

The Influence of Child Food Packaging Design on Perceptions of Kenyan Consumers: Conjoint Analysis Combined with Eye Tracking

Ina Cramer¹, Iris Schröter¹, Diba Tabi Roba², Hussein Tadicha Wario², Marcus Mergenthaler¹

1 South Westphalia University of Applied Science, Soest, Germany

2 Center for Research and Development in Drylands, Marsabit, Kenya

cramer.ina@fh-swf.de, schroeter.iris@fh-swf.de, dibasht1@gmail.com, husein.tadicha@crdd-kenya.org, mergenthaler.marcus@fh-swf.de

Corresponding author: Ina Cramer, Lübecker Ring 2, 59494 Soest, Germany; cramer.ina@fh-swf.de

ABSTRACT

Locally manufactured, healthy and affordable child foods based on traditional recipes have the potential to improve the high child malnutrition rates in African drylands. Professional, informative packaging is needed by women groups manufacturing such foods to access the formal market. With the aim of identifying suitable packaging designs, a conjoint experiment was combined with eye tracking. 16 packaging designs were created (D-efficient design), randomly displayed and their attractiveness rated by 98 participants. Overall, the results indicate that child food packaging designs displaying food safety marks and detailed nutritional information could help Kenyan consumers to build trust in the offered product. Consumers gain information from pictures displaying the product's ingredients as well as a logo composed using the colours of the Kenyan flag. The picture of a cute cartoon animal helps consumers identify the product as child food.

Keywords: nutritional choices; malnutrition; convenience foods

1 Introduction

Child malnutrition is a widespread problem in African drylands. Those affected are hindered from developing their individual potentials. Thereby development opportunities of entire countries are reduced (Bagriansky, Champa, Pak, Whitney, & Lailou, 2014). This is accompanied by irreversible negative health effects and intensified poverty (Adebisi et al., 2019). Malnutrition is, among other factors, caused by caring practices that are not clearly linked to income (Herforth & Ahmed, 2015).

Particularly in peri-urban areas, a nutrition transition takes place. By that, commercially available, diverse packaged child foods are increasingly used in child feeding (Debela, Demmler, Klasen, & Qaim, 2020) but do not sufficiently address the issues of food and nutrition insecurity. Also food safety and quality concerns increase as traditional supply chains elongate and become more complex (Reardon et al., 2021).

Concurrently, local women groups produce healthy, affordable child foods based on traditional recipes that they would like to sell for income, but have currently only access to simple, clear plastic bags and no professional, informative packaging that would allow them to enter the formal market (Roba, personal communication, 2021).

Beside its basic functions of containing and protecting products, packaging is an important vehicle for branding and communication. Packaging uses a range of attributes such as colours, shapes, symbols and messages (Silayoi & Speece, 2004; Silayoi & Speece, 2007). These design elements influence consumers' purchase decisions in store and are a key factor in the success of product marketing strategies (Rettie & Brewer, 2000), especially when consumers have to choose between similar products (Gómez, Martín-Consuegra, & Molina, 2015). Consumer intention to purchase depends on the degree to which consumers expect that the product can satisfy their expectations about its use (Kupiec & Revell, 2001).

If the package communicates high quality, consumers frequently assume that the product is of high quality. If the package symbolises low quality, consumers transfer this “low quality” perception to the product itself (Silayoi & Speece, 2004; Underwood, Klein, & Burke, 2001). The package becomes the symbol that communicates favourable or unfavourable implied meaning about the product. Underwood et al. (2001) suggest that consumers are more likely to spontaneously imagine aspects of how a product looks, tastes, feels, smells, or sounds while viewing product pictures on the package.

The increasing importance of packaging from a marketing perspective, especially in self-service establishments, was emphasised by various authors (Peters-Teixeira & Badrie, 2005; Rettie & Brewer, 2000). However, because of the influence of culture on communication, the communicative features of global packaging designs are less effective than product designs adapted to local levels and cultures (van den Berg-Weitzel & van de Laar, 2001). With regard to food packaging designs for child food, it should be taken into account who decides on the purchase of these foods. While the availability and distribution of resources within households in Kenya impacts the decision making abilities of women, various researchers agree that women are generally responsible for nutritional decision making which includes the purchase of child food (Bikketi, Ifejika Speranza, Bieri, Haller, & Wiesmann, 2016; Brunson, Shell-Duncan, & Steele, 2009; Muraya, Jones, Berkley, & Molyneux, 2017).

