Text analysis of online customer reviews for workplace maternity wear: A focus on product features, and customer satisfaction

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**Rationale**. The maternity wear industry has been growing steadily in recent years. More professional pregnant women look for maternity clothing that is comfortable, stylish, and versatile to wear in the workplace. According to recent global maternity wear market reports (FutureMarketInsights, 2022; Researchandmarkets, 2023), the global maternity apparel market was valued at USD 23.05 billion in 2022 and is expected to grow at a compound annual growth (CAGR) of 6.7% from 2022 to 2032. At the same time, the increase in the number of women in employment and the change in social roles has seen a growing demand for professional-looking clothing that is specifically designed for pregnant women. However, there are still some issues that need to be addressed. Specifically, there are limited options for pregnant women to find maternity wear that is suitable for the workplace. Many maternity wear lines focus on casual wear, leaving a gap for pregnant women who need to dress professionally for work.

Market success comes from growing satisfied customers (Carpenter G S, 1989). Customer preferences have been identified as an important factor that regularly influences purchasing decisions. In modern customer-centric marketing, brands must understand the physiological and psychological needs of customers and satisfy their preferences by offering the right products and services with a value exceeding customer expectations (Patwa N, 2018; Zhou & Xu, 2019). Consequently, understanding customers' preferences is critical for gaining and sustaining market success. In recent years, research has used the data-mining approach to better understand consumers' preferences for textile and apparel products and services to improve product design, development, and delivery to better satisfy customers (e.g., An & Park, 2020).

Maternity wear is considered special clothing. Pregnant women have special needs in the process of life-changing and body transformation. Although maternity wear is only worn for a relatively short period, it is central to the construction of identity during pregnancy (Nash, 2013). During this time, as the body undergoes great changes, women begin to take on new roles as "mothers" and the aspects of the self are redefined and renegotiated (Belk, 1988). Text mining on reviews based on real experience is
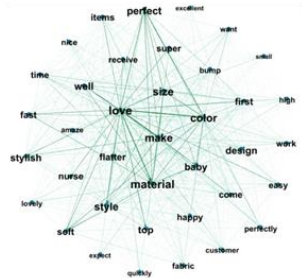
Table 1: LAD analysis results

| Topic | Associated Words | Sentence Percentage | Theme Label |
|-------|------------------|---------------------|-------------|
| 1 | Quality, fit，baby, color, size, feel, comfortable，wear, material, perfect | 29.4% | Good product features |
| 2 | gown, quality, super, fit, comfortable, easy, wear, size, baby, stretchy | 27.4% | Great function |
| 3 | fit, loved, feel, baby, beautiful, made, compliments, absolutely, super, photos | 21.3% | Positive wearing experience and feelings |
| 4 | great, quality, service, love, shipping, fast, customer, arrived, made, quick | 13.8% | Great customer service |
| 5 | wear, make, perfect, compliments , see, quality, feel, comfortable, through, bump | 8% | Satisfied cover and assurance |

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a more effective approach to getting insights into customers' preferences and better understanding their consumption experiences. To this end, this study intends to identify satisfactory factors of workplace maternity wear by mining consumer feedback about real consumption experiences with the consumer value theory applied as a theoretical guide.
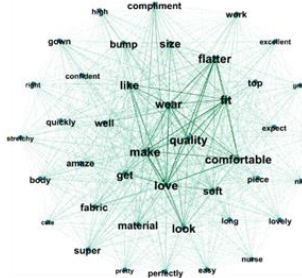
**Method.** We started with a thorough search for maternity wear brands. Among all the searched brands, five maternity wear brands in particular, Seraphine(S), Isabella Olive (IO), Sexy Mama Maternity (SMM), PinkBlush Maternity (PBM), and Nursing Queen(NQ), meet the criteria and were selected for collecting online customer review. Trustpilot is one of the top third-party review sites and is considered trustworthy by consumers. A total of 7098 reviews with ratings (up to 5 stars) were collected. The data was cleaned first. Then a systematic data mining process was implemented including (1) grouping reviews into positive and negative subsets based on consumer rating stars; (2) splitting review paragraphs into sentences to regulate the length of text data; (3) using LDA to extract topics from the sentences; (4) manually reviewing the topics and summarizing themes; and (5) grouping review sentences with identified themes and generating word co-occurrence plots to illustrate frequent words and word correlations.
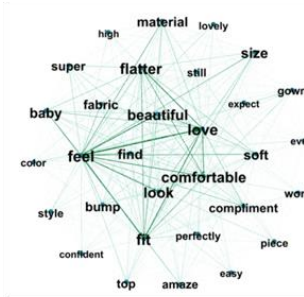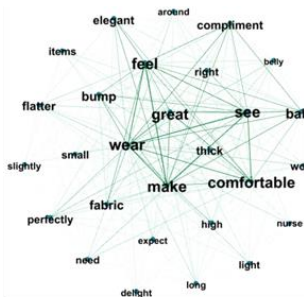


a.   Positive theme #1  Product features

b.   Positive theme #2 Great function

c.  Positive theme #3  Positive wearing experience and feelings

d. Positive theme #4 Great customer service

e.  Positive theme #5 Satisfied cover and assurance

f.

**Findings and Discussions**. The LDA analysis of all positive comments reveals five topics. Table 3 presents LDA results with topic information, associated words in each topic, and sentence percentage included. A word co-occurrence plot generated from topic 1 data shows strong connections between *"material", "color", "style"* and *"make,"* indicating that high-quality fabrics, advanced colors, and fashionable and changeable styles are expected by pregnant professional females for workplace wear. The word co-occurrence plot generated from topic 2 data shows strong connections between *"quality", "make", "wear",* and *"comfortable,"* indicating that maternity wear in the workplace is expected to have quality and

function. Topic 3's word co-occurrence plot shows strong connections between *"feel," "look," "comfortable,"* and *"fit,"* indicating that pregnant professional females want to look good while feeling comfortable. Topic 4's word co-occurrence plot shows strong connections between *"customer," "great," "service,"* and *"quality, "* indicating this special segment of customers desires good customer service. For instance, one review stated, "*The entire ordering process was a smooth transaction, from selection to delivery and it felt like a real treat to receive an item so beautifully packaged*". *Very quick about getting orders processed and shipped.*" The last topic's word co-occurrence plot shows strong connections between *"material", "see", "make", "quality"* and *"wear,"* indicating that good body covering and high-quality thick fabric release some of the anxiety or concern because of body changes for pregnant professional females. For instance, some of the reviews wrote, *"It's not see-through at all and it shows off my curves and baby bump really good;" "They cover my bump no matter how much it gets bigger…"*

Overall, customers are more concerned about the design characteristics and functionality of maternity clothes in the workplace. Professional colors, straightforward but versatile styles, and high-quality fabrics are the focus to improve product creation for workplace maternity wear.

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