

**Can love be prescribed? Brand Love for prescribed pharmaceutical drugs, a
characterization, and exploration of the phenomena**

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Abstract

Can love be prescribed? Brand Love for prescribed pharmaceutical drugs. A characterization and exploration of the phenomena.

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Brand love is an emotional relationship established between consumers and their preferred brands. Its various positive consequences, including loyalty, paying price premiums, and positive word-of-mouth, have been leveraged in the fast-moving consumer goods industry. Regardless of its great potential in optimizing patient journeys, it has not yet been leveraged in the prescription drug industry. This research aims to enhance patients' long-term involvement with branded drugs by extending brand love into the pharmaceutical industry. A two-step mixed methodology study was utilized to explore the phenomenon. Study I qualitatively analyzed patients' reviews from social media platforms using the content analysis software *Voyant Tools* and provided a general understanding of patients' overall emotions toward their prescription drugs. Study II quantitatively confirmed the main dimensions of the phenomenon through a survey (N=363) and using Exploratory Factor Analysis. The qualitative results confirmed the presence of prescription drug brand love and explored its main variables, while the quantitative survey identified three main dimensions characterizing prescription drug brand love: trust, information-exchange, and accessibility. Additionally, Study II yielded 11 validated items describing the phenomenon. The findings equip industry professionals with significant insights aiming to optimize branded medication's marketing strategies. This research offers a preliminary understanding of the phenomenon and identifies its general topology, leaving immense opportunities for future researchers to expand upon.

Keywords: brand love, prescription drug brands, efficacy, trust, tolerability, information exchange, pharmaceutical marketing.

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List of acronyms

DTCA: direct-to-consumer advertisement

PWOM: positive word-of-mouth

FMCG: fast-moving consumer goods

EFA: exploratory factor analysis

PSP: patient support programs

OTC: over the counter

1. Introduction

Approximately 4 out of 10 physicians reported that they sometimes or often times prescribe a certain brand-name drug to a patient when a generic is available upon a patient's specific request (Campbell et al., 2013). This power shift in the prescribing process is attributed to the Direct-to-Consumer Advertisement (DTCA) present in the USA. DTCA is patient-centric and focuses on "raising public awareness for new treatment options" (Eichner, R., & Maronick, T. J., 2001). Additionally, today's consumers perform extensive research and often require the brand to align with their overall values and self-image to make the purchase decision (Unal et al., 2013). Similarly, patients grew analytical and more informed than ever about their prescribed drugs. Therefore, it has been noticed that patients' requests have become a more impactful driver for prescribing decisions (Mintzes, B et al., 2022).

Furthermore, innovator prescription drug brands are restricted by finite market exclusivity periods due to the rapid expiry of patents, leaving branded drug companies with little time to establish strong brand images and lasting patient-drug relationships. Additionally, the innovator drug industry is witnessing an increasing number of *me-too* drugs (particularly biosimilars), along with heightened competition due to cheaper bioequivalent generic alternatives. All these factors resulted in a highly fluctuating branded drugs' microenvironment and are threatening patients' continuous involvement with branded medications.

Traditionally, the marketing strategy of prescription drug brands is based on three pillars: strong research and development (R&D), aggressive defence of patents, and powerful sales forces (Schuiling et al., 2004). However, in our fast-moving, consumer-oriented world, consumers (patients also) are constantly bombarded with options and product choices, which makes the paradox of choice more complex than ever (Keller, K. L., 2003). This research presents a

phenomenon that holds immense potential in sustaining patient-brand long-term relationships and thus overall brand sustainability and market share.

Brand love is a fundamental emotional relationship described as “the degree of passionate emotional attachment, a satisfied consumer has, for a particular trade name” (Carroll, B. A., & Ahuvia, A. C, 2006; Ahuvia, A.C, 2005b). It is a psychological state that results in many positive consumer behaviour consequences that have been well described for the Fast-moving Consumer Goods (FMCG) market. Consumers tend to be more loyal, forgiving, and willing to pay a price premium for their preferred brands (Carroll, B. A., & Ahuvia, A. C, 2006; Bauer et al., 2007). They also become advocates for their preferred brands, as it was found that brand love and self-congruence enhance brand advocacy (Shimul, A. S., & Phau, I., 2023). Moreover, consumers miss their brands and often experience separation anxiety once their brand is absent (Rossiter, J., 2012), mirroring human emotions observed toward a loved partner.

Despite the brand love phenomenon holding great potential in revolutionizing consumer-brand relationships, it has gone unexplored in the pharmaceutical discipline. Only one single case study that explored patients' love for the over-the-counter functional brand “Aspirin” in Portugal confirmed the presence of brand love for pharmaceutical drugs (Borges A. et al., 2016).

This research aims to extrapolate brand love benefits to the pharmaceutical industry by confirming the presence of prescription drug brand love and unravelling its main characteristics/dimensions. A simple extrapolation of FMCG brand love characteristics, models, and scales into the pharmaceutical industry is not an accurate reflection of drug brands, mainly due to the unique and serious nature of the products. For example, prescription drug personalities are perceived differently by consumers compared to those of FMCG. Drug brand personalities are characterized by two dimensions unique to the pharmaceutical industry: competence and

innovativeness as discussed, “Prescription drug brand personality traits are different from those of consumer goods” (Leonard & Katsanis, 2013). Thus, brand love is also expected to have a distinct definition and characteristics that are specific to the pharmaceutical industry as well. This research explores the phenomena using both qualitative and quantitative analysis through a two-part study. The first study qualitatively explores the phenomenon through Netnography and social listening tools, describing the general themes and ideas characterizing patient-drug love. The second study quantitatively confirms the relevance of variables identified in Study 1, using a self-administered survey and Exploratory Factor Analysis (EFA).

The goal of this research is to extrapolate the concept of patient-drug emotional relationships into the pharmaceutical industry while focusing on unravelling the nuance of brand love specifically. This study aims to provide a general definition of the phenomenon and identify its key variables while extending its positive consequences to the pharmaceutical industry. It offers marketing professionals practical tools to establish relevant marketing strategies that are adapted to patients’ evolving needs. Finally, this research aspires to enhance patients’ journeys and optimize their adherence by catering to their specific needs. This study offers the preliminary understanding of prescription drug brand love, while leaving immense opportunities for future researchers to embark on.

2. Literature Review

2.1 Branding

Branding is crucial in today's fast-evolving marketplace, where consumers are presented with seemingly endless options to choose from. Consumers are constantly bombarded with products, creating a harder-than-ever decision paradox, while, on the other hand, "consumers have less and less time to make those choices" (Keller, K. L, 2003). Branding is one of the most valuable intangible assets a firm can possess to differentiate its products among the many present options (Keller, K. L, 2002). Companies can enhance their market performance and increase their financial revenues by establishing strong brand awareness (Huang, R., & Sarigöllü, E., 2012). Furthermore, the strategic importance of branding has been recognized for some time as the Marketing Science Institute ranked Branding as the "second most important 'top-tier' priority facing marketers for 2002–2004 and a topic deserving of intensive research attention" (Keller, K. L, 2003).

Creating deeply rooted brand images requires careful strategic framing, as brands are the interfaces between consumers and the company (Lau, G. T., & Lee, S. H, 1999). Branding ensures a company's sustainability as it harnesses customer loyalty and long-term commitment, permitting firms to attain their ultimate state of constant consumer repurchase due to a deep positive emotional bond with the brand (Dick, A. S., & Basu, K, 1994).

Understanding how deeper consumer-brand relations are built, sustained, and nourished is crucial for brands to obtain a positive competitive presence in consumers' decisions. Researchers even described strong emotional bonds with a certain brand by brand marriages that require constant repurchase and long-term commitment (McEwen, W. J, 2005). The need for strong branding is on the rise as both the market and consumer continue to evolve towards more

complexity, creating a persistent need for a deeper understanding and exploration of the long-term establishment of consumer-brand relationships. Urging marketers to view branding as a necessity rather than an option for most businesses (Todor, 2014).

2.2 Consumer-object emotional relationship

The concept of a consumer's emotional attachment to physical objects (brands) was first introduced by (Shimp et al., 1988), who argued that "consumers form relations with consumption objects, range from feelings of antipathy to slight fondness, all the way up to what would, in person-person relations, amount to love." Their work pioneered the emotional brand attachment research and extrapolated interpersonal relationships into the Consumer-Object context. Their findings were solidified by identifying eight different types of emotional Consumer-Brand relationships, while their theorization of "brand love" was derived from Sternberg's triangular theory of love, where he establishes its three pillar constructs to be passion, intimacy, and commitment (Sternberg, 1997).

Furthermore, consumers were found to attribute human characteristics to their preferred brands and treat them as an emotional entity with distinct perceived brand personalities (Aaker, 1997). Consumers were found to perceive brands to have five distinct personality dimensions, described as sincerity, excitement, competence, sophistication, and ruggedness, where immense similarities among brand and human personality traits were found (Aaker, 1997).

Consumers form various relationships with their physical goods, mirroring those formed among humans (Fournier, 1998). Consumer-brand relationships were classified into six constructs: love and passion, self-connection, commitment, interdependence, intimacy, and brand partner quality (Fournier, 1998).

The concept of consumer's emotional attachment to their physical products intrigued many marketing researchers. However, for the scope and purpose of this study, only one type of consumer-object emotional relationship, "Brand Love" will be expanded upon. A general fundamental understanding of this construct and its theoretical background will illustrate the importance and relevance of this research.

2.3 Brand Love

Brand Love as a construct is fundamentally built on three main pillars: intimacy, passion, and commitment (Sternberg, 1997). Researchers delved in-depth into each construct to decipher its meaning and better leverage its benefits.

The first pillar is brand intimacy, defined as "feelings of closeness, connectedness, and bondedness" (Sternberg, 1997). Brand intimacy was found to better the quality of consumer-brand relationships while consumers described unique and exciting brand personalities to qualify more for the role of a partner (Smit et al, 2007). Customers describe brand intimacy as the brand being concerned with their needs and that it strives to fulfil them (Breivik, E. & Thorbjørnsen, H, 2008). Consumer-brand intimacy is a crucial step for the survival of firms as it can lead to "an emotionally based attachment and bond, or affective commitment" (Turri et al., 2013).

Customers are more susceptible to developing brand intimacy in high-involvement markets and products (Bügel et al., 2011), where high-involvement products are "products that involves the consumer in taking time and trouble before deciding on a purchase." (Law, J, 2009). Non-prescription drugs are seen to become more and more high-involvement products as research argues, "High involvement suggests active information-seeking behaviour and, therefore, a greater likelihood of appropriate non-prescription drug use" (Gore et al., 1994). The DTC advertisement for prescription drugs allowed consumers (patients) to become more and more informed and

involved in the selection process of prescription drugs. This DTC effect skewed prescription drugs more into the high-involvement product category, and thus, the concept of brand intimacy can be applied to the prescription drug industry.

The second pillar is brand passion, defined as “a state of intense longing for union with another” (Hatfield, E., & Rapson, R. L, 1987). Passion in the context of brands is defined as “a primarily effective, extremely positive attitude toward a specific brand that leads to emotional attachment and influences relevant behavioural factors” (Bauer et al., 2007). Passionate consumers are engaged in a more emotional relationship with the brand, miss the brand and feel loss when the brand is unavailable (Matzler et al., 2007). Moreover, brand passion is described as “a psychological construct comprised of excitation, infatuation, and obsession for a brand.” (Albert et al., 2013). Brand passion has a stronger positive effect on purchase intentions compared to that induced by brand attachment (Gilal et al., 2021). Passion reflects deep emotional connection and attachment that develops as separation anxiety for consumers (Thomson et al., 2005), also described as “the difficulty the consumer senses because of a separation from the brand and its omnipresence in the consumer's mind” (Albert et al., 2010)

The third pillar is brand commitment, holding the essence of a sustained long-term relationship, also defined as “a psychological status of clients which is positively associated with attitudes rather than the brand and there is a readiness to sustain a valued association with it” (DAM, T. C, 2020). As brand commitment could be confused with brand loyalty, the two constructs are related but remain separate entities. “Though brand commitment indicated brand loyalty, the opposite was not true” (DAM, T. C, 2020). Brand commitment is characterized by the devotion to keeping the possession of the brand with a sense of irreplaceability of the brand (Lastovicka et al., 2011). Brand commitment ensures long-term relationships with brands, and it

reflects continuity of purchase, willingness to pay a higher price, and positive word of mouth for the brand (Fullerton, 2005; Albert et al., 2013; Wong, 2023).

