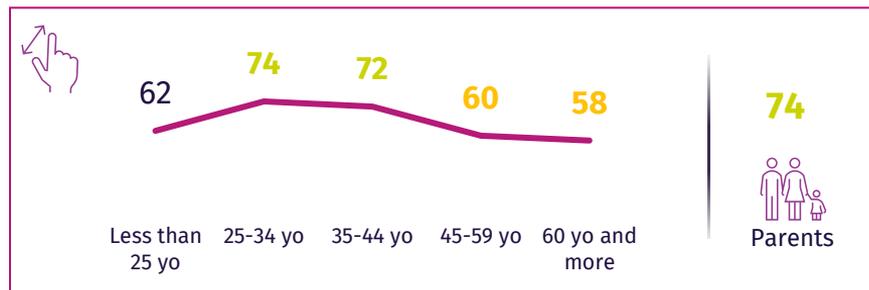


Question 2. Have you ever heard of the "microbiome"?
Base: All respondents



- Yes, and I know exactly what it is
- Yes, but I don't know exactly what it is
- No, I never heard about it

64% have already heard about the term microbiome



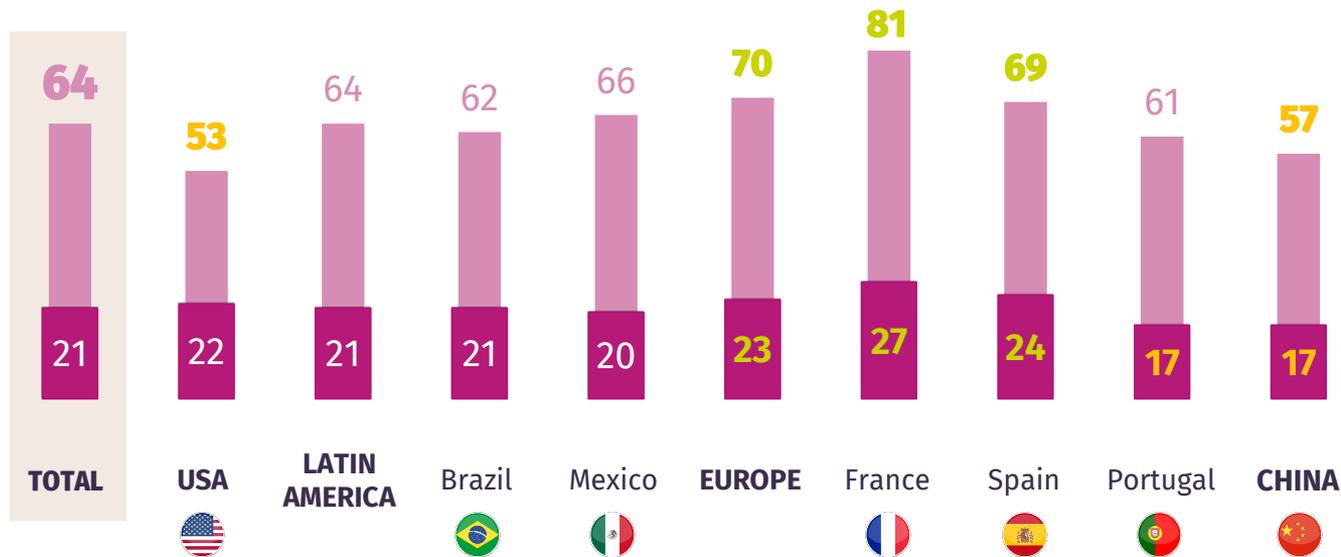
● Significant differences vs total - superior ● Significant differences vs total - inferior

Heterogenous awareness appears among countries, but the real level of knowledge of the term “microbiome” is low everywhere.

Question 2. Have you ever heard of the "microbiome"?
Base: All respondents

% Yes

Yes, and I know exactly what it is

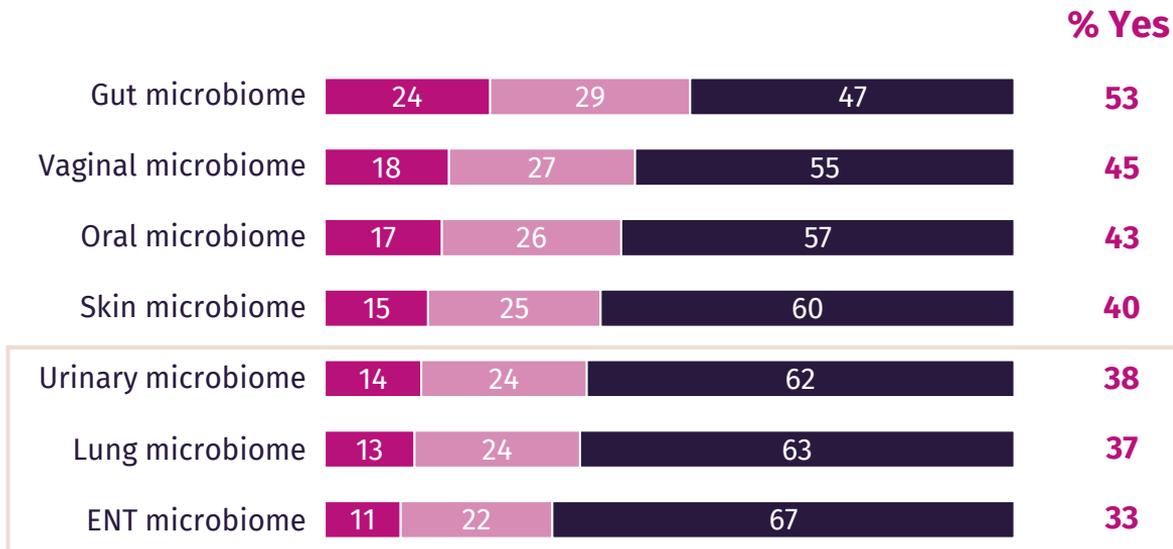


Little is known precisely about the different types of microbiomes. Only a third of respondents know about urinary, lung and ENT microbiome.



Question 3. And more specifically, have you ever heard of the following terms?

Base: All respondents



● Yes, and I know exactly what it is ● Yes, but I don't know exactly what it is ● Never heard about it



In details, Latinos and Chinese seem to know better each microbiome.

Question 3. And more specifically, have you ever heard of the following terms?

Base: All respondents

% Yes

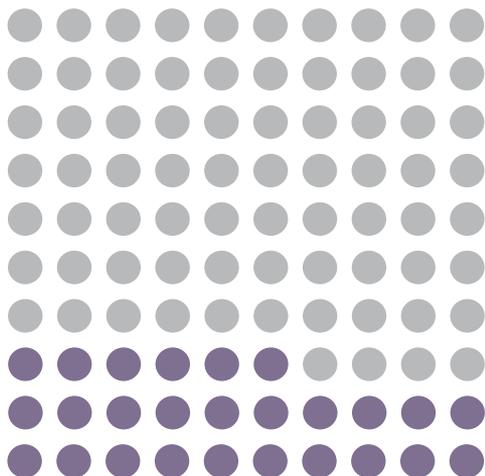
	Total	USA	LATIN AMERICA	Brazil	Mexico	EUROPE	France	Spain	Portugal	CHINA
Gut microbiome	53	42	54	51	58	55	63	57	45	54
Vaginal microbiome	45	35	47	46	48	45	48	44	43	49
Oral microbiome	43	36	45	42	47	41	43	39	39	52
Skin microbiome	40	38	43	41	45	37	37	36	37	48
Urinary microbiome	38	32	42	38	45	37	37	37	37	43
Lung microbiome	37	30	42	42	42	33	32	31	36	45
ENT microbiome	33	26	34	37	32	31	30	30	32	44

Little is known precisely about the diversity of the microbiome, even more for respondents over 45 yo.

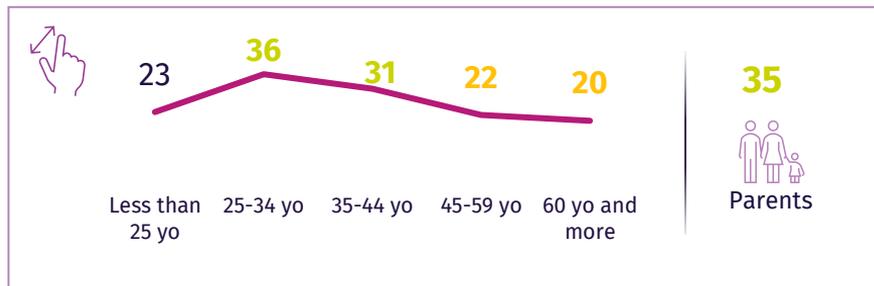


Question 3. And more specifically, have you ever heard of the following terms?

Base: All respondents



26% have already heard of each microbiome:
Gut, vaginal, skin, lung, urinary, Oral and ENT microbiome



But only **5%** know precisely all of them



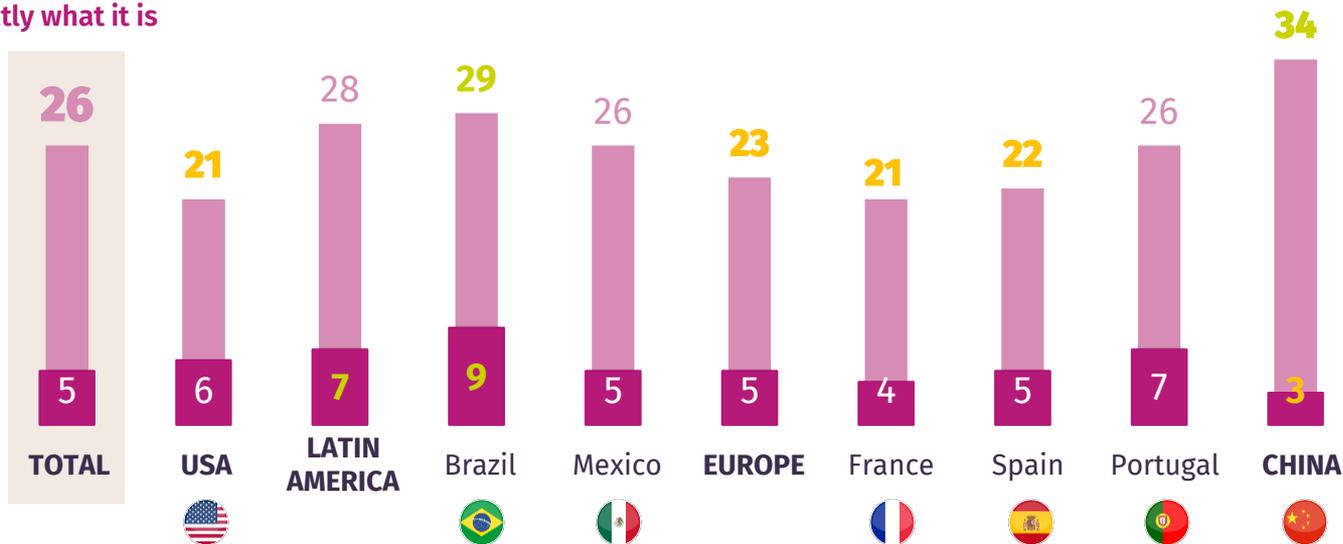
The level of knowledge is low in all countries: in the United States as well as in France, Brazil and China.

Question 3. And more specifically, have you ever heard of the following terms?

Base: All respondents

% have already heard of each microbiome

% Yes, and I know exactly what it is

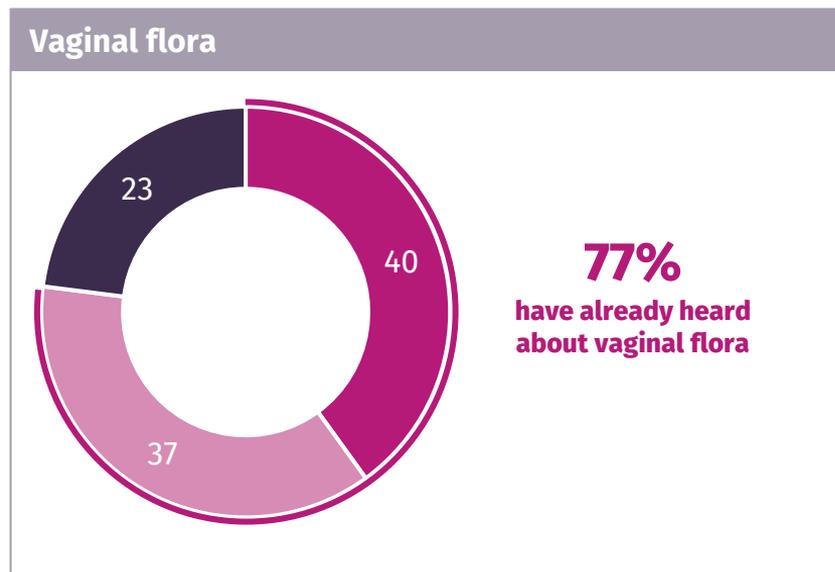
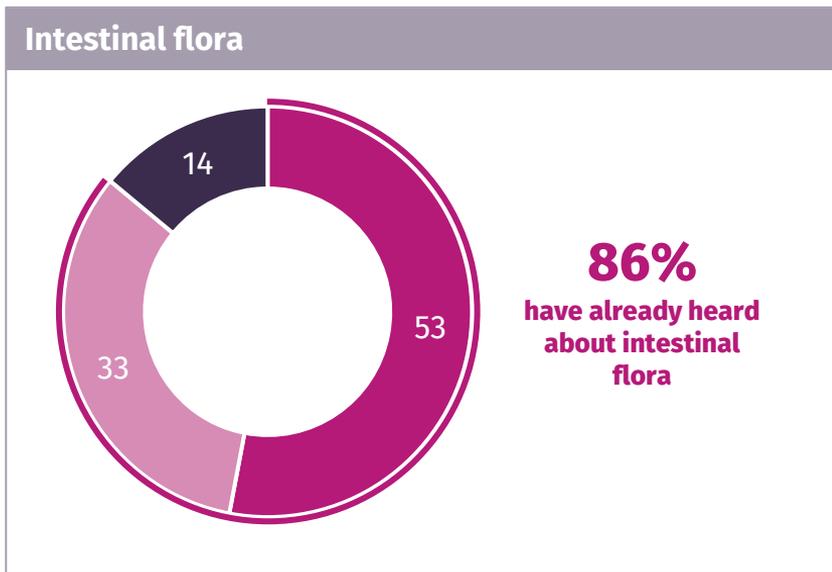


People seem more aware of the term “flora” instead of microbiome, although almost half of them do not really know what it is.



Question 2bis. And have you ever heard of these terms?

Base: All respondents



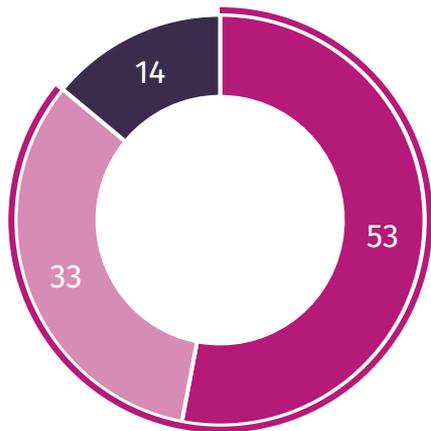
● Yes, and I know exactly what it is ● Yes, but I don't know exactly what it is ● No, I never heard about it

The 25-44 age group is more aware of the intestinal flora but the term is known by a majority of people in almost all age groups.



