



Consumer Acceptance and Risk Perception of Smart Foods (Smart Food project, CUCo)

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(Smart Food project, CUCo)



**Consumer
Acceptance**

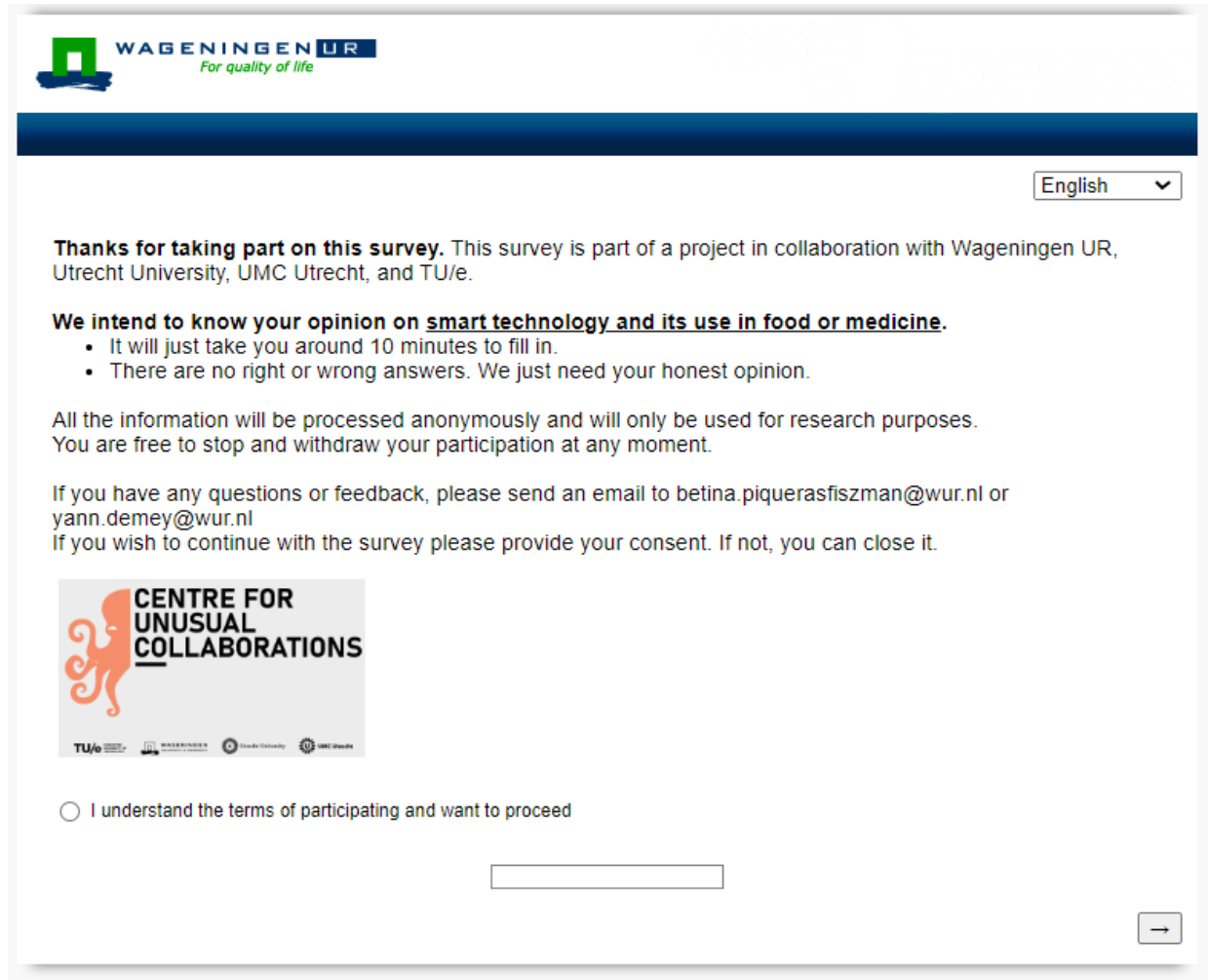
and


Risk Perception



Survey details

- Preliminary survey – proof of concept for initial insights
- English and Dutch version
- Ran from 07/08/2024 till 03/09/2024
- Consumer panel of MCB group
- Mostly people from in/around Wageningen (not representative)
- 180 responses (first 150 received VVV coupon)
- 119 completely filled in (analysis here)



 **WAGENINGEN UR**
For quality of life

English ▾


Thanks for taking part on this survey. This survey is part of a project in collaboration with Wageningen UR, Utrecht University, UMC Utrecht, and TU/e.

We intend to know your opinion on smart technology and its use in food or medicine.

- It will just take you around 10 minutes to fill in.
- There are no right or wrong answers. We just need your honest opinion.

All the information will be processed anonymously and will only be used for research purposes. You are free to stop and withdraw your participation at any moment.