It is important to note that the exact effect and translation of the pillars commitment and passion to the pharmaceutical industry is not foreseen in this stage of the research. However, these dimensions translation to the prescription drug context is discussed and addressed later in in section 7.

The extension of interpersonal human relationships into the consumer-object context resulted in the carry-over of the various types of emotional relationships and their positive outcomes. Different types of relationships have been carved into theoretical constructs that are well-defined, the focus of this research is brand love.

Brand love as a construct is an emotional phenomenon deeply rooted in the relationship between consumers and their preferred brands. Its ideation is derived from a combination of consumer behaviour and psychological literature building a description of the typical love prototype (Ahuvia, 1994). Brand love occurs when “both the desire for integration with the love object into the self and the actual level of self-integration with the love object is at a high level” (Ahuvia, 1994). Later, a general concise definition of brand love was established to be “the degree of passionate emotional attachment a satisfied consumer has for a particular trade name” (Carroll, B. A., & Ahuvia, A. C, 2006; Ahuvia, A. C, 2005b). Human emotional relationships are closely related and can lead to high emotional complexity as shown by Albert et al., (2013) scale and model to discriminate the construct “brand love” from three relational constructs: brand trust, identification, and commitment. The clear establishment of brand love as a separate clear construct opened the doors for future research to dive deeper into modelling and measuring it.

Brand love has been defined as a combination of passion and separation anxiety (Rossiter, J., 2012), a consumer's long-term relationship with the brand is associated with fear of loss (Langner et al., 2015). Furthermore, consumers' relationship with brands is sustained and maintained by their fear of losing their preferred brand.

A model of brand love, its variables, precedents, and positive outcomes was established, highlighting consumer loyalty and positive word-of-mouth as positive outcomes of brand love (Carroll, B. A., & Ahuvia, A. C, 2006). Additionally, customers tend to be more willing to pay premium price points and forgive the mistakes of their preferred brand (Bauer et al., 2007). Established positive outcomes of brand love helped marketers foresee the impact of establishing long-lasting relationships on the sustainability of their brands.

Furthermore, positive brand identification, along with having a sense of brand community was found to positively impacts brand love (Bergkvist et al., 2010). Where brand identification is defined as “the extent to which the consumer sees his or her self-image as overlapping the brand’s image” (Bagozzi, R.P. & Dholakia, U.M, 2006), and a sense of community is defined as “the kinship or affiliation a customer feels with other people associated with the brand.” (Keller, K. L, 2003). The positive effect of brand communities was further reinforced by (Coelho et al., 2019). Brand managers are encouraged to create a more positive brand experience, which has a positive influence on both brand trust and love (Putra, H, 2020).

Initially, brand trust was found to have a positive direct effect on both brand love and brand loyalty, as discussed by Hess (1995). Brand trust is defined in literature as “reflects assumptions about reliability, honesty and altruism that consumers attribute to brands” (Hess,1995). Research found that a company needs to establish a wider role and purpose “beyond the creation of financial value” to foster and build customer trust (World Economic Forum, 2015).

Another study (Zhang S. et al., 2020) explores and confirms the mediating effects of brand love and trust on brand experience and loyalty, concluding that “brand love is the main mechanism in developing customers’ behavioural loyalty.” A subsequent study confirmed the influence of brand trust on brand love and investigated the role brand awareness plays in establishing attitudinal and behavioural loyalty (Zhang S. et al., 2020)

Additionally, the effect of a product’s category on brand love remains an area of some debate among researchers. Previous research confirmed that the hedonic category is the primary initiating factor of brand love, while more recent studies illustrate the importance of utilitarian product categories. While the importance of utilitarian aspects is believed to grow with time (Huber F. et al., 2015), the effect of both functional (utilitarian) and symbolic (hedonic) categories on brand love is equally emphasized (Bairrada et al., 2018).

Finally, the financial outcomes of brand love were addressed in a longitudinal study conducted by (Nguyen et al., 2021), concluding that “although brand love does not affect firm profitability and market value in the short term, it increases firm profitability and market value in the long term.” The positive moderating effect of hedonic product categories, brand equity, and R&D investments on brand love was also addressed (Nguyen et al., 2021). Confirming the long-term financial benefit of brand love added an important piece of the puzzle relevant to managerial decision-makers.

2.3.1 Brand Love Models and Scales

The analysis of variables and their relationship directionalities helped translate brand love into conceptual models. Then, brand love, its antecedents, and precedents were captured and quantified using various measurement scales. Significant practical research contributions of this phenomenon are discussed below in detail.

Brand love as a construct encompassing affection and passion dimensions was measured by a scale developed by (Albert et al., 2010) using interpersonal love items generated from the four scales “the Passionate Love Scale” by (Hatfield, E., & Sprecher, S, 1986), the “Triangular Theory of Love Scale” by (Sternberg, 1997), the “Romantic Love and Liking Scales” by (Rubin, 1970), and (Carroll, B. A., & Ahuvia, A. C, 2006)

The first construct frequently affiliated with brand love is trust, as it has a positive direct effect on both brand love and brand loyalty and is found in the literature to “reflect assumptions about reliability, honesty and altruism that consumers attribute to brands” (Hess, 1995). Trust is described to be the most desired quality in a relationship and the “most important attribute a brand can own” (Delgado-Ballester, et al 2003). A multi-dimensional Brand Trust Scale (BTS) was built, holding scale reliability (> 0.70), emphasizing the role of brand trust in establishing consumer loyalty (Delgado-Ballester et al. 2003). The validated 16-item scale is a robust and acceptable measure of brand trust in the literature. Trust in the pharmaceutical industry may also encompass assumptions about reliability; thus, the Prescription Brand Personality Scale (PBPS) developed by Leonard and Katsanis (2013) was leveraged in our research. The two scales encompass the two dimensions of prescription drug personalities: competence and innovativeness, with scale reliabilities (0.92 & 0.85), respectively (Leonard & Katsanis, 2013).

The second construct commonly correlated with brand love is positive word-of-mouth (PWOM), it is a principal variable in brand love literature as it holds immense positive feedback to brands. Consumers' feelings and responses towards consumer-packaged goods were captured in a 10-item unidimensional scale by (Carroll, B. A., & Ahuvia, A. C 2006); this scale confirms that brand love is linked to higher levels of both brand loyalty and PWOM.

An alternative consumer experience-oriented approach was used by Batra (2012), identifying seven core elements of brand love based on grounded theory. Contrary to the previous use of interpersonal love theory, their research confirms brand loyalty, WOM, and resistance to negative information as strong consequences of brand love (Batra, 2012). Subsequently, a theoretical model mapping out the constructs and variables of brand love was established (Albert et al., 2013). Both brand identification and trust were found to enhance brand love, while positive word-of-mouth and paying price premiums are consequences of the phenomenon (Albert et al., 2013). As researchers adopt different methodologies to confirm and validate variable relationships, the overall structure of the phenomenon is unravelled.

Furthermore, a scale proposed by (Thomson et al., 2005) confirms that emotional attachment predicts consumer behaviour in paying price premiums, laying the groundwork to leverage this positive outcome. Later, a second-order scale confirms forgiveness of the brand's wrongdoings and paying price premiums as two positive outcomes of brand love (Heinrich et al., 2012). Moreover, a scale confirmed loyalty and positive word of mouth as positive outcomes of brand love (Bagozzi et al., 2017) while offering three versions of the scale varying in length; either 26, 13, or 6 items can capture the phenomenon depending on the depth of analysis required.

A cumulative conceptual framework was built that summarizes previous research into a more dynamic approach, including the three biggest theories of brand love: interpersonal, Parasocial, and experiential theories of brand love (Palusuk et al., 2019). The continuous evolvement of the love relationship was reflected in their model, contrary to the previous stationary models reflecting the phenomenon. Brand love is a continuously evolving phenomenon that takes different shapes and can be altered by introducing new brand-related experiences along the relationship (Palusuk et al., 2019).

2.4 Brand love and the possibility of brand hate:

Our literature review discussed brand love and brand hate as separate constructs; however, human emotions and relationships are rarely unidimensional. Human emotions and, thus, relationships are complex in nature as multiple emotions could interfere with each other and even exist simultaneously. For example, brand love and hate are closely intertwined as consumers' emotions change due to certain brand experiences. Furthermore, brand love positively moderates the link between failure severity and negative emotions, described as the “love becomes hate” effect (Zhang, Y et al., 2020). Consumer-brand relationships are not static; rather, they constantly evolve, where a love relationship can evolve into hate, resulting in “intense negative emotions such as anger and disappointment, which in turn affect consumers' behavioural intentions” (Kohli, H et al., 2021). Moreover, as the concept of brand polarization emerged, brand managers became more attentive to the antipodes of brand hate and brand love: “Polarization maintains strong emotions at both ends of the spectrum.” (Ramírez S et al., 2024). Resulting in scales measuring both constructs simultaneously, offering marketers tools to refine their positioning and strategy. While the purpose of this study is to unravel prescription drug brand love, it is crucial to understand negative consumer emotions and how they interact with our construct to fully capture the dimensions of the relationship.

2.5 Brand Hate

As seen in the brand love literature, satisfied consumers induce favourable outcomes and numerous benefits into their preferred brands. While brands favour establishing positive consumer-brand relationships, the opposite negative phenomenon is also probable. Unsatisfied consumption experiences might result in intense negative emotions and later brand hate. This research explores patients' emotions towards prescription medications, which includes journey

hurdles and harsh side effects; thus, it is expected that negative consumption experiences might induce emotions on the other side of the emotional spectrum.

Consumers feel brand hate for certain brands, and it is described as “a constellation of negative emotions which is significantly associated with different negative behavioural outcomes” (Zarantonello et al., 2016). Some researchers simply attribute brand hate to brand failure, where unsatisfied consumers develop compiled hate from a previous experience/s (Hegner, 2017; Garg et al., 2018). Brand hate is a complex emotion often fueled by injustices and intense negative emotions, triggering detachment and brand aversion (Kucuk, S. U., 2019). This multidimensional construct consists of 3 main characteristics: anger, sadness, and fear-related emotions, while each factor weighs differently depending on the hatred level associated with a specific brand (Zhang et al., 2020).

Brand hate can trigger a cascade of behavioural consequences ranging from starting an anti-consumption movement all the way to complete boycotts, inducing long-lasting negative impacts on the brand (Kucuk, S. U, 2016). Brand haters tend to spread negative WOM, protest the brand, and engage in brand retaliation, featuring the opposing behaviour of brand advocacy seen in Brand Love (Zarantonello et al., 2016). Furthermore, brand haters showcase their hate in different behavioural outcomes such as brand switching, private and public complaining, and even willingness to make financial sacrifices to hurt the brand (Fetscherin, 2019). Once again, features behaviours opposing brand love outcomes such as PWOM and paying a price premium for preferred brands.

2.6 Brand love in the pharmaceutical industry

Brand love holds critical value and is still under-researched, given its potential to induce highly desired outcomes such as market share, competitive advantage, price premium and loyalty

(Merdin E, 2013). While marketing researchers delved deep into the various brand love aspects, specifically in the FMCG industry, the phenomenon remains unexplored in the pharmaceutical industry.