Conjoint analysis has been widely used in marketing research to determine consumer preferences product attributes (Backhaus, Erichson, Gensler, Weiber, & Weiber, 2021), including products in the food sector (Alphonse & Alfnes, 2012; Oenning, Guimarães Junior, & Medeiros, 2018; Silayoi & Speece, 2007). The basic idea of conjoint analysis is to decompose consumers' overall preference for a product into preferences for attribute levels. The attributes included in a conjoint analysis should cover those most relevant to potential consumers and that can be influenced or manipulated by the producer. The attribute levels should represent what is realistic and feasible, but should be limited to the most important ones from a methodological perspective (Backhaus et al., 2021). In the case of packaging design, one attribute that could be influenced by the producer might be colour, which could have the attribute levels red, green, and yellow; another attribute might be a specific food certificate with the attribute levels present or not present. The aim of conjoint analysis is to calculate the utility contribution (partworth) of each attribute level, i.e., in the aforementioned example, the part-worth of each colour included and the presence or absence of the certificate, to the total utility the product has for the consumer. This knowledge allows to simulate the expected most successful product on the market by combining the attribute levels with the highest part-worths (Backhaus et al., 2021).

However, it is not possible to deduce from the results of a conjoint analysis whether all packaging attributes included in the conjoint analysis have really been included in the decision-making process (Meyerding, 2018). It is known from eye-tracking research that different packaging attributes attract visual attention to varying degrees (Fenko, Nicolaas, & Galetzka, 2018; Piqueras-Fiszman, Velasco, Salgado-Montejo, & Spence, 2013; Sielicka-Różyńska, Jerzyk, & Gluza, 2021). Certain packaging attributes may not receive any visual attention at all, i.e., these elements are not visually fixated (Meyerding, 2018). Fixations can be described as gaze patterns in which the eyes remain relatively still over a period of time and are focused on a small area. It is assumed that the visual system mainly takes up information during fixations and that cognitive information processing follows visual information processing (Geise, 2011). This implies that attributes that are not fixated are not processed cognitively and thus cannot contribute to the decision-making when evaluating a product. Eye-tracking can valuably complement a conjoint experiment on packaging design by revealing participants' visual attention to packaging attributes, thereby providing reliable information on how potential consumers visually process packaging attributes (Meyerding, 2018).

Since data on the influence of packaging design on perception and choices of child food from Kenya is rare, the present study aims to reveal Kenyan parents' packaging preferences by conducting a traditional conjoint analysis combined with eye tracking.

2 Data and Methods

2.1 Pre-study

A pre-study was conducted in Marsabit, Kenya, to determine the study’s stimuli, i.e., the types of child food included and the specification of the design elements (attributes) and their characteristics (attribute levels) (Cramer, Schröter, Roba, Wario, & Mergenthaler, 2021). In this pre-study, data about bestselling and unpopular child foods and consumers’ main reasons for accepting or rejecting the mentioned products was collected and analysed. Packaging designs were analysed for their visual content and, additionally, members of a local women group producing different plant based child food products, were interviewed about local preferences related to child food and its packaging.

In collaboration with the women group, porridge was chosen as the product to be tested in the present study since in Kenya, cereals and porridges are regularly consumed by children. Photos of the bestselling versus unpopular cereals and porridge packagings were analysed and relevant packaging attributes and their varying levels were identified as stimuli for a conjoint analysis. Additionally, logos were developed in coordination with a local women group producing child food and included in the study. For the conjoint study, 16 stimuli (D-efficient design) were derived from this groundwork (Table 1).

Table 1.
Attributes & attribute levels of conjoint analysis

	Colour	Background Element	Logo	Nutritional Information	Kenyan food safety mark (KEBS mark)	Image of Cute Animal
Level 1	Red	Ribbon	Shape of Africa, child	Traffic light label	Yes	Yes
Level 2	Blue	Oval	Shape of Kenya, colours of the Kenyan flag, child	Detailed nutritional information	No	No
Level 3	Yellow	Rectangular	Shape of Kenya, colours of the Kenyan flag, mother & child	No		

Based on these stimuli, 16 different images of child food packaging were created, each showing a brown paper bag with a white sticker. On the white sticker, the elements for the conjoint study as well as images of the porridge’s ingredients were shown (Figure 1). The porridge ingredients were the same on each packaging design and thus are not included in the conjoint study.