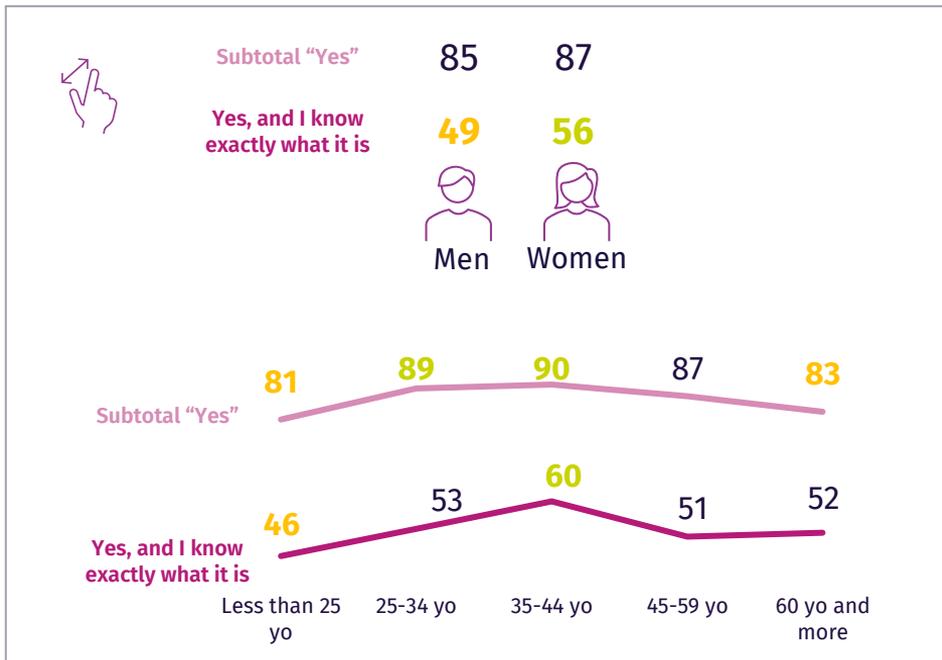
Question 2bis. And have you ever heard of these terms?
Base: All respondents

Intestinal flora



86%
have already heard
about intestinal
flora

- Yes, and I know exactly what it is
- Yes, but I don't know exactly what it is
- No, I never heard about it

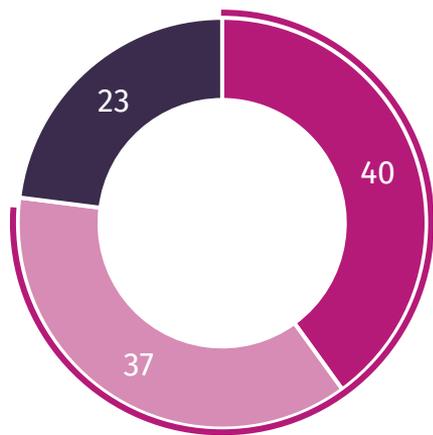


The 25-44 age group and women are more aware of the vaginal flora as well but the results are worrying: almost 1 in 2 women do not know what the vaginal flora is exactly

Question 2bis. And have you ever heard of these terms?
Base: All respondents

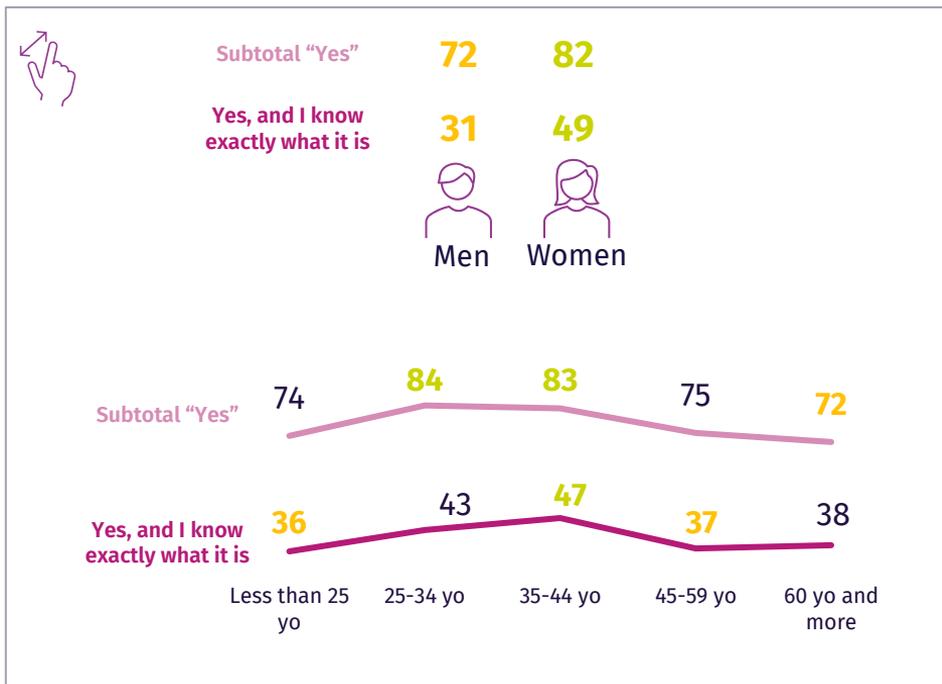


Vaginal flora



77%
have already heard
about vaginal flora

- Yes, and I know exactly what it is
- Yes, but I don't know exactly what it is
- No, I never heard about it

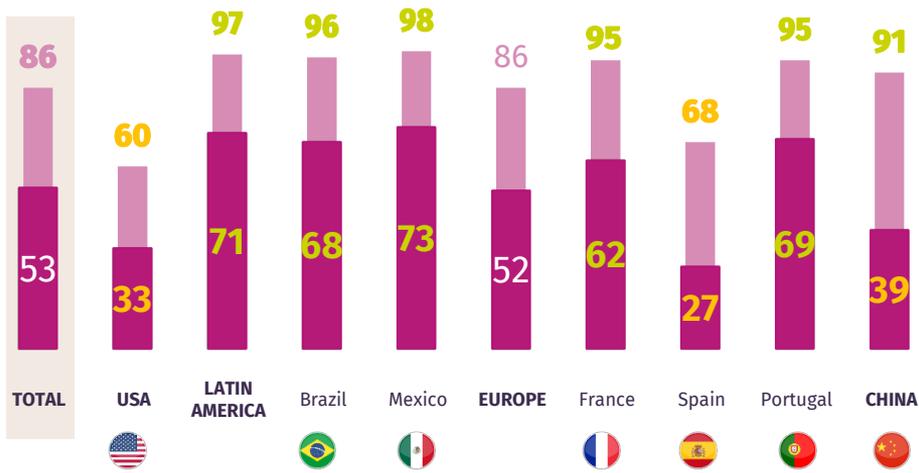


But knowledge of what is intestinal and vaginal flora is very variable: it is highest in Brazil, Mexico, Portugal and France but lowest in the USA, China and Spain.

Question 2bis. And have you ever heard of these terms?
Base: All respondents

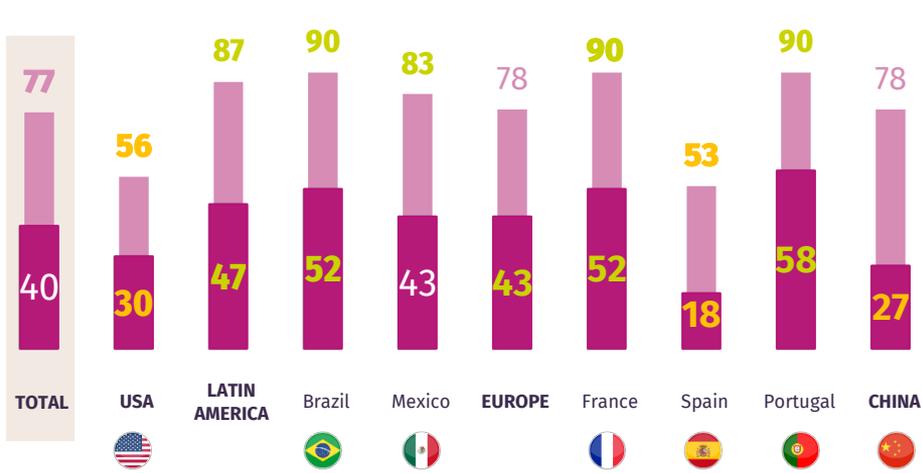
Intestinal flora

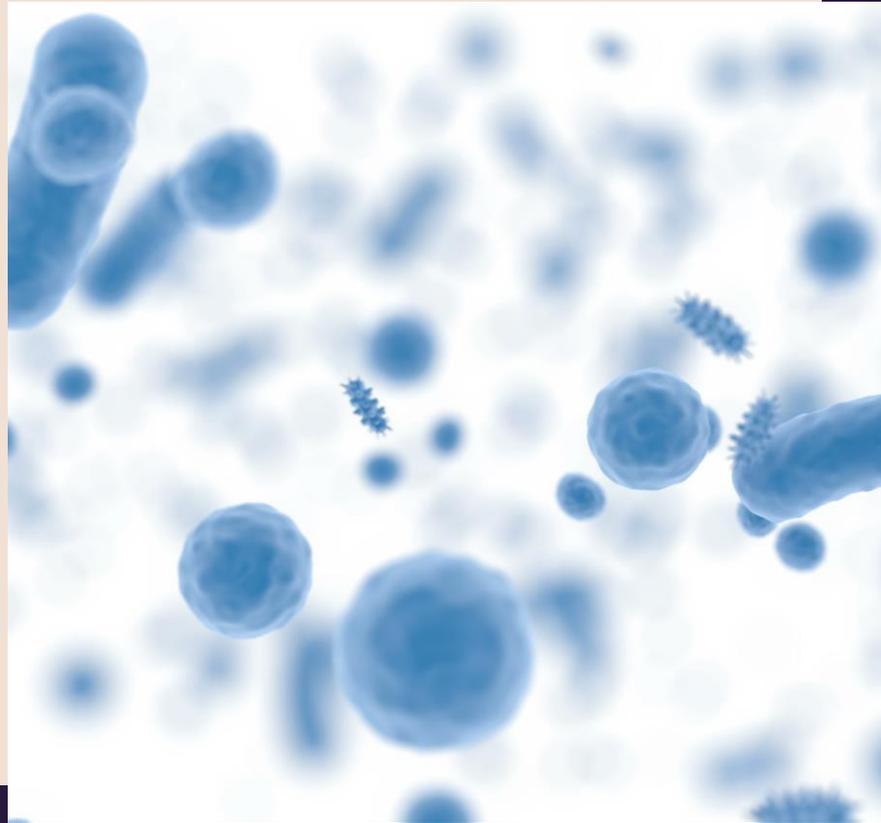
% Yes



Vaginal flora

% Yes





Text displayed to respondents:

The microbiome (or microbial flora) is a group of microorganisms such as bacteria, viruses, fungi and archaea, which live in symbiosis in our body, mainly in our digestive tract but also on the skin, in the lungs, ears, mouth and vagina.

The microbiome has many consequences for our health because it fulfils essential functions such as digesting foods, synthesis of vitamins and stimulating our immune system.

A balanced microbiome is also important in preventing certain diseases such as allergies, obesity and chronic inflammatory bowel diseases.

Recent studies also suggest that the microbiome can have an impact on our mental health and behavior, influencing our mood, cognition and motivation.



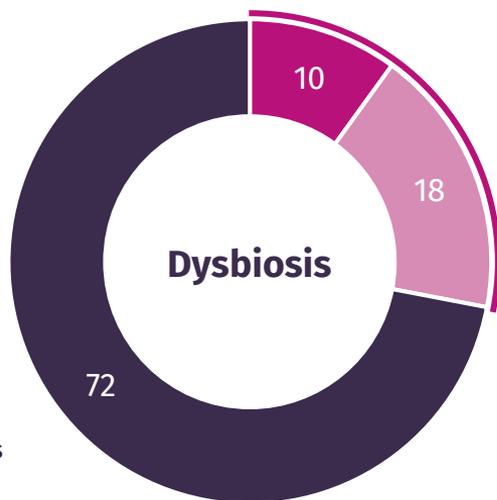
Although knowledge about the causes and consequences of an imbalanced microbiome is poor, some essential information are known by most people

Dysbiosis is far from being a common term for people.



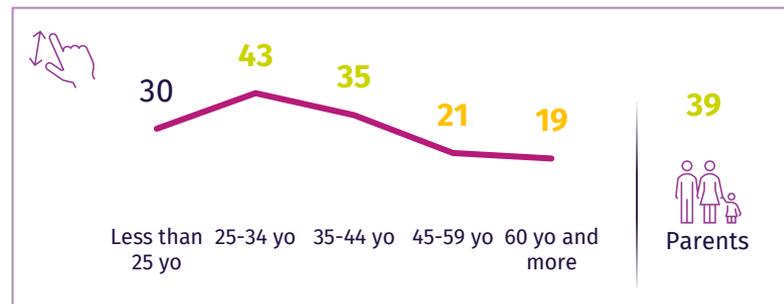
Question 3. And more specifically, have you ever heard of the following terms?

Base: All respondents



- Yes, and I know exactly what it is
- Yes, but I don't know exactly what it is
- Never heard about it

28% have already heard about the term 'dysbiosis'



● Significant differences vs total - superior ● Significant differences vs total - inferior

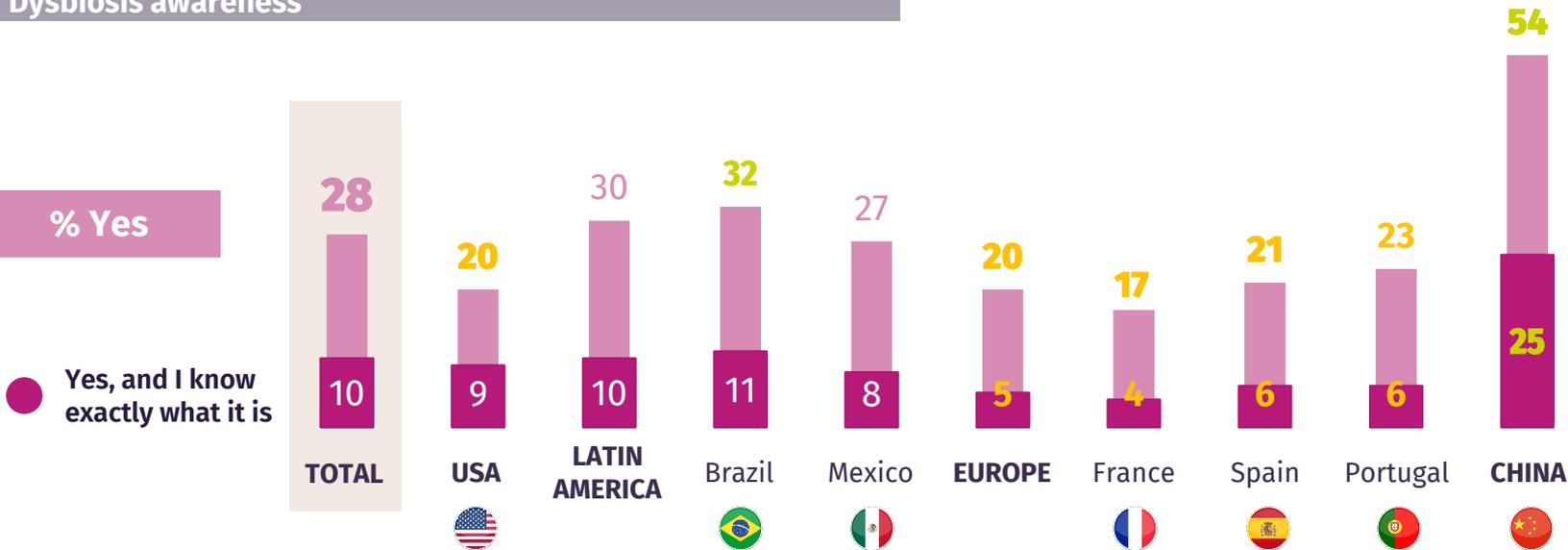


In all countries interviewed, a large majority do not know precisely what dysbiosis means.

Question 3. And more specifically, have you ever heard of the following terms?