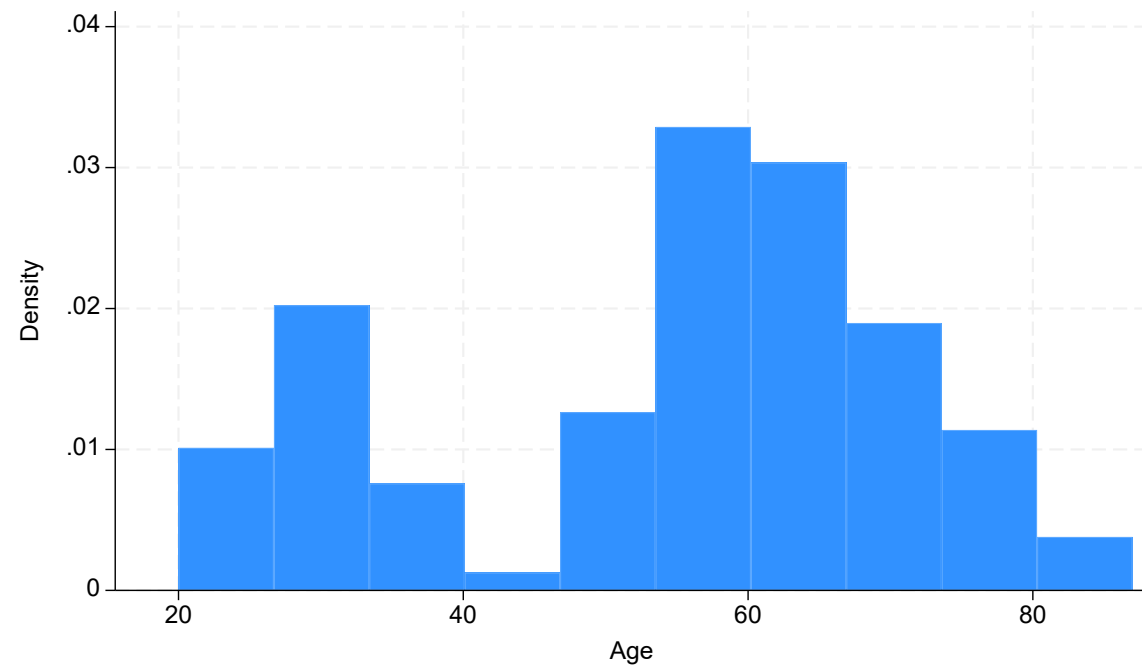
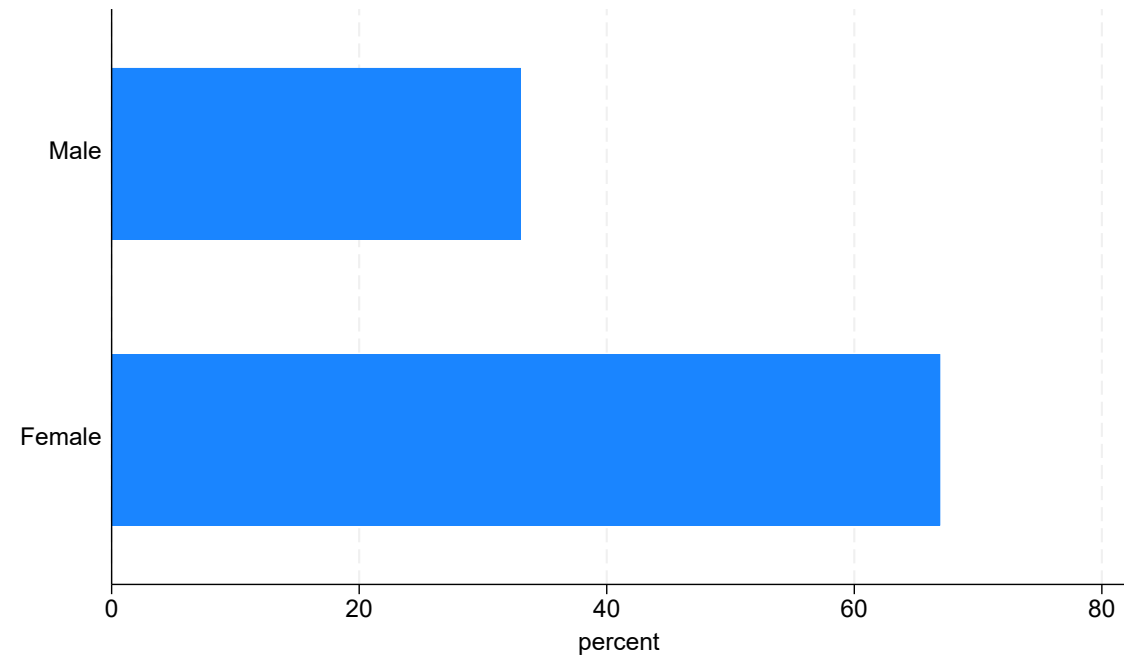
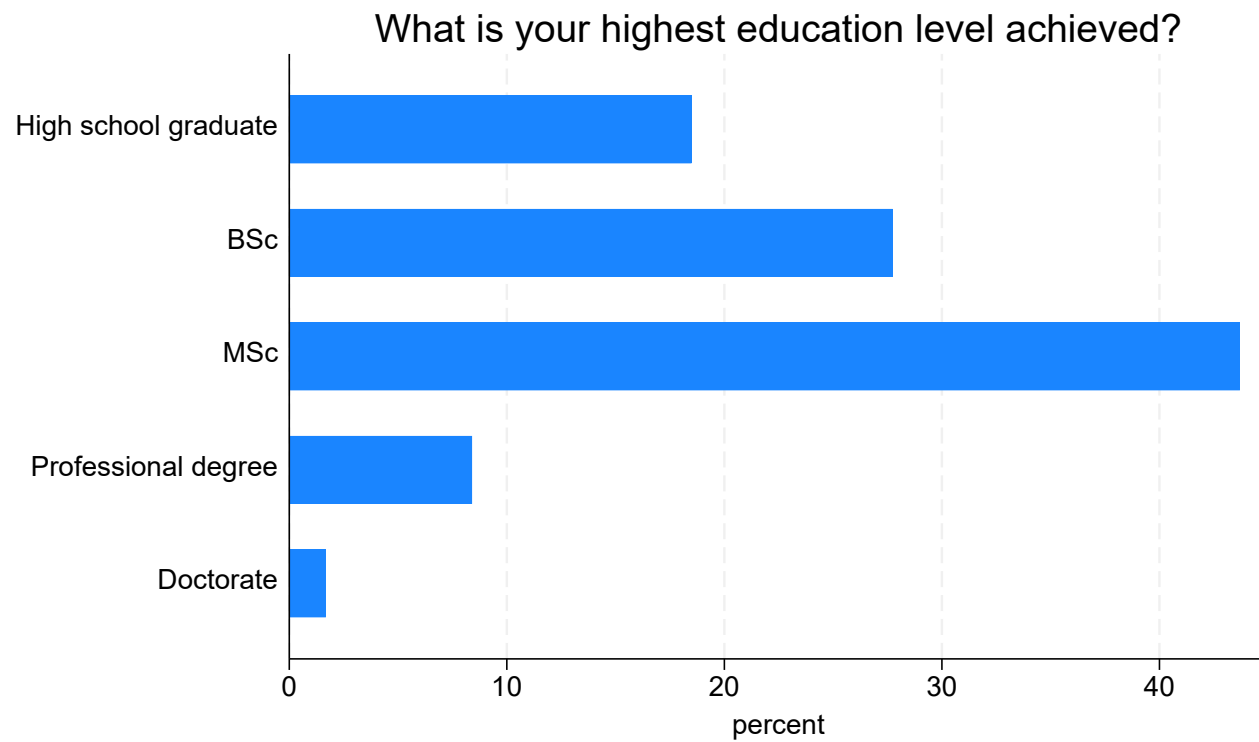
If you have any questions or feedback, please send an email to betina.piquerasfiszman@wur.nl or yann.demey@wur.nl
If you wish to continue with the survey please provide your consent. If not, you can close it.