Figure 1: Examples of images of child food packaging used in conjoint analysis

2.2 Participants details

A convenience sample was drawn from consumers in different neighbourhoods of Marsabit town, Northern Kenya. Instead of trying to recruit respondents that correspond in their socio demographic structure to the Kenyan population, the focus was to target a specific part of the population, namely buyers of child food. Therefore, predominantly mothers were approached.

98 consumers were briefed on the nature and context of the research and completed the study in December 2021. Guidance and help was offered by an assistant who read and, if necessary, translated the questions and possible answers to illiterate respondents and those not fluent in English. The intrinsic motivation of participants was seen as important and therefore a remuneration in the form of food was offered to respondents only once the data collection was completed.

65 % of participants stated that they were currently taking care of children, 17 % said that they are in the near future planning to take care of children, 17 % were neither currently taking care of children nor planning to do so and 1 % did not answer the question.

2.3 Data collection method

The study consisted of the eye tracking study, and an online questionnaire that included a traditional conjoint experiment (TCA). As the monitoring of eye movements and participant's attention to the stimuli is more instinctive and stimulus-driven when they have not been given a task or asked a question (Meyerding, 2018), the study was performed in two steps.

During the first step, the eye tracking study, participants were shown the 16 different images of child food packaging which were created for the conjoint experiment (c.f., section 2.1). The images were displayed in a randomised order on a computer screen. Each image was displayed for 8 seconds and a white screen was shown for 2 seconds in between images. The hardware used to record the eye tracking data was a myGaze remote eye tracking device (binocular ET, sampling rate 30 Hz, manufacturer SMI Senso Motoric Instruments) and the Eyevido Cloud software was used to store and process the data. All attributes included in the conjoint study, with the exception of colour, were defined as Areas of Interest (AOI) to analyse the respondents' gaze behaviour in these areas, i.e., the number of fixations per AOI (fixation count), the time to first fixation and the fixation duration.

During the second step, respondents answered a questionnaire and took part in the conjoint experiment. The survey questionnaire consisted of four major parts. The first section was designed to obtain information about the socio-demographic profile of respondents and included the following indicators: Gender, age, place of residence (rural / urban), type of material used to build walls of the respondent's home (as a proxy for economic prosperity), if they do / did / or plan to take care of children. The second part inquired about the food purchasing frequency of participants and their interest in the origin of packaged food. Chen's (2007) adopted version of the food neophobia scale (FNS), a psychometric instrument used to assess the willingness to eat and explore new food was used and respondents were asked to express their level of agreement on a scale from 1 to 5, with 1 representing the minimum and 5 the maximum level of agreement. The positive items were reversed before the final data analysis. Part four of the questionnaire explored respondent's health consciousness and their willingness to satisfy the nutritional needs and desires of their children by asking them to express the frequency of their respective choice on a scale from 1 to 5.

During the conjoint experiment, the 16 packaging images were shown in a randomised order to respondents who rated them in terms of the perceived attractiveness of the packaging designs on a scale of 1-10 with 10 representing the highest level of affirmation.

2.4 Statistical analysis

Statistical analyses were conducted using Stata Version 16.1 and Excel. Since not all participants answered all questions, all analyses were conducted using the maximum amount of information available. The sample size is reported for each analysis.

The Eyevido Cloud software used to record the data calculates the eye-tracking quota for each participant, which indicates the ratio of valid eye-tracking data to faulty data. While all 98 respondents participated in the eye-tracking study, only the data of those 81 respondents who had an eye-tracking quota of $\geq 70\%$ was further analysed.

3 Results

3.1 Socio-demographic results, food purchase behaviour, FNS and interest in nutrition

86 % of participants were females, 9 % males and 5 % provided no information about their sex. The average age of participants was 39.11 ± SD 12.83 years. The majority of participants, 89 %, lived in towns, 8 % in villages or other rural areas and 3 % did not answer the question. 55 % lived in a house with cement walls, 38 % in a house with walls consisting of loam or mud walls, 6 % in one built from corrugated iron sheets and 1 % provided no answer. These answers suggest that the socio-economic status of the respondents is slightly better than that of the population of Marsabit County, where 56% of inhabitants are categorised as ‘food poor’, meaning they lack the funds to meet their minimum basic food consumption needs (Kenya National Bureau of Statistics, 2018).

