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Research on Risk and Care Evaluation in the Comment Corpus of E-Commerce Platforms

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ABSTRACT

In the digital consumer ecosystem, online reviews for infant products serve as a critical locus for risk communication and caregiving identity construction. This study draws on a corpus of 11,435 consumer reviews of baby cribs collected from major Chinese e-commerce platforms to examine how parents linguistically articulate risk perceptions, evaluate product performance, and communicate caregiving concerns. Adopting a mixed-methods approach that combines Latent Dirichlet Allocation (LDA) topic modeling with manual qualitative coding, the analysis identifies five recurring discourse themes: Odor Risk, Safety Anxiety, Parental Responsibility, Emotional Externalization, and Esthetics & Design. The findings indicate that Odor Risk and Safety Anxiety constitute the most salient sources of parental concern. In particular, sensory cues such as smell, along with installation and assembly experiences, function as key indicators through which parents assess product reliability and potential safety hazards. These cues are frequently embedded in experiential narratives that describe inspection, mitigation, and evaluation processes. Beyond risk assessment, the analysis reveals a consistent narrative pattern in which parents negotiate a transition from initial apprehension to subsequent reassurance through specific discursive moves, including concessive structures and temporal sequencing. Importantly, online reviews are used not only to report product attributes but also to perform responsible parenting roles by demonstrating attentiveness, caution, and care. By foregrounding the interaction between sensory experience, risk evaluation, and affective stance, this study contributes to a deeper understanding of digital parenting discourse in high-involvement consumption contexts and highlights the social

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and communicative functions of online reviews in infant product markets.

Keywords: Online Reviews; Parenting Discourse; Corpus-Based Study; Risk Communication

1. Introduction

Within the digital platform-driven consumer ecosystem, user-generated content (UGC) was a key source influencing purchase behavior and trust formation. Online e-commerce reviews offered factual product information and rich emotional expressions, social cues, and identity markers. In contrast to common durables, baby cribs are closely tied to infant safety and caregiving practices^[1]. Linguistic cues of smell, structural and installation references, and parental terms jointly constructed discourses of risk and trust. This phenomenon calls for a systematic description and interpretation.

In recent years, an increasing number of studies have applied corpus-based approaches to explore consumer reviews and risk communication in the digital context. Zhang et al. used a corpus of apology posts from 53 Chinese companies on Sina Weibo to examine the reasons, characteristics, and acceptance of these corporate apologies^[2]. Sun et al. conducted a systematic review of 453 articles published between 2004 and 2023 to explore how corpus linguistics can assist in stance research, revealing key insights into the evolution of corpus linguistics within this interdisciplinary field. The article suggests that future research should focus on the development of stance in multi-interactive digital communication environments^[3].

With the development of e-commerce platforms, online reviews have become an important source for consumers to obtain product information, evaluate usage experiences, and make purchase decisions^[4]. Extensive research indicates that consumers not only share factual usage experiences in reviews but also express subjective, context-dependent content such as emotions and risk assessments^[5]. For products closely related to child safety, such as cribs, review language is more likely to reflect parents' sensitive reactions to potential risks^[6]. For instance, cues related to odor, material, and structural stability are often regarded as critical indicators of safety and quality. In such product contexts, review texts tend to be more emotional and experiential compared to those for general consumer goods, exhibiting distinct characteristics of risk awareness and caregiving orientation.

While existing scholarship has provided valuable perspectives on understanding consumer expression in reviews from angles such as electronic word-of-mouth dissemination, consumer risk perception, and sensory cues, most studies still focus on the relationship between sentiment and sales^[7], the influence of risk perception on behavior^[8]. Relatively few have examined how the linguistic structure and narrative practices of review texts themselves capture the dynamics of consumers' concerns, judgments, and emotional shifts. Particularly in the highly sensitive category of infant products, there remains a lack of systematic corpus-based research on how parents express feelings of safety or uncertainty in reviews and how they construct narratives of "reassurance" or "concern" through language—a process that remains as yet underexplored^[9].

Building upon this foundation, this study utilizes a corpus comprising thousands of authentic user reviews of crib products from Chinese e-commerce platforms such as JD.com. Through methods including text cleaning, frequency analysis, and thematic analysis, it systematically examines how consumers articulate risk perceptions, evaluate products, and narrate their psychological transition from apprehension to reassurance. By identifying recurrent linguistic patterns within the review texts, the research reveals parents' core concerns and experiential expressions in real-world consumption contexts. The findings are expected to offer valuable insights for understanding consumer priorities in infant product categories, informing product improvement, and contributing to linguistic research in the context of e-commerce reviews.

2. Literature Review

2.1. Key Insights from Research on E-Commerce Consumer Language in Social Media Reviews

2.1.1. Electronic Word-of-Mouth (e-WOM) and Review Corpora

Research on electronic word-of-mouth (e-WOM) has consistently shown that user-generated content plays an im-

portant role in shaping consumers' perceptions, attitudes, and purchasing decisions^[10]. Online reviews provide prospective buyers with access to others' firsthand experiences, allowing them to form expectations before direct product contact. Empirical studies based on large e-commerce platforms indicate that both the volume and overall tone of reviews are closely associated with market performance, with more positive reviews generally corresponding to higher purchase likelihood^[11]. Beyond their economic effects, online reviews also constitute a form of everyday textual production. They are written in relatively informal language, yet they convey evaluations that are meaningful for other consumers. As a result, large collections of reviews can be treated as review corpora that reflect common patterns of description, evaluation, and experience sharing. In this sense, reviews are not only decision aids but also linguistic records of how consumers talk about products in real consumption contexts.

2.1.2. Risk Perception Theory and Its Relevance to Family Consumption Settings

In addition to influencing purchase decisions, reviews are shaped by reviewers' motivations and social positioning. Prior research suggests that consumers write reviews for multiple reasons, including sharing experiences with others, responding to incentives, and expressing a sense of social identity^[12]. These motivations are particularly salient in family consumption settings, where purchasing decisions are closely linked to responsibility, care, and risk awareness. Studies further point out that online reviews exist within a broader communicative environment that includes seller responses and question-answer sections^[13]. In such environments, consumers do not evaluate products solely based on isolated comments but interpret information through interaction and comparison. This is especially relevant for products involving children, where parents actively seek reassurance and confirmation from multiple sources. From a risk perception perspective, reviews in family-related product categories often emphasize potential hazards, uncertainty, and ways to manage them. Parents tend to rely on the experiences of others to assess whether risks are acceptable and controllable. Accordingly, review texts frequently document not only product outcomes but also the process of dealing with concerns, making them a valuable source for examining how risk is perceived and negotiated in everyday family consumption.