 **CENTRE FOR UNUSUAL COLLABORATIONS**

I understand the terms of participating and want to proceed

→

Respondents profile

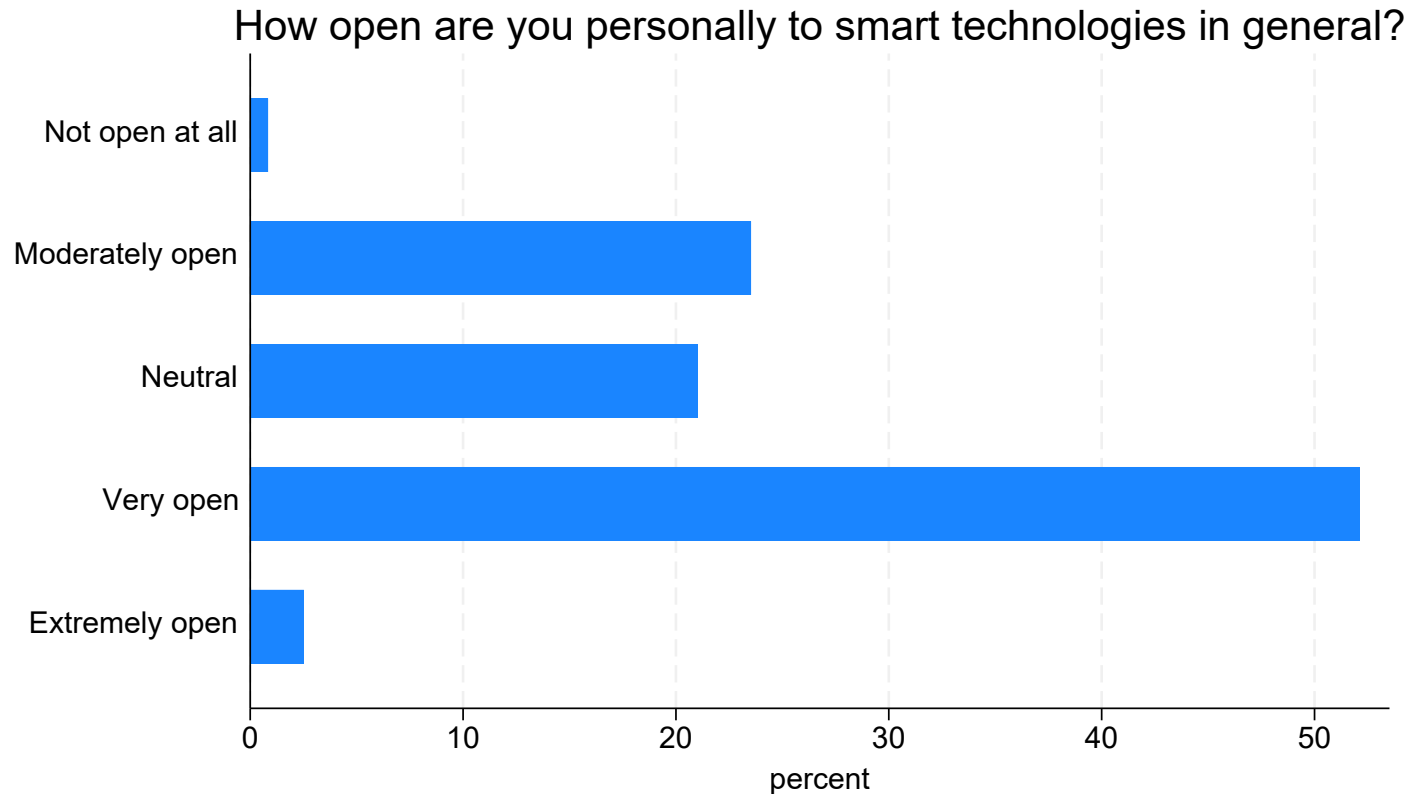


Consumer Acceptance

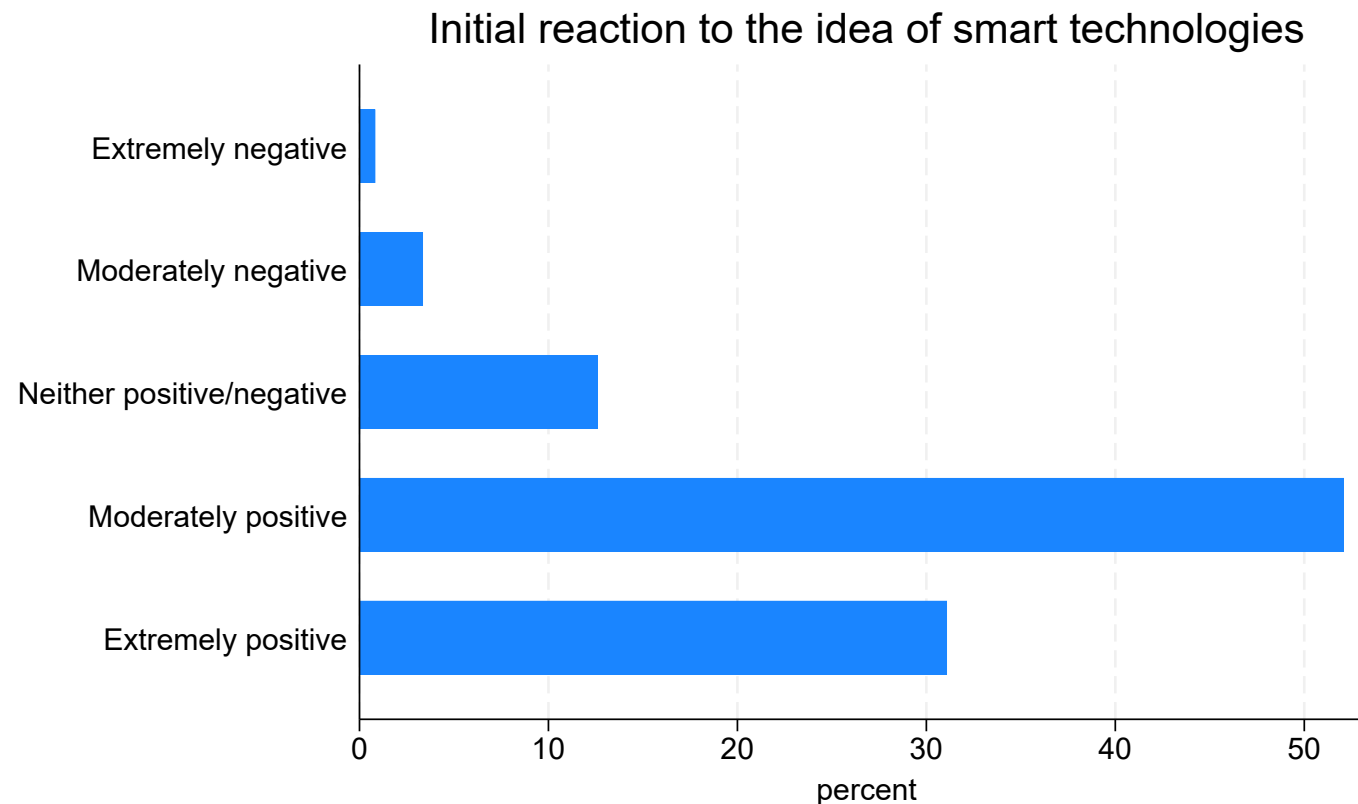


How **open** are you personally to smart technologies in general?

Nowadays smart technologies are very present in our everyday life, for example in mobiles and cars. These smart technologies make use of advanced technologies to interact intelligently with objects and people.