The vast majority of those respondents who were taking care of children (n=63) answered that they buy more than once weekly child food (98 %), packaged food (89 %) as well as packaged child food (87 %) (Figure 3).

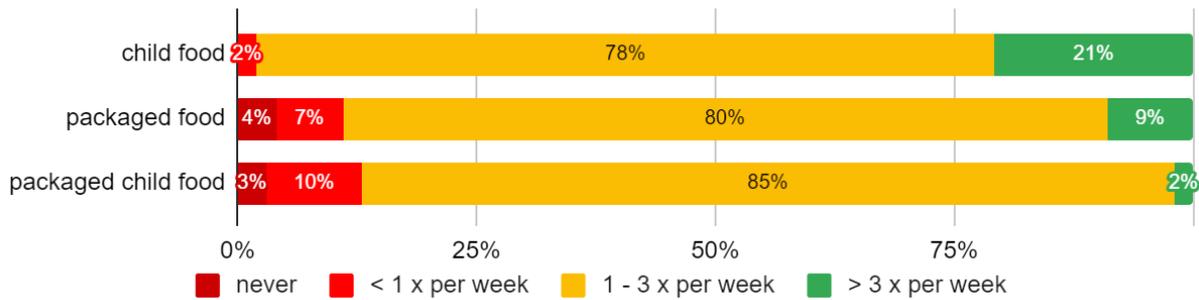


Figure 2: Responses re frequency of food purchases

26 % of the respondents were interested in the origin of the packaged food products they buy, while 70 % were not interested in this and 4 % did not answer the question. 94 % of participants would like to buy more Kenyan food products, while 2 % would not like to do this and 4 % provided no answer. (n = 98 for both questions).

The computation of the results from participant’s expression of agreement or disagreement on a scale from 1 to 5 to the items on the food neophobia scale (FNS) revealed the mean FNS score for the sample is 3.21. “1” represented the minimum and “5” the maximum level of agreement and a “3” therefore mean neither agree- nor disagreement. The result of 3.21 therefore indicates that the sample can be defined as being mildly food neophobic (Table 2).

Table 2. FNS scores

	Mean	Standard deviation
I do not trust new foods.	3,77	1,25
I am constantly sampling new and different foods (R).	1,96	0,91
I am afraid to eat things I have never had before.	3,50	1,49
I will eat almost anything (R).	2,88	1,62
If I do not know what is in a food, I won’t try it.	3,97	1,32
n=96	3,21	1,52

The majority of respondents expressed, that they very often or always read the nutritional information on the packaging (80 %), keep their children’s’ development in mind when choosing foods (94 %), are concerned about the quality of the foods they consume (99 %), prepare additional meals according to the preference of their children (92 %) and are influenced by their children regarding their decision on meals served to the family (71 %) (Figure 4).