2.1.3. Sensory Marketing View: Emotional and Symbolic Effects of Smell Cues

Recent research highlights that consumer evaluations are also influenced by sensory-related descriptions embedded in reviews. Elements such as touch, visual appearance, and smell contribute to how products are emotionally and symbolically interpreted^[14]. Among these cues, smell is particularly prominent because it is often associated with health, cleanliness, and material safety, especially in products designed for infants. Because sensory experiences cannot be directly transmitted online, consumers rely on language to describe them. Reviews thus serve as a medium through which sensory impressions are translated into shared knowledge. Panel-data studies show that such evaluative descriptions, together with the tone of responses, can affect subsequent engagement and participation, reinforcing the social circulation of experiential information^[15]. In infant product reviews, smell-related descriptions often carry emotional weight. References to odor are not merely technical observations but are closely tied to feelings of worry, reassurance, or relief. These descriptions also acquire symbolic meaning, as the absence or presence of smell is frequently interpreted as an indicator of safety and care. Consequently, sensory cues—particularly olfactory ones—play an important role in how trust and concern are constructed within review discourse.

2.2. Appraisal Theory and Role Framework

2.2.1. Theoretical Background and Register Orientation

Perceived risk theory emphasizes that individuals' behavioral choices are shaped by their subjective evaluation of potential threats, rather than by objective risk alone^[16]. These evaluations are commonly influenced by feelings such as fear, uncertainty, and the perceived degree of control over outcomes. In everyday consumption contexts, such judgments are often expressed implicitly through language rather than through explicit risk calculation. When consumption involves children, especially infants, the register of evaluation tends to shift. Parents are more cautious in their wording and more attentive to possible negative outcomes. This caution is reflected in how reviews are written: descriptions frequently foreground potential problems, precautionary actions, and reassurance strategies. As a result, reviews in parenting-related contexts

exhibit a register that combines experiential narration with risk awareness, making them particularly suitable for examining how risk is linguistically framed in everyday discourse. This orientation toward caution and care provides an important background for the present study. Rather than treating reviews as neutral evaluations, it highlights their role as situated texts shaped by the specific responsibilities and sensitivities associated with family and parenting consumption.

2.2.2. The Threefold Division of the Attitude System and Its Presence in Review Corpora

Research in health behavior suggests that emotional states such as anxiety and worry can intensify individuals' responses to perceived risk, making them more sensitive to safety-related information^[17]. In consumer reviews, these emotional reactions are often intertwined with evaluations of product attributes and with judgments of human actors involved in the purchasing process. Within review corpora, attitudes toward products and services are typically expressed in three broad ways: through descriptions of product qualities, through expressions of personal feeling, and through evaluations of responsibility or conduct. These forms often appear together in a single review. For example, a reviewer may describe a product as sturdy, express relief or satisfaction after use, and comment on whether the seller or service staff acted responsibly. In parenting-related reviews, this combination is especially common. Emotional expressions rarely stand alone; instead, they are anchored in concrete descriptions of product performance or use experience. This interweaving of description, feeling, and evaluation contributes to the overall coherence of the review and allows parents to present their judgments as both emotionally grounded and practically justified.

2.2.3. Role Theory and Identity Formation in Consumer Settings

Consumption in family settings is closely tied to social roles, particularly those associated with caregiving. Parents do not simply evaluate products as consumers; they do so as individuals responsible for the well-being of their children. This role orientation influences both what is evaluated and how it is expressed in reviews. In online reviews, this role awareness is often made visible through references to caregiving activities, such as inspecting materials, testing

stability, or observing a child's reaction during use. These references implicitly frame the reviewer as a responsible and attentive parent. Rather than explicitly claiming authority, reviewers demonstrate it through descriptions of careful behavior and decision-making. Such identity formation is not limited to individual self-presentation. Reviews frequently address or anticipate other parents as readers, creating a shared understanding of what responsible consumption entails in parenting contexts. Through repeated patterns of role-related expression, review discourse contributes to the stabilization of recognizable consumer identities tied to family responsibility.

2.2.4. Applying Appraisal Theory to Consumer Discourse and Identity Labeling

Sensory cues play a particularly important role in how risk and safety are discussed in parenting-related consumption. Prior research in sensory marketing indicates that olfactory cues, in particular, can strongly influence emotional responses, product evaluation, and trust formation^[18]. In online reviews, smell is often used as a key indicator of material quality and potential health implications. Because sensory experiences cannot be directly shared online, reviewers rely on language to convey them. Descriptions of odor, texture, or structural feel thus become central linguistic resources. These descriptions are often combined with emotional reactions, such as worry or reassurance, and with implicit judgments about product reliability. Together, they form evaluative sequences that guide readers from initial concern to acceptance or rejection. Applying an appraisal-oriented perspective allows these patterns to be examined systematically. It highlights how consumers label experiences, attribute meaning to sensory cues, and position themselves as competent caregivers. In this way, consumer discourse becomes a site where risk assessment, emotional response, and identity labeling intersect, particularly in high-sensitivity contexts such as infant product consumption.

3. Methodology

3.1. Research Paradigm and Data Acquisition

A combination of Latent Dirichlet Allocation (LDA) and manual coding methods was employed to systematically organize and identify themes within the collected user re-

views of cribs^[19]. The data collection and analysis process consisted of three phases: data preparation, data organization and categorization, and result presentation^[20].

In the data preparation phase, a total of 11,435 publicly available reviews were scraped from platforms such as JD.com using Python scripts. The scraping process extracted fields including review content, timestamp, and rating (An example is provided in **Table 1**; The regional distribution

of partial data is shown in **Figure 1**). Data deduplication, cleaning, and outlier handling were performed, removing blank reviews, garbled content, and duplicate records. To ensure text quality, a purposive sampling strategy was adopted: 200 reviews with clear language and rich information were selected for in-depth analysis, while the remaining reviews were used for word frequency statistics, theme distribution analysis, and supplementary validation.

Table 1. Sample Reviews (Partial).