In **medicine or food**, smart technologies can be used to deliver a drug or compound to a specific part of a gastric track or at a specific time. What is your **initial reaction** on this idea?



What are the first **three words/terms** that come to your mind when you hear "smart technology applied to food or medicine"?

1



2



3



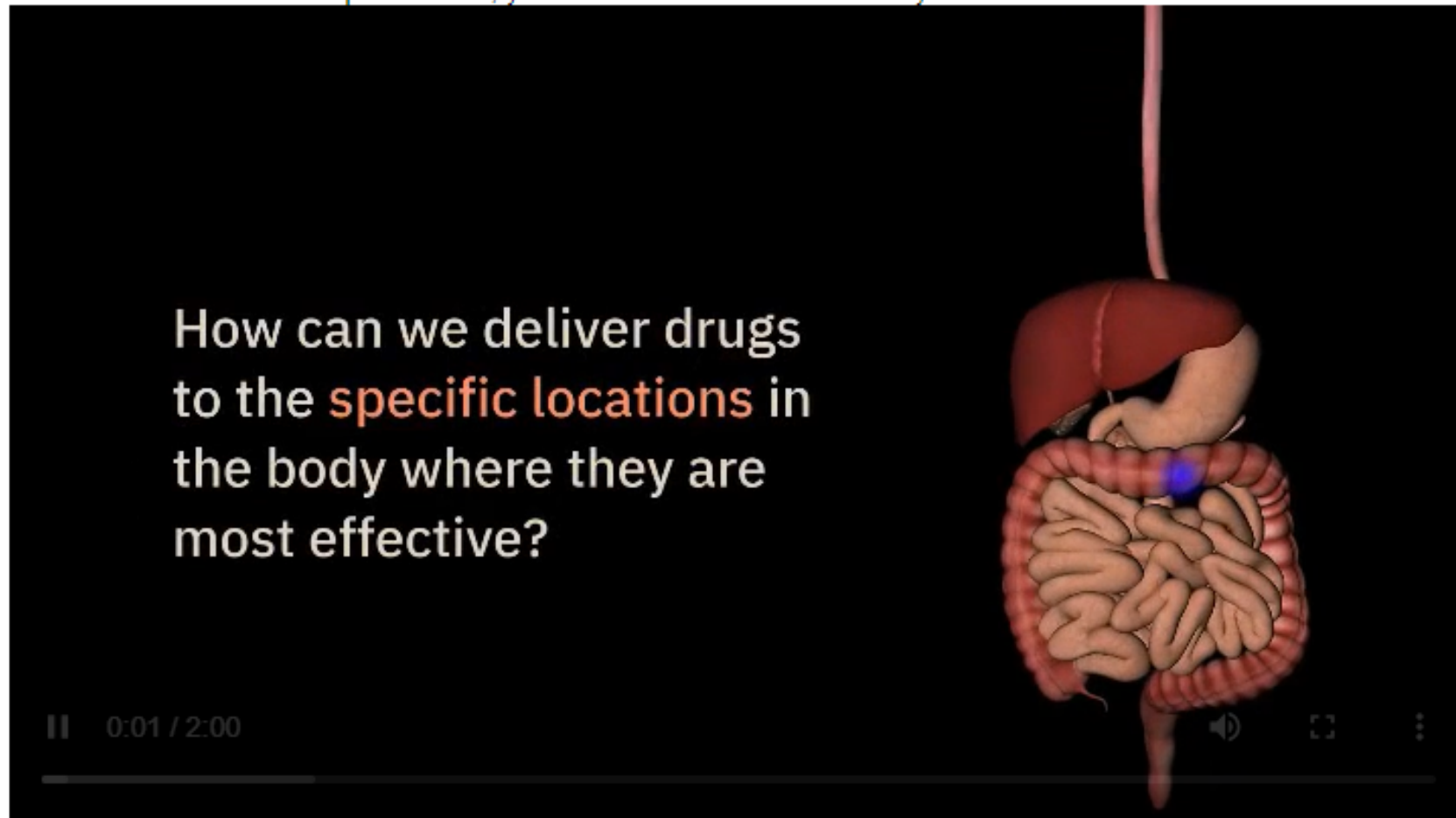
Do you have additional **specific thoughts** about smart technologies applied to food or medicine that you'd like to share?