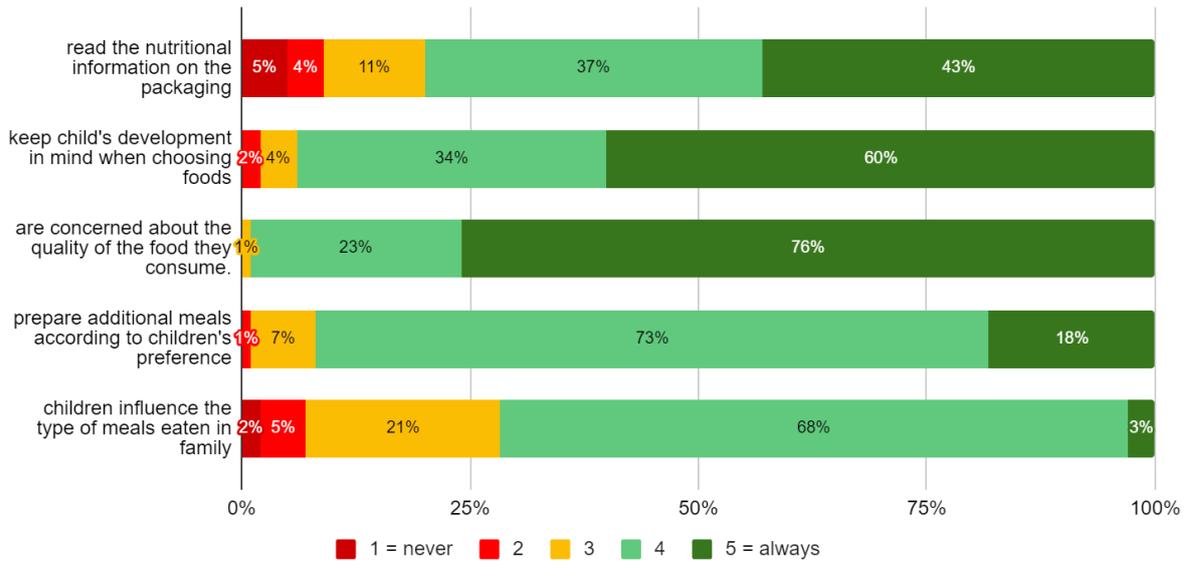


Figure 3: Responses: Expression of health consciousness and willingness to satisfy the nutritional needs and desires of their children

3.2 Qualitative eye tracking results

Results from the qualitative analysis of the eye tracking are in the form of heat maps. Heat maps visualise how intensely recipients fixate different areas of a stimulus using the colour spectrum from red (highest fixation intensity) over yellow (moderate fixation intensity) to green (least fixation intensity) (Djamasbi, 2014).

The analysed heat maps display the focus of visual attention for all participants. The heat maps reveal that not only the defined AOIs were of interest, but also the images of the porridge ingredients displayed at the bottom of the packaging (Figure 2).

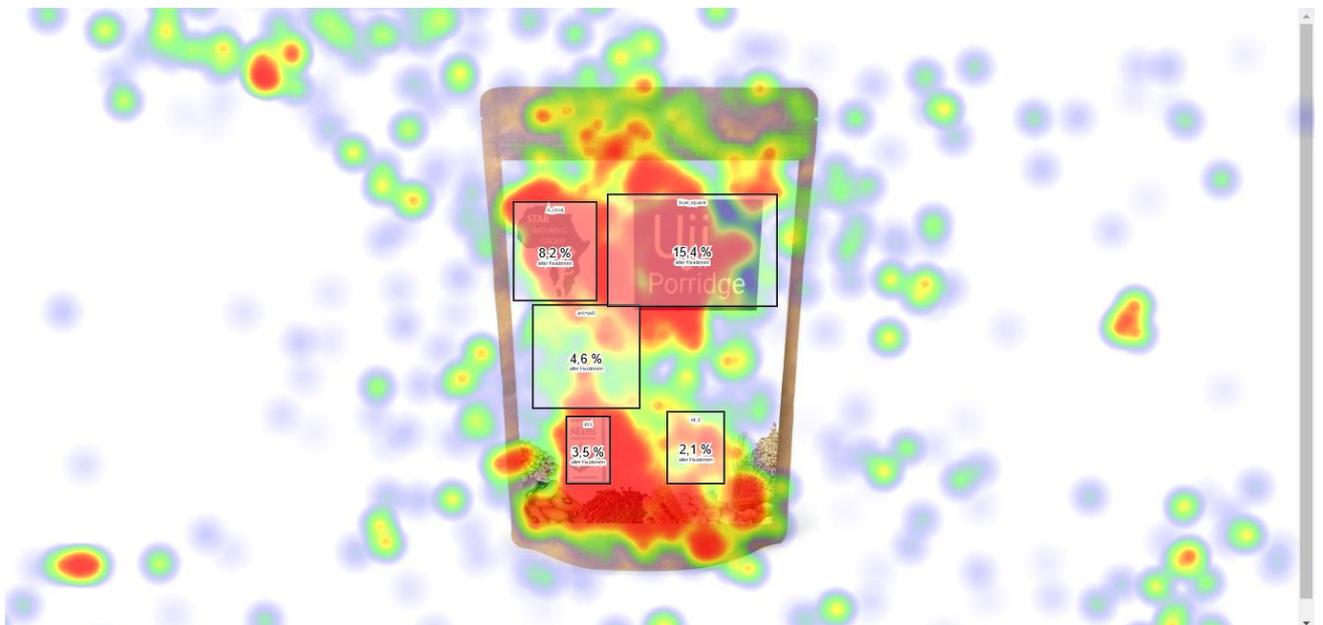


Figure 4: Example of image of a heat map

3.3 TCA results, quantitative eye tracking results and comparison between the two

During the traditional conjoint analysis, the 98 respondents each viewed 16 images, resulting in a total of 1568 observations.