Review Date	User Nickname/ID	Rating	Review Text
22/10/2024	o***u	5	No smell at all! There was no odor; we used it directly without ventilation. Very reassuring to buy, the size is very satisfying, and it can be used until the baby grows bigger. The baby feels very secure inside and sleeps soundly. The details are well designed, the depth and height can be adjusted, the wheels push smoothly, and it can also be connected to the big bed! Super satisfied!
18/06/2023	Chen***Y	5	I was genuinely amazed when I first received it. It was wonderful. The rocking crib doubles as a playpen for the child, not bad. It is easy to install and dismantle, and can also be placed next to the adult bed, making it convenient to watch the baby and easy to carry outdoors.
23/08/2024	d***0	3	The gap between the rails can easily trap the baby's feet.
06/11/2024	j***w	1	Goodbaby's customer service is inferior and irresponsible. I asked many times whether the "bedside connection adjustment" was possible, and they said yes. After receiving the product, I was told that the adjustment only means the lowest level (almost to the ground). They don't even understand the most basic "bedside connection adjustment." Strongly not recommended!!
02/11/2023	o***6	2	Price protection for 30 days — I placed the order on October 22, but tonight I found the price dropped to 490 yuan. Later, I applied for a price difference refund, but it was rejected because I was given a JD membership. May I ask what a gift is? Something that requires money to buy is not a gift. Isn't this forced bundling of sales? JD customer service and the merchant kept passing the buck, so I had no choice but to call Beijing's complaint hotline to report it!

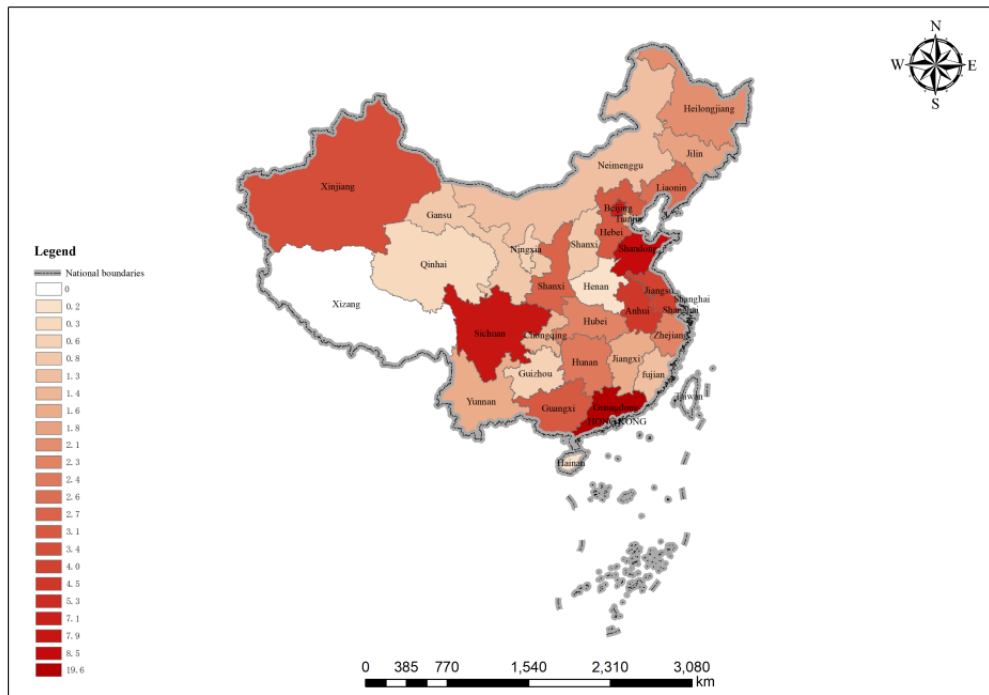


Figure 1. An example of the regional distribution of the corpus set.

During the organization phase, the selected reviews were manually read and annotated line-by-line to identify key expressions related to “safety, odor, material, experiential narrative,” etc. This process involved iterative categorization, revision, and integration to develop a stable thematic framework. Subsequently, Python was used to perform word segmentation, stop-word filtering, and basic text preprocessing. The gensim library was then utilized to implement the LDA topic model, conducting a structural scan of the large-scale review corpus to assist in identifying thematic distributions and keyword aggregation trends.

In the presentation phase, the results from manual coding were compared and discussed alongside the outputs of the topic model to enhance the transparency and credibility of the analysis. Visual charts were used to present word frequencies, thematic strengths, and patterns of narrative features. All data were sourced from public platforms and contained no personally identifiable information. The data were anonymized prior to analysis, and the entire study adhered to ethical guidelines for online text research.

3.2. Pilot Coding and Unit of Analysis

During the preparation phase, the research team conducted repeated readings of the sample data to determine appropriate units of analysis and coding granularity. Sentences and clauses served as the primary units, with refinement to words or phrases when necessary. Non-verbal and cross-linguistic elements (e.g., emojis, brand names, pinyin) were annotated separately as potential indicators of stance and identity. Data-cleaning procedures were established to ensure consistency in subsequent coding. Prior to full-scale coding, 20–40 reviews were randomly selected for pilot coding to refine category definitions, inclusion-exclusion criteria, and procedures for resolving coding disagreements. Following pilot coding, a professor with expertise in corpus analysis conducted a content validity check. Open coding was then carried out using computer-assisted tools, focusing

on emotional expression, safety concern, and role performance. Relevant lexical items, sentence structures, and discourse moves were compiled into an initial code inventory. Through iterative comparison, overlapping codes were consolidated into five primary themes (“safety anxiety,” “odor risk,” “parental responsibility,” “emotional externalization,” and “aesthetics/design”) and associated subthemes. Coding reliability was enhanced through multiple rounds of comparison and selective double coding. A theme matrix was subsequently constructed, with each review tagged by relevant themes to support frequency analysis, visualization, and triangulation with keyword and co-occurrence analyzes.

3.3. Results of Pilot Testing

3.3.1. 1 Preliminary Coding and Theme Profile

The pilot coding of the initial 200 reviews indicated apparent differences in the coverage rates of the five primary themes within the corpus (see **Table 2**). Specifically, “emotional externalization” was identified in 113 reviews (56.5% of the sample); “odor risk” and “parental responsibility” each appeared in 93 reviews (46.5%); “safety anxiety” appeared 52 times (26.0%); and “aesthetics/design” appeared 45 times (22.5%). The findings suggest that crib-related reviews simultaneously emphasized product functionality and safety (e.g., stability, risk indicators) and embedded rich layers of individual emotions and family-role meanings, forming a multi-layered evaluative spectrum that combines “information, emotion, and role.” In this context, “occurrence/coverage” means a review containing at least one mention of the theme. Since themes were coded in a non-exclusive, multi-label manner, the sum of coverage percentages could exceed 100%. To provide a clearer view of theme composition, we also counted the frequencies and proportions of ten subthemes: “sturdiness,” “safety,” “odor,” “pungent,” “wood smell,” “installation,” “spousal involvement,” “positive emotion,” “worry,” and “color/design” (see **Table 3**).

Table 2. Topic frequency distribution.

Theme	Frequency	Proportion (%)
Safety Anxiety	52	26
Odor Risk	93	46.5
Parental Responsibility	93	46.5
Emotional Externalization	113	56.5
Esthetics & Design	45	22.5

Table 3. Frequency and Proportion of Sub-Themes.