The pharmaceutical industry has a special approach to its branding strategy that differs from those of consumer goods, as discussed in the literature: “The success of the industry relied on three factors: strong research and development (R&D), aggressive defence of patents and use of the dominant promotional tool - powerful sales forces” (Schuiling et al., 2004). However, as drugs proceed to go off-patent along with rapid changes in competition due to generic drugs entering the market, the need for strong pharmaceutical brand love surges as it ensures the sustainability of a long-term relationship with customers (patients) due to higher brand loyalty, forgiveness, positive word of mouth and many more positive outcomes of brand love. The prescription pharmaceutical industry needs strong branding and long-term consumer love to ensure its presence in the highly competitive marketplace especially as patients become more informed and involved in the decision due to DTC. Contrary to the strong branding approach found in the FMCG market, the pharmaceutical industry has yet to tap into such strategies. The need for better branding and intangible assets in the pharmaceutical industry is recognized in literature: “The pharmaceutical industry has come late to branding, and it has not yet received the strategic importance given to it by other industries” (Schuiling et al., 2004).

Very little research on brand love in the pharmaceutical industry has been done, and only one case study explored consumers’ love for functional brands. The study analyzed consumers love for the Over the Counter (OTC) brand “Aspirin” in Portugal, using two brand love scales (Carroll, B. A., & Ahuvia, A. C, 2006) and (Mohammadian et al., 2014). The case study extrapolated the usage of brand love scales into the pharmaceutical scope and found that

pharmaceutical brand love has three antecedents: brand engagement, confidence, and overall attitude. They also concluded that brand love has three positive consequences: brand loyalty, word of mouth and purchase intention. Their study concluded that “a consumer can establish an emotional relationship with a functional brand in a highly competitive sector such as the pharmaceutical sector” (Borges A. et al., 2016). The presence of brand love in the pharmaceutical industry was identified; however, this study is limited to the Portuguese marketplace and OTC medications, while our study will focus on consumer love for prescription pharmaceutical brands. Our study will fill the gap in the literature by confirming the existence of brand love for prescription drug brands and identifying its main characteristics/dimensions.

The unique structure and product nature of prescription pharmaceutical drugs are expected to require deep analysis and exploration of consumer brand love. While a simple extrapolation of FMCG constructs is not sufficient to describe the phenomena. Consumers have a unique and significant relationship with prescribed branded drugs as they attribute different perceived personality traits to them, as discussed by Leonard and Katsanis (2013), “Prescription drug brand personality traits are different from those of consumer goods,” further highlighting the uniqueness of the prescription drug market as seen by consumers.

Despite the differences in the product category, the need for strong brand love and sustainable consumer emotional relationships remains pressing among all branded products. This research aims to extrapolate the great benefits of brand love into the prescription pharmaceutical industry. The goal is to build a robust understatement of brand love attributes for prescription pharmaceutical brands, using patients’ responses to conceptualize this phenomenon. The preliminary definition of the phenomena and its characteristics will lay the groundwork for future researchers to expand on.

3. Theory development and research proposals

The literature on FMCG brand love inspired the theory development for this research; multiple variable effects were extrapolated into the pharmaceutical industry while others were adapted and changed to fit the unique industry. A total of 9 research proposals were constructed to fully operationalize the following research questions: Does prescription drug brand love exist? What are its main characteristics and dimensions?

Researchers suggested that the type of product is a proxy for establishing brand love and can predict if love can be established for a certain product. Two distinct product categories were mainly explored: 1. hedonic products, characterized as “benefits that are evaluated primarily on aesthetics, taste, symbolic meaning, and sensory experience.” (Holbrook, M. B, 1986). 2. Utilitarian products: defined as “Utilitarian products are those that fill a basic need or accomplish a functional task” (Ryu et al., 2010). Different product categories influence brand trust and love differently, and both hedonic and utilitarian values have significant statistical effects on brand love (Borges A. et al., 2016). Furthermore, consumer emotional attachment to functional drug brands has been established (Borges A. et al., 2016).

It is proposed that the utilitarian value of prescription drugs has a greater role in brand love due to the seriousness and precision required in this field, in contrast to hedonic values found in consumer goods.

RP₁ = Utilitarian function/value is a characteristic of prescription drug brand love

Brand communities are shown to solidify the identification with a brand, resulting in higher brand love, positive association, customer loyalty, and advocacy (Bergkvist et al., 2010; Coelho et al., 2019). In the pharmaceutical industry, the effect of communities is showcased as

Patient Support Programs (PSPs) tracking clinical improvement for patients. Significantly greater improvements among PSP users were reported in comparison with PSP non-users for Humira patients (Bosch et al., 2017). Brand (patient) community group engagement amplifies consumer-brand relationships, specifically brand trust (Habibi et al., 2014); it was found that the brand community's effect on brand love is mediated by brand trust as an initial step (Hapsari, 2018). Patient support groups in the pharmaceutical industry facilitate drug accessibility while making patients feel more heard, supported, and taken care of. Accessibility has an operational definition of “the ease with which a person can obtain needed care (including advice and support) from the practitioner of choice within a time frame appropriate to the urgency of the problem.” (Haggerty et al., 2011). It is proposed that patient PSPs / accessibility is a characteristic of Brand Love.

RP₂ = PSPs/accessibility is a characteristic of brand love

Brand trust is embedded in consumers' minds as “assumptions about reliability, honesty and altruism that consumers attribute to brands” (Hess, 1995). Establishing brand trust will enhance both brand love and brand loyalty (Hess, 1995). Brand trust has “a moderated mediation role between brand experiences, brand love and brand loyalty” (Bae et al., 2023). The positive effect brand trust has on brand love was further confirmed by (Albert et al., 2013). It is proposed that brand trust is a significant characteristic of prescription drug Brand Love. As competency is a distinct trait associated with prescription brand drugs (Leonard & Katsanis, 2013), the brand trust construct is expected to appear as efficacy in the pharmaceutical industry because patients' trust in prescribed branded drugs is rooted in the fundamental efficacy of the drug in giving its intended desired healing effect. Thus, trust holds a different meaning in the pharmaceutical industry, and it

is expected to be operationalized as efficacy. The efficacy of the prescribed drug is expected to be a significant characteristic of brand love in the scope of this research.

RP₃ = Brand efficacy is a characteristic of brand love.

A positive company reputation is associated with higher consumer brand love and e-WOM (Iqbal et al., 2021). While consumers often rely on positive word of mouth to form opinions about certain products, patients are expected to do the same, whether it is through a smaller circle of friends/family or online/social media platforms. Patient feedback in the form of WOM can skew patients' opinions about a branded drug and enhance expectations about efficacy. Fundamentally, brand trust is "rooted in the consumer's expectations about the brand's honesty, altruism, and reliability" (Albert et al., 2013). It is proposed that positive word of mouth will strengthen a company's positive reputation and thus generate brand trust. The seriousness and nature of prescription drugs imply positive word of mouth stemming from the efficacy of the drug and the positive association of efficacy and reliability, further enhancing patients' trust in the overall branded drug.

RP_{4a} = Positive word of mouth is a characteristic of brand efficacy

Additionally, one beneficial outcome of brand love is positive word of mouth, as it generates a positive feedback loop by enhancing the brand image and recruiting more consumers to be future advocates of the brand (Albert et al., 2013). Satisfied consumers become advocates for their favourite brands as they spread positive word of mouth to other consumers (Carroll, B. A., & Ahuvia, A. C, 2006; Coelho et al., 2019).

The same effect for branded prescription drugs is expected, where PWOM is a characteristic of prescription drug brand love.

RP_{4b} = Positive word of mouth is a characteristic of brand love

Brand love is defined as “a combination of passion and separation anxiety” (Rossiter, J., 2012), which often manifests as a fear of losing the preferred brand (Langner et al., 2015). Furthermore, the dimension of passion in brand love reflects deep emotional connection and attachment that develops as separation anxiety for consumers (Thomson et al., 2005). Prescription drug brand love is expected to result in separation anxiety, where patients will fear being switched to another branded drug and experience distress when their preferred prescription drugs are not readily available (Matzler et al., 2007).

RP₅ = Separation anxiety is a characteristic of prescription drugs brand love

Brand love results in customer loyalty manifested in a long-term commitment, continuous repurchase, and refraining from evaluating alternatives (Carroll, B. A., & Ahuvia, A. C, 2006). Establishing brand love is essential to acquiring customer loyalty, as discussed in the literature: “Brand love is the main mechanism in developing customers’ behavioural loyalty” (Zhang S. et al., 2020). It is proposed that prescription drug brand love will also result in patient loyalty as one of its outcomes, as confirmed by (Bairrada et al., 2018). Patient loyalty is a significant characteristic of prescription drug brand love.

RP₆ = Patient loyalty is a characteristic of prescription drug brand love

Brand love is shown to increase a firm's financial profitability in the long term (Nguyen et al., 2021). More specifically, the brand commitment component of brand love ensures long-term relationships with brands, resulting in continuity of purchase, willingness to pay a higher price, and positive word of mouth for the brand (Fullerton, 2005; Albert et al., 2013; Wong, A, 2023). It is proposed that prescription drug brand love will also result in patients paying price premiums for their favourite drug despite having a cheaper generic alternative or having full reimbursement coverage obtained through insurance or a drug access program.

RP₇ = Willingness to pay a price premium is a characteristic of prescription drug brand love

The last characteristic of prescription brand love, as proposed in the model, is tolerability. As the specific construct was not studied in the consumer goods context, it has been adapted for this research from the forgiveness construct literature. Consumers tend to forgive their favourite brand's wrongdoings and not believe negative press communicated about them (Gürce et al., 2022; Kim, K and Nobi, B, 20219). In this study, patients are expected to be more forgiving and to tolerate negative news communicated about their favourite prescription drug brands (Heinrich et al., 2012). Given the fundamental utilitarian value and need associated with the pharmaceutical industry, it is proposed that brand love is characterized by the tolerability of side effects experienced with the medication. It is expected that tolerability of the drug's side effects is a proxy for forgiveness in this study and context.

RP₈ = Patient's tolerability for the drugs' side effects is a characteristic of prescription drug brand love

3.1 Theoretical model:

This research consists of two studies exploring prescription brand love and one theoretical model proposed to summarize and describe the research question and proposals. Figure 1 summarizes the main characteristics that potentially define pharmaceutical brand love. It is proposed that prescription brand love will have eight characteristics/variables that define it. Additionally, the main relationships among its variables are explored.



Figure 1. Proposed prescription brand love characteristics/variables.

4. Research methodology:

The research questions and proposals were addressed using two studies. Firstly, qualitative research methodology was used to explore brand love in the pharmaceutical context to offer a general overview of the phenomenon and to identify relevant variables. Online ethnography (Netnography) was used to gather patient reviews and feedback to offer a deep human understanding crucial in this discovery phase of the phenomenon (Kozinets et al., 2010). To begin, patients' comments about the ten most prescribed branded drugs were downloaded from social media websites. Then, the content analysis software *Voyant Tools* was used to quantitatively analyze these comments and perform word frequencies, collocations, word-emotions heat maps, and co-occurrence networks. Common themes and variables were identified through a mix of inductive and deductive approaches.

Secondly, Study 2 was then conducted to confirm variables identified in Study 1. Quantitative research methodology was utilized to deductively confirm and explore variables pertinent to prescription drug brand love. The five variables proposed to characterize brand love were explored using a self-administered questionnaire including 22 items total. The survey was constructed using *Qualtrics* and participants were recruited using the tool *Connect on Cloud Research* platform. The *Cloud Research* platform was chosen due to its high-quality data and numerous participant screening and attention checks. A pilot study was launched before the full study to pretest the questionnaire and allow for final modifications and item clarifications. Later, patients' feedback and emotions were analyzed using EFA identifying the main factors (dimensions) underlying the data. The statistical software Statistical Package for the Social Sciences (SPSS) was used to perform Dimension reduction, EFA, and scale reliability measures.

5. Study I: Unravelling the topology of prescription brand love using netnography:

5.1.1 Procedure

First, industry reports and statistics were used to identify the most prescribed drugs. Reliable pharmaceutical industry reports and newsletters were accessed through the freely available daily monitor *Fierce Pharma*. A report titled “*The top 20 drugs by worldwide sales in 2021*” was used to identify the most sold prescription drugs in the year 2021, and the correlation between sales and popularity was assumed. Afterwards, Google Trends was used to further narrow down the list by comparing the most frequently searched drugs, further solidifying brand choices based on real consumer search histories and real-life data. Amongst the 20 screened drugs, a total of 10 drugs were carefully chosen (Table 1), spanning a wide range of therapeutic areas and indices. Additionally, an industry expert was consulted to ensure the appropriateness of the brands included in this study.