The rating of packaging designs ranged from 6.46 (SD 0.55) for the lowest rated to 8.83 (SD 1.41) for the highest rated design. The design’s influence on the evaluation of attractiveness was significant, as shown by the regression model ($R^2 = 0.21$, $p < 0.001$).

The colour “blue”, the background “oval”, the logo “Africa + child”, the nutritional information “no nutritional information”, the Kenyan food safety mark “no Kenyan food safety mark” and the image of cute animal “no image of cute animal” were the attribute levels chosen as the base categories in the regression analysis to calculate the part-worth utilities in the traditional conjoint analysis. The part-worth utilities of these attribute levels are therefore set to zero. The part-worth utility of the other attribute levels can be interpreted based on these base categories.

Determining the relative importance of design elements, the Kenyan food safety mark (KEBS mark) had the highest relative importance, followed by the nutritional information. Of less relative importance were the pictorial representation of a zebra, the logo, colour and background element (cf. tab. 3). Of the Kenyan food safety mark levels, the display of the KEBS mark had the highest part-worth utility with a coefficient of 1.40, while the base category with no mark was 0.00. The display of detailed nutritional information generated a part worth utility of 0.96 followed by the traffic light label (abridged display of nutritional information) (0.88) and the base category with no nutritional information (0.00).

The illustration of a zebra generated a part worth utility of 0.28, followed by a logo displaying the shape of the country Kenya and the colours of its flag together with a child (0.24). Of the colour design attribute levels, red generated the highest part-worth utility (0.13)

The quantitative results from the eye-tracking study show large variations between the analysed attributes and their attribute levels in all four categories of eye-tracking metrics: the number of users with at least one fixation (“seen”), the average time to first fixation, fixation duration and visit count.

The background element was the attribute that, independently from its attribute level, caught the most attention: More than three quarters of respondents saw it, it was the first element they looked at, the duration of fixation was the longest and the visit count the highest.

After fixating the background element, respondents fixated the area, in which the image of the cute animal was displayed or not displayed, before fixating the logo. The areas displaying the nutritional information and the KEBS mark were fixated last. The fixation duration and the visit counts follow the same pattern. However, if no cute animal is displayed and no KEBS mark, respondents fixated the respective areas for a shorter period of time and returned less often to fixate them again (Table 3).

The eye tracking results correspond with the part-worth utilities of the TCA in those attributes, when a ‘no’ option was included as attribute level. The blank space (‘no’ option) received the least visual attention and had the lowest part worth utility (Table 3).

Table 3.
Comparison of the different attribute levels by conjoint analysis and eye-tracking

Traditional Conjoint Analysis (TCA)					Eye-tracking Study (ET)							
Attribut	Attribute Level	Coefficient	Std. Err.	P-value	Number of participants: 81							
					Seen		Time to First Fixation*		Duration of Fixation*		Visits	
					Mean	SD	Mean	SD	Mean	SD	Mean	SD
Colour	Red	0,13	0,10	0,205								

	Yellow	0,05	0,09	0,561									
	Blue	0,00											
Background element	Ribbon	0,09	0,10	0,377	0,77	0,42	2,11	1,86	1,26	1,45	1,94	1,73	
	Rectangular	0,01	0,10	0,890	0,80	0,40	2,27	1,73	1,24	1,76	2,08	2,18	
	Oval	0,00			0,79	0,41	2,20	1,82	1,18	1,35	1,93	1,71	
Logo	Kenya + child	0,24	0,09	0,009	0,55	0,50	3,15	2,15	0,53	0,88	0,96	1,15	
	Kenya, mother + child	0,10	0,10	0,346	0,57	0,50	3,33	2,22	0,53	0,81	1,00	1,18	
	Africa + child	0,00			0,52	0,50	3,41	2,30	0,61	1,02	0,92	1,30	
Nutritional information	Detailed information	0,96	0,10	< 0.001	0,47	0,50	3,74	1,98	0,37	0,58	0,73	0,93	
	Traffic light label	0,88	0,10	< 0.001	0,46	0,50	5,14	7,54	0,37	0,60	0,69	0,91	
	No	0,00			0,23	0,42	4,23	2,76	0,12	0,29	0,28	0,56	
Kenyan Food Standard Certificate	Yes	1,40	0,08	< 0.001	0,34	0,47	4,70	3,49	0,23	0,45	0,44	0,68	
	No	0,00			0,21	0,41	4,52	4,26	0,10	0,27	0,25	0,52	
Image of cute animal	Yes	0,28	0,08	0,001	0,63	0,48	3,18	2,32	0,57	0,82	1,22	1,32	
	No	0,00			0,35	0,48	3,15	3,49	0,19	0,39	0,54	0,89	
	Constant	6,00	0,13	< 0.001									

* seconds

4 Discussion

Since data on the influence of packaging design on perception and choices of child food from Sub-Saharan Africa is rare, the present study aims to reveal Kenyan parents' packaging preferences.