Sub-Theme	Frequency	Proportion (%)
Sturdy	44	22
Safety	14	7
Odor	93	46.5
Pungent Smell	1	0.5
Woody Smell	5	2.5
Installation	91	45.5
Spousal Participation	24	12
Positive Emotion	116	58
Emotional Anxiety	6	3
Appearance & Design	45	22.5

3.3.2. Thematic Matrix and Illustrative Review Cases

To illustrate how multiple themes co-occur within individual reviews rather than appearing in isolation, a thematic matrix was constructed for the first ten reviews in the corpus (see **Table 4**). In this matrix, a check mark (“√”) indicates the presence of a given theme in a particular review. This visualization makes it possible to observe how different evaluative concerns are combined within single narratives. The results show that most reviews simultaneously incorporate two or more themes, suggesting that parents rarely evaluate baby cribs along a single dimension. Instead, product assessment typically unfolds as a layered process that integrates functional judgment, emotional response, and caregiving considerations.

For example, Review 1 combines references to aesthetics and design (such as positive comments on color and appearance) with explicit emotional expressions (e.g., “very satisfied”), while also including an appreciation-oriented remark on structural stability (“the crib feels solid”). This combination illustrates how visual appeal, emotional reaction, and perceived safety can coexist within a short evaluative text, collectively contributing to a favorable overall judgment. Review 4 provides a more complex illustration of multi-theme co-occurrence. In this review, concerns about safety are foregrounded through attention to sturdiness and protection, while odor is introduced as a potential risk during initial use. At the same time, the reviewer refers to the lengthy installation process, implicitly invoking parental responsibility and effort. Esthetic considerations are also mentioned,

demonstrating how multiple evaluative strands—risk, labor, appearance, and reassurance—are woven into a single narrative. This pattern reflects a common discursive practice in the corpus, where parents articulate several interrelated concerns rather than presenting a linear or one-dimensional evaluation.

The qualitative analysis further draws on direct excerpts from consumer reviews to strengthen traceability and analytical grounding. For instance, Review 4 states: “Installation took two hours, but it feels solid overall, so I’m not afraid when the baby turns over.” This sentence simultaneously conveys the burden of the installation process and the resolution of safety anxiety through perceived sturdiness. Similarly, Review 7 notes: “The odor was too strong when first opened; we only used it after airing it for three days.” Here, the mention of odor functions as a risk cue, while ventilation is presented as a concrete response that enables eventual use. Together, these elements form a typical “risk cue-response” pairing observed throughout the corpus. Taken together, these examples are consistent with the overall thematic distribution and coding results. They indicate that smell-related cues and installation experiences serve as high-frequency anchors around which evaluations and stance negotiation are organized. In contrast, emotional expressions and references to parental identity operate as supporting linguistic resources, either reinforcing endorsement after concerns are addressed or legitimizing caution when risks remain unresolved. This co-occurrence pattern highlights the inherently multidimensional nature of baby crib evaluations in online review discourse.

Table 4. Theme Matrix of the First 10 Comments.

Comment No.	Safety Anxiety	Odor Risk	Parental Responsibility	Emotional Externalization	Appearance & Design
1		√		√	√
2		√	√	√	√
3		√	√	√	√
4	√		√	√	√
5		√		√	√
6		√		√	√
7			√	√	√
8			√	√	√
9		√		√	√
10		√	√	√	√

3.4. Main Analysis

3.4.1. Analytical Procedure

Based on the full sample of 11,435 reviews, the optimal topic number (k) was identified by jointly assessing topic coherence (c_v , higher is better) and held-out log-perplexity (lower is better). Assessment of various k values revealed that c_v decreased overall with higher k : it reached a relative maximum (0.51) at $k = 5$ and then steadily declined to ~ 0.44 at $k = 20$. Held-out log-perplexity was locally optimal at $k = 5$, but did not improve, even deteriorated (values increased, approaching 0). As the two indices capture different aspects, relying on a single indicator would not produce a reliable conclusion. To address this, we standardized the two measures and unified their directions. Then, we computed a weighted composite score (the calculation formula is below).

$$\text{Score}(k) = \frac{1}{2} z(c_v(k)) + \frac{1}{2} z(-\log \text{Perplexity}(k))$$

Results showed that $k = 5$ reached the optimal balance, consistent with the pilot analysis: it preserved higher coherence while keeping held-out perplexity relatively low. Thus, $k = 5$ was chosen as the final topic number for this study. The perplexity values reported here are held-out log-perplexity, which is the opposite of some studies that report raw perplexity values (smaller is better). To ensure comparability, we standardized and aligned the directions during composite score calculation (see Figure 2).

We visualized them with bar charts to provide a preliminary estimate of thematic proportions (see Figure 3). The unit of analysis was word tokens rather than the number of reviews, so the summed occurrences of themes may exceed the total review count.

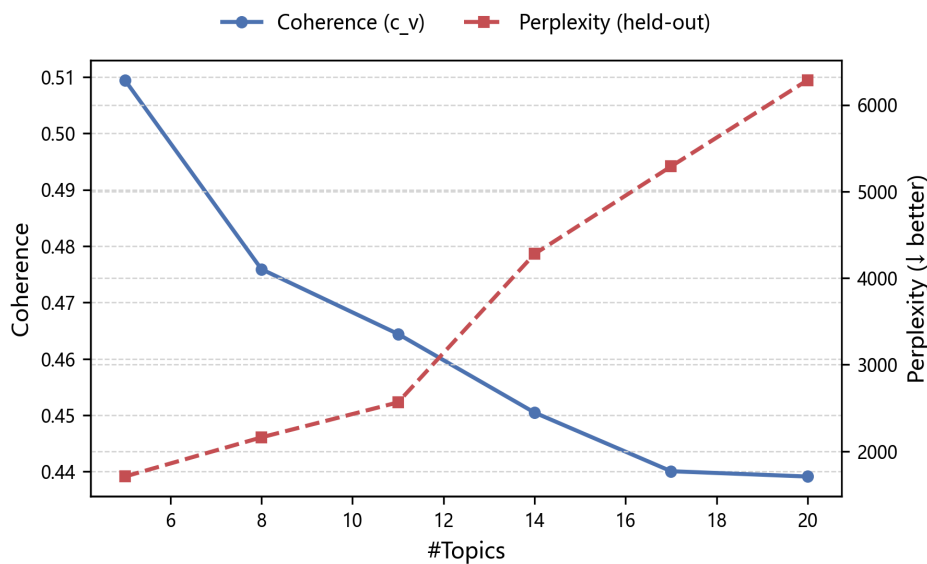


Figure 2. LDA theme determined.