Selected drugs were all branded innovator drugs (on-patent) to ensure that consumer feedback is only and solely focused on the brand studied, avoiding ambiguity due to generic drugs. It is important to note that some of the chosen branded drugs have multiple approved indices and a distinction among these indices was not made when the drug was studied.

It is important to also note that the report “The top 20 drugs by worldwide sales in 2021” included COVID-19 vaccines and related drugs. All COVID-19-related branded drugs were excluded from our analysis due to the politicization of the COVID-19 treatments hindering unbiased brand love data.

Table 1. The 10 selected prescription drugs and their therapeutic areas

Drug Name	Therapeutic Area
<i>Humira</i>	arthritis, Crohn's disease
<i>Keytruda</i>	immunotherapy cancer
<i>Biktarvy</i>	HIV
<i>Trulicity</i>	type 2 diabetes
<i>Ozempic</i>	type 2 diabetes
<i>Wagovy</i>	Weight loss
<i>Enbrel</i>	Biologic treatment of rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis
<i>Dupixent</i>	eczema, asthma
<i>Abilify</i>	Bipolar Disorder
<i>Stelara</i>	A biologic for psoriasis treatment

Netnography was used to listen to patient's real emotions and gather insights from common social media websites. Patients' comments, posts, and feedback regarding the ten drugs were gathered using three social media platforms: *Reddit*, *Drugs.com*, and *AskAPatient.com*. The gathered data was downloaded manually by copy/pasting, which allowed the researcher to quickly scan and understand the context and feelings behind these comments. A total of approximately 3000 comments and reviews were collected averaging at 300 comments per drug. Some drugs were harder to collect reviews for due to the sensitivity and complexity of the disease, which hindered obtaining an equal number of comments for the ten drugs.

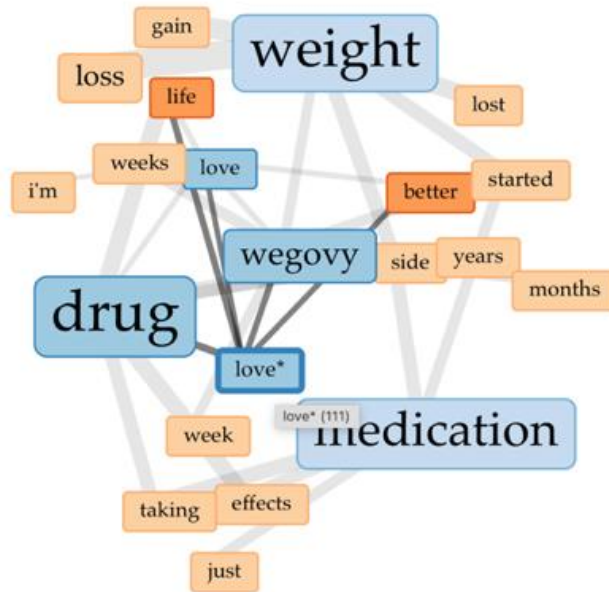
The freely accessible quantitative content text analysis software "*Voyant Tools*" was used, where each performed analysis was done twice, once for each drug individually and once for the ten drugs collectively. Firstly, word frequencies were performed. Secondly, word-emotion heat maps were created, highlighting green "positive," red "negative," and black "neutral" common

words and phrases. Thirdly, word collocation analysis (co-occurrence) was done. Fourthly, words correlating with “Love” were identified.

5.1.2 Study 1 results:

The quantitative content analysis revealed that patient-drug emotional relationships exist as patients often described their drugs with emotional words such as: “Like,” “Love,” and “Hate” (Figure 2). More specifically, the words “Like,” “Love,” and “Hate” were used 747, 111, and 41 times respectively. The term love was used frequently by patients at varied intensities from one drug to another, for example, *Wegovy* had 22 mentions of love, *Abilify* had 15, while *Dupixent* had only 4. Word heat maps helped describe the features and general emotions patients have for each prescription drug, as well as the frequency of each emotion (Figure 3). Negative emotions are labelled in red, such as “depression” and “anxiety,” and positive emotional words are labelled in green, such as “helped,” “better,” and “great.”

Furthermore, the collocation analysis explored terms frequently co-occurring with Love, revealing an interesting pattern of patient-varied emotions towards the ten drugs. Patient feedback resulted in the 10-drugs ranked from most to least loved as follows: *Wegovy* (8 counts), *Abilify* (5counts), *Stelara* (4), *Humira* (4), *Ozempic* (3), *Trulicity* (2), *Keytruda* (1), *Dupixent* (1), *Biktarvy* (1), *Enbrel* (0).



Moreover, collocations among key terms described how patients felt about certain branded drugs; for example, *Wegovy* was directly linked to “Love” and “Cares” (Figure. 8B), while *Humira* was linked to “Hate” and *Trulicity* to “Trust” ([Appendix B](#)). The phenomenon of brand love was further emphasized as various love levels were shown for drugs within the same therapeutic class, such as *Wegovy*, *Ozempic*, and *Trulicity*, respectively ranked from most to least loved. This analysis confirmed the presence of an intangible asset further differentiating these drugs from each other besides the therapeutic intent.

Next, words co-occurring with “Love” were identified using collocation analysis. For *Biktarvy* specifically, “Love” collocated with “Results” while it collocated with “works” and “remission” for *Dupixent* and *Enbrel*, suggesting that brand love includes efficacy as a characteristic. As the trust variable is proposed to translate into efficacy, the efficacy-themed word collocates confirmed the relevance of the variable in the pharmaceutical context. Other terms collocating with love are “Worth,” “Side effects,” and “Recommend” (Table 2), providing insights about relevant variables described by patients.

The researcher delved deeper to read into the individual comments to better understand the context of each collocated term. It was found that “Worth” appeared in two contexts predominantly: first, referring to the drug’s side effects as patients described the drug results to be “worth” the side effects faced during the treatment journey.

On the other hand, “Recommend” is collocated with love and is used when satisfied patients recommend the drug and endorse it openly on social platforms (Word of Mouth). On the other end of the emotional spectrum, negative feelings towards drugs resulted in patients explicitly not recommending/endorsing the drug.

Table 2. Terms collocating with Love and their frequencies.

Brand Love Construct	Brand Love	Brand Hate
Efficacy (trust)	Better, works, remission, helped	Killed, worse
Tolerability (forgiveness)	Worth the side effects	The side effects are not worth it
Love	Loved, great, like	
Hate		Lost, poison, horrible, bad, pain, side effects
Paying price premium	Worth the price	Not worth the price
Word of mouth (advocacy)	Recommend	I would not recommend

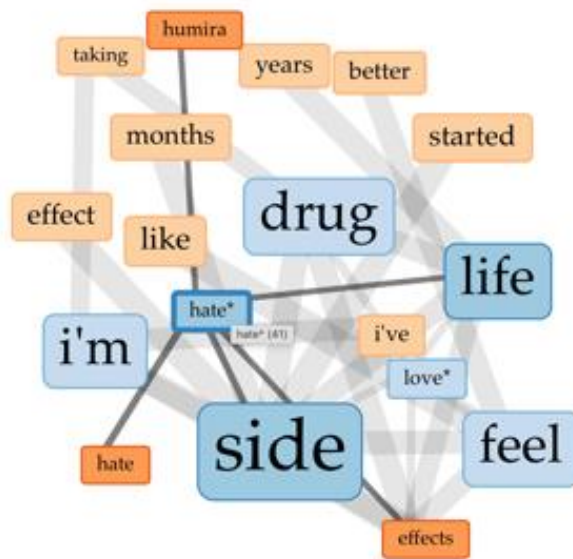


Figure 4. The emergence of brand hate.

Brand hate emerged as patients used the term “Hate” 41 times; the mirror opposite variables of brand love were observed along with the phenomenon. Patients were found to “not recommend” a drug when the Hate emotion is present. They often described the drug as “not worth” the side effects or the price point. They often use phrases such as “does not work” to describe their treatment journey. An interesting co-occurrence of Brand Hate and Brand Love emerged for the branded drug *Humira*. A clear pattern of preferred branded drugs emerged in the co-occurrence analysis as love is more used for *Wegovy* (Figure 2), while *Humira* had the most co-occurrence with hate (Figure 4).

It is important to note that an analysis exploring the correlation between a patient’s emotions and the specific indices of each drug can offer great explanation and unravel many layers for each drug. For example, patients mentioning “not worth” the side effects were often found in

the context of weight loss indices, while a deeper analysis mapping such correlation can offer another layer of insights.

5.1.3 Discussion

Patients were found to have feelings ranging from positive to negative emotions towards prescription drugs, suggesting the presence of a patient-drug emotional relationship while emphasizing the concept of Brand Love. They often used words describing their emotions and preferred specific branded drugs, liked branded drugs, and even hated ones.

The qualitative analysis revealed the use of terms relating to the drug's efficacy, such as "works," "remission," and "cure." The use of such terminology suggested the presence of the efficacy variable in the model, which is in line with proposals H₃.

Additionally, patients often used phrases relating to the tolerability of branded drugs using the term "worth" referring to the side effects. This finding suggested the presence of the "tolerability" variable in our model, which is aligned with proposal H₈, as tolerating the side effects or finding the drug to be "worth" the side effects is consistent with this theorization. Moreover, drugs were described as "worth" the price they pay for them (Table 2), where paying a price premium for a preferred brand supports the variable "paying price premium" included in proposal H₇.

Finally, prescription drug brand love frequently co-occurred (collocated) with PWOM, supporting the presence of the "PWOM" variable in the model consistent with proposal H_{4b}, stating that PWOM is a characteristic of prescription drug brand love.

Overall, Study 1 does not fully support a single research proposal; rather, it identifies variables relevant to prescription drug brand love and refines the scope of Study 2.

5.14 Preliminary findings:

Study I suggested the overall presence of brand love in the prescription drugs context, and it explored the topology of the phenomenon by unravelling common themes and phrases commonly used by patients.

Quantitative content analysis cannot confirm causal relationships or establish statistical conclusions; rather, it is used to identify general variables and common themes in the discovery phase of a phenomenon. This preliminary study refined the scope of the research and narrowed the variables down from 8 proposed variables as seen in the literature to 5 relevant ones: positive word of mouth, tolerability, paying price premium, efficacy, and drug/patient communities. Although Study 1 had minimal mention of PSP programs, the researcher is interested in the role of communities in the overall success of patient journeys (Bosch et al., 2017); thus, the PSP variable was included as a reflection of their proposed importance. Thus, the relevant variables supported the following proposals: 2, 3, 4b, 7, & 8.

Netnography allowed us to understand the language and phrases patients often use to describe their prescription drugs, whether negative or positive. The questionnaire was refined to capture the five main identified variables co-occurring the most with “Love” ([Appendix A](#)). Patient feedback and terminology were used to construct the items and adapt pre-existing scales to the pharmaceutical language. This step allowed for a better general understanding of the research variables and helped us refine the research questionnaire by confirming the presence of theorized concepts while unravelling new dimensions and keywords used by patients.

6. Study II: Exploring the characteristics of prescription brand love using a cross-sectional survey methodology:

6.1.1 Procedure:

A questionnaire-based survey was constructed using variables pertinent to pharmaceutical brand love as identified by Study 1. Initially, a theoretical model was proposed including eight brand love variables identified from the literature, while only five variables were found relevant in the pharmaceutical industry context. The five variables are 1. efficacy, 2. tolerability, 3. positive word of mouth, 4. price, 5. PSP. The identified variables were previously measured in literature; thus, pre-existing scales were used to measure these variables (Table 3). Scale items were adapted to fit the pharmaceutical industry terminology using patient feedback, as observed in Study 1. For example, the variable “Trust” was adapted to “Efficacy” as observed in the pharmaceutical industry which was measured using items adapted from the Trust literature and scales (Table 3).