Our data confirms that parents or caretakers from the very remote Northern Kenyan town Marsabit in our sample are economically active and buy on a regular basis, at least once weekly, packaged child food. This observation is in line with Keding's (2016) research in the rural areas of Kenya and Tanzania and her conclusion that the nutrition transition with its increasing consumption of convenient and packaged foods has reached remote areas.

The results of the conjoint analysis indicate that the Kenyan food safety mark (KEBS mark) is the most important attribute and respondents found porridge packaging displaying it to be attractive. The vast majority of respondents in our study expressed their health consciousness, their willingness to satisfy the nutritional needs and desires of their children as well as their concerns about the quality of the foods they consume, which supports the impact of the KEBS mark. The visual attention the KEBS mark received is further indicating its relevance. The concerns about the quality of consumers' food and the impact of the KEBS food safety mark is in line with descriptions of various food safety concerns in Sub-Saharan Africa as well as the increased risk perception associated with income growth and urbanisation in the region (Ortega and Tschirley 2017). Past studies from Nigeria and Malaysia found that food safety certification marks increase consumers' trust in a product's food safety and influence their buying decision (Jaiyeoba, Abdullah, & Dzuljastri, 2020; Mohd Nawi & Mohd Nasir, 2014). A study from Kimilili, Kenya, discovered that Kenyan consumers favour products displaying a food safety standard certification mark like the KEBS mark, which is widely known to Kenyan consumers and was identified by 92 % of consumers in Kimilili (Mulama, 2011).

According to the conjoint analysis, the second most important element for respondents is the display of nutritional information, whereby the detailed nutritional information was slightly more important than the traffic light label containing only the basic nutritional information. The importance the display of nutritional information has on consumers is supported by the information received from the questionnaire in which the majority of respondents stated that they very often or always read the nutritional information on the

packaging of food products. This is endorsed by the eye-tracking data, which shows higher shares of seen, longer fixation duration and more frequent visits when nutritional information is displayed as compared to no nutritional information on the packaging. The influence nutritional information has on consumers and their purchase decisions is not unique to Kenya but supported by studies from Botswana, India and Canada (Kealesitse & Kabama, 2012; Kumar & Kapoor, 2017; Macall, Williams, Gleim, & Smyth, 2021).

As 68% of the inhabitants of Marsabit county have no formal education (Muyaka, 2018) it remains unclear however how 80 % of the study's participants read the nutritional information very often or always when making purchase decisions. This leads to the assumption that at least a part of them cannot fully comprehend the written information on the label but instead use the pictorial elements to derive nutritional information. Many Kenyan manufactured products display no or incomplete written nutritional information (Cramer et al., 2021) and the display of detailed nutritional information might suggest food quality to an illiterate person and build trust in the product (Choudhury, Mukherjee, & Datta, 2019).

The high number of fixations at the bottom of the sticker on the paper bag displaying pictures of the various ingredients of the porridge can be seen as a further indicator for the general interest in the product's ingredients and its nutritional information. While the pictures served solely a decorative purpose for the research team, the respondents' interest indicated that they had a meaning for them especially since the packaging images contained, beside the pictorial display, no other information about the porridge's ingredients.

The display of a cute animal, in this case a zebra looking like a cartoon character, also leads to a higher level of attractiveness in the case of packaged child food - also confirmed by the eye-tracking data. Elliott & Truman, (2020) found that such cartoon characters are commonly used with the goal to persuade potential buyers –in this case parents or caretakers- as well as consumers –in this case children- that food packages displaying such characters contain food specifically made for children. It can be assumed that the importance of the display of a cute cartoon animal on child food packaging is especially high in a location like Marsabit town, where it can help not fully literate consumers to identify child food items.