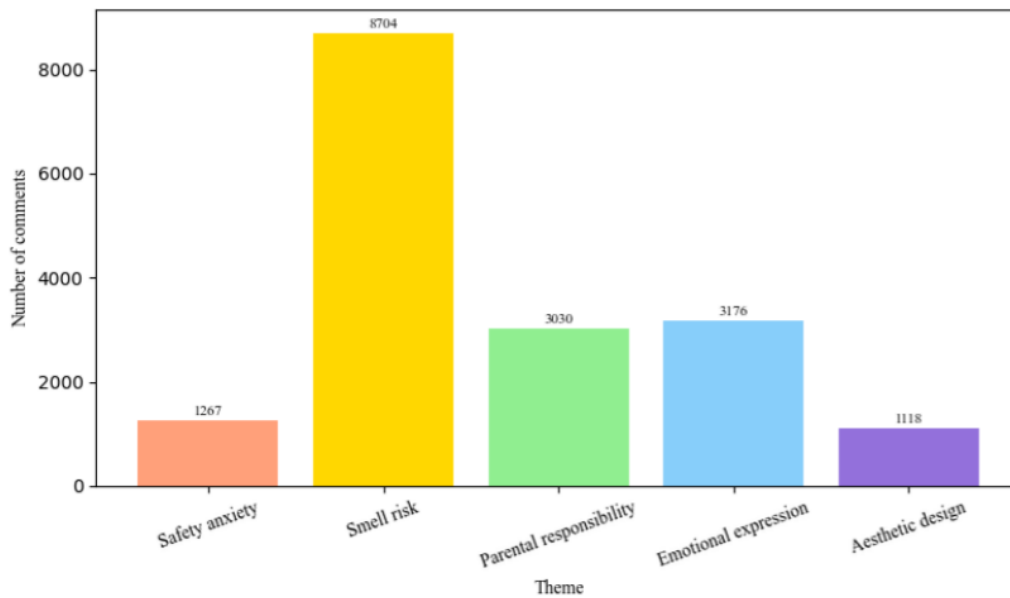


Figure 3. Preliminary estimate of thematic proportions.

The results clearly delineate the consumers’ focal concerns, emotional expressions, and role performances in baby crib reviews. Odor Risk focuses on smell as the most prominent risk signal, driving parents to adopt mitigation strategies like “ventilation and airing,” and often using concessive-turning structures to shift from worry to reassurance. Safety Anxiety centers on evaluating product “sturdiness/stability,” with “installation experience” serving as a critical risk control indicator. The reviews establish the stance of “safety as controllable” by combining appreciation of product attributes (e.g., “solid”) and judgment of service agents (e.g., “professional”). Parental Responsibility highlights gender roles and the division of labor, where identity markers like “my husband/my wife” illustrate cooperation in tasks like assembly and care, serving as an expression of family identity. Emotional Externalization represents evaluation strategies where, despite some negative feedback on service or odor, the overall sentiment is positive. Reviews successfully complete the narrative transition from “initial worry” to “final endorsement” using affective resources. Finally, Esthetics & Design, though less frequent, symbolizes family values through “color and style.” However, when conflicting with safety (e.g., “good-looking but impractical”), consumers prioritize functionality and safety.

3.4.2. Analytical Procedure

Theme 1: Smell-Related Risks and Risk Perception

Within the entire review corpus, references to “smell”

or “odor” appear with high frequency and strong salience, indicating that olfactory perception functions as a primary trigger for risk awareness in baby crib consumption. Unlike abstract safety indicators, smell is typically described as an immediate, sensory experience that occurs at the moment of unboxing. Many reviewers recount a similar experiential sequence: opening the package, detecting a noticeable wood-like or irritating smell, and then deciding whether remedial action is required before use. A large proportion of these narratives include explicit descriptions of mitigation practices, most commonly ventilation or airing the crib for several days. These actions are often reported as prerequisites for use rather than optional steps. In this sense, smell does not automatically lead to rejection; instead, it initiates a process of evaluation and adjustment. Reviewers frequently emphasize the duration of airing (“two days,” “three days,” and “a week”), suggesting that time itself becomes a measurable indicator for restoring confidence.

Smell-related expressions also show consistent co-occurrence with terms referring to materials and safety claims, such as “environmentally friendly,” “healthy,” or “no formaldehyde.” Rather than presenting laboratory-based evidence, reviewers rely on sensory judgment to infer material quality. The absence of odor is often framed as reassurance, while persistent smell is described as a reason for hesitation or dissatisfaction. At the narrative level, many reviews adopt a concessive structure that links initial concern with later acceptance. Statements such as “there was a smell at first, but

after airing it was fine” are common. This structure allows reviewers to acknowledge potential risk while still arriving at a positive overall evaluation. Through such discourse, smell becomes a manageable risk signal rather than an absolute indicator of danger.

Theme 2: Safety Concerns and the Construction of Responsibility

Safety-related concerns in the corpus are predominantly associated with the physical structure and stability of the crib. Reviewers frequently comment on whether the crib feels “solid,” “stable,” or “secure,” particularly in relation to infant movement such as turning over or shaking. These evaluations are grounded in direct interaction with the product rather than abstract specifications. The installation process emerges as a key context in which safety is assessed. Many reviewers describe the time and effort required for assembly, the clarity of instructions, and the completeness of components. Difficulties during installation—such as unclear manuals, missing parts, or loose fittings—are often interpreted as warning signs that raise doubts about overall quality. In contrast, smooth installation experiences tend to reinforce perceptions of reliability and safety.

Even when safety concerns are mentioned, reviews frequently conclude with statements emphasizing functional adequacy, such as the baby sleeping well or the crib remaining stable during use. This pattern suggests that safety anxiety is often provisional and subject to reassessment through use. Rather than remaining fixed, safety judgments evolve as parents gain hands-on experience with the product. Evaluative language in this theme commonly extends beyond the product itself to include sellers or service providers. Positive descriptions of sturdiness are sometimes accompanied by favorable comments on customer service or after-sales support, while negative safety impressions may be linked to dissatisfaction with communication or responsiveness. Together, these elements present safety as an outcome shaped by both product features and the broader purchasing experience.