- 1. Skepticism & Caution:** Many express concerns about the long-term effects of smart technologies, especially in food, fearing they may disrupt natural processes and harm the environment.
- 2. Preference for Medicine:** Respondents are more open to smart technologies in medicine for precise treatments but are hesitant about their application in food, preferring it to remain as natural as possible.
- 3. Transparency & Control:** A strong demand exists for clear, non-technical explanations about how the technology works, with a focus on maintaining human oversight and privacy.

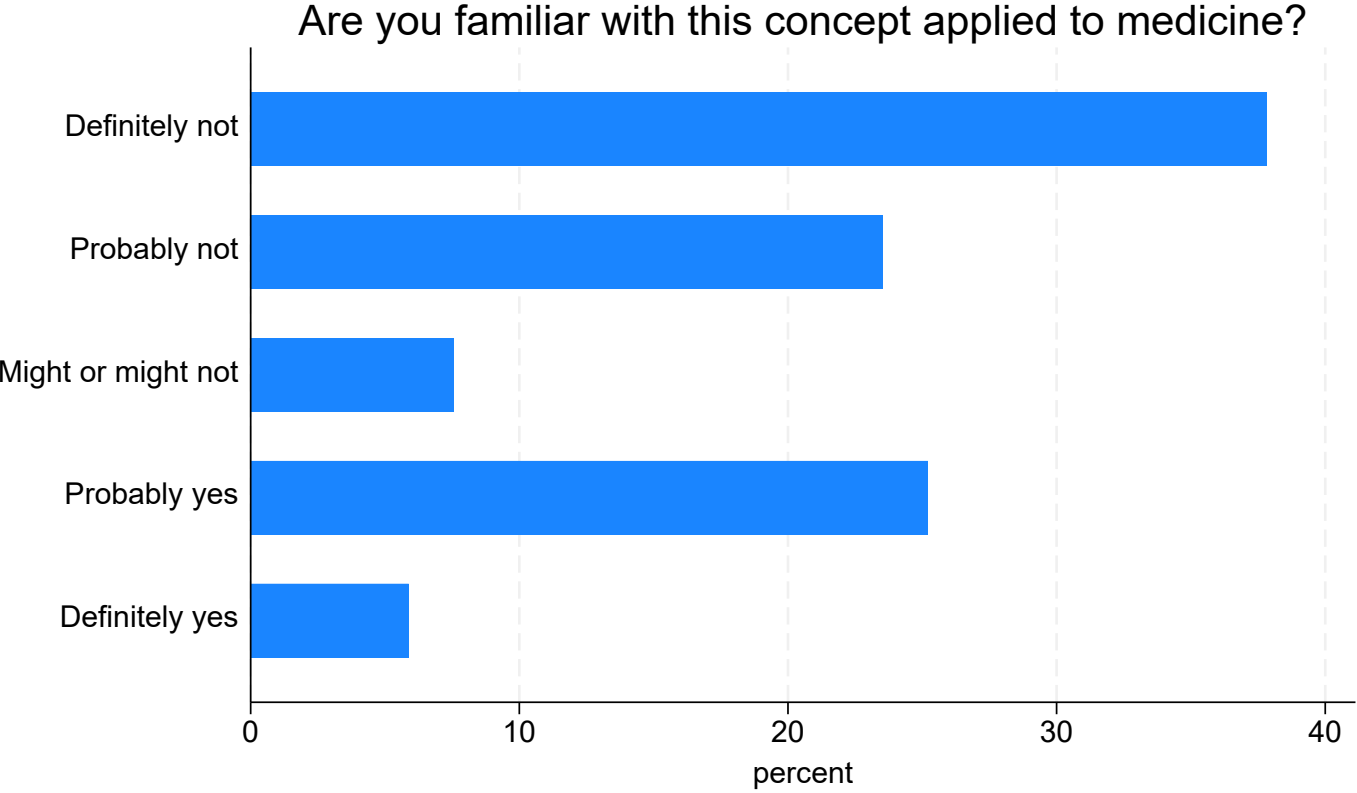
Within the field of smart technologies applied to medicine or food, a **new concept is being designed** that:

- has the potential to be used to cover wounds and release drugs close to the wounds.
- gives researchers and doctors the opportunity of programming the release of the drug in combination with mechanical movements or covering of wounds.
- it can be ingested (like food) or delivered at the hospital.