The expressed desire to buy more Kenyan food products might explain that the logos that were composed using the shape of the country Kenya as well as the colours of the Kenyan flag were of higher importance than the one in the shape of Africa. The desire itself is however contrary to the finding of Nandonde and Kuada (2016) from Tanzania who wrote “that domestic consumers do not necessarily prefer locally made products.” Kenian consumers therefore seem to be more home-country centred than Tanzanians. The results of the conjoint analysis are in this case not reflected in the eye-tracking results.

Our analysis does not link the two datasets formally but finds similar results for the conjoint analysis and the eye-tracking data in cases where a 'no' attribute level was included, but no relation when all attribute levels included pictorial elements and a blank space was not part of the attribute levels. When Meyerding (2018) combined an eye-tracking experiment and a choice-based conjoint analysis he found “no significant relationship between the part-worth utilities and the eye-tracking measures in any case”. According to Meyerding, this indicates that significant relations between the results of eye tracking experiments and conjoint analysis occur only in top-down situations, when participants are forced to make decisions but not in bottom-up situations, when they are not (2018). However, in our case the eye tracking analysis did not require participants to follow a task or answer questions, meaning their gaze behaviour can be described as stimulus driven or bottom-up perception.

The results from the eye tracking part of our study indicate participants' interest in the child food ingredients, as there are many fixations on the bottom of the packaging where the images of the porridge's ingredients are displayed.

The eye-tracking metrics indicated that participants looked at the package starting at the top (background element and logo), before moving on to the bottom of the packaging image (cute animal, then KEBS mark and nutritional information). This gaze behaviour could be described as a Z-pattern, a gaze pattern that recipients normally use to get a quick overview of a website (Geise, 2011; Hernandez & Resnick, 2013). Since the stimuli, i.e., the packaging, were presented on a computer screen, the participants might have applied this gaze pattern to quickly grasp the visual information.

It is not clear why they fixated the background element the longest; but a reason could be that they tried to decipher the product description written there. This assumption is supported by remarks of Geise (2011) that increased visual attention may be an indication of increased cognitive load and thus possibly of too much complexity in the information provided. We are also unable to explain why, according to the eye-tracking metrics, the logo and cute animal were sooner and more often looked at than the KEBS mark and nutritional information, which both had a much higher part-worth utility. It can be assumed that due to the fact that the

KEBS mark is widely known in Kenya (Mulama, 2011), respondents were immediately able to identify it but found the other design elements more interesting to look at as they were new to them. The same might be true for the display of the nutritional information; respondents saw it, had difficulties to read it, either because of illiteracy or because of the small font so paid very little further attention but moved on and rather looked at those elements that were not made up of written words. It may have further played a role that the arrangement of the packaging attributes in combination with the presentation on a computer screen encouraged the participants' gaze to follow a Z-pattern (cf. Hernandez and Resnick 2013) and that both the nutritional information and the KEBS label were outside the typical scan path for this gaze pattern.

Food neophobics show the tendency to avoid novel food products and this is a general concern regarding the market introduction of new products. However, Fenko (2019) states that perceived product familiarity might reduce the level of rejection and it is therefore important to highlight the familiarity of a new product by i.e. focusing on well known ingredients. According to this finding, the women group should choose a packaging highlighting the familiar aspects of their porridge instead of focusing on the health benefits of unfamiliar ingredients.

5 Conclusions

A general concern about the quality of consumed foods, paired with a high level of health consciousness requires local Kenyan producers to gain consumers' trust. The part-worth utilities of the traditional conjoint analysis applied in this study as well as the eye tracking results indicate that respondents rate child food products as attractive if they display a widely acknowledged food safety mark as well as detailed nutritional information on their packaging.

Additional elements present on the packaging of Kenyan child food should be an image of a cute animal to help not fully literate consumers identify the product as child food as well as –in the case of products manufactured in Kenya- a logo composed using the colours of the Kenyan flag to indicate the Kenyan origin of the product.

It is recommended to also include pictures of the products' ingredients when designing the child food packaging as this helps especially illiterate consumers to identify the product's ingredients.

The limitations of the study must be taken into consideration: The sample group does not ensure a representative distribution of the population of either Marsabit county or Kenya, since it consists mostly of mothers and respondents were approached in Marsabit town but not in the rural areas.

It can also be assumed that including a local assistant in the process helping with translations and technical access may have resulted in a desirability bias and influenced the answers provided by respondents.

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