Base: All respondents

Dysbiosis awareness

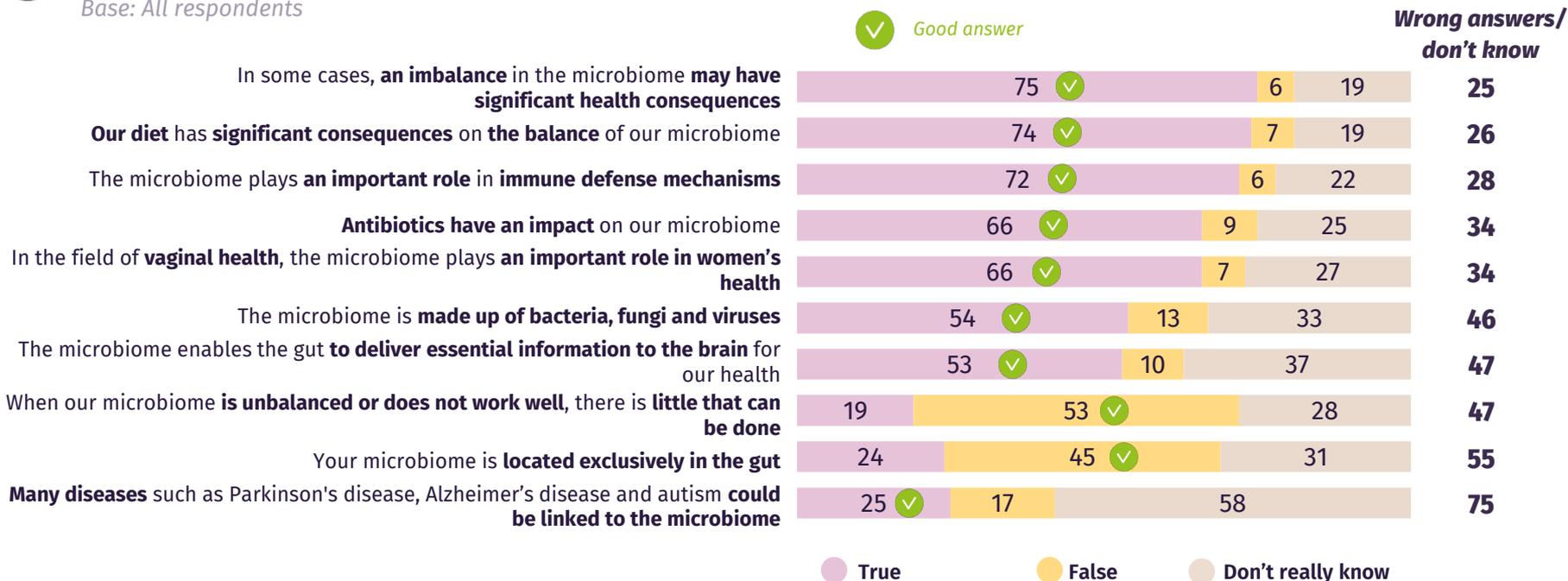


Information about the microbiome is poor, but most people know that it plays an essential role in the immune system and that its imbalance is dangerous for health.



Question 4. For each of the following statements, tell us if you think it is TRUE or FALSE. If you are unsure about your answer, answer I do not really know.

Base: All respondents



True
 False
 Don't really know

De facto, people have a very moderate knowledge on the role of the microbiome, especially in the USA.

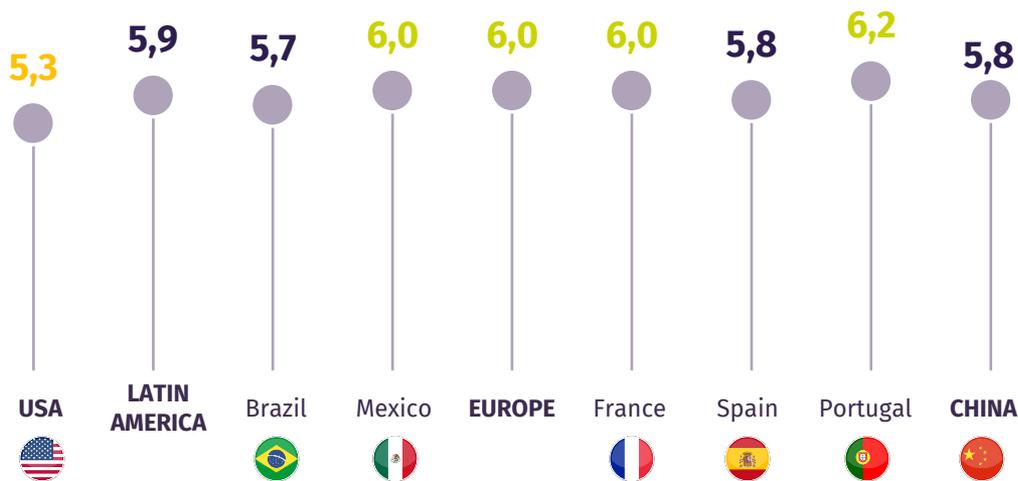


Question 4. For each of the following statements, tell us if you think it is TRUE or FALSE. If you are unsure about your answer, answer I do not really know.

Base: All respondents



Number of good responses on average



- Significant differences vs total - superior
- Significant differences vs total - inferior



The 25-44yo, women and parents have better knowledge about microbiome.

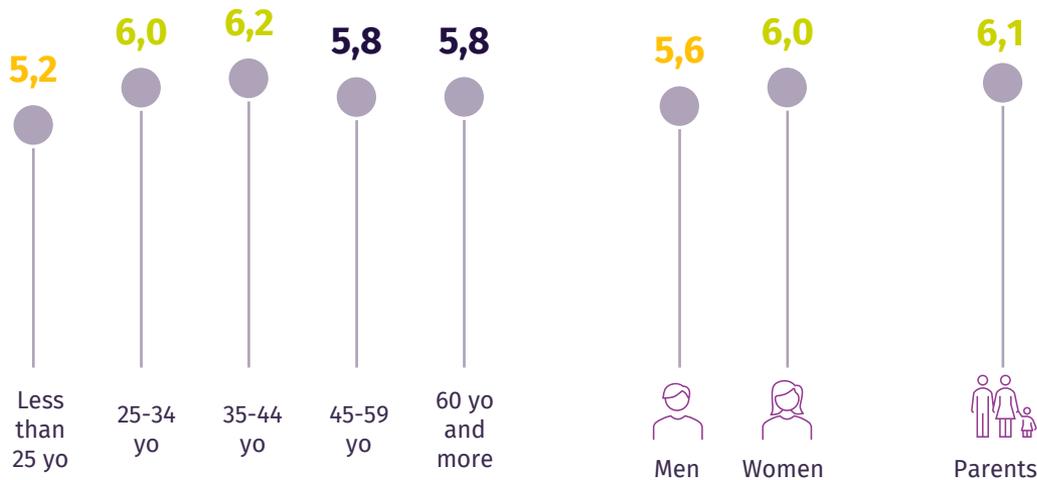


Question 4. For each of the following statements, tell us if you think it is TRUE or FALSE. If you are unsure about your answer, answer I do not really know.

Base: All respondents



Number of good responses on average



- Significant differences vs total - superior
- Significant differences vs total - inferior



Knowledge of microbiome is diverse: Chinese and Americans are less aware about the function of the microbiome, while others know less about its links with diseases.

Question 4. For each of the following statements, tell us if you think it is TRUE or FALSE. If you are unsure about your answer, answer I do not really know. / Base: All respondents

% good answer	Total	USA	LATIN AMERICA	Brazil	Mexico	EUROPE	France	Spain	Portugal	CHINA
In some cases, an imbalance in the microbiome may have significant health consequences	75	66	78	76	81	79	75	76	85	70
Our diet has significant consequences on the balance of our microbiome	74	64	76	72	81	78	76	76	83	66
The microbiome plays an important role in immune defense mechanisms	72	64	74	70	78	75	73	74	76	68
Antibiotics have an impact on our microbiome	66	65	64	68	61	68	65	66	72	64
In the field of vaginal health, the microbiome plays an important role in women's health	66	57	69	68	70	67	64	64	73	65
The microbiome is made up of bacteria, fungi and viruses	54	50	55	54	57	54	56	52	53	54
The microbiome enables the gut to deliver essential information to the brain for our health	53	46	54	57	52	52	54	47	56	62
When our microbiome is unbalanced or does not work well, there is little that can be done	53	52	52	50	55	59	62	55	59	37
Your microbiome is located exclusively in the gut	45	36	40	37	45	49	51	46	49	51
Many diseases such as Parkinson's disease, Alzheimer's disease and autism could be linked to the microbiome	25	25	22	20	24	20	19	23	17	44



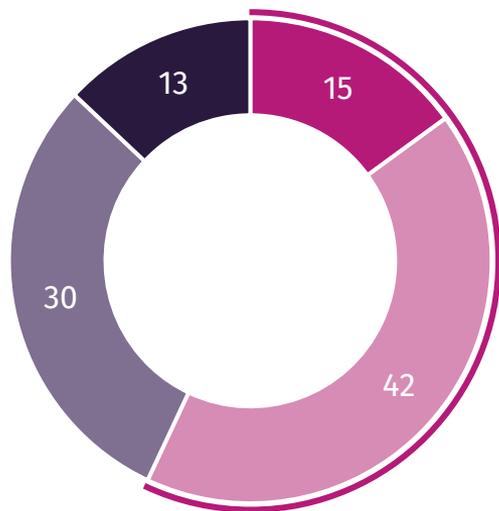
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A strong lack of awareness of the behaviors and the solutions to be implemented for maintaining a balanced microbiome

A small majority have adopted specific behaviors to keep their microbiome balanced and functioning as smoothly as possible.

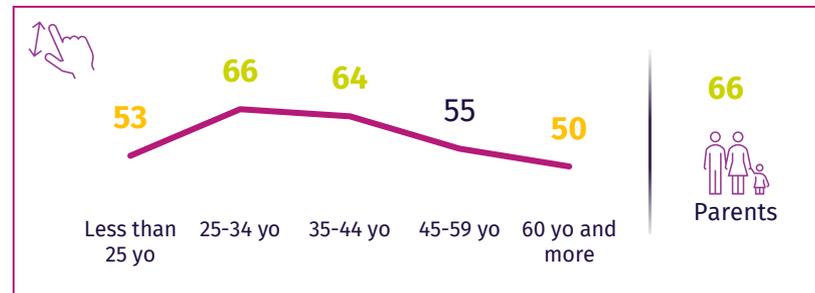
Question 10. And in your daily life, have you adopted specific behaviors to keep your microbiome as balanced and functioning as smoothly as possible?

Base: All respondents



- Yes, a lot
- Yes, a little
- No, not really
- No, not at all

57% have already adopted specific behaviors



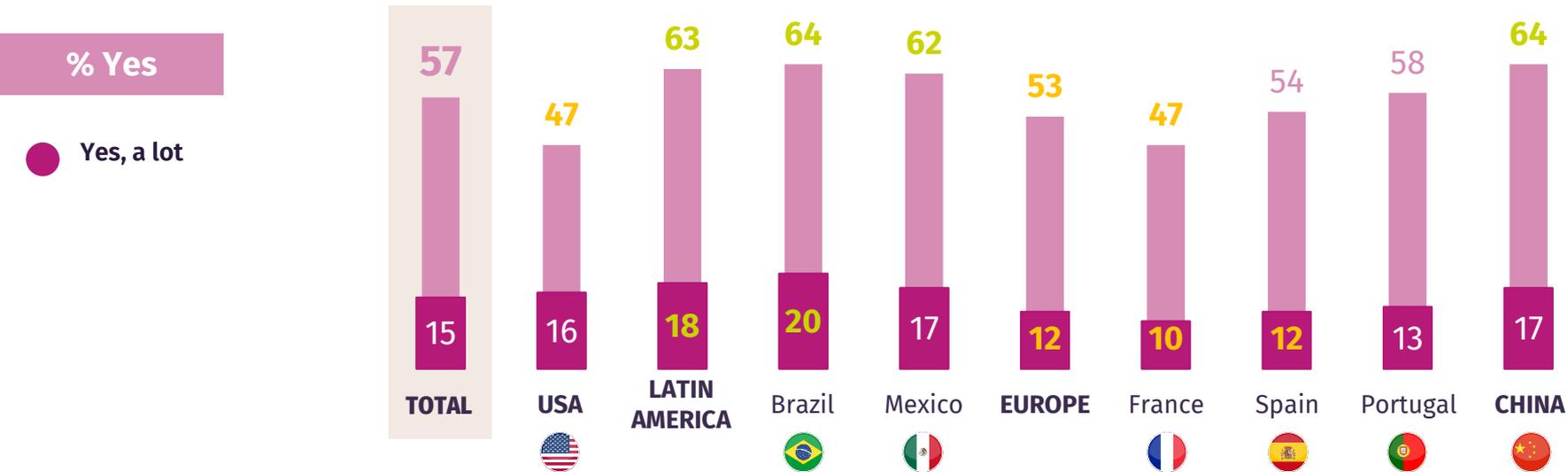
● Significant differences vs total - superior ● Significant differences vs total - inferior



Americans and French are the least likely to have adopted specific behaviors.

Question 10. And in your daily life, have you adopted specific behaviors to keep your microbiome as balanced and functioning as smoothly as possible?

Base: All respondents



Except the « standard » healthy behaviors, those related to hygiene and prebiotics are not well identified.



Question 11. Based on what you know, among the following behaviors, which ones have a positive effect on the balance and proper functioning of your microbiome?

Base: All respondents



* Item asked only to women (n=3433)

● True
 ● False
 ● Don't really know



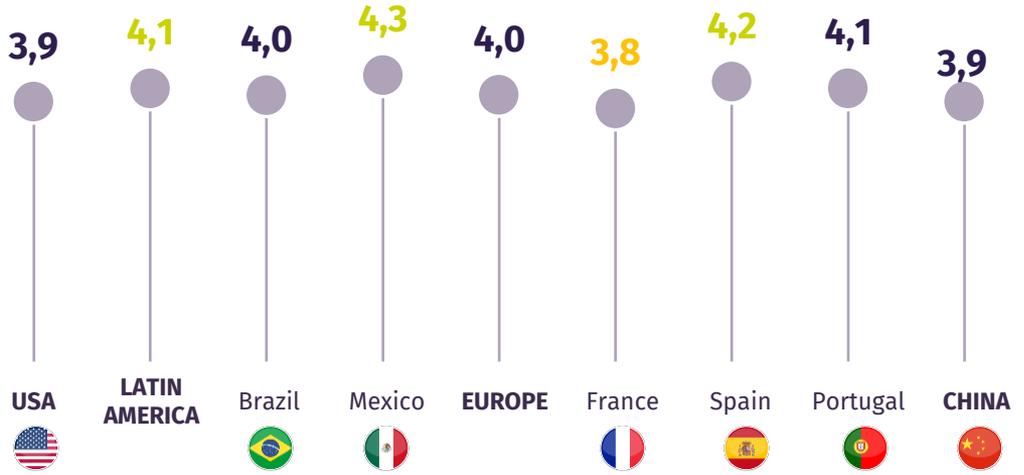
All countries have very limited knowledge about the behaviors which bring positive effect on the microbiome, even worse in France.



Question 11. Based on what you know, among the following behaviors, which ones have a positive effect on the balance and proper functioning of your microbiome? Base: All respondents



Number of good responses on average



- Significant differences vs total - superior
- Significant differences vs total - inferior



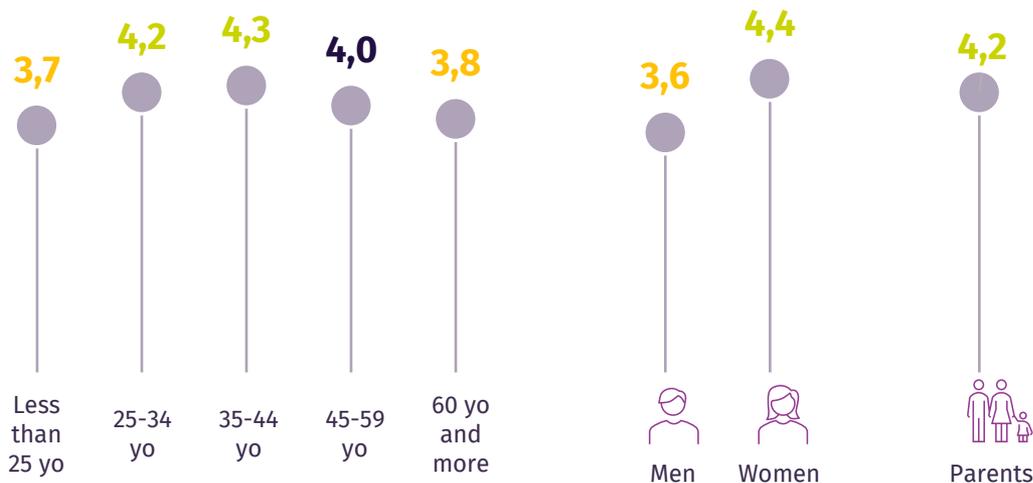
Once again, some profiles seem to stand out positively: 25-44yo, women and parents.