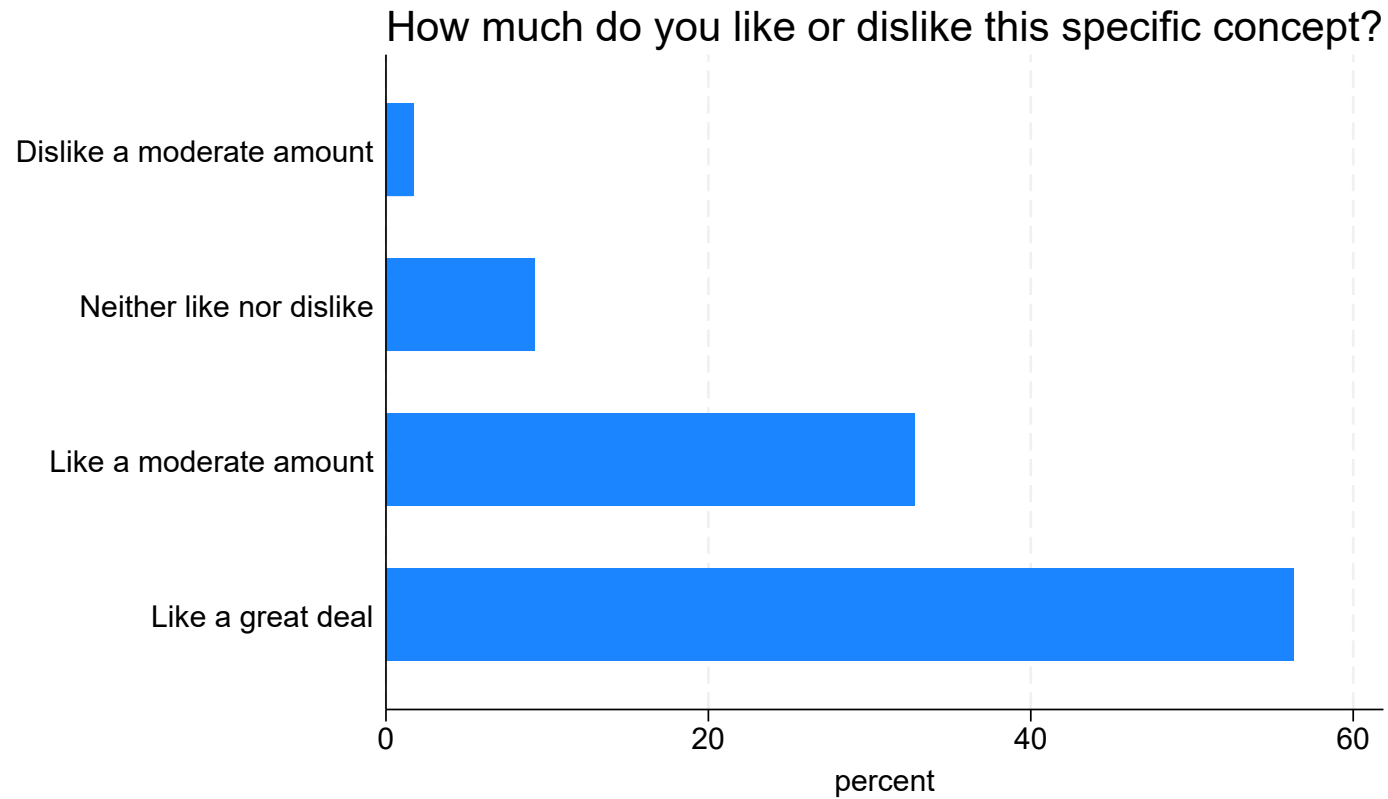
Please watch this short clip. After this, you can continue with the survey.



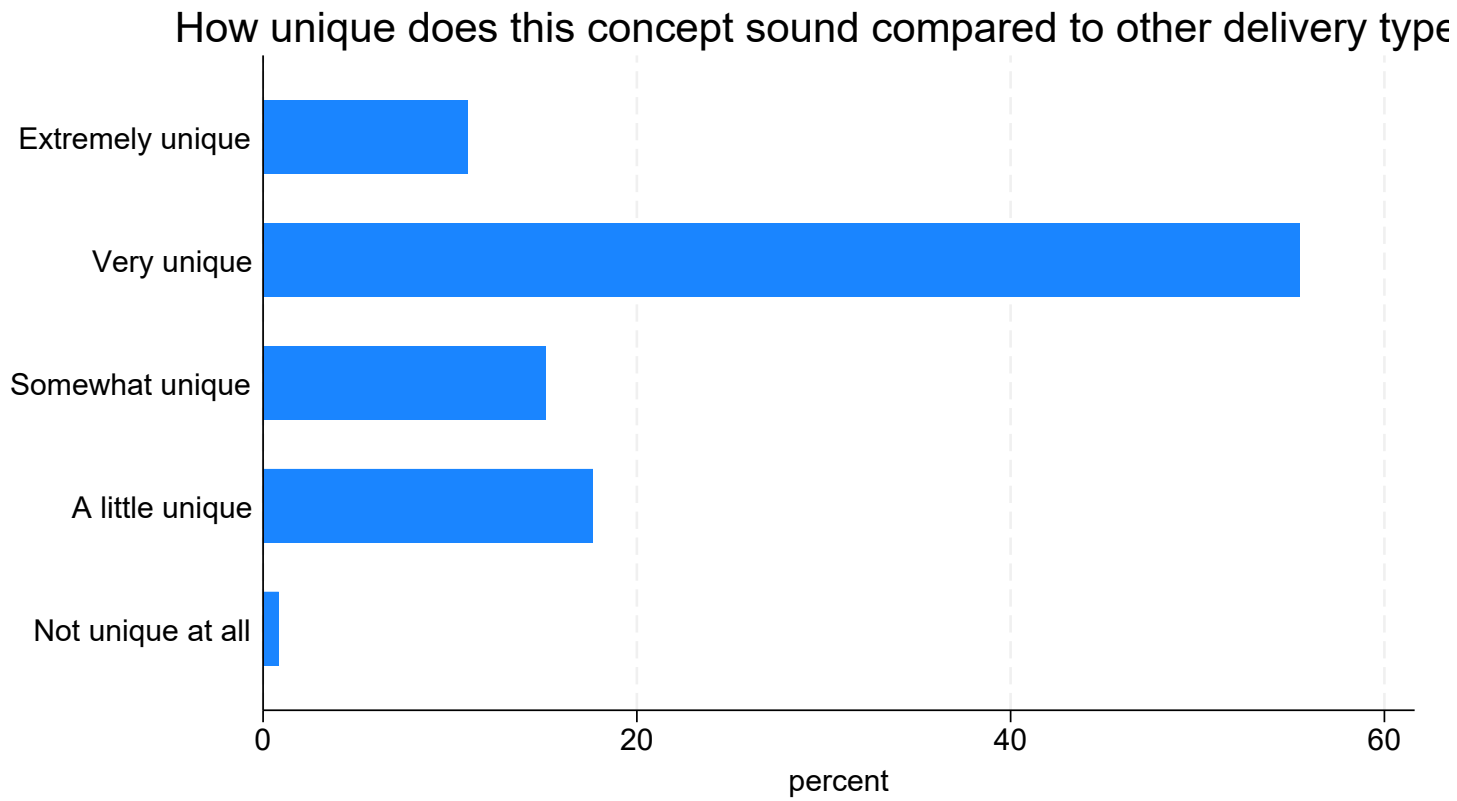
Are you **familiar** with this concept applied to medicine?