Table 3. Measurement scales for each variable.

Variable as found in literature	Variable adapted to the pharmaceutical context	Scale	Scale reliability measure
Trust	Efficacy	Delgado-Ballester, Et al 2003 Leonard and Katsanis 2013	> 0.70 (Cronbach's alpha) 0.92-Competence 0.85-Innovativeness
Positive word of mouth	The variable was not adapted	Carroll and Ahuvia (2006) Albert et al., 2013	0.92(Cronbach's alpha) .872 (Joreskog's Rhô)
Price premium	The variable was not adapted	Heinrich et al., 2012 Thomson, 2005	Not Found 0.93 (Cronbach's alpha)
Forgiveness	Tolerability	Heinrich et al., 2012 Wallac et al., 2014	Not Found > 0.7 (Cronbach's alpha)

The survey was constructed using *Qualtrics* and had a total of 23 items proposed to underly the five variables characterizing prescription drug brand love ([Appendix A](#)). Participants' feedback was captured using a 5-point Likert scale, with one being strongly agree and five being strongly disagree. A survey was used to capture and measure patients emotions towards their prescription drugs. The survey platform *Cloud Research* was selected, and participants were recruited using the tool *Connect*. Participants were monetarily compensated for taking the 10-minute survey in an amount equivalent to the minimum wage in their country of residency (USA) (1.5\$ USD for completing the 10-minute survey). Two additional attention checks and a reverse coded item were added to test for variance and reliability of participants' answers. Participants failing attention checks were automatically removed from the dataset. Participants were screened

to have been prescribed a drug in the past 12 months to be eligible to participate, and they were asked to note down the drug name they were prescribed.

The software Statistical Package for the Social Sciences (SPSS) was used to perform dimension reduction on the dataset to explore the main dimensions underlying the phenomenon. There are two goals of the analysis: firstly, reducing our data to its main factors (variables) using EFA, and secondly, to confirm if our 23 items do, in fact, measure the five proposed variables. A pilot study was performed (N=100) before the full study (N=375) to pretest the questionnaire items and validate their internal correlation to perform EFA. It is important to note that in EFA, the number of main factors predicting our variables can be identified; however, the actual meaning (labelling) of the factors remains unravelled, and the researcher can relate their assumptions and proposals to the outcome. Varimax rotation was selected to execute EFA to eliminate factor correlation and minimize factors.

A common practice in EFA research is having N=50 as a reasonable absolute minimum (de Winter et al., 2009); the full study has N=330, providing adequate statistical power. Another recommendation is to sample 10 times as many participants as variables; in our study, 22 (items) *10= 220 recommended participants Nunnally, J. C. (1978). Further confirming the adequacy of our sample size.

6.1.2 Pilot Study

6.1.2.1 Results:

EFA Analysis

EFA analysis was performed on the pilot study to pretest the eligibility and overall fit of the questionnaire items see ([Appendix A](#)) for EFA data. Kaiser–Meyer–Olkin (KMO)= 0.852 is good, higher than the recommended > 0.5 KMO, meaning our dataset is adequate and suited for

EFA analysis; view [Appendix C](#) for EFA results. Bartlett's test of sphericity was statistically significant <0.05 (P-Value < 0.001), emphasizing that our variables are correlated and thus can be grouped using factor analysis.

Factor commonalities were all > 0.5 , suggesting that all 23 items were a good fit in the model; furthermore, six factors had an Eigenvalue of >1 , and they explained 67.63% of the total variance; the general recommendation is for the extracted factors to explain 60%-70% of the total variance. The Scree plot (Figure 5) shows a clear inflection point (elbow) where the Eigenvalue is greater than one.

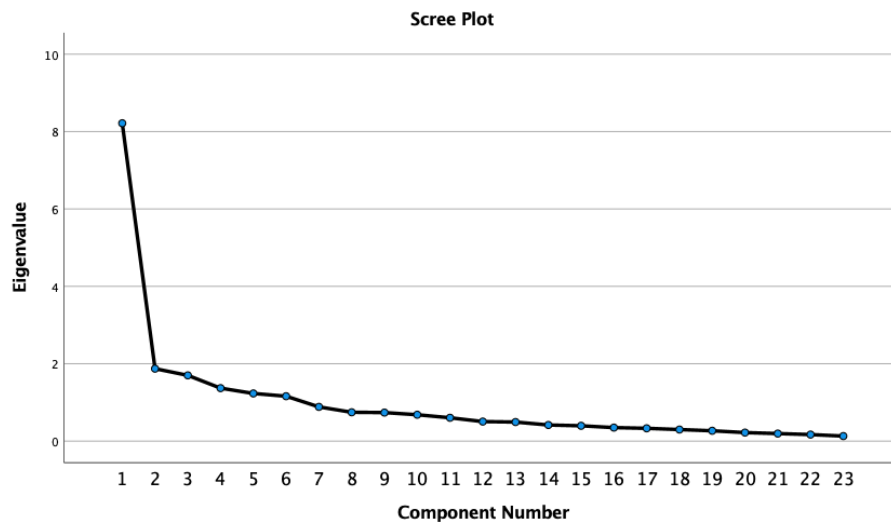


Figure 5. Pilot study Scree plot.

6.1.2.2 Descriptive statistics

In the pilot study, there were many incomplete responses, resulting in deleting those responses and thus reducing the statistical power. To optimize the test's statistical power and maximize the number of participants, the survey structure was modified to make all questions mandatory so participants could not skip any statement or section in the survey.

Item 6 was reverse-coded using item 7 to test the reliability of the measurement, and both item's response means were compared using a 95% confidence two-tailed t-test ([Appendix C](#)).

Levene's test of independence was performed at a 95% confidence interval with p-values = (0.077 and 0.081) > 0.05 and t-values (1.817 and 1.795) > than the upper limit (1.239 and 1.248). Concluding the lack of enough evidence to reject the null hypothesis, and thus both means are statistically equal. As a result, the reverse coded item was eliminated as it had been statistically proven equal to the original item and might not be enhancing our understanding of the phenomenon.

The descriptive statistics ([Appendix C](#)) revealed an unexpected response for the PSP statement, with an average of 3.58. Patients were expected to be encouraged by the presence of PSP and enhance the continuity of purchase and use of that brand. As a result, the statement was modified to offer an elaborate explanation of the financial support offered by PSPs to ensure participants understood the meaning of the term. Results in the full study will reveal if the statement clarity hindered the positive outcome of this item or confirmed patients' opinions about PSPs.

The items PWOM 2 and 5 assessed patients' relationship with social media platforms, specifically sharing and receiving information on these platforms. Statement 2 captured patients' involvement in sharing their experiences on social media platforms. Statement 5 assessed if patients resort to social media platforms to read other patients' feedback to form a better understanding of the branded drug. Average responses for both statements were negative, at 3.67 and 3.44 respectively. Patients' negative feedback towards social media use was unexpected and contrary to the wide utilization of social media in the FMCG industry. As a result, a new item was added to screen patient's primary sources for information about branded prescription drugs.

6.1.3 Full Study

6.1.3.1 Sample composition:

Recruited participants were all US residents who had been prescribed at least one prescription drug in the past 12 months. A total of (N=375) participants completed the survey with an average completion duration of 5 minutes and 11 seconds. The sample was reduced to (N=361) by eliminating failed attention checks. Participants were 50.1% female and 49.9% male, all having an education of high school graduate diploma or higher. The sample age segmentation was as follows: 32.8% (30-44 years old), 32.8% (45-59 years old), and 34.3% (60-99 years old). The study focused on participants older than 30 years old due to prescription medications being more common and utilized within older population segmentations. Participant's race was 78.1% white, 13.9% Black/African American, and 8.0% other (American Indian, Chinese, etc).

6.1.3.2 Descriptive statistics:

Dataset descriptive statistics are shown in Table 4, revealing interesting data insights. The item labelled PWOM 2 (proposed to measure PWOM) had the most negative mean outcome (3.65) where almost 85% of participants reposted that they never shared their personal experience online or through social media platforms. The item PWOM 5 was also negative with a mean (of 3.5290), revealing that participants do not search social media platforms for patient feedback or experiences to help understand the brand. Furthermore, 99.73% of participants reported their physicians to be their primary resource of information when it comes to their prescription drugs. Participants reported their primary resource of information about prescription drugs to be 99.73% their physician, 49.68% their pharmacists, 3.60% social media platforms, 52.35% the internet, and 5.82% friends and family, as shown in Table 5. Participants did not believe that watching media ads enhanced their trust in their branded drug, as shown by item PWOM 4. The effect of past

positive experiences with the brand did not have a positive impact on confidence in the brand, as shown in item efficacy 3. Other items, such as Price 3 and 4, showed more neutral answers with means (of 2.95 and 2.995 - respectively). Items efficacy 1 and tolerability 2 had strongly positive means (1.55, 1.54) and narrow standard deviations. Tolerability items 2,3,4, and 6 were positive, as well as efficacy 2, 4, and 5.

Table 4. Descriptive statistics for full-study items.

Descriptive Statistics			
	N	Mean	Std. Deviation
PWOM 2: I have shared and posted about my personal experience with this brand on online social media platforms	363	3.6516	0.8808
PWOM 5: I search social media platforms for patient feedback and experiences to better understand the brand	363	3.5290	1.4995
PWOM 4: Watching media advertisements about the medication further enhances my trust in the brand	363	3.3870	1.0917
Efficacy 3: I had a previous positive experience with this brand that made me confident in this brand	331	3.0208	1.8416
Price 4: I will choose this brand over cheaper generic substitutes	363	2.9952	1.2494
Price 3: I will continue to purchase and ask for this brand even if cheaper alternatives were present and offered to me	363	2.9482	1.2428
Price 1: I am willing to continue purchasing this brand even if my insurance does not fully cover the cost	363	2.9099	1.3932
PWOM 3: I often share my personal experience with this brand within my friends and family	363	2.9016	1.3556

PSP 1: The presence of a patient support program encourages me to use this brand and continue to use it	203	2.7171	1.1223
Efficacy 6: I feel this brand cares about me as a patient and my medical condition	363	2.5664	1.0443
Tolerability 5: This brand completely understands my needs and my specific condition and tries to make my treatment journey better	363	2.2929	1.0231
Efficacy 4: The brand is honest and transparent in explaining the treatment journey and potential challenges	363	2.1601	0.9356
Efficacy 2: Hearing positive experiences from people I trust enhances my trust in this brand	363	2.0938	0.9561
PWOM 1: I would recommend this brand to friends and family members	363	2.0359	0.9756
Tolerability 6: I can tolerate the frequent tests and follow-ups required from my healthcare provider as part of my treatment plan	363	2.0193	0.9845
Tolerability 1: The intended results makes the journey tolerable despite the side effects	363	1.9170	0.9426
Tolerability 4: Overall this brand is a good choice as it is worth the side effects and challenges I may have experienced	363	1.8092	0.9224
Through self evaluation, I feel improvement and progress in my condition	363	1.7815	0.8980
I trust this brand has good quality ingredients and solid research supporting it	363	1.7426	0.8233
Price 2: So far I feel this brand has been worth the price I pay for it	363	1.6571	0.8568
Efficacy 1: This brand is effective in treating my condition	363	1.5490	0.7506
Tolerability 2: I believe this brand will or is currently treating my medical condition	363	1.5352	0.7440

Table 5. Summary of patient's resource reliability

Source	# answers	% of responses
Physician	360	99.7 %
Pharmacist	180	49.7 %
Social media platforms	13	3.6 %
Internet	189	52.4 %
Family & friends	21	5.8 %

6.1.3.3 Results:

A. EFA and data reduction

Step 1: An EFA analysis was conducted on the 22 items, excluding loadings less than 0.3. A Varimax rotation was applied eliminating factor correlations and providing item cross-loading visibility. The 22 items loaded into five factors shown in [Appendix D](#), total explained variance by the five factors = 59.54%. Items loading on two or more factors also had communality values less than the recommended 0.5, were deemed unsuitable for the factor solution, and thus eliminated from the model. A total of 6 items were eliminated: tolerability 5 and 6, efficacy 2 and 4 and 5, and PWOM 4.