Question 11. Based on what you know, among the following behaviors, which ones have a positive effect on the balance and proper functioning of your microbiome ? Base: All respondents



Number of good responses on average



- Significant differences vs total - superior
- Significant differences vs total - inferior



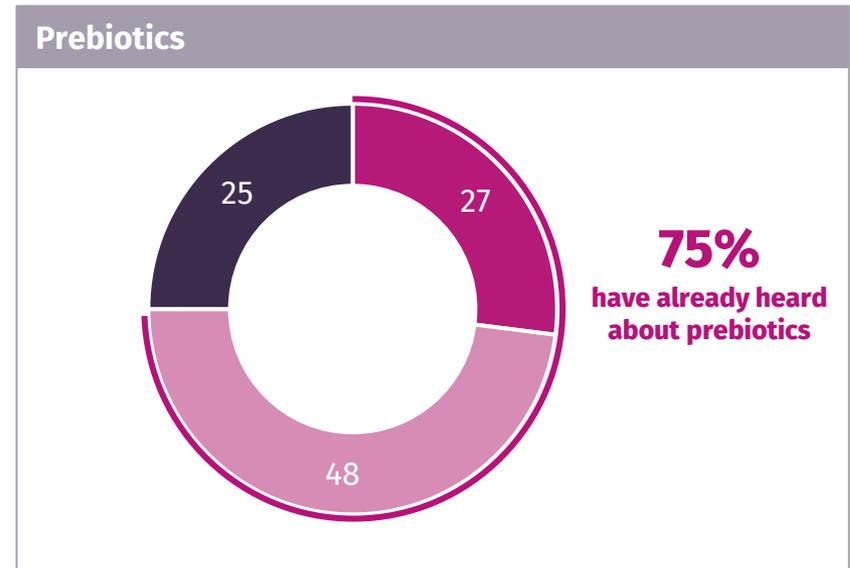
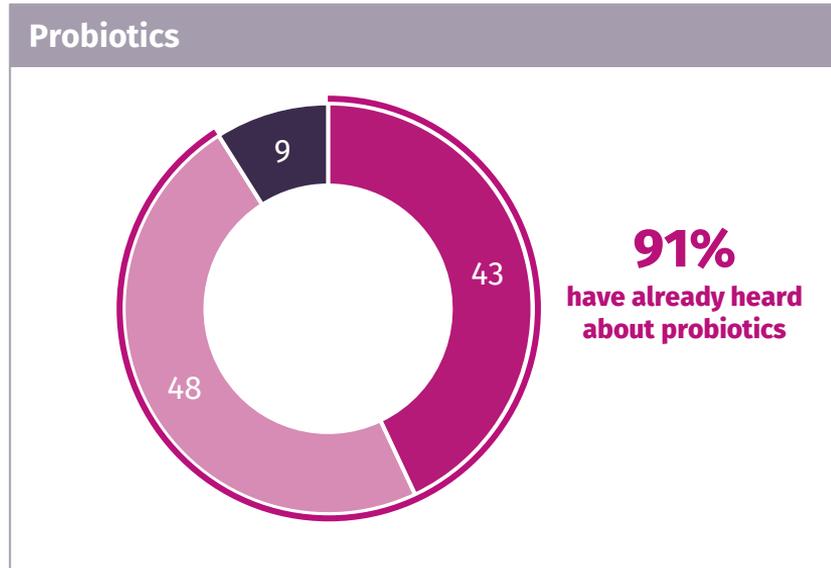
Americans and Chinese people less linked diet, physical activity and smoking with the microbiome.

Question 11. Based on what you know, among the following behaviors, which ones have a positive effect on the balance and proper functioning of your microbiome ? Base: All respondents

% good answer	Total	USA	LATIN AMERICA	Brazil	Mexico	EUROPE	France	Spain	Portugal	CHINA
Having a varied and balanced diet	84	77	90	90	90	86	85	84	89	72
Engaging in physical activity	76	69	83	83	83	77	73	77	81	62
Not smoking	72	66	74	77	71	75	73	71	81	62
Consuming probiotics	62	65	70	61	80	53	45	61	51	71
Consuming prebiotics	51	56	59	50	70	39	31	50	36	67
Taking regular vaginal douches	42	55	39	33	44	45	55	42	39	23
Washing at least twice a day	35	25	17	22	12	49	40	56	50	43

Probiotics seem more familiar to people compared to prebiotics, but the majority have little or no idea what probiotics and prebiotics are precisely.

Question 2bis. And have you ever heard of these terms?
Base: All respondents



● Yes, and I know exactly what it is ● Yes, but I don't know exactly what it is ● No, I never heard about it



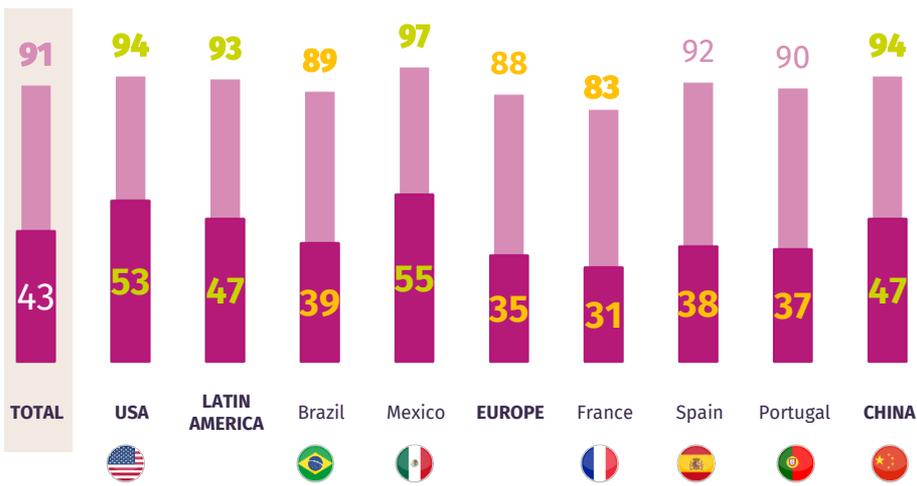
Americans, Mexicans and especially Chinese people know better what are probiotics and prebiotics.

Question 2bis. And have you ever heard of these terms?

Base: All respondents

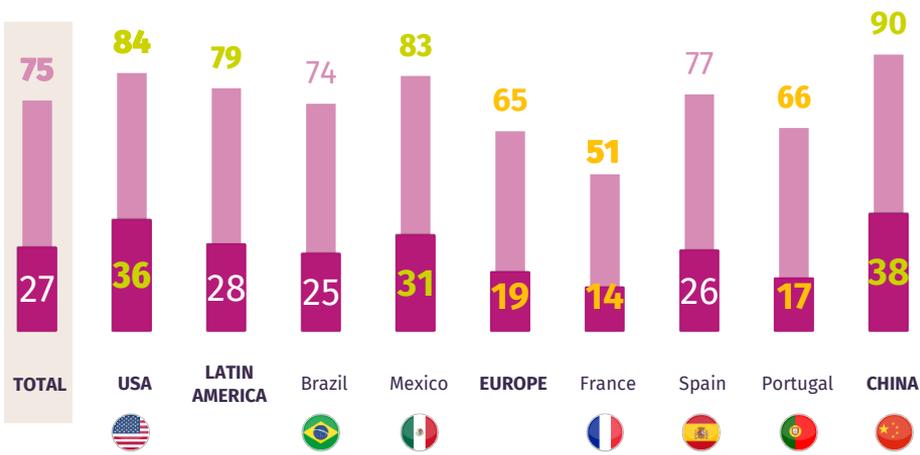
Probiotics

% Yes



Prebiotics

% Yes

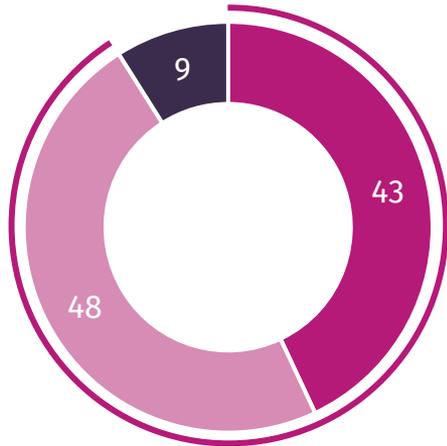


Women and people aged 25-44 yo are more aware of probiotics



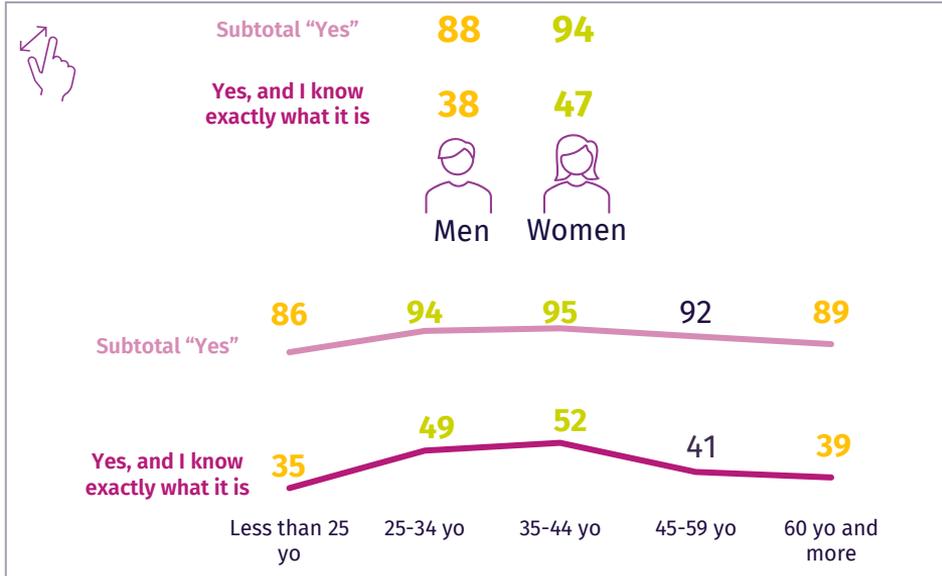
Question 2bis. And have you ever heard of these terms?
Base: All respondents

Probiotics



91%
have already heard
about probiotics

- Yes, and I know exactly what it is
- Yes, but I don't know exactly what it is
- No, I never heard about it

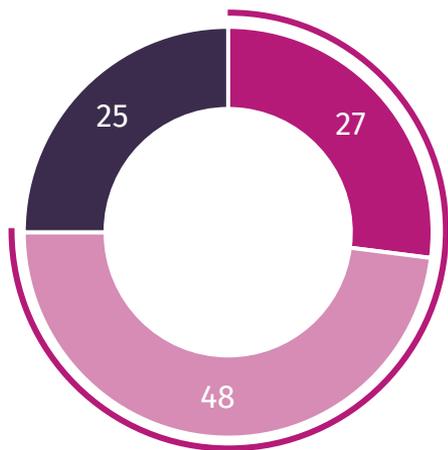


Women and 25-44 yo appear also more aware of prebiotics.



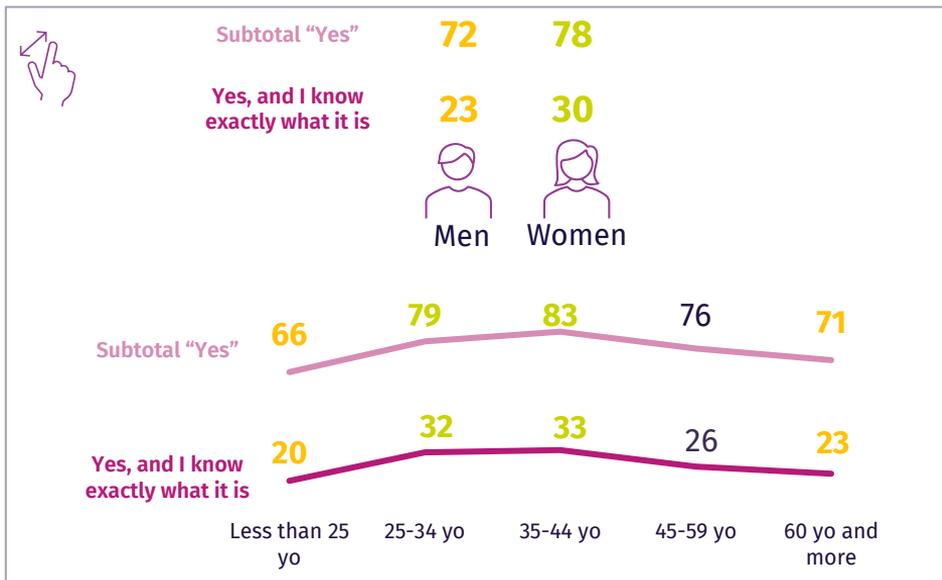
Question 2bis. And have you ever heard of these terms?
Base: All respondents

Prebiotics



75%
have already heard
about prebiotics

- Yes, and I know exactly what it is
- Yes, but I don't know exactly what it is
- No, I never heard about it



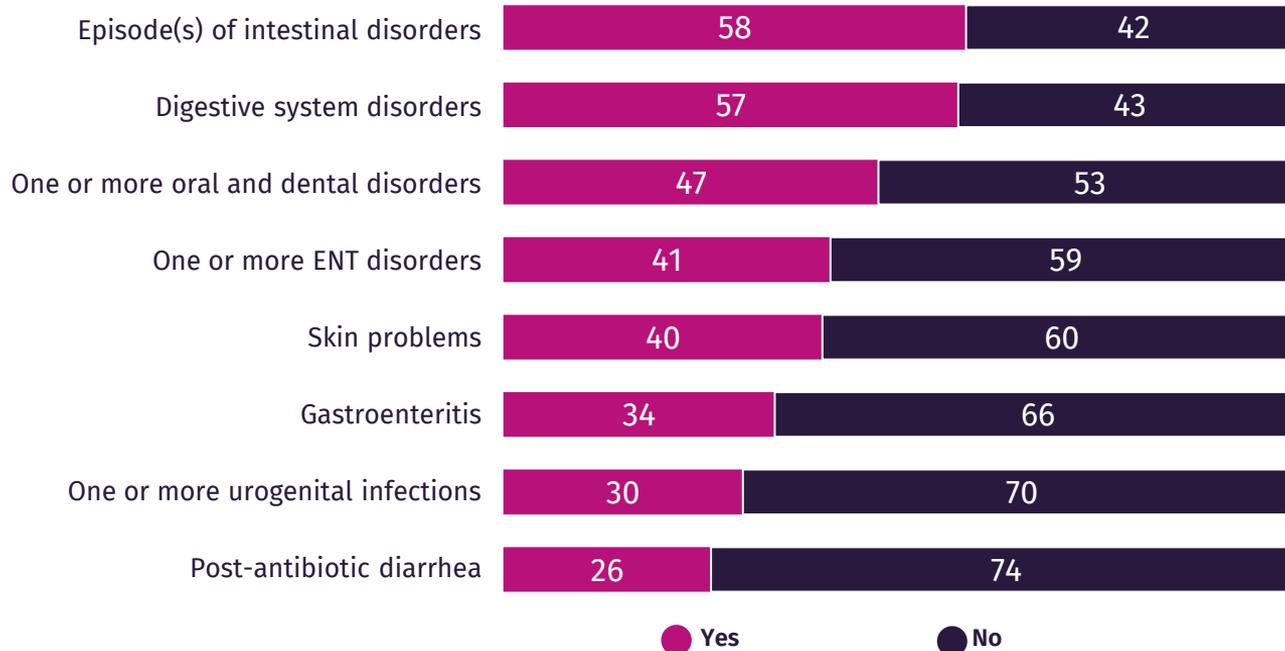


While many people report experiencing wellness problems that may be linked to microbiota imbalances

In the last 5 years, 1 in 2 people have experienced episodes of intestinal disorders, digestive disorders and dental problems, 1 in 3 gastroenteritis and urogenital infections and 1 in 4 post-antibiotic diarrhea