How much do you **like** or dislike this specific concept?



How **unique** does this concept sound compared to other delivery types currently available?



And much **more...** in terms of consumer acceptance

- How appealing would this concept be compared to other medicine delivery types currently available?
- How believable would you think it is to develop this concept in the next years?
- How relevant is this concept to you or someone you know, personally?
- What do you like MOST about this concept?
- What do you like LEAST about this concept?
- What specific concerns do you have about this concept? Anything that comes to mind is relevant, take your time to write all of them down.

Work in progress

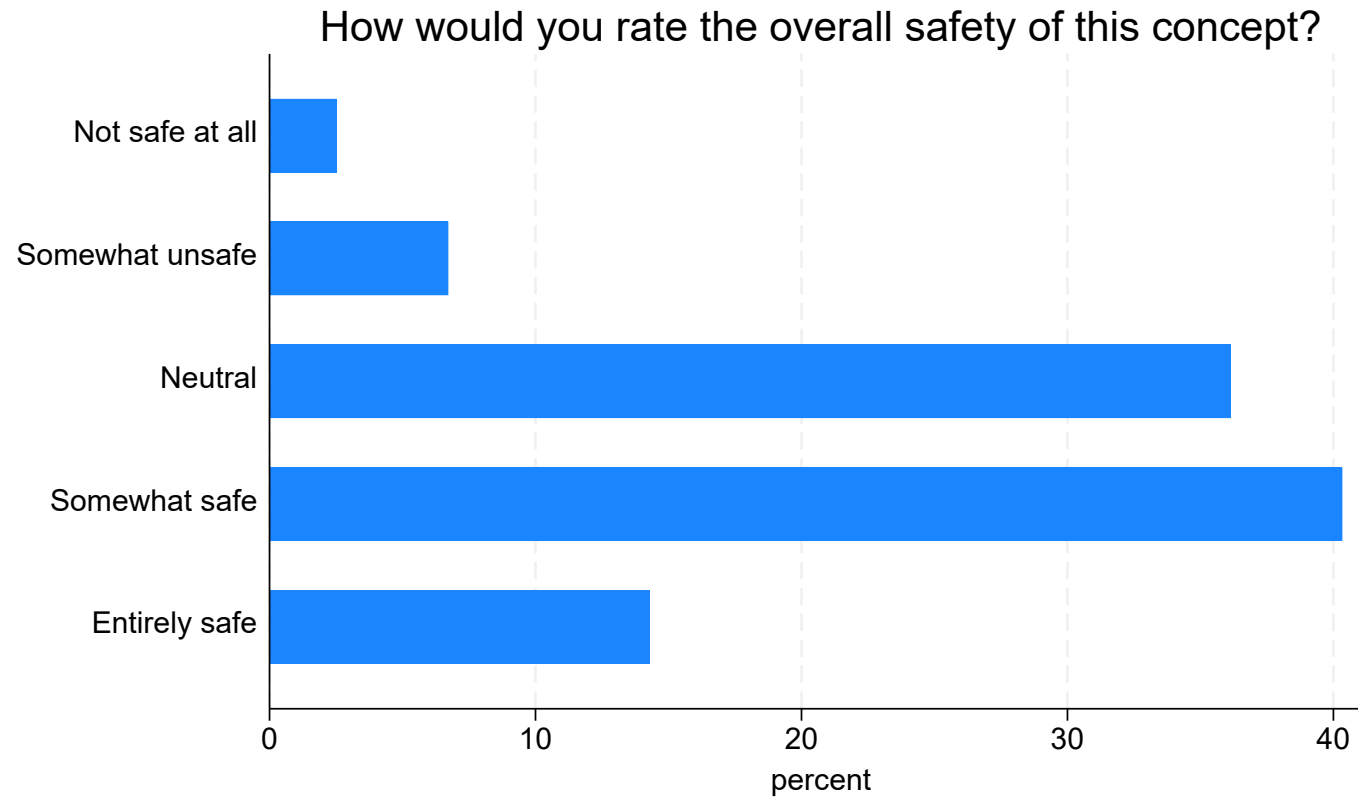
Risk Perception



What specific **concerns** do you have about this concept? Anything that comes to mind is relevant.