Step 2: A subsequent EFA was conducted for the 16 remaining items, using Varimax rotation, resulting in 4 factors (Eigenvalue >1). The portion of explained variance was 61.10%; however, the item efficacy 7 loaded on two factors and had a ($0.441 < 0.5$) communality value; thus, the item was eliminated, further reducing the model to 15 items.

Step 3: An EFA was conducted on the remaining 15 items, applying a Varimax rotation. The data loaded on four factors having an Eigenvalue > 1 as Shown in Figure 6. The Scree Plot has a clear inflection point (elbow), confirming the presence of 4 factors above the Eigenvalue of 1. Kaiser–Meyer–Olkin (KMO)= 0.850 > 0.7 (recommended value) confirming the adequacy of

the model, Bartlett is significant ($0.000 < 0.05$) statistically proving a significant correlation among variables in the population.

The variance explained is 62.64%, as shown in Table 6, where the general recommendation in EFA analysis is for the extracted factors to explain 60-70 % of the total variance.

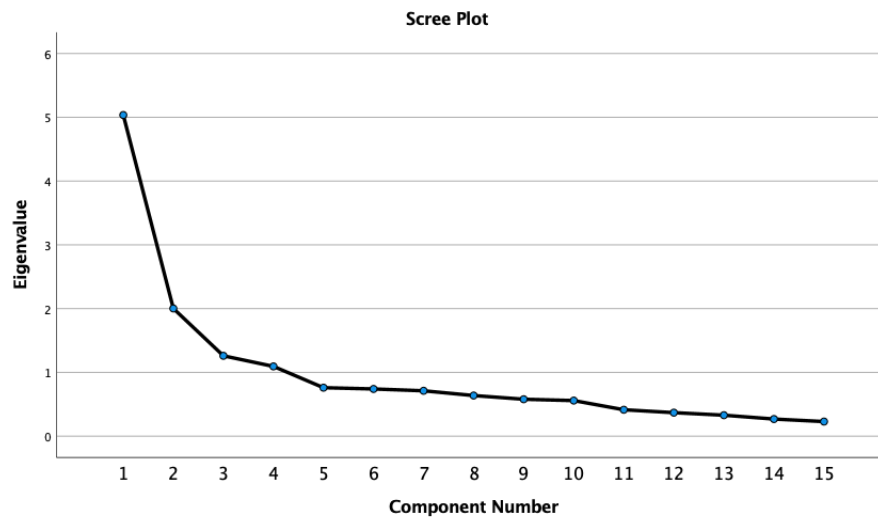


Figure 6. Reduced model Scree plot

Table 6. Extracted factor's Eigenvalues and explained variance.

Total Variance			
Explained			
Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	5.036	33.577	33.577
2	2.003	13.355	46.932
3	1.261	8.407	55.339
4	1.095	7.299	62.638

B. Items reliability-data reduction

The robustness and reliability of items to measure the proposed variables were tested. For each of the four variables, efficacy, tolerability, PWOM, and price, a scale reliability test and EFA were conducted. The variable PSP had only one item; hence, no test was needed for it. To view scale reliability results and the individual variables of the EFA, see [Appendix D](#). The scale's Cronbach's alpha was exported, and Cronbach's alpha "if item was deleted" tool was used to verify single-item contributions to the overall model.

The variable Efficacy had six items, while items efficacy 2 and 3 with commonalities (0.354 & 0.180) < (0.5 recommended value) and scale reliability increased to Cronbach's alpha increased from 0.683 to 0.763 view [Appendix D](#). As a result, items efficacies 2 and 3 were deleted.

The variable tolerability had six items and a Cronbach's alpha of (0.825); scale reliability was improved by removing tolerability 6 (0.83), while tolerability 5 did not seem to be a differentiating item (scale reliability is retained). The items had communality values <0.5, and thus, tolerability 5 and 6 were eliminated from the scale.

The Price variable had four items, with scale reliability, Cronbach's alpha is 0.725 which is increased to 0.74 upon deletion of item Price 2. The item also has a low communality value, as a result, it was deleted from the scale.

Lastly, the variable PWOM had five items and a scale reliability of Cronbach's alpha (0.567). Using scale reliability data, no items seemed particularly problematic, but overall, they were not good at measuring the construct (PWOM). The EFA analysis revealed that the items are measuring two separate constructs (2 factors). Item PWOM 3 loaded on both factors and thus was deleted. PWOM 1 and 4 loaded on factor 1, while PWOM 2 and 5 loaded on factor 2. View [Appendix D](#) for the EFA analysis. In conclusion, six items were eliminated as they were deemed

unsuitable measures for their intended variables; the six items are PWOM 3, Price 2, tolerability 5 and 6, and efficacy 2 and 3, resulting in a 16-item model.

C. Stricter EFA on reduced items

A subsequent EFA analysis was performed on the 16 items reduced in section B. The following items loaded on two or more factors or had a communality value (< 0.5): efficacy 4 and 5, PSP, and PWOM 4. Thus, the items were eliminated from the model; view [Appendix D](#) for the full EFA data. A final EFA analysis was performed on the reduced 11 items where they loaded on three factors having Eigenvalue (> 1), further confirmed by the Scree Plot (Figure 7) starting with a steep line, followed by a clear inflection point to be flattened into a straight line.

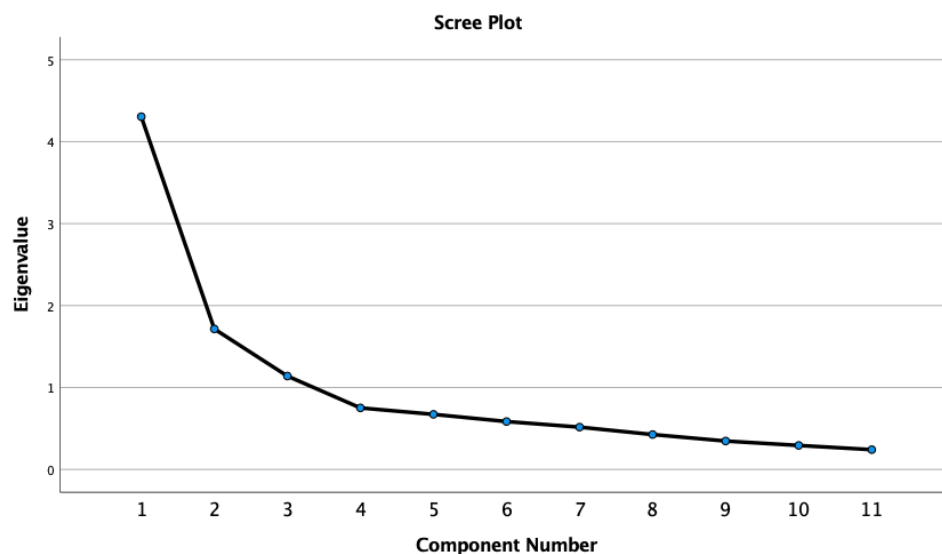


Figure 7. Final model Scree plot.

All items had communalities > 0.5 and were loaded on one factor only using Varimax rotation. The total explained variance by the three extracted factors was (65.108%). Factor loadings are shown in [Appendix D](#), and the 11 items had no cross-loadings within the factors. KMO-value was strongly positive (0.843), and Bartlett's test of item correlation in the population was significant (< 0.001).

Table 7. Final model: factors Eigenvalues and explained variances.

	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	4.306	39.144	39.144
2	1.715	15.595	54.739
3	1.141	10.368	65.108

EFA analysis confirmed three main dimensions describing prescription drug brand love: price, information-exchange, and trust (Figure 8). The model summarizes the three dimensions as well as the main items/components describing each dimension. The three confirmed factors had price & trust as extrapolates from the FMCG industry and Information-exchange as a unique factor to the pharmaceutical industry. Next, the fundamental relationship among the three factors was investigated further.

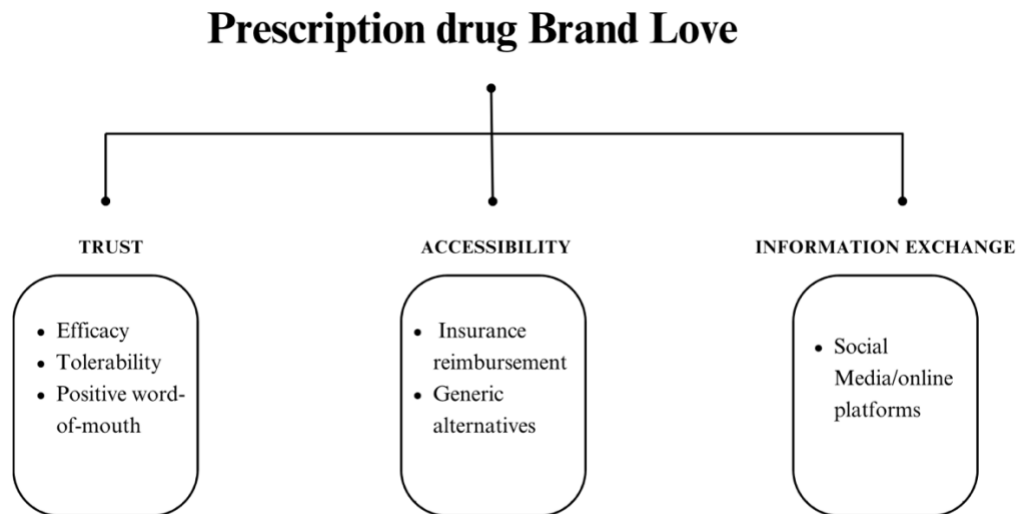


Figure 8. Elements of prescription drug brand love.

D. Correlation among the three factors

The correlation among the three factors, trust, information-exchange, and accessibility, was explored using multiple regression to understand basic relationships among variables. The

purpose of this analysis is simply to establish potential relationships among variables; however, the directionality of such relationships is yet not confirmed. The ANOVA (Table 8) displays how well the regression model correlates with variable trust. The regression model is significant $p\text{-value} = <.001$ at a 90% CI; the two variables, information-exchange and accessibility, are significantly correlated with the variable trust. However, the regression coefficient $R=0.384$ (Table 9) showcases a weak correlation among the variables. Additionally, the R-squared is (0.148), indicating that only 14.8% of the dependent variable variance can be explained by the independent variables.

Table 8. ANOVA^a table

	Sum of Squares	df	Mean Square	F	Sig.
Regression	25.715	2	12.858	31.013	<.001 ^b
Residual	148.421	358	0.415		
Total	174.136	360			

a. Dependent Variable: Trust
b. Predictors: (Constant), Information-exchange, Accessibility

Table 9. Model summary.

R	R Square	Adjusted R Square	Std. Error of the Estimate
.384a	0.148	0.143	0.64388196

The coefficients table shows a correlation relationship between accessibility and trust (Table 10). The results reveal that the variable accessibility and trust have a significant relationship between them ($p\text{-value} < .001$). However, information-exchange was found to be statistically non-significantly correlated with the variables trust. The variables trust and accessibility are positively correlated, having a slope of (0.258).

Table 10. Coefficients table

	Unstandardized Coefficients	Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	1.209	0.15		8.05	<.001
Accessibility	0.258	0.033	0.391	7.875	<.001
Info-exch	0.055	0.036	-0.076	-1.538	0.125

Note: Dependent Variable: Trust

6.1.3.4 Summary of results and discussion of model

Section A offered a preliminary analysis to reduce the 22-items into its principal components characterizing Brand Love. As a result, six items were eliminated, and 16 items were validated. Then Section B tested the robustness of the proposed items by measuring their proposed variables, Cronbach's alpha if an item was deleted, along with EFA analysis, which resulted in eliminating six items in total. Lastly, the model. Finally, 11 items aligned with those concluded in Section A were retained. However, analysis C had more stringent conditions and performed a thorough, in-depth elimination. Analysis C further explored the findings of analysis A while having a rigorous approach, yielding 11 validated items describing three characteristics of Brand Love.