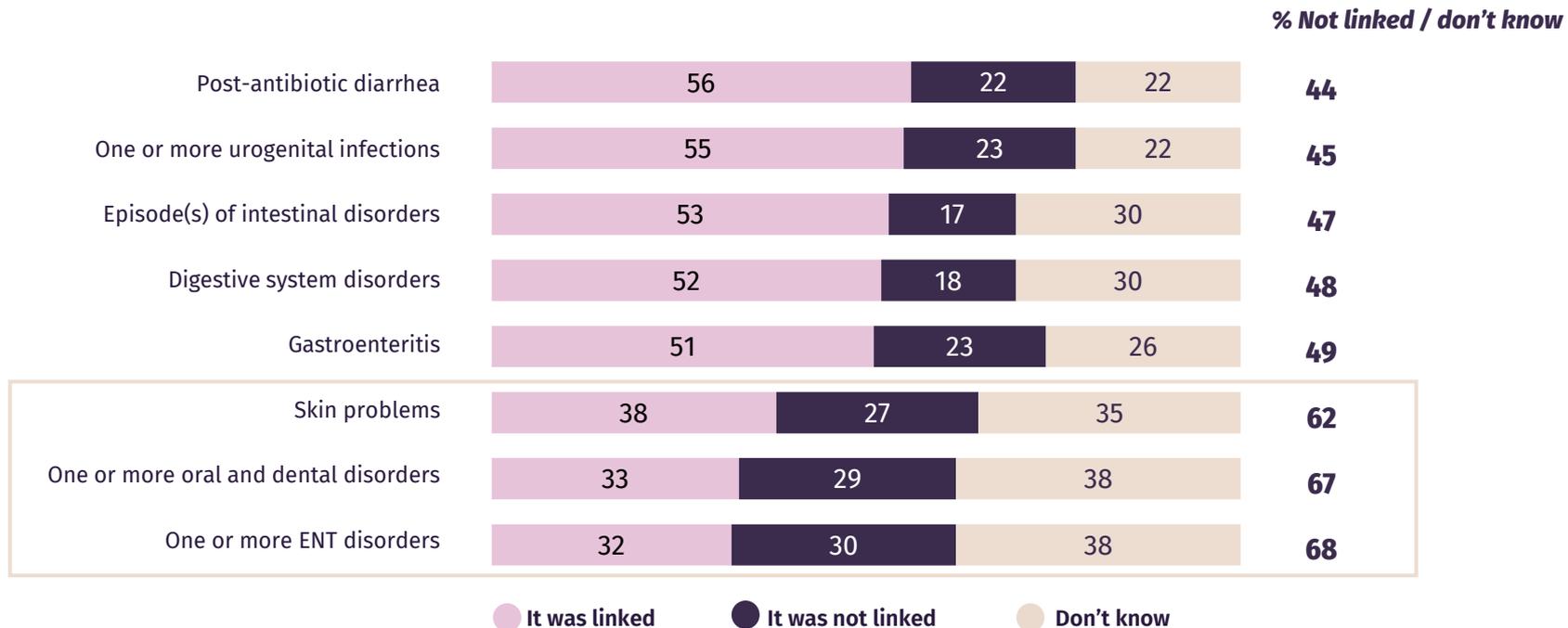
Question 11a. Over the past 5 years, have you ever experienced the following problems?
Base: All respondents



Many people believe that the health problems they have experienced are linked to their microbiome : post-antibiotic diarrhea, urogenital infections, episodes of intestinal disorders, digestive system disorders or gastroenteritis

Question 11b. And do you think this or these problems are linked to your microbiome?

Base: People who have experienced these problems





Latinos and Chinese link more their health problems to their microbiome : They are also the ones who experienced these problems most frequently.



Question 11b. And do you think this or these problems are linked to your microbiome?

Base: People who have experienced these problems

% linked	Total	USA	LATIN AMERICA	Brazil	Mexico	EUROPE	France	Spain	Portugal	CHINA
Post-antibiotic diarrhea	56	55	65	64	66	52	51	53	51	52
One or more urogenital infections	55	58	61	60	62	44	43	40	49	64
Episode(s) of intestinal disorders	53	45	64	59	69	43	36	46	47	62
Digestive system disorders	52	44	61	56	65	43	39	44	47	63
Gastroenteritis	51	53	67	64	69	34	28	34	41	61
Skin problems	38	36	44	41	48	26	25	22	31	53
One or more oral and dental disorders	33	36	38	34	42	20	16	25	19	54
One or more ENT disorders	32	30	41	40	44	19	16	25	18	51

● Significant differences vs total - superior

● Significant differences vs total - inferior



People aged 25-34 and 35-44 yo link more their health problems to microbiome.



Question 11b. And do you think this or these problems are linked to your microbiome?

Base: People who have experienced these problems

% linked	Total	Less than 25yo	25 - 34 yo	35 - 44 yo	45 - 59 yo	60 yo and more
Post-antibiotic diarrhea	56	48	63	59	55	54
One or more urogenital infections	55	48	64	64	48	47
Episode(s) of intestinal disorders	53	50	60	60	48	47
Digestive system disorders	52	50	60	59	48	47
Gastroenteritis	51	44	58	55	50	44
Skin problems	38	36	43	41	37	30
One or more oral and dental disorders	33	34	40	37	31	25
One or more ENT disorders	32	31	46	33	30	23

● Significant differences vs total - superior

● Significant differences vs total - inferior



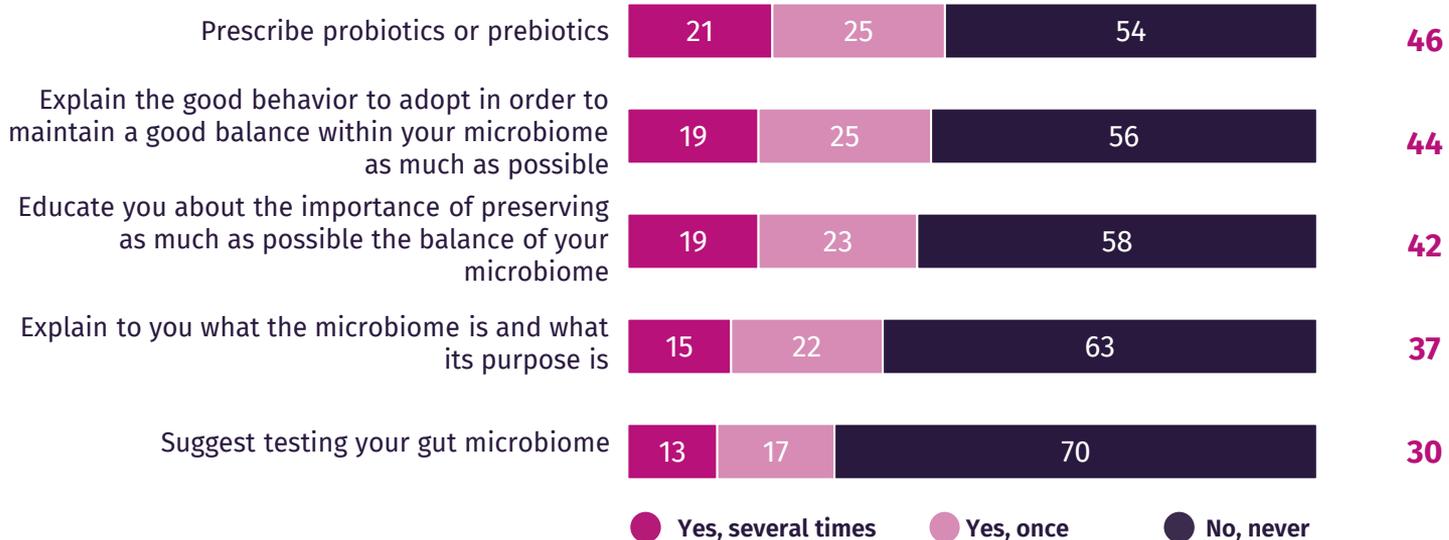
Health professionals are essential in teaching patients to become actors of their own microbiota health

On the subject of microbiota, many health professionals take action with their patients: they prescribe probiotics and prebiotics but also give advice on how to preserve the balance of the microbiome.



Question 5. Have any of the healthcare professionals you have seen ever done any of the following?
Base: All respondents

Only **19%** received **ALL THESE INFORMATION**, at least one time
4% received all these information several times





Zoom on the most informed individuals

Individuals who have had all information, several times from HCPs



Question 5. Have any of the healthcare professionals you have seen ever done any of the following?

Awareness of the microbiome & its diversity	
Know exactly what is « microbiome »	55% vs 21%
Subtotal « Aware »	85% vs 64%
Subtotal Aware of the gut microbiome	82% vs 53%
Subtotal Aware of all microbiome	70% vs 26%
Level of knowledge around the microbiota	
Mean of good answers	7,5/10 vs 5,8/10
Level of knowledge around the solutions which can maintain the microbiota balanced	
Know exactly what are probiotics	76% vs 43%
Know exactly what are prebiotics	66% vs 27%
Adoption and identification of appropriate behaviors to maintain a balanced microbiota	
Have adopted specific behaviors	95% vs 57%
Number of behaviors identified in order to maintain the microbiota	4,8/7 vs 4/7

Key learnings

Individuals who have had all this information repeatedly have a better knowledge of microbiota, both in terms of diversity and its role, and even of the consequences of an unbalanced microbiota.

In terms of behavior, they are much better at identifying the behaviors that favour the proper functioning of the microbiota, and more of them apply them to themselves.

This is a sign that the information is passed on and works when it has been received several times. This "more informed" population received information from several HCPs, not only by the GP.

The level of prescription of probiotics and prebiotics, as well as the level of information and advice provided by health professionals, varies greatly from one country to another.

Question 5. Have any of the healthcare professionals you have seen ever done any of the following?
Base: All respondents



% Yes	Total	USA	LATIN AMERICA	Brazil	Mexico	EUROPE	France	Spain	Portugal	CHINA
Prescribe probiotics or prebiotics	46	37	60	49	71	32	27	36	32	71
Explain the good behavior to adopt in order to maintain a good balance within your microbiome as much as possible	44	31	56	49	63	31	25	33	35	69
Educate you about the importance of preserving as much as possible the balance of your microbiome	42	29	52	48	56	31	27	31	36	69
Explain to you what the microbiome is and what its purpose is	37	28	45	40	50	25	23	26	26	63
Suggest testing your gut microbiome	30	21	36	33	39	19	14	21	22	64



People aged less than 45 yo and parents have the most received information from their HCPs : the elderly receive fewer prescriptions and advice than others



Question 5. Have any of the healthcare professionals you have seen ever done any of the following? Base: All respondents

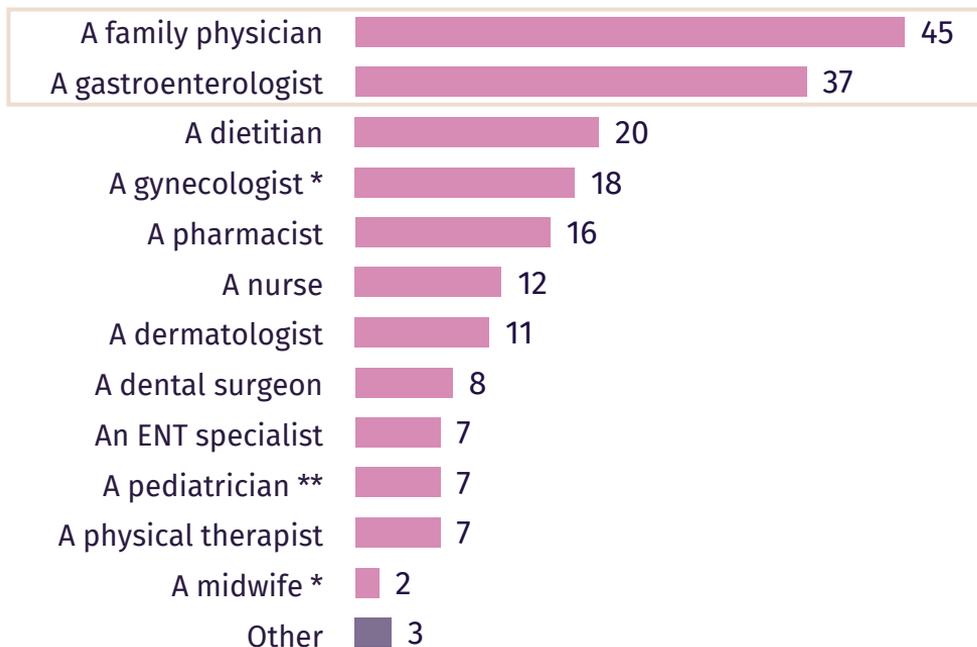
% Yes	Total	Less than 25 yo	25-34 yo	35-44 yo	45-59 yo	60 yo and more	Men	Women	Parents
	base n=6500	n=719	n=1201	n=1194	n=1643	n=1743	n=3067	n=3433	n=2643
Prescribe probiotics or prebiotics	46	54	63	54	41	32	43	48	59
Explain the good behavior to adopt in order to maintain a good balance within your microbiome as much as possible	44	48	58	52	39	32	44	43	57
Educate you about the importance of preserving as much as possible the balance of your microbiome	42	44	55	50	40	32	43	42	55
Explain to you what the microbiome is and what its purpose is	37	39	50	43	34	26	38	36	48
Suggest testing your gut microbiome	30	32	42	33	27	24	33	28	41

Family physicians and gastroenterologists are the main HCPs who provided information about microbiome.



Question 6. And which healthcare professionals provided you with these explanations?

Base: People who have had an explanation from healthcare professionals (n=3958)



* Base: to women (n= 3433)

** Base: to parents (n=1974)



Except in Brazil and China in which other healthcare professionals provide information about the microbiome.

Question 6. And which healthcare professionals provided you with these explanations?

Base: People who have had an explanation from healthcare professionals (n=3958)

	Total	USA	LATIN AMERICA	Brazil	Mexico	EUROPE	France	Spain	Portugal	CHINA
base	n=3958	n=433	n=1503	n=668	n=835	n=1139	n=402	n=477	n=260	n=883
A family physician	45	46	50	38	60	57	56	50	64	14
A gastroenterologist	37	29	41	42	40	19	17	19	22	63
A dietitian	20	18	21	35	11	13	8	18	13	31
A gynecologist	18	11	21	28	15	14	13	9	21	23
A pharmacist	16	19	11	13	9	18	24	19	12	19
A nurse	12	17	12	16	8	10	7	12	11	12
A dermatologist	11	12	9	14	6	6	7	5	7	22
A dental surgeon	8	9	6	8	4	6	6	6	6	14
An ENT specialist	7	8	8	11	5	3	4	2	4	13
A pediatrician	7	10	8	9	8	4	4	5	3	7
A physical therapist	7	10	3	5	2	3	3	4	1	17
A midwife	2	2	1	1	0	3	6	3	1	2
Other	3	5	4	5	3	4	5	3	3	1

● Significant differences vs total - superior

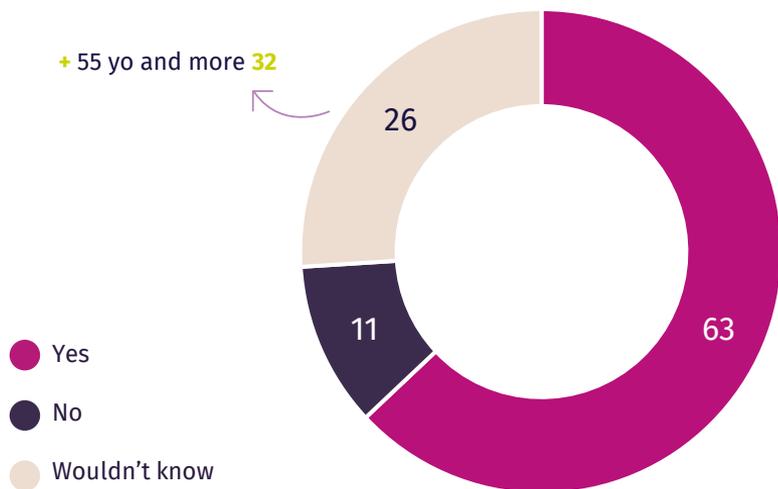
● Significant differences vs total - inferior

The vast majority of people would like to test their gut microbiome, 2/3 think it would be useful and 1/4 purely do not know.