1. **Effectiveness and Precision:** concerned about whether the medication will be released precisely at the correct location in the body, as intended. They also worry about the possibility of premature or delayed release.
2. **Safety and Biocompatibility:** questions about the safety of the materials used (e.g., origami structures, microchips) and whether they are digestible or could cause harm if they don't break down properly. Concerns were also raised about potential side effects, bodily reactions, and long-term impacts of ingesting these materials.
3. **Privacy and Security:** Respondents express concerns about the privacy implications of microchips and whether these could be read or manipulated externally. The potential for misuse or unintended data access was mentioned.
4. **Cost and Accessibility:** A significant number of people are worried about the cost of this technology and its accessibility, as high prices could create inequality or limit patient access. The need for insurance coverage and doctor willingness to prescribe it was also highlighted.
5. **Reliability and Testing:** Respondents question whether the technology has been adequately tested for reliability, especially in varied health conditions or different demographics. They want assurance of thorough, long-term testing before use.
6. **Environmental Impact:** Some respondents mention concerns about the environmental impact of manufacturing and disposing of these materials, especially if they are not fully digestible or biodegradable.
7. **Personalization and Applicability:** A few responses highlight the need for treatments to consider individual differences (e.g., age, health conditions) and question if this technology would be universally applicable or only suitable for specific diagnoses.

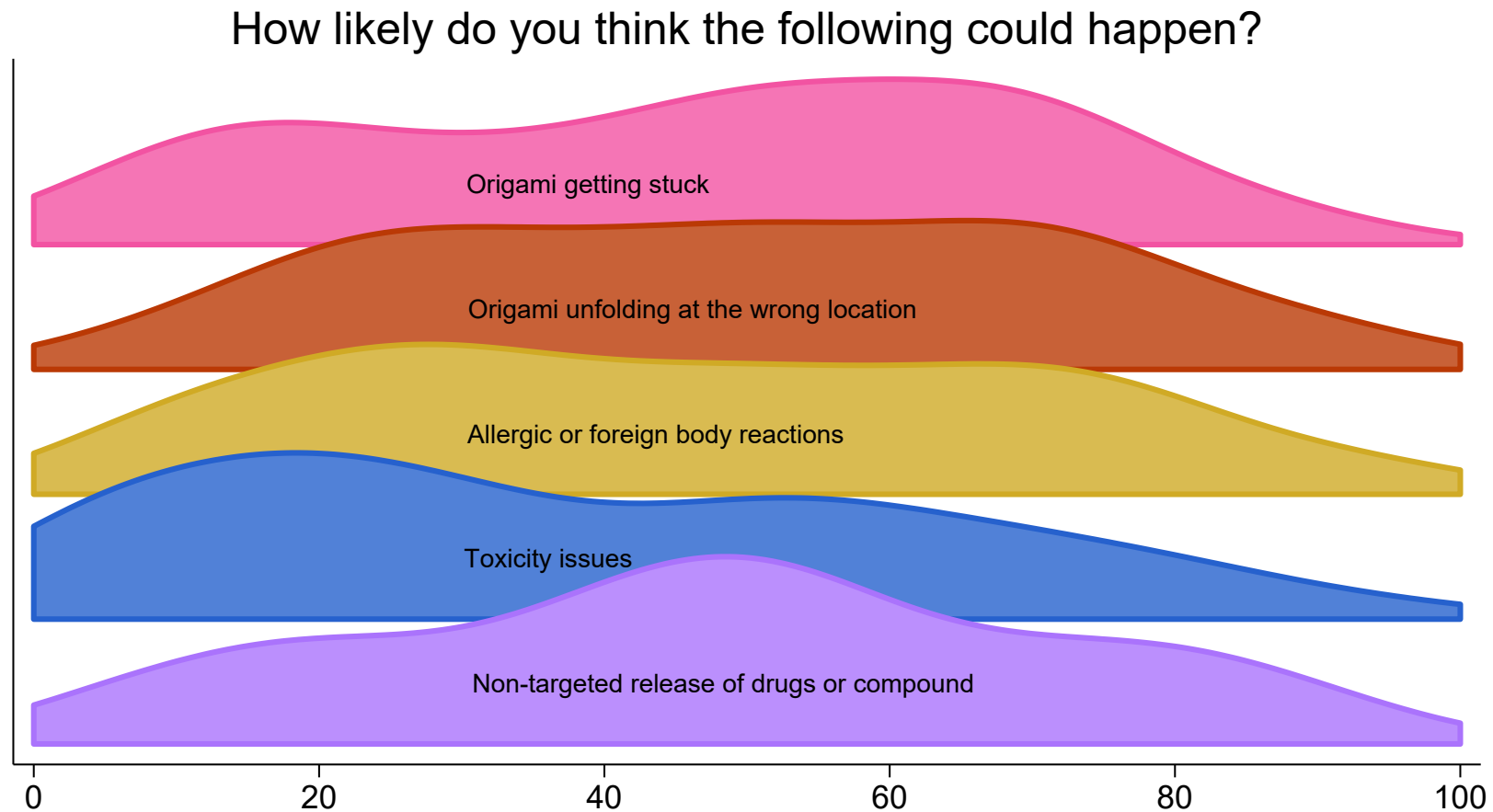
How would you rate the overall **safety** of this concept?



Can you elaborate on the specific **risks** you associate with this concept?

- Release in the wrong location
- Premature activation
- Failed activation or unfolding
- Capsule getting stuck
- Allergic reactions to materials
- Toxicity or incomplete breakdown of materials
- Unintended data access or manipulation
- Blockage of blood vessels or intestines
- Incorrect dosage

How **likely** do you think the following could happen when this concept is brought into practice?



Please order the following drug delivery methods in order of **safety**

	Safest 1	Safest 2	Safest 3
1 st	Patch	Direct injection into bloodstream (syringe)	Patch
2 nd	Tablet/pil (oral)	Tablet/pil (oral)	Smart origami concept (oral)
3 rd	Suppositories	Suppositories	Suppositories
4 th	Direct injection into bloodstream (syringe)	Patch	Tablet/pil (oral)
5 th	Smart origami concept (oral)	Smart origami concept (oral)	Direct injection into bloodstream (syringe)



In conclusion, consumers:

- Generally have a **positive** attitude towards smart technologies
- Perceive **medical** applications > food applications
- Do have some potential **reservations** in general
- Perceive the smart origami concept as **novel** and **unique**
- Despite voicing various potential **concerns**, perceive it as (relatively) **safe**
- Do list various potential **risks**, with **likelihoods** all over the place