Theme 3: Parenting Responsibility and Gendered Roles

The theme of parental responsibility is primarily expressed through references to family members and task allocation. Reviewers often mention spouses or relatives when describing the processes of purchasing, assembling, or using the crib. Expressions such as “we assembled it together,”

“my husband installed it,” or “I watched the baby while it was being put together” situate the product evaluation within everyday caregiving practices. These descriptions highlight a division of labor between physical tasks, such as assembly, and caregiving activities, such as supervising the child. By detailing these roles, reviewers implicitly demonstrate attentiveness and involvement, presenting themselves as responsible parents. In some cases, the effort invested in installation is explicitly emphasized, with time spent or physical difficulty described as evidence of care. Mentions of extended family members further expand the scope of responsibility beyond the nuclear family. When grandparents or other relatives are involved, the crib is framed as a shared concern within the household. These narratives indicate that baby crib consumption is embedded in collective family practices rather than treated as an individual consumer decision. Importantly, these accounts are descriptive reflections of the reviewers’ experiences. The analysis does not interpret them as prescriptions or ideals, but as recurring patterns in how responsibility is articulated and made visible in review discourse.

Theme 4: Emotional Expression and Evaluation Strategies

Emotional expression is pervasive throughout the corpus and serves as a key resource for evaluation. Reviewers frequently use emotionally charged adjectives, intensifiers, and expressive phrasing to convey satisfaction, reassurance, or frustration. Positive emotions are often associated with successful use, perceived safety, or the baby’s comfort, while negative emotions are typically linked to smell, logistics, or service-related issues. Rather than remaining static, emotional expressions often trace a temporal progression. Initial worry or disappointment may be followed by relief once a problem is resolved or a concern proves unfounded. Reviewers commonly signal this shift through temporal markers such as “at first,” “later,” or “after using it for a while,” allowing readers to follow the emotional trajectory. Emotional expression rarely stands alone. It is usually embedded within descriptions of concrete experiences, such as airing out the crib or completing installation. In this way, emotions function as summaries of experiential evaluation rather than abstract reactions. The combination of affective language with specific events reinforces the credibility of the

reviewer’s judgment. Across the corpus, emotional expression frequently intersects with smell-related risk and safety concerns. Feelings of anxiety motivate closer inspection or remedial action, while subsequent reassurance supports positive overall assessments. Together, these elements form a recurring narrative pattern in which emotional change mirrors the resolution of perceived risk.

Theme 5: Esthetics, Design, and Their Social Meaning

References to esthetics and design, while less frequent than safety- or emotion-related comments, appear consistently across the dataset. Reviewers often mention color, shape, or visual appeal, sometimes linking these features to the overall atmosphere of the home or the comfort of the child. Esthetic appreciation is commonly expressed through positive emotional language. In some reviews, design choices are associated with gender or family preferences, such as selecting certain colors for boys or girls. These comments indicate that esthetic features carry symbolic meaning alongside practical considerations. However, design is rarely discussed in isolation. When concerns about stability, usability, or safety are present, positive comments about appearance tend to be qualified or downgraded. Reviews describing a crib as “good-looking but impractical” illustrate this tension. In such cases, functionality and safety clearly take precedence over visual appeal. Overall, esthetics function as a supplementary evaluative dimension. Design enhances satisfaction when basic safety expectations are met, but it does not compensate for perceived risks or functional shortcomings.

4. Results and Discussion

4.1. Distribution of Appraisal Resources across Genre

Analysis of the online review corpus shows a clear predominance of appreciation-oriented evaluative resources. Most reviewers focus on describing observable or experience-based product attributes, particularly those related to quality, safety, and functionality. These evaluations are typically realized through concise adjective–noun combinations, such as references to structural firmness, material texture, or overall design quality. Such expressions allow reviewers to present their assessments as grounded in direct use rather than personal preference alone. Appreciation resources are frequently

accompanied by degree markers and intensifiers, which amplify evaluative force and signal confidence in judgment. Words such as “very,” “especially,” or “extremely” are commonly used to reinforce positive assessments and to reduce perceived uncertainty for potential buyers. Through this pattern, descriptive evaluation becomes a key means by which reviewers communicate reliability and consolidate a positive stance toward the product.

Affect-related resources appear less frequently than appreciation terms, but they play a distinct and complementary role. When present, affective expressions are mainly used to convey personal feelings such as satisfaction, reassurance, or fondness. These expressions often appear in proximity to narrative transitions, especially where initial concern is followed by acceptance. In this context, affective language helps reviewers articulate emotional change over time and supports the overall evaluative conclusion. Judgment resources are primarily directed at human actors involved in the purchasing and delivery process, including sellers, customer service staff, and couriers. Such evaluations are typically framed in normative terms, highlighting responsibility, professionalism, or carelessness. While less frequent than appreciation resources, judgment terms often co-occur with product evaluations. Together, they contribute to an integrated assessment in which product performance and service behavior are jointly considered. The distribution of appraisal resources suggests that reviewers rely mainly on appreciation to establish credibility and objectivity, while affect and judgment function as supporting resources. This combination enables reviewers to balance experiential description, emotional response, and social evaluation within a single, coherent review narrative.

4.2. Identity and Social Emotions Embedded in Online Review Corpora

Online reviews in the corpus function not only as product evaluations but also as spaces for identity presentation and alignment with a community of parents. Reviewers frequently use kinship and caregiving labels such as “mother” or “baby’s parent” alongside discussions of health, safety, and careful use, embedding product evaluation within everyday parenting roles. By positioning themselves as caregivers, reviewers frame their assessments as grounded in responsibility and experience, reinforcing credibility through descrip-

tions of careful inspection and cautious decision-making. Personal experience narratives further support this identity construction. Reviewers often describe assembling the crib themselves, monitoring the baby during use, or waiting before allowing use, which reduces social distance by highlighting shared concerns. Many reviews also follow regular discourse patterns, using concessive or temporal structures (e.g., “although... but...,” “at first...later...”) to acknowledge problems while arriving at positive conclusions. Typically, a risk cue is introduced, followed by a mitigation action and a final evaluative statement. Emotional expressions are integrated into these narratives through degree markers, emphatic wording, or emojis, signaling satisfaction or relief while maintaining a conversational tone. At the same time, temporal and causal markers preserve clarity and informational value. Overall, identity cues and emotional expression work together to support both interpersonal connection and clear evaluation in online review discourse.