Factor 1 had items PWOM 1, efficacy 1, and tolerability 1,2,3 loading into it, and the items had a theme of trust, as shown in the questionnaire ([Appendix D](#)). The items described the overall trust in the branded drug's efficacy and tolerability as patients recommended the brand to their friends and family (PWOM1).

Factor 2 had the clear theme of accessibility, as patients' continuity of purchase had two underlying layers: 1. reimbursement of the drug by their insurance and 2. availability of cheaper generic alternatives. Even though the descriptive statistics showed a more neutral response for the

three items, the standard deviation was greater than 1, describing a wide range of responses. The results revealed that accessibility had two main components: reimbursement/coverage of the drug and the presence of cheaper alternatives (price). Additionally, patients showed their willingness to switch to cheaper alternatives when present.

Factor 3 was labelled as information exchange. Patients' information exchange consisted of sharing their own experiences on online social media platforms and searching online platforms for other patients' feedback to better understand the brand. These patient interactions are shown to revolve around patients seeking to be informed through social media platforms while also sharing their experiences.

Lastly, the multiple regression analysis revealed a simple linear correlation among the two variables, trust and accessibility. Indicating that there is a correlation present among these two variables.

Study 2 revealed three main dimensions characterizing prescription drug brand love: accessibility, information-exchange, and trust (Figure 8). The dimension of trust was extrapolated from the FMCG brand love literature; however, it encompassed variables unique to the pharmaceutical industry: efficacy of the drug, tolerability of its side effects, and positive word of mouth shared among friends and family. Accessibility offers tangible implications against competition, specifically towards the reimbursement and pricing strategy of a drug. Lastly, the information exchange factor highlights key weaknesses in the marketing strategy and offers insights into the role of social media in patient (customer) retention. Additionally, the dimensions of information exchange and accessibility are unique to the pharmaceutical industry and differ from those describing FMCG brand love.

6.1.3.5 Summary of research proposals

Brand trust has been shown to induce Brand Love (Hess, 1995), which supports proposal 3. However, the researcher proposed that “trust” in the pharmaceutical context would translate to efficacy, which wrongfully narrowed the scope of the construct too much. Factor 1 described the patient’s definition of trust which encompassed sharing this trust within their friends and family circle only. Trust is a significant factor shared by friends and family members; therefore, Factor 1 was labelled as Trust. The trust construct characterizing FMCG held its robustness and was relevant in the pharmaceutical industry; however, it was not a proxy for “efficacy” as expected. Research proposal 3 was partially supported as trust is a characteristic of prescription drug brand love but did not translate directly to efficacy. The proposed efficacy construct limited the concept of trust in the pharmaceutical industry, as trust in the prescription drug industry encompassed efficacy, tolerability, and positive word of mouth, which supported both proposals H_{4a} and H_{4b}.

Furthermore, Factor 2 revealed that accessibility is a characteristic of brand love, supporting proposal H₂. However, the price was a characteristic of the accessibility dimension, but patients showed a willingness to switch to cheaper generic alternatives; thus, proposal H₇ was rejected. Factor 3 further confirmed the role of PWOM and social media in prescription drug brand love, providing additional support for proposal H_{4b}. Table 11 provides a summary of the outcomes of the proposals.

Table 11. Acceptance and rejection of research proposals

H₁	Utilitarian function/value is a characteristic of prescription drug brand love	Rejected
H₂	PSPs/accessibility is a characteristic of brand love	Supported
H₃	Brand efficacy is a characteristic of brand love.	Partially supported
H_{4a}	Positive word of mouth is a characteristic of brand efficacy	Supported
H_{4b}	Positive word of mouth is one characteristic of brand love	Supported
H₅	Separation anxiety is a characteristic of prescription drugs brand love	Rejected
H₆	Patient loyalty is a characteristic of prescription drug brand love	Rejected
H₇	Willingness to pay a price premium is a characteristic of prescription drug brand love	Rejected
H₈	Patient's tolerability for the drugs' side effects is a characteristic of prescription drug brand love	Supported

7. General discussion:

The goal of this research is to enhance patients' long-term commitment to branded prescription drugs by extrapolating the phenomenon of Brand Love to the pharmaceutical industry along with its positive consequences. This research confirmed the presence of a patient-drug emotional relationship and unravelled the nuance of prescription drug brand love in the pharmaceutical industry. The findings unravel the three main elements describing prescription drug brand love: trust, accessibility and information-exchange. Trust for prescription drugs adopted a new definition encompassing assumptions about the efficacy of the drug and the tolerability of its side effects, all shared and enhanced within a trusted circle of friends and family. The accessibility dimension introduced a tangible implication to prescription drugs' pricing and reimbursement strategies which can enhance a drug's positioning against competitors and overall market share. Lastly, the information-exchange dimension highlighted a key weakness in branded drugs' digital marketing strategies as patients' need for reliable digital resources communicated on social media platforms surged.

Firstly, a general preliminary understanding of brand love was offered in Study 1, where the main characteristic variables were unravelled. Study 1 utilized an inductive research approach, as patients' comments were analyzed using content analysis to form general conclusions and identify common themes. Study 1 qualitatively explored the emotional patient-branded drug relationship and identified its general characteristics; patients described brand love with the following variables: tolerability, efficacy, paying price premium, positive word of mouth, and patient support programs. Additionally, in Study 1, the phenomenon of brand hate emerged and was even found to co-exist with brand love simultaneously. The emergence of brand hate was surprising, as the scope of the research focused on the love emotion and its positive consequences;

however, observing the opposite emotion added a layer of complexity to the research, reflecting a wide range and types of consumption experiences. Human emotions are rarely simple, and treatments using prescribed medications may vary depending on the medical case, personal preferences, and specific patient needs. This finding added an interesting perspective to the research and widened the scope of the study to reflect the different human emotions and attitudes towards the same product.

Study I leveraged online ethnography to listen to patients' emotions, and they were found to use emotional words to describe their feelings towards branded drugs, ranging from positive to negative ones. For example, words such as "love," "hate," and "like" were frequently used to describe branded drugs. Additionally, a clear preference pattern was observed for drugs within the same therapeutic area as Wegovy had the most mentions of love while Trulicity had the least. Moreover, various phrases collocated with love, such as "worth the side effects," "price," "trust," and "recommend" which defined the scope of the study by highlighting variables pertinent to the pharmaceutical industry (Table 2). A total of 5 relevant variables were identified: efficacy, tolerability, price, PWOM, and PSPs. The identified variables suggested the presence of a unique prescription drug brand love that differs from that of FMCG. Surprisingly, the PSP variable was not particularly observed in the content analysis; this finding was unexpected given the emphasis literature illustrated on brand community's role in solidifying identification with a brand, resulting in higher brand love, positive association, customer loyalty, and advocacy (Bergkvist et al., 2010; Coelho et al., 2019). As a result, the variable was included to confirm the proposed positive outcomes of PSPs and make a concrete conclusion about their significance.

Notably, the opposing emotional phenomenon "Brand Hate" emerged, where patients' emotions were communicated using opposing phrases to those observed with brand love. Patients

often described hated drugs as being “not worth the side effects,” “not worth the price point,” and “do not recommend.” Moreover, patients had complex, conflicting emotions for certain brands; for example, Humira was specifically correlated with hate while simultaneously correlating with love, creating an interesting paradigm as the two constructs co-existed together. Patients pronounced hate for brands such as Humira, which did not eliminate the existence of brand love, which created an interesting co-existence of both phenomena. This co-existence was described in the literature by a dual love/hate model identifying opposing variables such as “loyalty/avoidance, positive/negative WOM, and repurchase/retaliation.” (Madadi R. et al., 2021). It is important to note that the screened 10-branded drugs selected in Study 1 held one or more therapeutic indices, which might induce patients to have negative experiences with one therapeutic index but not the others. Attributing the emotions to the therapeutic index was not undertaken in our study, which may explain the “co-existence” of brand love and hate. Perhaps hate was generated from negative experiences to one index, while love was generated from another index. The observed effect of brand hate in Study 1 was expected to be confirmed and captured in Study 2 through patients’ responses to the questionnaire.

Study 1 concluded five relevant variables; however, it was proposed that eight variables would characterize prescription drug brand love. Loyalty was such proposed variable to describe prescription drug brand love as literature found it to be a consequence of brand love for the OCT brand Aspirin (Borges, A. et al., 2016). This missing effect can be explained by the utilitarian value associated with prescription drugs as patients should adhere to them, contrary to FMCG or OCT medications that could be chosen more leniently with relatively less precautions and consequences. Thus, patients’ loyalty to prescription drugs will be missing in the absence of the condition, and regular long-term voluntary purchases will not be present. Another variable

proposed to characterize prescription drug brand love is paying a price premium; however, paying a premium price point for a specific brand was not observed in the study. This finding was not particularly surprising, given the popularity and strong presence of cheaper bioequivalent generic alternatives, which usually serve as a reliable and safe option. Lastly, separation anxiety was also not observed in the content analysis, which could be attributed to stopping the medication once healed and improved from the medical condition, which usually is associated with positive emotions and not separation anxiety toward the prescription drug.

Study 2 confirmed the relevance of the five variables identified in Study 1, using an EFA to identify the phenomena's main dimensions. Study II yielded a descriptive model that summarized prescription drug brand love into three main dimensions: Trust, Accessibility, and Information-exchange.

The first factor, trust, was proposed to describe a drug's efficacy; however, it is found to not be limited to it. Moreover, trust in the pharmaceutical industry was found to be an umbrella term encompassing assumptions about a branded drug's efficacy, tolerability, and word of mouth. Patients' trust in their prescribed drugs stemmed from the drug's fundamental utilitarian value (efficacy), further enhanced by having tolerable side effects throughout the treatment journey. Consistent with proposal (H8): patients were found to better tolerate the side effects of their preferred prescription drug, similar to consumers becoming more forgiving of their preferred brand's wrongdoings (Gürce et al., 2022; Kim, K and Nobi, B, 20219)). Additionally, consistent with the proposal (H4a), positive word of mouth was found to be a characteristic of brand trust as patients would recommend branded drugs within their trusted circle of friends and family. Mirroring customer behaviour in the FMCG context, patients also become advocates for their

preferred branded drugs (Albert et al., 2013) as they recommend their preferred drugs to other patients.

The second factor, information-exchange, was found to be a defining characteristic of prescription drug brand love. This study found that patients explicitly browse social media platforms to share their personal experiences and gather opinions on prescription branded drugs. Our study also confirmed the role social media platforms play in patient's information search, as it was found to be a component in the information-exchange dimension. Moreover, a 2002 study found that "43% of respondents to the FDA survey reported that seeing a drug advertisement led them to look for more information about the drug" (Gellad, Z. F., & Lyles, K. W, 2007). However, when asked about reliable sources to obtain information about prescription drugs, 99.72% of patients were found to seek their physician's help, 49.68% their pharmacist, 3.60% social media platforms, 52.35% internet, and 5.82% family & friends. While most patients rely on professional healthcare workers for advice, there remains a component of information shared online and through social media platforms despite information accuracy concerns (Antheunis et al., 2013). Our study confirmed those patients' accuracy concerns when it comes to information shared on various social media platforms, where only 3.6% of respondents considered it as a reliable source of information.

Moreover, the factor information exchange may be greatly attributed to DTC advertisement, specifically present in the US, aiming to educate patients and evolve their role in the prescribing process. Patients were found to seek social media platforms to obtain prescription drug information; this crucial finding highlights the emerging role of social media platforms in the shaping of brand images in consumers' (patient's) minds. Despite social media being a component of information-exchange, participants' responses remained neutral when it comes to sharing their

experiences online, which might be attributed to the sensitivity and privacy of conditions. A recent study using surveys and semi-structured interviews revealed that “few patients share their information and that older patients and patients with lower educational levels share more frequently” (Nurgalieva, L et al., 2020). Additionally, the nature of the medical condition greatly impacted patients’ willingness to share their experiences. For example, patients with cancer and psychiatric conditions tend to share less compared to other medical conditions (Nurgalieva, L et al., 2020). All these factors might have contributed to patients’ neutral responses to sharing their personal experiences on social media platforms.