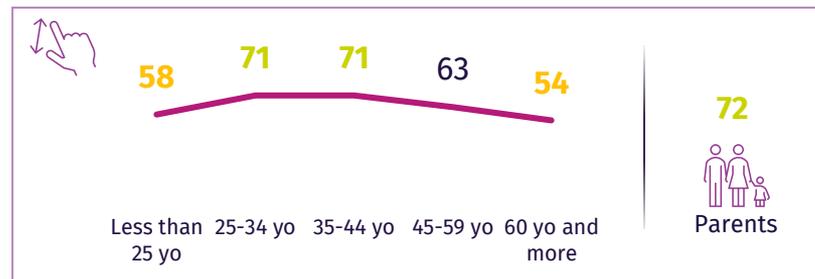


Question 5bis. In your case, do you think it is useful to test your gut microbiome?

Base: All respondents



63% think it is useful to test their gut microbiome



● Significant differences vs total - superior

● Significant differences vs total - inferior

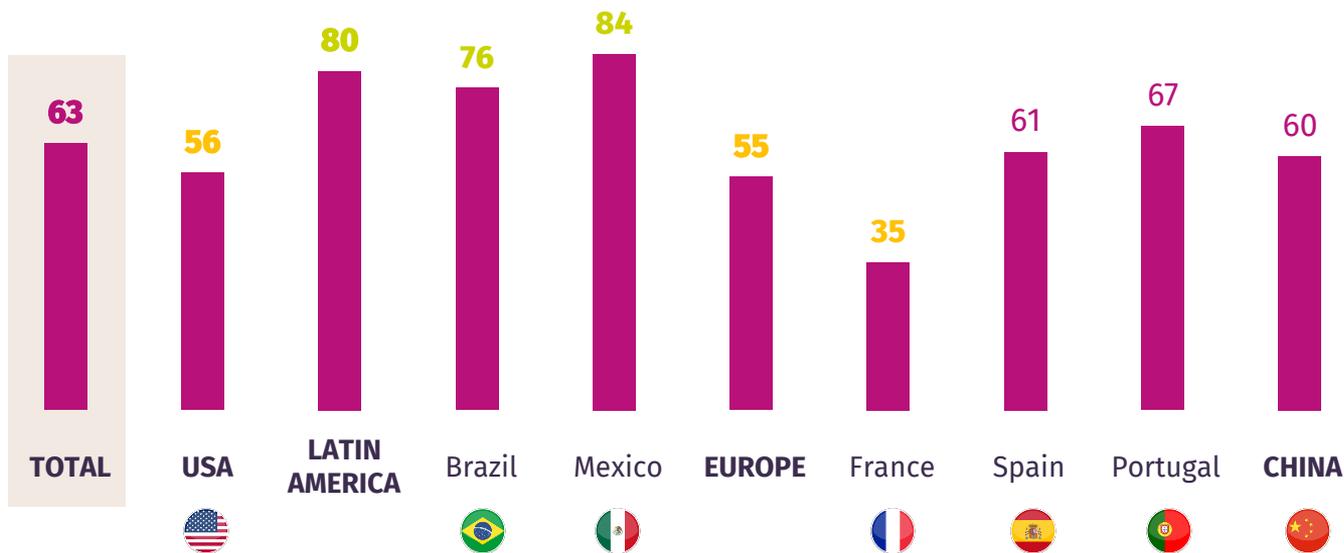


The countries where people are most interested in testing their gut microbiome are also those where people most often make the link between their health problems and the risk of microbiome imbalance: Mexico and Brazil, far ahead of France

Question 5bis. In your case, do you think it is useful to test your gut microbiome?

Base: All respondents

% Yes



● Significant differences vs total - superior

● Significant differences vs total - inferior

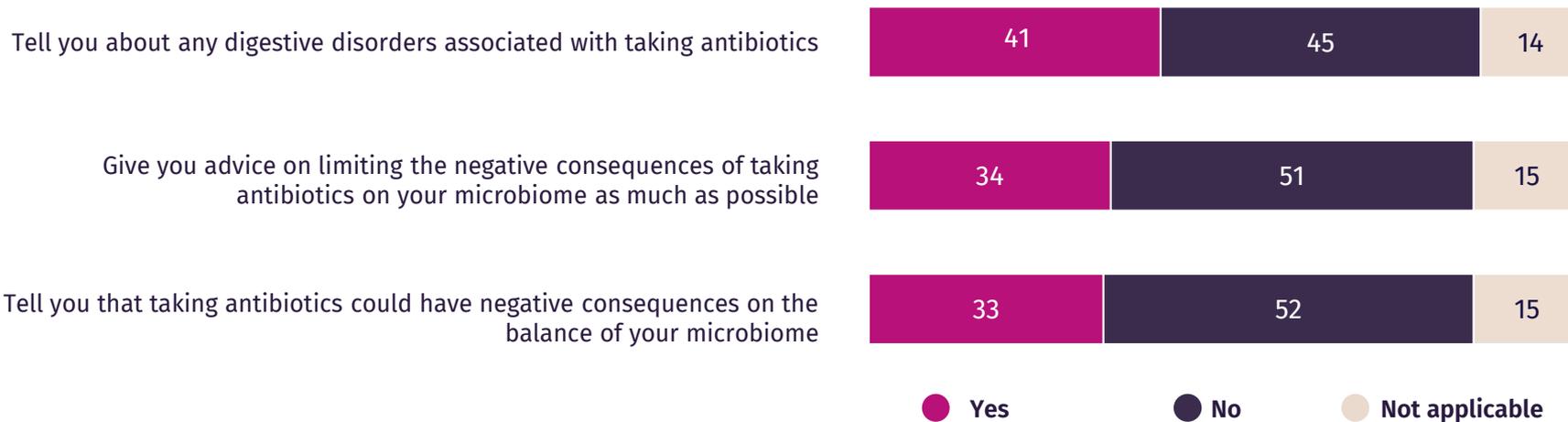
While treated with antibiotics, few has received advice and information to protect their microbiome.



Question 7. The last time a doctor prescribed antibiotics, did they do the following?

Base: All respondents

Only **20%** received **ALL THESE INFORMATION** from their HCPs



Mexicans and Chinese were more likely to receive advice and information from their HCPs.

Question 7. The last time a doctor prescribed antibiotics, did they do the following?

Base: All respondents

% Yes	Total	USA	LATIN AMERICA	Brazil	Mexico	EUROPE	France	Spain	Portugal	CHINA
% HAVE RECEIVED ALL THESE INFORMATION FROM THEIR HCPs	20	15	24	21	27	17	16	18	18	28
Tell you about any digestive disorders associated with taking antibiotics	41	30	43	40	47	38	38	36	41	51
Give you advice on limiting the negative consequences of taking antibiotics on your microbiome as much as possible	34	26	37	32	41	28	27	27	30	53
Tell you that taking antibiotics could have negative consequences on the balance of your microbiome	33	25	35	32	38	26	24	26	27	54

● Significant differences vs total - superior ● Significant differences vs total - inferior



People aged 25-44 yo and parents received more information and advice when prescribed antibiotics.



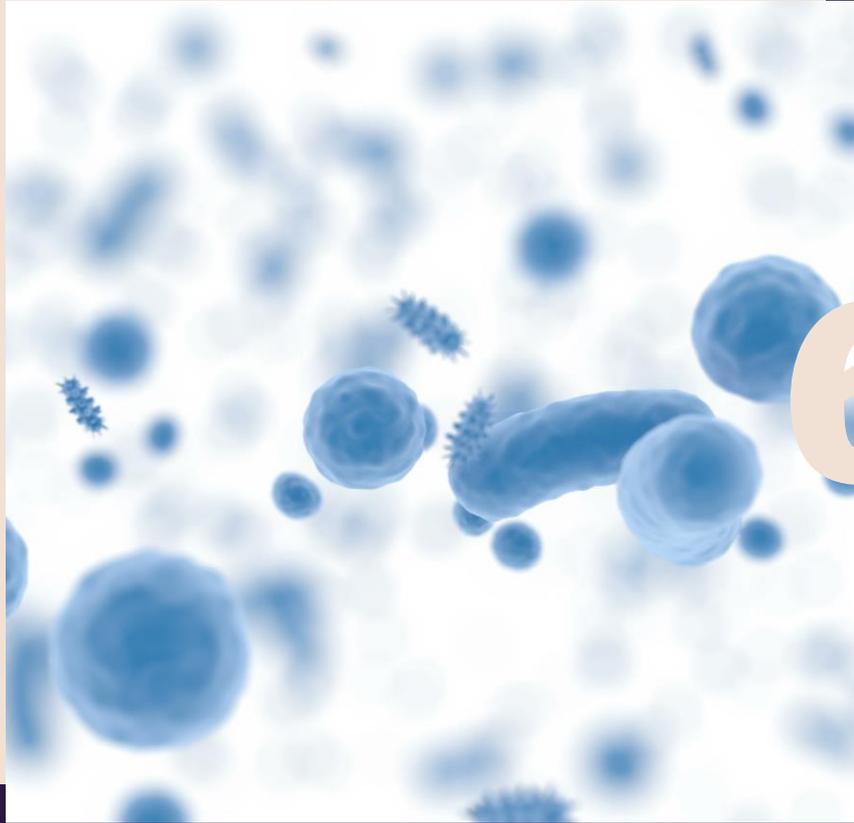
Question 7. The last time a doctor prescribed antibiotics, did they do the following? / Base: All respondents

% Yes

	Total base n=6500	Less than 25 yo n=719	25-34 yo n=1201	35-44 yo n=1194	45-59 yo n=1643	60 yo and more n=1743	Parents n=2643
% HAVE RECEIVED ALL THESE INFORMATION FROM THEIR HCPS	20	17	27	27	17	15	28
Tell you about any digestive disorders associated with taking antibiotics	41	40	47	47	37	36	48
Give you advice on limiting the negative consequences of taking antibiotics on your microbiome as much as possible	34	34	46	39	30	27	43
Tell you that taking antibiotics could have negative consequences on the balance of your microbiome	33	31	42	37	30	27	41

● Significant differences vs total - superior

● Significant differences vs total - inferior



Focus on the vulvo- vaginal microbiome

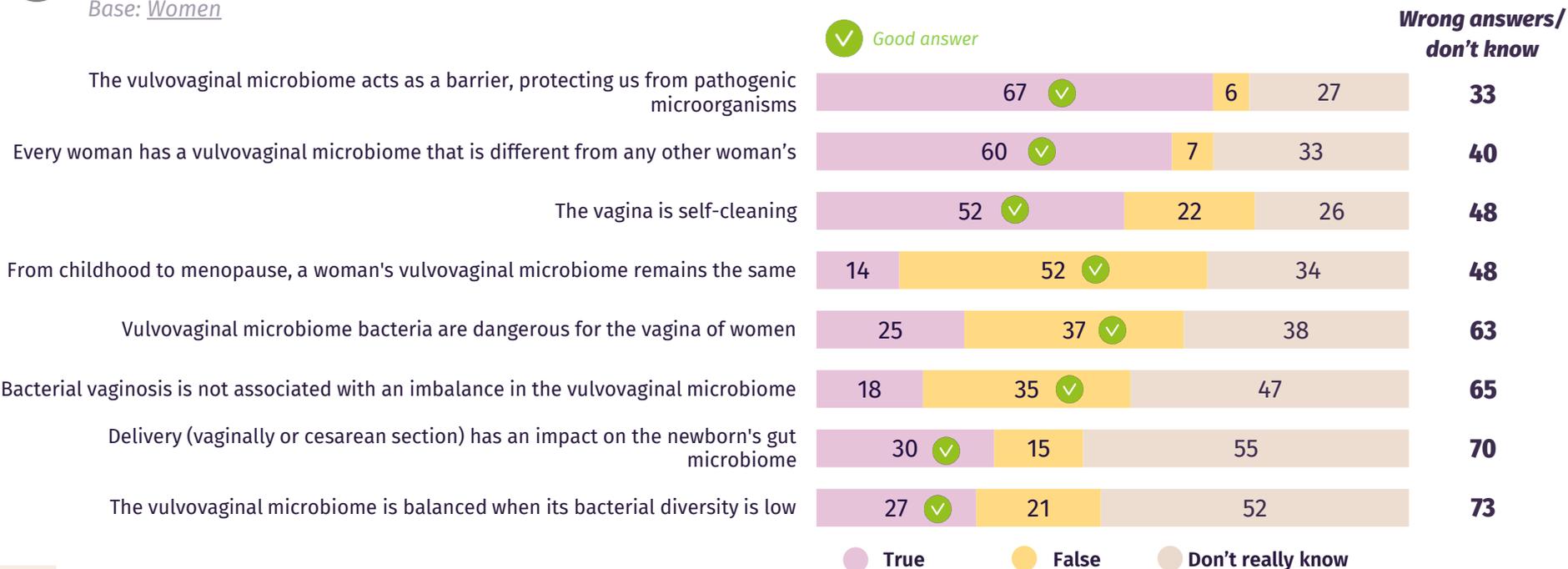
In the next questions, we will discuss the vulvovaginal microbiome, also known as vaginal flora or vaginal microbiome.

When focusing on the vulvovaginal microbiome, knowledge appears more limited.



Question 13. For each of the following statements, tell us if you think it is TRUE or FALSE. If you are unsure about your answer, answer I do not really know.

Base: Women





In all countries, women do not know a lot about vulvovaginal microbiome.

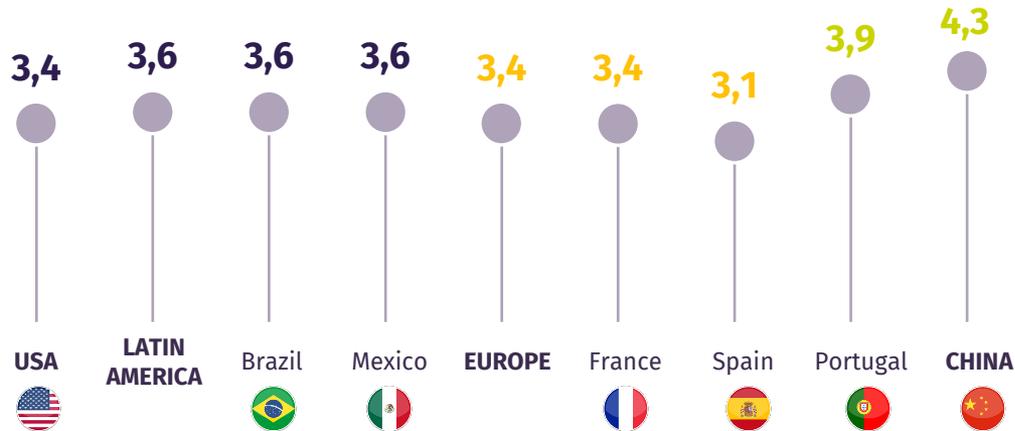


Question 13. For each of the following statements, tell us if you think it is TRUE or FALSE. If you are unsure about your answer, answer I do not really know.

Base: Women



Number of good responses on average



- Significant differences vs total - superior
- Significant differences vs total - inferior



Knowledge about vulvovaginal microbiome is contrasted between countries and on the various topics : it's a little bit better in China

Question 13. For each of the following statements, tell us if you think it is TRUE or FALSE. If you are unsure about your answer, answer I do not really know.

Base: Women

% good answer	Total	USA	LATIN AMERICA	Brazil	Mexico	EUROPE	France	Spain	Portugal	CHINA
base	n=3433	n=547	n=1129	n=572	n=557	n=1283	n=523	n=516	n=244	n=474
The vulvovaginal microbiome acts as a barrier, protecting us from pathogenic microorganisms	67	53	71	69	74	66	63	63	70	74
Every woman has a vulvovaginal microbiome that is different from any other woman's	60	55	64	58	69	60	59	58	64	56
From childhood to menopause, a woman's vulvovaginal microbiome remains the same	52	53	48	49	47	55	52	48	66	50
The vagina is self-cleaning	52	59	46	46	46	50	59	30	59	66
Vulvovaginal microbiome bacteria are dangerous for the vagina of women	37	34	38	39	36	38	39	33	41	36
Bacterial vaginosis is not associated with an imbalance in the vulvovaginal microbiome	35	36	32	35	30	31	24	32	37	48
Delivery (vaginally or cesarean section) has an impact on the newborn's gut microbiome	30	28	32	34	30	25	24	27	23	48
The vulvovaginal microbiome is balanced when its bacterial diversity is low	27	19	34	33	34	19	15	17	26	47



Women aged 25-44 yo and mothers have more knowledge about vulvovaginal microbiome but their level of knowledge remains low.

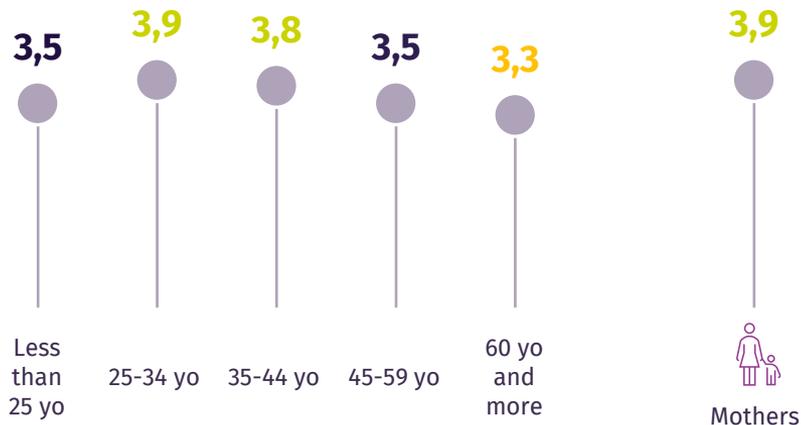


Question 13. For each of the following statements, tell us if you think it is TRUE or FALSE. If you are unsure about your answer, answer I do not really know.

Base: Women



Number of good responses on average



- Significant differences vs total - superior
- Significant differences vs total - inferior



Women over 60 yo know the least about vulvovaginal microbiome.

Question 13. For each of the following statements, tell us if you think it is TRUE or FALSE. If you are unsure about your answer, answer I do not really know.

Base: Women

% good answer	Total	Less than 25 yo	25-34 yo	35-44 yo	45-59 yo	60 yo and more
	base n=3433	n=406	n=763	n=736	n=785	n=743
The vulvovaginal microbiome acts as a barrier, protecting us from pathogenic microorganisms	67	61	70	73	65	64
Every woman has a vulvovaginal microbiome that is different from any other woman's	60	56	63	62	59	58
From childhood to menopause, a woman's vulvovaginal microbiome remains the same	52	46	51	53	57	50
The vagina is self-cleaning	52	55	60	54	48	47
Vulvovaginal microbiome bacteria are dangerous for the vagina of women	37	39	37	40	36	33
Bacterial vaginosis is not associated with an imbalance in the vulvovaginal microbiome	35	37	37	38	34	29
Delivery (vaginally or cesarean section) has an impact on the newborn's gut microbiome	30	28	41	34	27	23
The vulvovaginal microbiome is balanced when its bacterial diversity is low	27	25	34	29	25	23

Very few women have received any information or advice from their HCPs about the microbiome.



Question 14. Has the healthcare professional following your gynecological health talked to you about the following?
Base: Women

22% received **ALL THESE INFORMATION**, at least one time
5% received **all these information several times**

% Yes

Explain the good behaviors to adopt in order to maintain a good balance within your vulvovaginal microbiome as much as possible



42

Educate you on the importance of preserving as much as possible the balance of your vulvovaginal microbiome



40

Explain to you what the vulvovaginal microbiome is and what its purpose is



35

Suggest testing your vulvovaginal microbiome



31

● Yes, several times ● Yes, once ● No, never



Except in China and in Latin America, in which a majority of women received information about vulvovaginal microbiome.

Question 14. Has the healthcare professional following your gynecological health talked to you about the following?

Base: Women

% Yes	Total	USA	LATIN AMERICA	Brazil	Mexico	EUROPE	France	Spain	Portugal	CHINA
	base n=3433	n=547	n=1129	n=572	n=557	n=1283	n=523	n=516	n=244	n=474
% Have received ALL THESE INFORMATION, at least one time	22	11	28	25	31	14	12	16	15	48
Explain the good behaviors to adopt in order to maintain a good balance within your vulvovaginal microbiome as much as possible	42	23	52	51	54	32	27	26	42	75
Educate you on the importance of preserving as much as possible the balance of your vulvovaginal microbiome	40	21	51	50	51	30	28	26	37	72
Explain to you what the vulvovaginal microbiome is and what its purpose is	35	19	43	40	45	25	23	23	28	71
Suggest testing your vulvovaginal microbiome	31	14	35	31	40	22	17	25	23	69

● Significant differences vs total - superior

● Significant differences vs total - inferior



Women over 45 yo have received few information from their HCPs about vulvovaginal microbiome.



Question 14. Has the healthcare professional following your gynecological health talked to you about the following?

Base: Women

% Yes	Total	Less than 25 yo	25-34 yo	35-44 yo	45-59 yo	60 yo and more
	base n=3433	n=406	n=763	n=736	n=785	n=743
% Have received ALL THE INFORMATION, at least one time	22	23	34	26	16	15
Explain the good behaviors to adopt in order to maintain a good balance within your vulvovaginal microbiome as much as possible	42	45	56	47	34	34
Educate you on the importance of preserving as much as possible the balance of your vulvovaginal microbiome	40	45	53	46	31	32
Explain to you what the vulvovaginal microbiome is and what its purpose is	35	36	48	37	28	29
Suggest testing your vulvovaginal microbiome	31	33	42	35	24	24

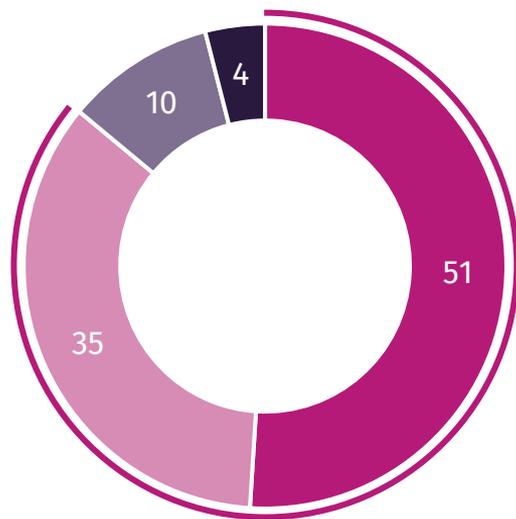
● Significant differences vs total - superior

● Significant differences vs total - inferior

Most of women would like to have more information about the importance of the vulvovaginal microbiome and its impact on health.

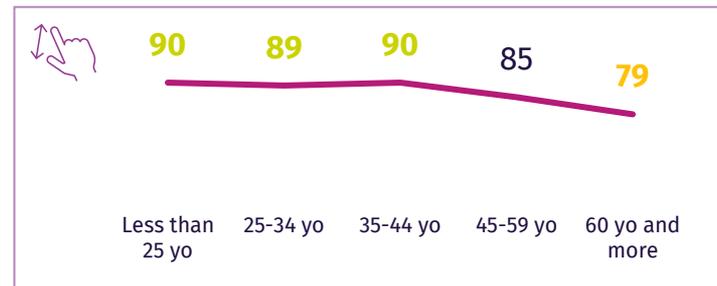
Question 15. And would you like the healthcare professional monitoring your gynecological health to tell you more about the importance of your vulvovaginal microbiome and its impact on your health?

Base: Women



- Yes, absolutely
- Yes, somewhat
- No, not really
- No, not at all

86% would like to have more information about the importance of the vulvovaginal microbiome and its impact on health

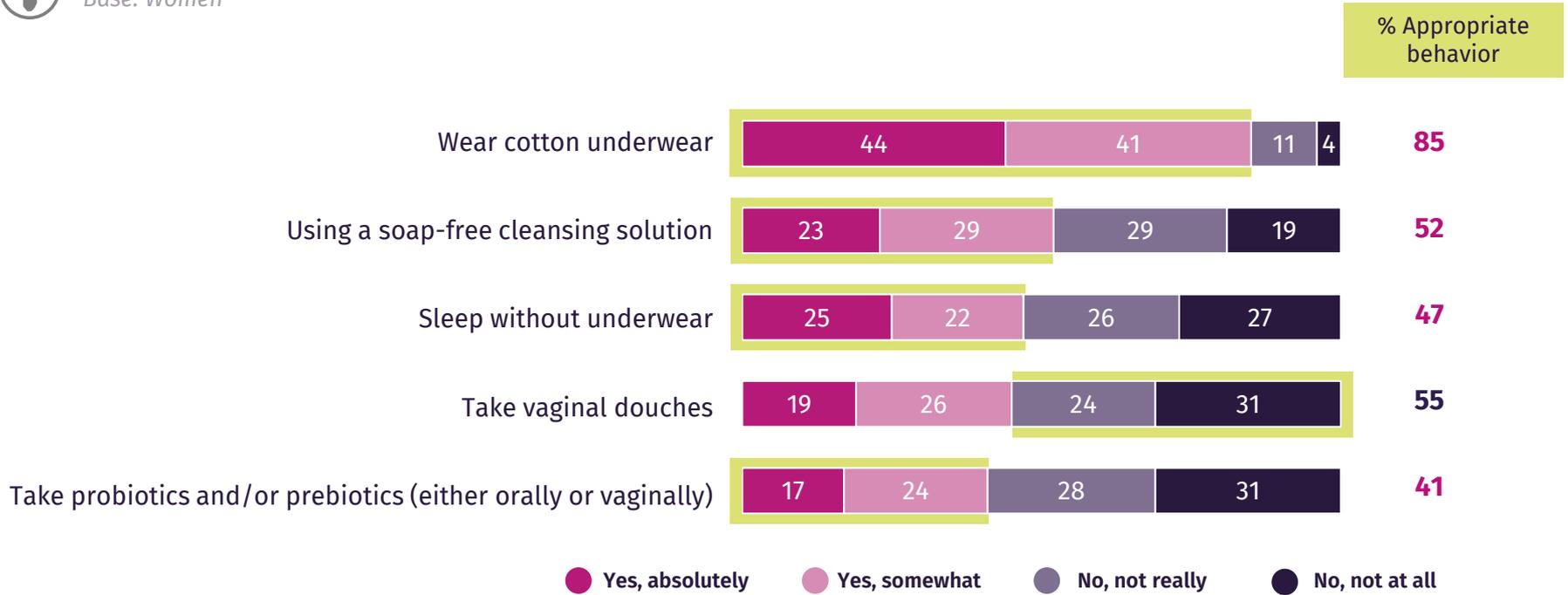


● Significant differences vs total - superior ● Significant differences vs total - inferior

In detail, and except the cotton underwear, a moderate proportion of women adopted specific behaviors to protect the health of their vulvovaginal microbiome.



Question 16. In your daily life, do you regularly adopt the following behaviors?
Base: Women





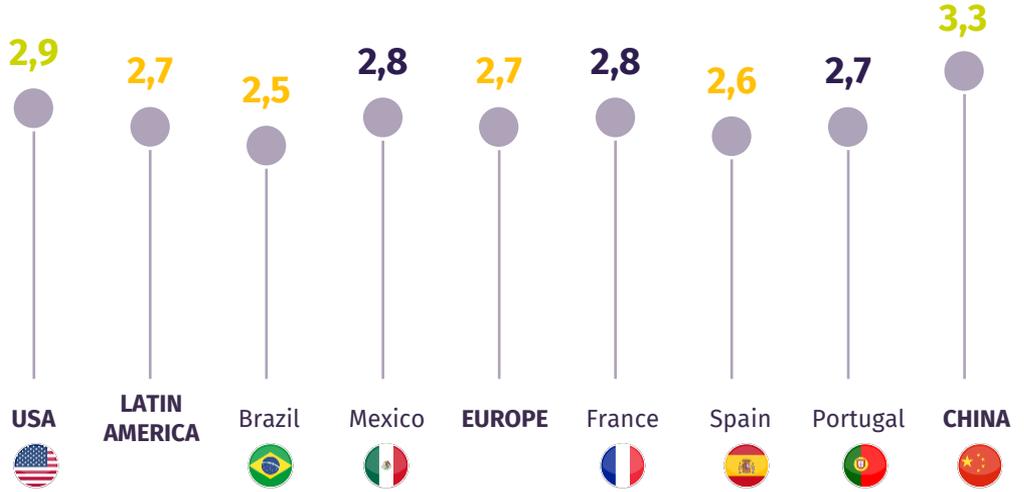
Less than 3 behaviors have been adopted by women to maintain their vulvovaginal microbiome.



Question 16. In your daily life, do you regularly adopt the following behaviors?
Base: Women



Number of appropriate behaviors adopted on average



- Significant differences vs total - superior
- Significant differences vs total - inferior



Chinese women adopt the most appropriate behaviors but a lot of women are taking vaginal douches.

Question 16. In your daily life, do you regularly adopt the following behaviors?

Base: Women

% Appropriate behavior	Total	USA	LATIN AMERICA	Brazil	Mexico	EUROPE	France	Spain	Portugal	CHINA
	base n=3433	n=547	n=1129	n=572	n=557	n=1283	n=523	n=516	n=244	n=474
Wear cotton underwear	85	82	88	84	92	82	80	83	84	89
Using a soap-free cleansing solution	52	34	48	44	52	57	56	50	63	63
Sleep without underwear	47	45	43	52	35	41	51	33	39	76
Take vaginal douches	55	85	48	40	56	62	69	64	53	19
Take probiotics and/or prebiotics (either orally or vaginally)	41	41	39	32	47	29	28	33	27	79

● Significant differences vs total - superior

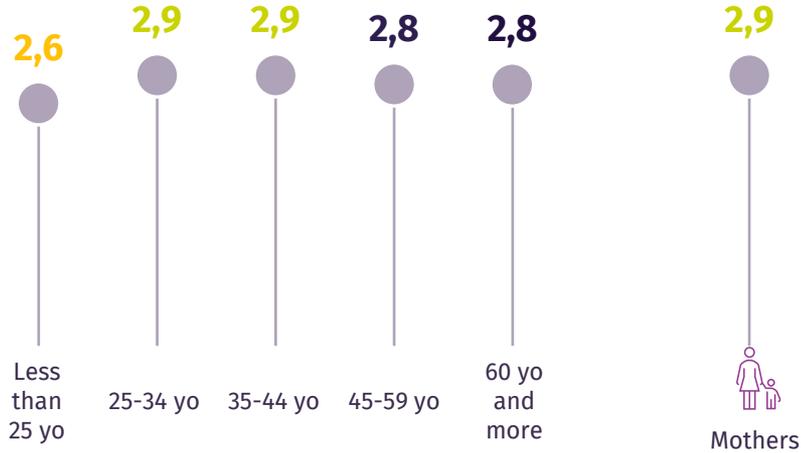
● Significant differences vs total - inferior



Women aged 25-44 yo are most likely to adopt appropriate behaviors for their vulvovaginal microbiome.



Question 16. In your daily life, do you regularly adopt the following behaviors?
Base: Women



Number of appropriate behaviors adopted on average

- Significant differences vs total - superior
- Significant differences vs total - inferior



Behaviors beneficial for the vulvovaginal microbiome are contrasted according to the age of women.



Question 16. In your daily life, do you regularly adopt the following behaviors?

Base: Women

% Appropriate behavior	Total	Less than 25 yo	25-34 yo	35-44 yo	45-59 yo	60 yo and more
	base n=3433	n=406	n=763	n=736	n=785	n=743
Wear cotton underwear	85	82	84	89	85	84
Using a soap-free cleansing solution	52	50	55	54	51	49
Sleep without underwear	47	49	55	46	43	43
Take vaginal douches	55	53	53	50	37	36
Take probiotics and/or prebiotics (either orally or vaginally)	41	33	47	45	37	38

● Significant differences vs total - superior

● Significant differences vs total - inferior



Main results per country

Overview of the country results



USA



Brazil



Mexico



France



Spain



Portugal



China

Awareness of the microbiome & its diversity

Know exactly what is « microbiome »	22%	21%	20%	27%	24%	17%	17%
Subtotal « Aware »	53%	62%	66%	81%	69%	61%	57%
Subtotal Aware of the gut microbiome	42%	51%	58%	63%	57%	45%	54%
Subtotal Aware of all microbiome	21%	29%	26%	21%	22%	26%	34%

Level of knowledge around the microbiota

Mean of good answers	5,3/10	5,7/10	6,0/10	6,0/10	5,8/10	6,2/10	5,8/10
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Level of knowledge around the solutions which can maintain the microbiota balanced

Know exactly what are probiotics	53%	39%	55%	31%	38%	37%	47%
Know exactly what are prebiotics	36%	25%	31%	14%	26%	17%	38%

Adoption and identification of appropriate behaviors to maintain a balanced microbiota

Have adopted specific behaviors	47%	64%	62%	47%	54%	58%	64%
Number of behaviors identified in order to maintain the microbiota	3,9/7	4,0/7	4,3/7	3,8/7	4,2/7	4,1/7	3,9/7

Level of information provided by healthcare professionals

Received at least one piece of information at least once	46%	64%	83%	40%	47%	51%	88%
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Learnings on the USA results



Awareness of the microbiome & its diversity	
Know exactly what is « microbiome »	22%
Subtotal « Aware »	53%
Subtotal « Aware » of the gut microbiome	42%
Subtotal Aware of all microbiome	21%

Level of knowledge around the microbiota	
Mean of good answers	5,3/10

Level of knowledge around the solutions which can maintain the microbiota balanced	
Know exactly what are probiotics	53%
Know exactly what are prebiotics	36%

Adoption and identification of appropriate behaviors to maintain a balanced microbiota	
Have adopted specific behaviors	47%
Number of behaviors identified in order to maintain the microbiota	3,9/7

Level of information provided by healthcare professionals	
Received at least one piece of information at least once	46%

Key learnings

Americans admit having little knowledge of the microbiome, and its diversity. The most familiar is the gut microbiome but many have never heard about it.

In terms of knowledge, little is known about the role of the microbiome and consequences on health.

Although Americans know a little more about probiotics and prebiotics compared to other countries, few have adopted specific behaviors to maintain their microbiome balanced.

Less than half have received information from their healthcare professional about microbiome, even when antibiotics have been prescribed. This is essential that GPs provide more information in order to drive awareness and to encourage appropriate behaviors.

Learnings on Brazilian results



Brazil

Awareness of the microbiome & its diversity	
Know exactly what is « microbiome »	21%
Subtotal « Aware »	62%
Subtotal Aware of the gut microbiome	51%
Subtotal Aware of all microbiome	29%

Level of knowledge around the microbiota	
Mean of good answers	5,7/10

Level of knowledge around the solutions which can maintain the microbiota balanced	
Know exactly what are probiotics	39%
Know exactly what are prebiotics	25%

Adoption and identification of appropriate behaviors to maintain a balanced microbiota	
Have adopted specific behaviors	64%
Number of behaviors identified in order to maintain the microbiota	4,0/7

Level of information provided by healthcare professionals	
Received at least one piece of information at least once	64%

Key learnings

Even though slightly more Brazilians have heard of several microbiota (29%), the word “microbiome” is not familiar at all for them, instead the word “flora” is much more commonly used.

However, even after defining the microbiome, the level of knowledge around the role and functioning of the microbiome remains rather moderate.

Moreover, Brazilians have a poor awareness of probiotics and prebiotics.

Although they declare that they have adopted behaviors to keep the microbiota balanced, they don’t manage to identify properly the right behaviors to implement.

Information they’ve received from health professionals is not yet enough for them. This is essential to provide information for a better understanding about microbiome using the “good” wordings, and to help people know what to do in terms of behaviors.

Learnings on Mexican results



Awareness of the microbiome & its diversity	
Know exactly what is « microbiome »	20%
Subtotal « Aware »	66%
Subtotal Aware of the gut microbiome	58%
Subtotal Aware of all microbiome	26%

Level of knowledge around the microbiota	
Mean of good answers	6,0/10

Level of knowledge around the solutions which can maintain the microbiota balanced	
Know exactly what are probiotics	55%
Know exactly what are prebiotics	31%

Adoption and identification of appropriate behaviors to maintain a balanced microbiota	
Have adopted specific behaviors	62%
Number of behaviors identified in order to maintain the microbiota	4,3/7

Level of information provided by healthcare professionals	
Received at least one piece of information at least once	83%

Key learnings

Mexicans have a fairly good knowledge of the microbiota compared to other countries. Indeed, the term "flora" seems more familiar and here again their knowledge is mainly centered on the gut microbiota.

In terms of knowledge, they are more aware of the importance and the role of the microbiota and about probiotics and prebiotics.

Mexicans are more likely to identify the appropriate behaviors to maintain the microbiome balanced – besides, they declared adopting them in their daily life.

More than 8 out of 10 have received information from their healthcare professionals: messages have been passed on. There is still room for improvement in terms of awareness of the microbiome diversity while taking care of the wording used.

Learnings on French results



Awareness of the microbiome & its diversity	
Know exactly what is « microbiome »	27%
Subtotal « Aware »	81%
Subtotal Aware of the gut microbiome	63%
Subtotal Aware of all microbiome	21%

Level of knowledge around the microbiota	
Mean of good answers	6,0/10

Level of knowledge around the solutions which can maintain the microbiota balanced	
Know exactly what are probiotics	31%
Know exactly what are prebiotics	14%

Adoption and identification of appropriate behaviors to maintain a balanced microbiota	
Have adopted specific behaviors	47%
Number of behaviors identified in order to maintain the microbiota	3,8/7

Level of information provided by healthcare professionals	
Received at least one piece of information at least once	40%

Key learnings

Although the wording “Microbiome” seems quite well-known in France, the terms “flora” are definitely the most popular words. Even among French people who indicated to be aware of the wording “Microbiome”, little is really known about microbiota diversity.

While testing the French population with some assumptions around microbiome definition and role, their answers are quite good compared to other countries.

A minority has received advice and information from their HCPs. This is essential that GPs and Pharmacists both provide more information to French people, to drive awareness and to help identifying appropriate behaviors.

Therefore, this low level of information may explain the limited awareness French people have for prebiotics and probiotics. Besides, a majority of French people therefore believe that probiotics and prebiotics cannot have a positive effect on their microbiome.

Learnings on Spanish results



Spain

Awareness of the microbiome & its diversity	
Know exactly what is « microbiome »	24%
Subtotal « Aware »	69%
Subtotal Aware of the gut microbiome	57%
Subtotal Aware of all microbiome	22%

Level of knowledge around the microbiota	
Mean of good answers	5,8/10

Level of knowledge around the solutions which can maintain the microbiota balanced	
Know exactly what are probiotics	38%
Know exactly what are prebiotics	26%

Adoption and identification of appropriate behaviors to maintain a balanced microbiota	
Have adopted specific behaviors	54%
Number of behaviors identified in order to maintain the microbiota	4,2/7

Level of information provided by healthcare professionals	
Received at least one piece of information at least once	47%

Key learnings

Spanish have little knowledge of the microbiome and the diversity of the microbiome. This knowledge is essentially driven by the gut microbiome. “Gut flora” would be a more familiar term for them.

In terms of knowledge, they have a very moderate knowledge of the composition, the functioning, the role of the microbiota and the consequences when it’s unbalanced.

Compared to French and Portuguese, Spanish are more numerous to know probiotics and prebiotics. But this awareness remains very moderate. They already heard about it but do not know precisely what it is.

However, they are slightly better at identifying the behaviors to adopt, without necessarily applying them.

In terms of sources of information, less than half had received information from their healthcare professionals.

Learnings on Portuguese results



Awareness of the microbiome & its diversity	
Know exactly what is « microbiome »	17%
Subtotal « Aware »	61%
Subtotal Aware of the gut microbiome	45%
Subtotal Aware of all microbiome	26%

Level of knowledge around the microbiota	
Mean of good answers	6,2/10

Level of knowledge around the solutions which can maintain the microbiota balanced	
Know exactly what are probiotics	37%
Know exactly what are prebiotics	17%

Adoption and identification of appropriate behaviors to maintain a balanced microbiota	
Have adopted specific behaviors	58%
Number of behaviors identified in order to maintain the microbiota	4,1/7

Level of information provided by healthcare professionals	
Received at least one piece of information at least once	51%

Key learnings

The wording “Microbiome” is not well-known at all in Portugal, the term “flora” is definitely a most popular word especially the one related to the gut.

On the other hand, once they have read the definition explaining that the flora is the previous word used for microbiome, they show some higher knowledge compared to other countries. They are more likely to know the role, the consequences of an unbalanced microbiota.

They are also more likely to know that certain actions can be taken to maintain a balanced microbiota, however they are not so good at identifying the behaviors that help the microbiome.

Moreover, solutions such as probiotics or prebiotics do not appear as very common for Portuguese: a majority have heard about them, but only a minority knows precisely what it means and implies.

But, this lack of awareness is also related to the little information they have received from their healthcare professionals: only half received these information from their doctor.

Learnings on Chinese results



China

Awareness of the microbiome & its diversity	
Know exactly what is « microbiome »	17%
Subtotal « Aware »	57%
Subtotal Aware of the gut microbiome	54%
Subtotal Aware of all microbiome	34%

Level of knowledge around the microbiota	
Mean of good answers	5,8/10

Level of knowledge around the solutions which can maintain the microbiota balanced	
Know exactly what are probiotics	47%
Know exactly what are prebiotics	38%

Adoption and identification of appropriate behaviors to maintain a balanced microbiota	
Have adopted specific behaviors	64%
Number of behaviors identified in order to maintain the microbiota	3,9/7

Level of information provided by healthcare professionals	
Received at least one piece of information at least once	88%

Key learnings

Although a majority have heard about “microbiome” only 17% know exactly what it is. Very few are aware that several microbiome exist.

Although Chinese are more likely to see the link between health problems they experienced and their own microbiome, their knowledge is very moderate about the role, the consequences when the microbiome is unbalanced.

However, more Chinese people have adopted specific behaviors to keep their microbiome as balanced and functioning as smoothly as possible. But currently, they are not better than other countries while identifying the appropriate behaviors.

In China, there is a higher level of information from HCPs and a diversity of HCPs that provided information. This better level of information may explain the awareness Chinese people have for prebiotics and probiotics.

ANNEXES

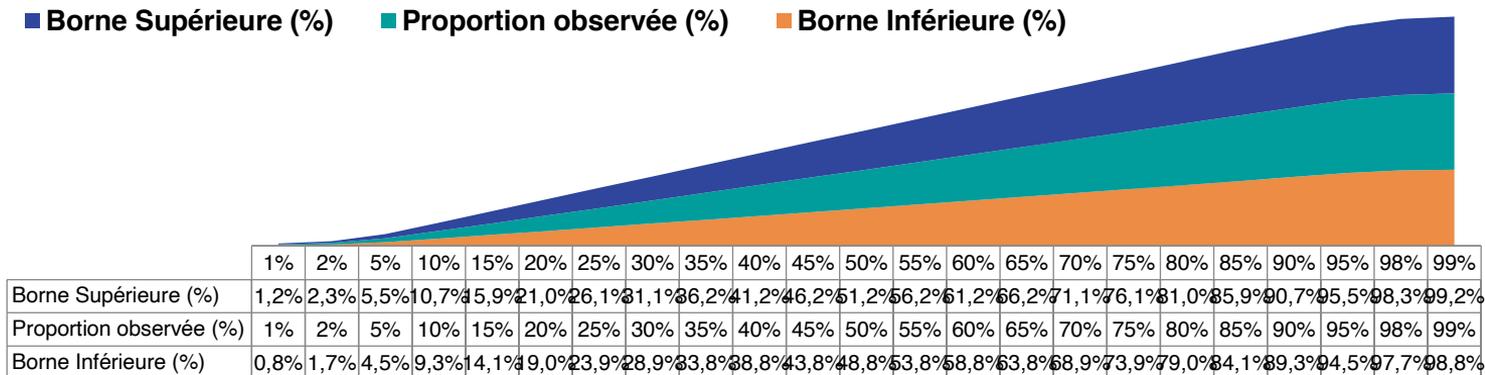
FIABILITÉ DES RÉSULTATS

Feuille de calcul

En l'occurrence s'agissant de cette étude :

- Intervalle de confiance : **95%**
- Taille d'échantillon : **6500**

Les proportions observées sont comprises entre :



SURVEY OVERVIEW

CAWI survey – Online panel



SAMPLE

- **Target** : Male/female 18 and more in each country
- **Selection of the respondent** : participant selection using quotas
- **Sample representativeness** : criteria and sources : gender, age, active/inactive status, regions



DATA COLLECTION

- **Fieldwork dates** : 21 march – 10 April 2023
- **Sample achieved** : **6500** interviews (100 for each country except in Portugal n=500)
- **Data collection** : on line
- **Loyalty program with points- based award system for panelists**
- **Response quality control methods**: monitoring of participants' response behavior (identification of responses that are too quick or careless, e.g. ticked in a straight or zigzag line)
- **Checking of IP and consistency of demographic data.**



DATA PROCESSING

- Weighted sample
- Method used: Rim Weighting Method
- Weighting criteria: criteria and sources : gender, age, active/inactive status, regions

SURVEY MATERIAL THE QUESTIONNAIRE



Questionnaire

RELIABILITY OF RESULTS : SELF COMPLETION ONLINE SURVEYS IIS

To ensure the overall reliability of a survey, all possible error components must be taken into account. That is why Ipsos imposes strict controls and procedures at each stage of the survey process.

UPSTREAM OF THE DATA COLLECTION

- **Sample** : structure and representativeness
- **Questionnaire** : the questionnaire is worded by following an editing process with 12 compulsory standards. It is proofread and approved at a senior level and then sent to the client for final validation. The programming (or questionnaire script) **is tested by at least 2 people and validated.**
- **Data collection** : the interviewers are trained in survey techniques through a dedicated training module prior to any participation in a survey. In addition, they receive or attend a detailed briefing at the start of each survey.

DURING THE DATA COLLECTION

- **Sampling** : Ipsos imposes very strict operating rules for its selection frame in order to maximize the random nature of the sample selection : random selection from telephone listings, quota method, etc.

- **Fieldwork monitoring** : collection is monitored and checked (exclusive link, IP validation, panelists' behavior monitoring penetration, interview length, consistency of responses, participation rate, number of reminders, etc.)

DOWNSTREAM OF THE DATA COLLECTION

- The results are analyzed in accordance with the statistical analysis methods (confidence interval versus sample size, significance tests). The first results are systematically checked against the raw results from the data collection. The consistency of results is also checked (particularly the results observed versus comparison sources in our possession).
- In cases where sample weighting is used (margin calibration method), this is checked by the processing teams (DP) and then validated by the survey teams.

SURVEY OVERVIEW

Organization (CAWI survey - Online panel)



ACTIVITIES CARRIED OUT OR COORDINATED BY IPSOS TEAMS IN FRANCE

- Design and methodology
- Validation of scripting
- Coordination and validation of translation
- Coordination of data collection
- Data processing
- Validation of the statistical analyses
- Creation of survey report
- Results presentation design
- Oral presentation Analyses



ACTIVITIES CARRIED OUT BY IPSOS EXPERT LOCAL TEAMS

- Translation
- Scripting
- Sampling (IIS panel)
- Emailing
- Data collection
- Data Map

ABOUT IPSOS

Ipsos is the third largest market research company in the world, present in 90 markets and employing more than 18,000 people.

Our research professionals, analysts and scientists have built unique multi-specialist capabilities that provide powerful insights into the actions, opinions and motivations of citizens, consumers, patients, customers or employees. Our 75 business solutions are based on primary data coming from our surveys, social media monitoring, and qualitative or observational techniques.

“Game Changers” – our tagline – summarises our ambition to help our 5,000 clients to navigate more easily our deeply changing world.

Founded in France in 1975, Ipsos is listed on the Euronext Paris since July 1st, 1999. The company is part of the SBF 120 and the Mid-60 index and is eligible for the Deferred Settlement Service (SRD).

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GAME CHANGERS

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At Ipsos we believe our clients need more than a data supplier, they need a partner who can produce accurate and relevant information and turn it into actionable truth.

This is why our passionately curious experts not only provide the most precise measurement, but shape it to provide True Understanding of Society, Markets and People.

To do this we use the best of science, technology and know-how and apply the principles of security, simplicity, speed and substance to everything we do.

So that our clients can act faster, smarter and bolder. Ultimately, success comes down to a simple truth:
You act better when you are sure.