4.3. Discourse Construction of “Good Products,” “Trust,” and “Worries”

In the review corpus, the notion of a “good product” is mainly constructed through descriptive evaluations of concrete product attributes, such as build quality, material reliability, safety, and practical functionality. Reviewers frequently refer to features like sturdiness, solid construction, or ease of use, grounding their judgments in firsthand experience. Trust is typically expressed through formulaic concluding statements—such as “worth buying,” “feel reassured,” or high ratings—which summarize prior evaluations and signal final endorsement. In this sense, trust emerges as the outcome of accumulated use experiences rather than an abstract assumption. Expressions of worry or negative emotion are also present but are usually tied to specific issues, most commonly odor, installation difficulties, or minor defects encountered during initial use. These concerns are generally followed by descriptions of practical responses, such as airing the crib, reassembling parts, or contacting customer service. Once the issue is addressed, reviews often shift toward a positive conclusion, allowing risk to be acknowledged without dominating the overall evaluation. Through this process, trust is gradually restored through action and verification, closely linked to parental responsibility and careful handling. Criticism of after-sales service or de-

livery is less frequent but tends to be expressed with stronger emotional intensity and is more likely to remain unresolved, thereby shaping a negative overall impression. Overall, the discourse construction of “good products,” “trust,” and “worries” follows a pragmatic pattern in which concrete experience, problem-solving, and evaluative closure work together to reflect how parents balance caution and reassurance in high-involvement consumption contexts.

4.4. Consumer Roles and Identity Characteristics

Across the review corpus, consumer evaluations are closely linked to the enactment of parental identities. Reviewers frequently use kinship terms such as “mom,” “dad,” or related caregiving labels, often combined with first-person pronouns, to position themselves and align with other parents who may be reading the reviews. These identity references commonly appear at salient points in the text, particularly at the beginning or end of reviews, where they function as framing devices that situate product evaluation within a shared caregiving perspective. By foregrounding parental roles, reviewers present their judgments as grounded in lived responsibility and firsthand experience, thereby enhancing perceived credibility. Within the corpus, references to motherhood occur more frequently than references to fatherhood. This pattern reflects the observed prominence of mothers in discussions of infant product selection, safety evaluation, and daily caregiving practices. However, the reviews do not portray childcare as an exclusively maternal activity. Many texts emphasize cooperation within the family, describing joint assembly of the crib, shared decision-making, or assistance from other family members such as spouses or grandparents. These narratives extend caregiving beyond the individual reviewer and present childcare as a collective family practice embedded in everyday routines.

Parental identity markers often co-occur with evaluations of product performance and emotional responses. Reviewers commonly link their identity as parents to expressions of reassurance, satisfaction, or concern, for example by noting increased peace of mind after assembly or observing that the baby sleeps comfortably. Such evaluations are grounded in concrete actions, including assembling the crib, checking its stability, adjusting its height, or monitoring the child’s reactions during use. By emphasizing these ac-

tions, reviewers demonstrate attentiveness and competence, reinforcing the practical basis of their assessments. Importantly, the analysis treats observed gendered role patterns as empirical features of the corpus rather than normative claims. The study does not evaluate whether these roles are appropriate or desirable; instead, it documents how they are repeatedly articulated through review language. Through ongoing repetition, such linguistic practices contribute to the stabilization of parental identity as a key source of authority and persuasion in online product evaluation, particularly in safety-sensitive and high-involvement consumption contexts involving infants.

5. Conclusions

5.1. Research Conclusions

This study systematically analyzed the linguistic features and thematic distributions of baby crib reviews, revealing that such texts are complex discursive hybrids of functional evaluation and emotional expression. The LDA modeling and manual coding results highlight that Odor Risk (46.5%) and Safety Anxiety (26%) constitute the core material concerns of consumers. Specifically, parents show heightened sensitivity to “smell” as a proxy for chemical hazards, often employing mitigation strategies like “ventilation” to restore a sense of safety.

Furthermore, the study found that Emotional Externalization (56.5%) is the most prevalent theme, suggesting that reviews serve a cathartic and interactive function beyond mere information sharing. The co-occurrence analysis demonstrates that functional feedback is deeply intertwined with Parental Responsibility (46.5%). For instance, narratives describing the “installation process” often function as performative acts of care, where the effort invested by family members (e.g., “husband,” “wife”) validates their identity as responsible guardians. While Esthetics & Design remains a relevant factor (22.5%), it is frequently subordinated to safety concerns; a “good-looking” product is only validated if it first passes the “sturdiness” and “smell” tests.

5.2. Research Implications

First, this research enriches Perceived Risk Theory in the context of digital parenting. While some existing studies

posit that consumers judge threats based on uncertainty, this study identifies the specific linguistic mechanisms—such as sensory evidentiality (smell/touch)—through which these judgments are encoded and negotiated in text. It shows that risk is not just a cognitive calculation but a sensory-discursive construction.

Second, the study contributes to the field of corpus-based discourse analysis by mapping the stance-taking resources of Chinese parents. It moves beyond simple sentiment analysis to show how “reassurance” is narratively constructed through concessive structures (e.g., “smelled at first, but after airing it is fine”). This extends the understanding of how trust is linguistically repaired and maintained in online communities.

For manufacturers and retailers, the dominance of the “Odor Risk” theme serves as a critical quality control signal. Since “smell” is the primary trigger for negative risk perception, companies should prioritize odor-elimination technologies and explicitly communicate material safety standards (e.g., “formaldehyde-free” certifications) to reduce pre-purchase anxiety.

For e-commerce platform designers, the findings suggest the need for more granular review tags. Current tags often focus on general quality; introducing specific tags like “Easy Installation,” “Odor-Free,” or “Sturdy Structure” would align better with the actual information needs of parents. Additionally, better customer service protocols are needed to address the “Safety Anxiety” expressed in inquiries about structural adjustments, as poor responses can significantly damage trust.

5.3. Research Limitations and Suggestions for Future Research

This study has several limitations that should be acknowledged. First, the dataset was primarily drawn from JD.com, a major comprehensive e-commerce platform in China. Although JD.com is widely regarded as representative in terms of product variety, user scale, and review norms, consumer behavior and modes of expression may differ across platform types. In particular, social commerce platforms such as Xiaohongshu or Douyin place greater emphasis on visual presentation, short-form video, and influencer-mediated narratives. On such platforms, risk perception and trust formation may be shaped more strongly by images, videos, and

interactive commentary than by text-based reviews alone. As a result, the linguistic patterns identified in this study may not fully capture evaluative practices in visually driven environments.

Second, the analysis focused exclusively on baby cribs, a product category characterized by high safety sensitivity and strong parental involvement. While this focus allowed for in-depth examination of risk perception and caregiving discourse, it also limits the generalizability of the findings. Other infant-related products, such as formula, car seats, or medical-grade childcare items, may involve different sensory cues, regulatory standards, and usage contexts. Future research could extend the analytical framework to these categories to examine whether similar sensory-driven risk narratives and evaluative sequences are observed, or whether distinct patterns emerge across product types.

Finally, although the combination of LDA topic modeling and manual qualitative coding provided a robust overview of thematic structure and evaluative tendencies, this approach captures discourse at a relatively aggregated level. More fine-grained analytical techniques, such as detailed sentiment trajectory analysis or interaction-focused examination of review-response exchanges, could offer deeper insight into how parental anxiety evolves over time. In particular, future studies could investigate how seller replies, customer service interventions, or platform-mediated responses influence the resolution or persistence of consumer concerns. Such analyzes would help clarify the dynamic role of interaction in shaping trust and reassurance in high-stakes parenting-related consumption contexts^[21].

Author Contributions

Q.G. and X.W. designed the study framework and wrote the manuscript. H.L. and S.Z. provided critical revision and theoretical guidance. Q.G. coordinated all aspects of the project. All authors have read and agreed to the published version of the manuscript.

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The data supporting the findings of this study are available from the first author upon reasonable request.

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Conflicts of Interest

The authors declare no conflict of interest.

References

- [1] Lowell, G., Cowles, N., Colvin, J.D., 2025. Baby products: How to evaluate them for potential safety. In *Infant Safe Sleep: A Pocket Guide for Clinicians*. pp. 267–293. Springer Nature: Cham, Switzerland.
- [2] Zhang, C., Ye, P., Li, X., 2025. A corpus-based analysis of corporate apologies and public responses on Chinese social media. *Journal of Pragmatics*. 240, 1–17. DOI: <https://doi.org/10.1016/j.pragma.2025.02.008>
- [3] Sun, Y., Yang, K., Chen, G., 2024. The research trends of corpus-assisted stance research (2004–2023): a systematic literature review. *Current Psychology*. DOI: <https://doi.org/10.1007/s12144-024-07130-x>
- [4] Yu, T., Pan, Y., Jang, W., 2025. Modeling Consumer Reactions to AI-Generated Content on E-Commerce Platforms: A Trust-Risk Dual Pathway Framework with Ethical and Platform Responsibility Moderators. *Journal of Theoretical and Applied Electronic Commerce Research*. 20, 257–257. DOI: <https://doi.org/10.3390/jtaer20040257>
- [5] Hung, H.-Y., Hu, Y., Lee, N., et al., 2023. Exploring online consumer review-management response dynamics: A heuristic-systematic perspective. *Decision Support Systems*. 177, 114087. DOI: <https://doi.org/10.1016/j.dss.2023.114087>
- [6] Grubb, C., Young, J., Downer, T., D’Souza, L., 2025.

- Beyond the rules: an integrative review of parental perspectives on safer infant sleep in shared environments. *Frontiers in Public Health*. 13. DOI: <https://doi.org/10.3389/fpubh.2025.1629678>
- [7] Liu, Y., Zhang, M., Chen, X., Li, K., et al., 2024. The Impact of Consumer Sentiment on Sales of New Energy Vehicles: Evidence from Textual Analysis. *World Electric Vehicle Journal*. 15, 318. DOI: <https://doi.org/10.3390/wevj15070318>
- [8] Lam, T., Heales, J., Hartley, N., 2023. The role of positive online reviews in risk-based consumer behaviours: an information processing perspective. *Aslib Journal of Information Management*. 77, 282–305. DOI: <https://doi.org/10.1108/ajim-03-2023-0102>
- [9] Du, X., Wei, Y., Zhang, F., et al., 2024. Wooden infant bed design under the background of two-child policy. *BioResources*. 19, 6076–6094. DOI: <https://doi.org/10.15376/biores.19.3.6076-6094>
- [10] Roy, K., Paul, U.K., Tiwari, S., et al., 2025. Impact of electronic word of mouth (e-WOM) on purchasing decisions: an empirical study. *Benchmarking: An International Journal*. 32, 3901–3936. DOI: <https://doi.org/10.1108/BIJ-08-2024-0642>
- [11] Chevalier, J.A., Mayzlin, D., 2006. The Effect of Word of Mouth on Sales: Online Book Reviews. *Journal of Marketing Research*. 43, 345–354. DOI: <https://doi.org/10.1509/jmkr.43.3.345>
- [12] Yin, J., Li, T., Ni, Y., et al., 2025. Exploring how generativity influences the online review continuity of museums: the double-edged sword of monetary rewards. *Asia Pacific Journal of Tourism Research*. 1–18. DOI: <https://doi.org/10.1080/10941665.2025.2486031>
- [13] Häubl, G., Trifts, V., 2000. Consumer Decision Making in Online Shopping Environments: The Effects of Interactive Decision Aids. *Marketing Science*. 19, 4–21.
- [14] Ariely, D., 2000. Controlling the Information Flow: Effects on Consumers' Decision Making and Preferences. *Journal of Consumer Research*. 27, 233–248.
- [15] Feng, M., Feng, Y., Li, Y., 2023. Online Reviews, Customer Q&As, and Product Sales: A PVAR Approach. *PLOS ONE*. 18, e0290674. DOI: <https://doi.org/10.1371/journal.pone.0290674>
- [16] Martin, H., Manohar, R., Ellis, L., et al., 2025. Emotional and Cognitive Landscape of Perceived Risk: Anxiety, Caution, and Financial Loss in Shaping Safety Decisions Using Partial Least Squares Structural Equation Modeling. *Journal of Construction Engineering and Management—ASCE*. 151(11). DOI: <https://doi.org/10.1061/jcemd4.coeng-16648>
- [17] Sporrer, J.K., Johann, A., Chumbley, J., et al., 2024. Induced worry increases risk aversion in patients with generalized anxiety. *Behavioural Brain Research*. 474, 115192. DOI: <https://doi.org/10.1016/j.bbr.2024.115192>
- [18] Hallikainen, H., Halinen, M., Tervonen, H., et al., 2024. Rating with the senses: How sensory encounters are reflected on online review ratings? *Psychology and Marketing*. 42(1), 159–174. DOI: <https://doi.org/10.1002/mar.22119>
- [19] Shashank, S., Behera, R.K., 2024. Factors influencing recommendations for women's clothing satisfaction: A latent dirichlet allocation approach using online reviews. *Journal of Retailing and Consumer Services*. 81, 104011. DOI: <https://doi.org/10.1016/j.jretconser.2024.104011>
- [20] Elo, S., Kyngäs, H., 2008. The Qualitative Content Analysis Process. *Journal of Advanced Nursing*. 62(1), 107–115. DOI: <https://doi.org/10.1111/j.1365-2648.2007.04569.x>
- [21] Du, Y., Reynolds, B.L., 2025. Exploring interaction process, L2 motivation and intended effort in chatbot-mediated interactions: evidence from Latent Dirichlet Allocation (LDA) topic modeling. *Computer Assisted Language Learning*. 1–26. DOI: <https://doi.org/10.1080/09588221.2025.2552116>