The third factor, accessibility, consisted of two components primarily: insurance coverage and the presence of cheaper generic alternatives. Branded drugs have limited market exclusivity due to the short patent durations; therefore, it becomes essential to ensure facilitated patients’ access to the medication during this period. Additionally, building robust reimbursement strategies through private and public payers is crucial to grant this accessibility. It was found that brand-name medications are typically 30%–60% more expensive than their generic counterparts (Lewek, P., & Kardas, P., 2010), leading patients to switch to the bioequivalence cheaper alternative. Customer (patient) retention can be captured by revisiting branded drug pricing strategies once generic alternatives enter the market to alleviate generic pricing advantages. Furthermore, vigorous reimbursement and market-adapted pricing strategies may sustain companies as a viable competitive option for patients by offsetting the lower price point advantage most generic competitors hold (Singal, G. L, et al., 2011).

Study 2 confirmed and introduced structure to the five variables highlighted in Study 1. For example, the variables PWOM, tolerability, and efficacy were all confirmed in Study 2 and were sorted to describe one single factor labelled as Trust. Additionally, the proposed impact PSPs

would have on patient communities and later brand love (Bergkvist et al., 2010) was missing in both studies. Their effect was not a significant characteristic of prescription drug brand love. This finding could be explained by the usage of PSP programs by biosimilar companies, which diminished the significance of PSP programs as an added value to branded drug companies.

The multiple regression analysis revealed a significant relationship among the two dimensions of accessibility and trust. This finding illustrates the importance of ensuring a drug's accessibility through coverage plans and pricing strategies which correlates with fostering patients' trust. This finding can be explained by the trust being strengthened as the pharmaceutical company demonstrates reliable access to the medication and ensures its affordability using a patient-centric approach rather than being focused on a traditional selling mindset. Trust is described in the literature to reflect assumptions about reliability, honesty, and altruism (Hess, 1995). This finding (once the directionality is confirmed by future research) could emphasize the importance of drug accessibility in obtaining patients' trust and later love for prescription drug brands. This study suggests that pricing strategies should be adapted as cheaper generic substitutes enter the market to remain a viable option for patients, further reflecting values of altruism to ensure accessibility rather than a rigid money-driven pricing strategy. It is important to note that the directionality of this relationships is yet to be explored by future research.

Ultimately, the purpose of the two performed studies is to complement and confirm each other; however, some unexpected results were observed. For example, the phenomenon of brand hate, as well as the duality of hate/love relationships, was not confirmed in Study 2, as the 11 validated subitems were underlying a single factor attributed to brand love, whereas a second factor attributing to brand hate was missing. While brand hate was pronounced in patients' reviews with 41 mentions, its effect was not observed in participants' responses to the survey. This may be

explained by the popular use of online reviews to dissipate anger and dissatisfaction with a certain product, as described in the literature, “ease negative feelings associated with consumers unsatisfied by their consumption experience” (Yoo, et al., 2008). It is possible that hate was pronounced through online reviews as unsatisfied patients often rely on writing them to ease some of their uneasy emotions, while the effect was missing in the survey as participants were screened randomly and asked about their experiences.

Overall, the findings of this research further confirmed the fundamental differences between prescription drug brands and FMCG brands. Prescription drug brand love, as described by patients, was shown to hold different characteristics than those for FMCGs. FMCG brand love is characterized by three main pillars: intimacy, passion, and commitment. Firstly, intimacy is described as the brand being concerned with customers’ needs and that it strives to fulfil them (Breivik, E. & Thorbjørnsen, H, 2008). The intimacy construct was adapted into “trust” in prescription drug brands. Trust describes the fundamental essence of the patient-drug relationship, encompassing efficacy, tolerability, and word of mouth. Secondly, passion was not relevant in our context as passion reflects deep emotional connection and attachment that develops as separation anxiety for consumers (Thomson et al., 2005). Patients' sense of separation anxiety was not observed, which can be attributed to the utilitarian value associated with medications, as often patients are obligated to obtain a medication rather than willingly choose the product for convenience or leisurely purposes. Thirdly, commitment adapted into “accessibility” as the long-term patient commitment greatly depends on the drug’s reimbursement status and availability of cheaper generic alternatives. Consistent with the literature’s operational definition of accessibility as being “the ease with which a person can obtain needed care (including advice and support) from the practitioner of choice within a time frame appropriate to the urgency of the problem.”

(Haggerty et al., 2011). Patients' love for a branded prescription drug is rooted in the ease of access to the drug which is mainly facilitated by rigorous reimbursement strategies (public and private payers) and competitive pricing that ensures the feasibility of the drug when other options are present. This central component of prescription drug brand love offers tangible solutions to solidify a drug's continuous presence on the market.

Additionally, a third characteristic of prescription drug brand love and a key finding was information exchange, further highlighting prescription drugs' transition to the high-involvement product category, which involves the consumer taking time and trouble before deciding on a purchase." (Law, J, 2009). Previous literature argues that OTC medications are high involvement due to patients being information-seeking (Gore et al, 1994). Our findings expand the definition of high-involvement products to encompass prescription drugs as well, greatly attributed to DTC marketing, which resulted in patients adopting a more active role in their conditions and encouraging them to seek knowledge. Additionally, it confirms the growing role patients currently play in the prescribing process as they become more informed and knowledgeable about their prescription drugs. They are seeking other patients' experiences and forming brand presumptions that later actively drive the prescribing decisions and drug brand selections. Lastly, this finding shines a light on the importance of social media platforms in driving public opinions and more specifically, patients' overall attitude towards a specific medication. The strong presence of social media in patients' lives was not accompanied by drug marketers' effort to generate reliable medical resources shared on it as patients yet described social media as an unreliable source of information despite their presence on it.

Lastly, this research provided a general definition of prescription drug brand love and explored its main characteristics. It offered valuable insights and tools to industry professionals to

leverage and utilize to better patient journeys. It integrates and illustrates the need for social listening tools in building brand images and refining marketing strategies. It also highlights the major role social media plays in prescription drug information exchange and patients' daily interactions and decisions.

8. Managerial implications

This research offered preliminary theoretical contributions to the pharmaceutical marketing literature; however, these implications are not limited to academia. Marketing managers should leverage the preliminary model developed by this research and utilize it to facilitate building prescription drug brand love. The 3 dimensions discussed in this research offer tremendous insights into patient journeys and can help marketing managers better position their brands to capture patients love. While this model offers a preliminary understanding of the phenomenon, it is the first model in literature that can assist managers to tap into patients' basic needs and expectations from their prescription drug brands.

Marketing managers and industry professionals may leverage Netnography and social listening tools to their advantage; as seen in Study 1, patient reviews about a specific branded drug can be freely gathered on various social media platforms such as Reddit, Drugs.com, and AskApatient.com. Such analysis can be regularly performed by companies to gather patient opinions and emotions to help tweak and improve their marketing strategies. For example, the World Health Organization established the EARS platform that harvests daily COVID-19 patient conversations through blogs, news, comments, online forums, and public social media posts (McGowan, B, 2022). Similarly, patient real-time feedback can be leveraged to offer feedback to research and development, identify opportunities, and even optimize the overall brand image based

on real-time patient emotions. Patients' emotions, topics, and opinions can be summarized to describe common themes and trends in the market (Sobkowicz et al., 2012).

Unexpectedly, this study revealed that only 3.60% of patients rely on social media platforms as a reliable resource when seeking information about prescription drugs. Despite patients not considering social media as a reliable source of prescription drug information, they expressed that they use it to exchange drug information and share their personal experiences, as shown in the information-exchange dimension of the brand love model (Figure. 8). The role of social media in the healthcare landscape continues to grow, and there should be a parallel increase in its resources reliability to provide trusted and reliable information to patients. Pharmaceutical marketers often rely on traditional advertisement methods, as reported by a *MediaRadar* report stating that when it comes to pharma advertisers, “most of them are sticking to what they know best: TV spots.” (Adams, B, 2022). Additionally, in 2021, TV spots accounted for more than 70% of total spending, increasing 3% from 2020 to hit \$5 billion (Adams, B, 2022). Our study urges digital marketing managers to adapt to the fast-evolving market and to tune in to patients' needs by producing reliable marketing material to be communicated through a company's various omni channels, such as weekly podcasts, live webinars, or monthly newsletters. Providing trusted digital content might be one of the missing puzzle pieces that will enhance patient involvement with a brand by facilitating information-exchange in a method that is preferred by patients.

The missing effect of PSPs on brand love urges marketing managers to seek alternative routes to establish a sense of community, such as patient groups that could enhance patients' association with the brand or develop trusted omni-channels where patients can interact with each other to share their experiences and struggles. For example, creating focus groups or ongoing panel

groups may offer a channel to gather insights into patients' real-time questions and concerns to better attain them.

9. Future research

This research explored the nuance of the prescription brand love phenomenon, offering a preliminary understanding of the concept and an overview of its main characteristics. However, much remains unexplored as a deeper analysis is needed to reveal precedents and antecedents of prescription drug brand love. Although our research confirmed the presence of prescription drug brand love, it did not explore confirmatory relationships. Thus, it is essential to understand how it can be built and later integrated into companies' marketing strategies. An assessment of causal relationships among variables, along with their directionality, is needed to map out the variables, yielding a robust and practical theoretical model.

Investigating the concurrent presence of brand hate and love is one interesting prospect for future researchers. A unified construct for love/hate was proposed in the literature, yielding mirror opposite antecedents: “loyalty/avoidance, positive/negative WOM, and repurchase/retaliation.” (Madadi, R. et al., 2021). Extrapolating such a dual model to the prescription drug market can offer invaluable insights into a potential complex patient-drug emotional relationship that was not covered in the scope of this research. The interesting potential coexistence of love/hate can be explored using a longitudinal study capturing the patient-drug journey at the beginning, middle, and end of the treatment plan, which might capture different levels of hate and love, resulting in a ratio of love/hate over time. Additionally, an investigation of emotion per therapeutic class/index might offer tremendous insights about the nature of patient emotions.

Moreover, another next step researchers could embark on is building a reliable measurement scale for prescription drug brand love. A scale will assess patients' emotions and overall satisfaction towards a brand serving as a practical tool for both academic and industry professionals to gain insights about their current strategies. This tool can serve as a constant feedback mechanism that helps refine and tune the marketing strategy of pharmaceutical companies based on patient's constantly changing needs.

Furthermore, researchers can expand on our findings by either confirming them or offering new dimensions with further validated items. Researchers can also qualitatively explore the phenomenon further. For example, qualitative research and focus patient groups/interviews can be used to specifically decode some of our findings, such as understanding how patient's sense of community can be enhanced. Additionally, researchers could explore other elements for prescription drug brands love, by building on this research. For example, the variables separation anxiety could be modified to drug switching anxiety, and its effect could be explored.

Moreover, these results revealed a correlation among the two variables, trust and accessibility. Future research can further investigate this relationship to determine how brand trust is established by diving deeper into each of its three components (efficacy, tolerability, and word of mouth). It can also explore and confirm the directionality of the relationship between accessibility and trust, which will help establish these dimensions.

Specifically, the trust dimension should be explored further to understand its main drivers and precedents. For example, how customers' experiences, through various digital omni-channels, can enhance patients' overall trust in a pharmaceutical company and how it can thus, correlate to brand love. As the importance of customer experience in the pharmaceutical industry was further discussed by Katsanis L. P et al. (2023): "It is predicted that these methods will help

pharmaceutical companies develop trust and improve relationships with both patients and physicians”. Additionally, a clearer investigation of the effect of a companies deep rooted values and overall “reputation” on patients’ level of trust can offer tremendous insights to help position a company (Katsanis, L. P et al., 2023). Establishing a fundamental strong comprehension of brand trust will also enhance brand love and assist brand managers in better building their brands.

Lastly, this research focused on one consumer-brand emotional relationship: Brand Love, while a total of 6 relationships are present. The six emotional relationships are love and passion, self-connection, commitment, interdependence, intimacy, and brand partner quality (Fournier, 1998). