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Food-like Onomastic Features, Packaging Affordances, Design Prototypicality and Risk in Personal Products

Ayorinde S. Oluyemi, Oluwafemi S. Adelabu, E. Bankole Oladumiye Adelabu

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Ayorinde S. Oluyemi[1], Oluwafemi S. Adelabu[2], E. Bankole Oladumiye Adelabu[3]

[1] Federal University of Technology (FUTA), Industrial Design, Akure, Nigeria, Nnamdi Azikiwe University Awka, Anambra State, Nigeria, https://orcid.org/0000-0002-2743-2992

[2] Federal University of Technology (FUTA), Industrial Design, Akure, Nigeria, https://orcid.org/ 0000-0002-1080- 4083

[3] Federal University of Technology (FUTA), Industrial Design, Akure, Nigeria, https://orcid.org/ 0000-0002-0001-546X

Email: so.ayorinde@unizik.edu.ng

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Abstract

This study examines the nexus between food-like onomastic features, packaging affordances, design prototypicality, and risk in non-edible personal products like liquid soap. Thus, investigating the interplay of product naming (food-like vs. non-food-like) and packaging form (dispenser presence/absence) on perceived edibility and hazardousness, motivated by concerns over consumer safety risks from confusing packaging. 80 participants (balanced gender, age 13-14) from Ekiti and Ondo States, Nigeria, rated stimuli on edibility/hazardousness (0-9 scale). Reasons include rising accidental ingestion incidents [although such has been widely reported to have happened in Nigeria], packaging cues' role in perceptions, and gaps in understanding naming-affordance interactions. In the findings, food-like names without dispensers signal higher perceived edibility (M=8.0), posing confusion risks; dispensers reduce perceived edibility and hazardousness for food-like named products. Statistical analyses (Kruskal-Wallis $\chi^2(3, N = 80) = 9.99$, $p = .019$; $F(1,76)=5.31$, $p=.02$) confirm packaging-naming interactions shape risk perceptions, aligning with conceptual fluency and categorization theories. Results stress harmonizing naming and packaging design for safer non-edible products; atypical packaging with food-like cues risks confusion, necessitating careful design guidelines.

Keywords: Packaging Design, Naming, Affordances, Prototypicality, Hazard

Introduction

Communication through packaging has become more challenging for brands, since the number of products that are offered in a supermarket has doubled every ten years (Cross, 2000). Accordingly, the competition in the market can be in the form of fighting for attention, thus leading to various forms of creative, unusual, and provoking signals through the packaging design. This rivalry often leads to innovative, sometimes provocative packaging designs that deviate from the norm, aiming to stand out. However, this trend raises concerns, as vulnerable consumers - rather than manufacturers - often bear the brunt of such aggressive marketing strategies. This should be a concern to designers as stakeholders in packaging design who work with these design elements. Thus, the present study examines how product names (e.g., food-like names like "milk" vs. non-food names like "soap") affect perceived edibility of non-edible personal products by using research participants in Ondo State and Ekiti State. Although there has not been significant public concern or media coverage on the matter in this study area within Nigeria (Oluyemi et al., 2024a, p.537).

The proliferation of food-like names for non-food products poses risks. A striking example is Fabuloso, a cleaning product accidentally ingested by nearly 100 people in 2006 in the United States of America due to its appealing presentation, highlighting the dangers of straying from prototypicality, i.e. conventional packaging norms (Bouillé et al., 2014, p.72).

Prototypicality or typicality in packaging refers to the extent to which an object's characteristics align with a product category's norms, shaped by factors like form, shapes, colours, materials, typefaces, layouts, and illustrations commonly associated with the category (Hung & Chen, 2012, p.82; Oluyemi et al., 2024, p.555). These prototypical elements facilitate easy identification, leveraging cognitive ease for consumers (Oluyemi et al., 2024, p.555). Deviation from prototypical packaging - atypicality - can convey novelty, innovation, and creativity, capturing attention in modern markets (Hung & Chen, 2012, p.89). However, atypical designs risk inducing misconceptions about product nature or edibility (Oluyemi et al., 2024a, p.538). The challenge arises when vulnerable consumers encounter such a product brand for the first time, especially when the names, packaging, or shapes are confusing or resemble other products (Oluyemi et al., 2024, p.538). For instance, a brightly colored multipurpose cleaner with fruit on the label led to 94 cases of accidental ingestion in Texas. From January 1, 2006, to April 20, 2006, there were 112 records found in the Texas Poison Center database listing such product brands as ingested products (Miller et al., 2006, p. 848).

As noted by prior studies in Hung & Chen (2012, p.82), the use of confusing packaging designs and shapes, as well as the creation of distinctively bizarre product names, can lead to misconceptions (Oluyemi et al., 2024a, p. 538). Both images and words are powerful explanatory media; previous studies confirm an effective relationship between them in communication. For instance, through creative language, companies can paint an image of a product to increase its desirability with the use of words (Chen, 2020, p.76); some words are more reminiscent of product categories than other words (Oluyemi, 2021, p.3). Like a product name, such words are not just a printed title: the word or words are used as an identity to aid referencing. These are believed to minimize tasking the brain through easy identification and explanation. On the contrary is the use of confusing packaging designs and shapes, as well as the creation of distinctive product names that can lead to misconceptions (Oluyemi et al., 2024a, p. 538). Onomastic features, referring to the naming aspects of products, play a significant role in shaping consumer perceptions. Product names can evoke associations with food or non-food categories, impacting perceived edibility (Oluyemi, 2021). Package form, including elements like dispensers, serves as an affordance that communicates how a product is interacted with, potentially influencing judgments about the product's nature and edibility. Personal products like cosmetics, toiletries, and certain healthcare items often have packaging that could be mistaken for edible products, posing risks, especially to children. Understanding how product naming (onomastic features) and packaging elements like dispensers influence edibility judgments can inform safer design practices.

Connection Between Package Affordance and Prototypicality as Regards Edibility Judgement

The interplay between packaging design and consumer perception is critical, particularly concerning hazard perception errors and mistaken edibility judgments when packaging evokes inappropriate consumption urges for non-edible products. Such risks underscore the importance of understanding how specific packaging elements, like onomastic features (product naming) and package form – including affordances like dispensers – influence consumer responses, especially regarding edibility judgments. The concept of affordance relates to how object features suggest possible actions to users (Gibson, 1979). For Gibson, affordances are "offerings" or "action possibilities" in the environment in relation to the action capabilities of an actor. People derive i–ference on possible uses of products, a–d hence on their potential performance based on the observation of their physical features, that is,

based on their design. Affordance is the physical constitution of the product (De Benetti, Nicolo Fantoni, Gualtiero Chiarello, Filippo Bonaccorsi et al., 2017, p.712). In packaging, a dispenser could act as an affordance affecting perceived edibility and hazard perception – for example, handle-ability, explained by its importance in performing tasks of pouring and carrying a fluid product to discharge through the nozzle (Mumani, 2018, p.134)"number-of-pages":"1-174","publisher":"Iowa State University","title":"User-packaging interaction (UPI. A dispenser's presence may cue expectations about product usage and handling. This may minimize mistaken edibility judgments for non-edible products if prototypicality is adopted because it seems there are dispenser which typify personal products like liquid soap products. This is the reason for linking affordance and prototypicality together in this study because both are believed to help identification as well as reduce the risk of mistaken consumption. For instance, in De Benetti, Nicolo Fantoni, Gualtiero Chiarello, Filippo Bonaccorsi et al. (2017, p.712), it is declared that not the prior knowledge, which generates expectations in the mind of users, but the design; consumer prior knowledge also plays a role in responses to novel packaging, i.e. atypical packaging. Oluyemi et al. (2025) found that consumers with prior knowledge about trends show more resistance to imitation, meaning familiarity can help consumers adapt to atypical designs. Research suggests packaging atypicality can impact consumer evaluations variably (van Ooijen, 2016; Hung & Chen, 2012), and research on atypical packaging shows mixed outcomes regarding its impact on product evaluation. There's no clear consensus on whether atypical packaging has positive or negative effects on how consumers evaluate products (van Ooijen, 2016), p.22. Thus, there is a need for more studies in this aspect so as to reach a clear consensus **(**van Ooijen, 2016, p.22). According to Hung and Chen (2012), achieving a balance between typicality and novelty is key to gaining higher aesthetic preference among consumers, suggesting designers should aim for the best combination of these elements.

Focus of the Present Study

The present study contributes to understanding by focusing on onomastic features (product naming like food-like vs. non-food-like names) and package form, specifically the use of a dispenser as an affordance, examining their interplay in influencing edibility judgments. By exploring these elements, the study aims to shed light on how packaging characteristics might lead to hazard perception or mistaken edibility perceptions, informing safer packaging design practices (Oluyemi et al., 2025).

Implications for Design and Safety

Understanding the impact of naming and package form elements like dispensers can help designers mitigate risks of mistaken edibility judgments, particularly for products where consumption hazards exist. Insights may guide packaging strategies, balancing appeal with clarity and safety, reducing potential confusion, especially among vulnerable populations like children (Oluyemi et al., 2025; van Ooijen, 2016).

Problem Statement

Previous studies (Buchmüller et al., 2022,p.8; David et al., 2019, p.238; Oladumiye, 2018, p.41; Ayanoglu et al., 2015, p.6; Chou & Wang, 2012, p.146; Basso et al., 2010, p.99; Wang & Chou, 2009, p.10; Mariea, 1989, p.85) show to what extent human error is generally caused by an object's poor design. Most times, this is better referred to as ultramodern design or atypicality in design because of the newness or novelty. Atypicality can be found in design elements such as shape, color, images, typography, layout, and package size, as well as in the use of brand and product names. For example, non-food products might use onomastic and pictorial features like cake, custard, yogurt, strawberry, milk, green tea, banana, orange, honey, butter, apple, and creamer, leading to confusion when these features are used in both text and images for the packaging design of non-edible products (Oluyemi et al., 2025, p.225). The rationale behind such design choices often involves metaphorical associations, such as perceiving hygiene products in terms of food items (Basso et al., 2014, p.2). However, a critical question arises: Do these products, which evoke associations with edibility, pose a risk of being mistakenly consumed? Prior studies suggest that omitting elements that diminish risk perception (e.g., food-imitating features, floral labels) could enable consumers to adopt appropriate safety measures (Buchmüller et al., 2022, p.6). The study outcome of Basso et al., (2014, p.1) reveals that healthy adults can unintentionally categorize a personal care product as something edible when a food-like package is employed to market non-edible and/or dangerous products. While most of the prior studies are concerning image, typeface shape and colour (Ruumpol, 2014, p.55; Vyas & V., 2015, p.103, Chitturi et al., 2019, p.52) the present study examines onomastic features (food-suggestive names, e.g., "milk") and packaging form (specifically, dispenser presence in liquid soap) to understand their impact on perceived edibility and hazard perception. Previous studies have explored food-imitating products and child-appealing packaging (Basso et al., 2014, p.15; with findings indicating vulnerability among juveniles, particularly those under 10, to food imitation effects

due to visual allure and deceptive cues (Oluyemi et al., 2025, p.235). This present study diverges from prior research, manipulating onomastic features (food-like vs. non-food-like names) and packaging form (dispenser presence vs. absence). The research questions guiding this investigation are:

Do packaging form (presence or absence of a dispenser) and product name type (food-like vs. non-food-like) influence perceived edibility and hazard perception? Is there an interaction effect, whereby food-like names potentially increase perceived edibility more when packaging includes a dispenser?

Methodology

Eighty participants (n = 80) are recruited from Ekiti and Ondo States, Nigeria, with a balanced gender distribution and an age range of 13-14 years. Informed consents are obtained from both the participants and their parents/guardians prior to their involvement in the study. The stimuli used in this study are designed using Adobe Photoshop CS5 (see Figure 1).

Figure 1.

Stimuli Design in Adobe Photoshop

Note: These stimuli are packaging designs in the form of bottles designed through a computer application, and the labels are fictional

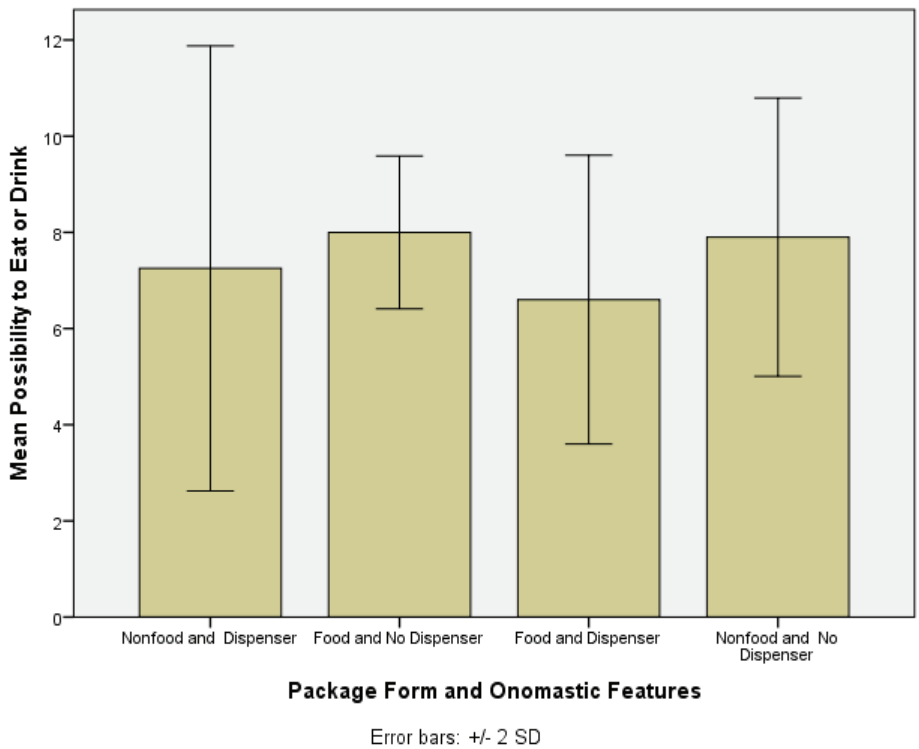
The product names used are in sans-serif. Word formation involving the addition technique is used, i.e., soda + milk = sodamilk (food-like name) and soda + soap = sodasoap (non-food-like name). The term "soda" was selected due to its dual association with both a beverage and a soap product, leveraging its popularity in Nigeria as a soap product name. Accordingly, the experiment employs a 2x2 factorial design, involving two independent variables (factors), each with two levels. Factor 1 is Product Name, namely: Level 1: sodamilk (food-like name) and Level 2: sodasoap (non-food name). Factor 2 is Package Form in terms of Dispenser Presence, namely: Level 1: With Dispenser and Level 2: Without Dispenser. The samples for the conditions (onomastic features and package form) are: Non-food names + No dispenser (n = 20), Non-food names + Dispenser (n = 20), Food-like names + No dispenser (n = 20), and Food-like names + Dispenser (n = 20). Participants rated each product on two scales, namely : edibility (0 = not edible, 9 = highly edible) and hazardousness (0 = not hazardous, 9 = highly hazardous). Participants are shown product images and names in randomized order. They provided ratings for each item on both scales. Data are collected and analyzed using IBM SPSS Statistics 23, including descriptive statistics, two-way ANOVA, Kruskal-Wallis tests, pair-wise comparisons, and estimated marginal means.

Results and Discussion

The result shows that a food-like name on a package without a dispenser signal higher perceived edibility (M=8.0), suggesting care should be taken in packaging design for non-edible products to mitigate potential confusion and ingestion risks. Package form with dispenser presence seems to reduce perceived edibility even with a food-like name (M=6.6 vs M=8.0 without dispenser). Presence of a dispenser (M=6.60, SD=1.501, n=20) might help mitigate mistaken edibility perceptions even for products with food-like names (M=8.00, SD=0.795, n=20). Food with a name labelled on packaging having a dispenser nozzle has a high mean rating and low standard deviation (SD)from the mean (M); thus, indicating a generally high value in edibility judgment with relatively consistent responses among participants. This implies a strong, consistent indication of the outcome (see figure 2).

Figure 2

Mean Ratings and Standard Deviation for the Perceived Edibility



Food-like naming without a dispenser nozzle in packaging yields the highest perceived edibility and thus the greatest misclassification risk. Adding a dispenser seems to reduce that risk — especially when such a product is given a food-like name. That implies a possible design-safety recommendation: adding clear functional cues (e.g., dispensers) may reduce the tendency to see a product as edible, particularly when the brand or name uses food-like terms.

Kruskal–Wallis Test (Independent Samples)

Null Hypothesis (H0): The distribution of edibility scores is the same across categories of package form (dispenser vs. no dispenser) and onomastic features (food-like vs. non-food).

Decision: Since $p < .05$, reject H0 (see figure 3)

Figure 3

Independent Samples Kruskal-Wallis Test for the Perceived Edibility

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Possibility to eat or drink is the same across categories of package from and onomastic features.	Independent-Samples Kruskal-Wallis Test	.019	Reject the null hypothesis.

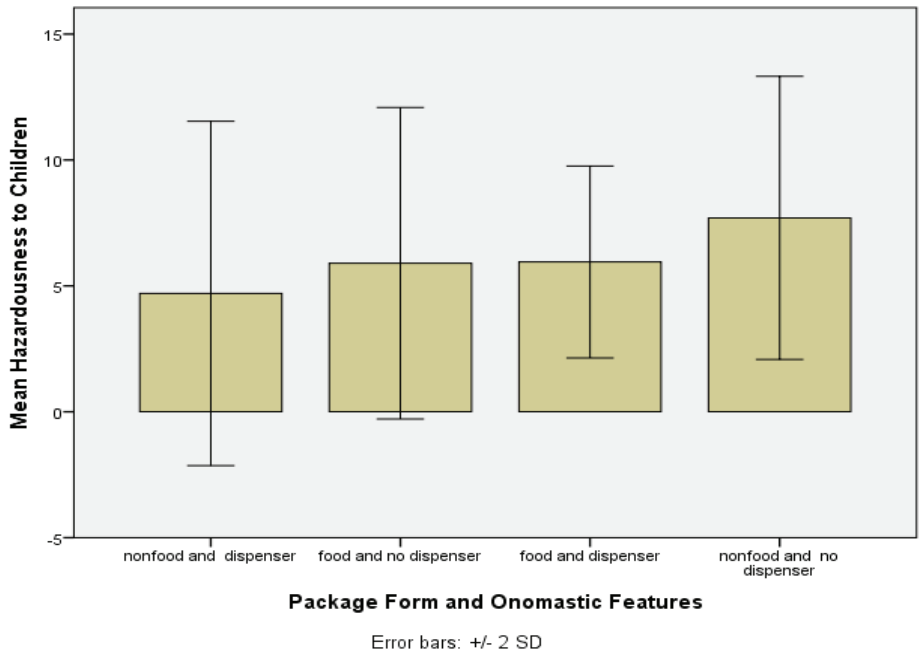
Asymptotic significances are displayed. The significance level is .05.

Kruskal–Wallis test shows a statistically significant difference in edibility scores across the four package conditions, $\chi^2(3, N = 80) = 9.99$, $p = .019$. Post-hoc inspection of mean ranks indicated that packages with food-like names and a dispenser (MR = 27.58) are rated as less edible compared to all other conditions, while packages with non-food-like names and no dispenser (MR = 47.68) are rated highest in edibility. These confirmed group differences across the four conditions, $p = .019$. The significant difference found in the Kruskal-Wallis test shows that edibility scores differed across package conditions ($p = .019$). Overall, although baseline edibility ratings were high (grand mean = 7.44), package form reliably influenced perceived edibility: inclusion of a dispenser reduced perceived edibility. This means that at least one group differs significantly in perceived edibility. The likelihood that consumers perceive a product as edible is not the same across package and naming categories, supporting the idea that there are significant group-level differences in edibility perceptions. Packaging that combines food-like names with no dispenser seems to create the highest misperception of edibility, while introducing a dispenser or using non-food naming reduces this risk. From a safety and design standpoint, this reinforces the concern that atypical packaging (food cues on non-food products) can mislead consumers, justifying a more scrupulous set of design guidelines to minimize such risks.

Overall, the evidence suggests that unusual packaging designs, particularly when non-food products have food-like names and traditional "food-like" packaging (without a dispenser), can confuse consumers into thinking these products are edible.

Figure 4

Mean Ratings and Standard Deviation for the Perceived Hazardousness



A non-food name labelled on packaging having a dispenser nozzle has the lowest hazardousness rating (M= 4.70, SD= 3.420, n=20). The mean of 4.70 suggests participants generally perceived this combination (non-food name + dispenser) as relatively low in hazardousness. While the mean suggests lower hazardousness, the high standard deviation indicates diverse and inconsistent perceptions among participants. This inconsistency can be seen visually in Figure 4, showing that ratings spread widely above and below the mean (4.70). The wide variability (high SD) alongside the mean suggests participants failed to have a uniform view on hazardousness for non-food named products with dispensers, indicating inconsistent perceptions.

Table 1

Descriptive Statistics Perceived Hazardousness

Descriptive Statistics				
Dependent Variable:				
Onomastic feature		Mean	Std. Deviation	N
non-food like name	No dispenser	7.70	2.812	20
	Dispenser	4.70	3.420	20
	Total	6.20	3.443	40
food like name	No dispenser	5.90	3.093	20
	Dispenser	5.95	1.905	20
	Total	5.93	2.536	40
Total	No dispenser	6.80	3.057	40
	Dispenser	5.33	2.805	40
	Total	6.06	3.008	80

Non-food name labeled on packaging without dispensers had a higher hazardousness rating (M = 7.7, SD = 2.812, n = 20), whereas food-like names with dispensers (M = 5.95, SD = 1.905, n = 20) and food-like names without dispensers (M = 5.90, SD = 3.093, n = 20) showed moderate hazardousness perceptions with varying degrees of response consistency (see table 1). The high standard deviation for the non-food name with dispenser (SD = 3.420) reflects substantial variability in participant responses, suggesting diverse and inconsistent perceptions of hazardousness, as visually evident in the wide distribution of ratings depicted in Figure 4. Meanwhile, this could suggest dispensers might help signal non-edibility or reduce confusion for non-food products, potentially contributing to safer packaging when combined with clear non-food naming.

The grand mean of 6.06 suggests overall hazardousness perceptions across conditions are moderate (grand Mean is the overall average collapsing across all groups). The 95% CI [5.43, 6.70] indicates that the true population mean likely falls within this range, showing some precision in the estimate given the interval width. The estimated marginal means (EMMs) for hazardousness perceptions differed slightly by name type. For products with non-food names, the mean is 6.2 (*SE*=0.45, 95% CI [5.30, 7.10]). For those with food-like names, the mean is 5.93 (*SE*=0.45, 95% CI [5.02, 6.83]). Estimated Marginal Means (EMMs) represent the means for specific groups/conditions, adjusted for other factors.EMMs help understand the effects

of specific factors (like name type, dispenser presence) relative to the overall grand mean.

The pairwise comparison between non-food and food-like names revealed a non-significant difference (*Mdiff*=0.28, *SE*=0.64, *p*=.67, 95% CI [-1.55, 1.00]). The non-significant pair-wise comparison (*p*=0.669) suggests name type (non-food vs. food-like) does not strongly influence hazardousness perceptions in this context. This is further confirmed by the univariate test for the effect of onomastic feature (name type), which is non-significant, *F*(1,76)=0.18, *p*=.67, ηp2=.002; implying minimal influence on hazardousness perceptions in this study. Even without significance, patterns might inform packaging safety considerations.

Packages with dispensers had lower hazardousness perceptions (*M*=5.33, *SE*=0.44, 95% CI [4.42, 6.23]) compared to those without dispensers (*M*=6.80, *SE*=0.45, 95% CI [5.90, 7.70]). Dispenser presence showed clearer differences in means (6.8 vs 5.325) compared to naming effect, which is subtler: Non-food vs food-like names had closer means (6.2 vs 5.925). The pairwise comparison between the packaging without the dispenser nozzle and the packaging with the dispenser nozzle reveals a significant difference. This implies packages without dispensers are perceived as more hazardous (Mdiff=1.48, SE=0.64, p=.02, 95% CI [0.20, 2.75]) compared to those with dispensers. The univariate test showed a significant effect of package form (dispenser presence), F(1,76)=5.31, p=.02, ηp2=.07, indicating dispenser presence influenced hazardousness perceptions.

Table 2

Interaction of Onomastic Features and Package Form on Perceived Hazardousness - EMMs and 95% CIs

Onomastic feature * Package form					
Dependent Variable: Hazardous to Children					
Onomastic feature	Package form	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Non-food-like names	No dispenser	7.700	.640	6.425	8.975
	Dispenser	4.700	.640	3.425	5.975
Food-like names	No dispenser	5.900	.640	4.625	7.175
	Dispenser	5.950	.640	4.675	7.225

In Table 2, the mean rating of 7.7 compared to 4.7 is a big difference in hazardousness perception when non-food-like names are labeled on the package with or

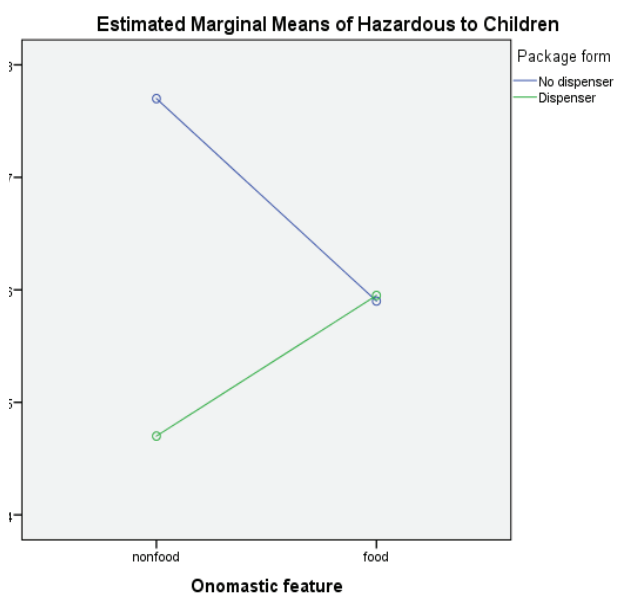
without a dispenser. Unlike food like name labeled on packaging with or without dispenser, which have almost similar means 5.9 vs 5.950). Dispenser presence seems to lower hazardousness perception, especially for non-food names. Possible interaction between dispenser presence and onomastic feature might influence perceptions differently.

Interaction of Name Type and Packaging Form on Hazardousness Perceptions

Profile plot illustrates how name and packaging form combine to influence hazardousness perceptions. The profile plot reveals a statistically significant interaction between product name type (food-like vs. non-food) and packaging form (dispenser vs. no dispenser) in influencing perceptions of hazardousness ($F(df1,df2)=value$, $p<0.05$). This interaction underscores the combined effects of naming and packaging design on shaping consumer risk perceptions.

Figure 5

Profile Plots of Estimated Marginal Means (EMMs) for Hazardousness Perceptions



Key Findings from the plot profile show the following, namely:

No Dispenser Condition: The line ascends from food-like names to non-food names, indicating that non-food names on product packages without dispensers are perceived as more hazardous.

Dispenser Condition: The line descends from non-food names to food-like names, showing that non-food products with dispensers are associated with lower perceived hazardousness.

Interaction pattern: For non-food names, the presence of a dispenser leads to a sharp reduction in perceived hazardousness, illustrating a pronounced interaction effect. The diverging lines (forming a > shape with non-food starting higher without a dispenser, lower with a dispenser) highlight this interplay.

Convergence of Lines: The lines approach/meet, suggesting perceptions align for certain name-packaging combinations, pointing to conditions where packaging and naming jointly shape hazard perceptions.

Do packaging form (presence or absence of a dispenser) and product name type (food-like vs. non-food-like) influence perceived edibility and hazard perception? Post-hoc inspection of mean ranks indicated that packages with food-like names and a dispenser (MR = 27.58) are rated as less edible compared to all other conditions, while packages with non-food-like names and no dispenser (MR = 47.68) are rated highest in edibility. A food-like name on a package without a dispenser signal signals higher perceived edibility (M=8.0), suggesting care should be taken in packaging design for non-edible personal products to mitigate potential confusion and ingestion risks. From a safety and design standpoint, this reinforces the concern that atypical packaging (food cues on non-food products) can mislead consumers, justifying a more scrupulous set of design guidelines to minimize such risks. These findings highlight the dangers of straying from prototypicality, i.e., conventional packaging norms as noted by Bouillé et al. (2014, p.72), Oluyemi et al. (2024a, p.538), and Miller et al. (2006,p.848). This finding is in line with prior studies in Hung & Chen (2012, p.82) about the use of confusing packaging designs and shapes as well as the creation of distinctively bizarre product names leading to misconceptions (Oluyemi et al., 2024a, p. 538).

Adding a dispenser seems to reduce that perceived risk — especially when such a personal product is given a food-like name. This is in line with Mumani (2018, p.134) that in packaging, a dispenser could act as an affordance affecting perceived edibility and hazard perception - for example, handleability, explained by its importance in performing tasks of pouring and carrying a fluid product to discharge

through the nozzle. This matches the finding of this study that non-food products with dispensers are associated with lower perceived hazardousness - meaning that **a** dispenser's presence may cue expectations about product usage and handling. This confirms that packaging design elements, like onomastic features and affordances, significantly impact perceived edibility and hazardousness of non-edible products. This may minimize mistaken edibility judgments for non-edible products if prototypicality is adopted (when dispenser nozzle which typify personal products like liquid soap products are used for the design). People derive inferences on possible uses of a product based on the observation of their physical features, that is, based on their design (De Benetti, Nicolo Fantoni, Gualtiero Chiarello, Filippo Bonaccorsi et al., 2017, p.712). Thus, in this present study, packaging affordances can be detected in elements like dispensers to communicate usage, influencing judgments (De Benetti et al., 2017).

Is there an interaction effect, whereby food-like names potentially increase perceived edibility more when packaging includes a dispenser? The result shows that the package form reliably influenced perceived edibility, i.e., the inclusion of a dispenser reduced perceived edibility, particularly when the brand or name uses food-like terms. Meanwhile, a typical nozzle signifying non-edibility should be used in such a situation. This implies there is an interaction effect. Likewise, the profile plot shows that onomastic features and packaging form interact to influence hazard perceptions, implying product packaging design should consider these factors jointly for effective risk communication. The observed interaction aligns with theories of conceptual fluency and categorization, where packaging form and product naming conjointly affect cognitive processing of product attributes like hazardousness. Findings support the notion that product design elements interactively shape risk perceptions, with implications for packaging design and safety communication strategies in consumer products.

Conclusion

The potent interplay between product naming and packaging form critically influences perceived edibility and hazardousness, unveiling a key design-safety nexus. Notably, food-like names on packages without dispensers signal markedly higher perceived edibility (M=8.0), exposing a heightened risk of ingestion confusion for non-edible products. Conversely, adding a dispenser reduces perceived edibility and hazardousness, especially for products with food-like names (M=6.6 with dispenser

vs. M=8.0 without), underscoring dispensers as pivotal affordances shaping consumer perceptions. Statistically significant interactions ($\chi^2(3, N = 80) = 9.99$, $p = .019$; package form effect $F(1,76)=5.31$, $p=.02$) affirm that packaging design elements jointly modulate risk perceptions, aligning with theories of conceptual fluency and categorization. This yields a compelling design implication: harmonizing naming and packaging affordances like dispensers can mitigate misperceptions and enhance safety, justifying scrupulous design guidelines to minimize risks tied to atypical packaging of non-edible products bearing food-like cues. By integrating insights on prototypicality and affordances, manufacturers can foster safer consumer interactions with personal products.

Key Takeaways from the Study

Packaging-naming interaction influences perceptions; this supports considering these elements jointly for safety. Packaging affordance can be detected from dispensers; it impacts perceptions in terms of prototypicality because the presence of a dispenser is associated with lower perceived hazardousness for non-food products. The use of food-like onomastic features as a label on non-edible personal products highlights the need for packaging design safety because food-like names + no dispenser amount to a higher edibility risk; thus, it highlights packaging design safety implications.

Implications for Safer Packaging Design

Given the findings on Food-like Onomastic Features, Packaging Affordances, Design Prototypicality and Risk in Personal Products, several design considerations emerge for enhancing safety; namely, incorporating dispensers can reduce perceived edibility and hazardousness, particularly for non-edible products with food-like names. Others include: harmonizing product naming and packaging form to mitigate confusion risks, design prototypicality (adhering to category-typical packaging norms may reduce misperceptions), and packaging forms possessing dispensers serve as affordances influencing usage inferences and safety perceptions.

Area of Future Research

Exploring Food-like Onomastic Features, Packaging Affordances, Design Prototypicality and Risk in Personal Products opens several promising research directions:

1. Cross-Cultural Studies: Investigate how cultural differences influence packaging perception and safety in diverse markets like Nigeria, India, or Brazil.

2. Product Category Variations: Examine packaging-safety interactions across product categories (e.g., cosmetics, cleaning agents, pharmaceuticals).
3. Affordance Design Innovations: Research novel packaging affordances that enhance safety signaling without compromising usability.
4. Onomastic Feature Experiments: Conduct experiments manipulating name types and packaging forms to parse their joint effects on perceptions.
5. Consumer Segments and Vulnerabilities: Study vulnerable populations (e.g., children, elderly) and packaging safety implications.
6. Neurocognitive Approaches: Use neuroimaging or eye-tracking to understand cognitive processes underlying packaging perception and risk.
7. Design Guidelines and Standards: Develop evidence-based packaging design guidelines integrating onomastic and affordance considerations for safety.
8. Technology Integration: Explore smart packaging technologies that dynamically communicate safety or usage information.
9. Longitudinal and Behavioral Studies: Assess long-term impacts of packaging design on consumer behavior and safety outcomes.

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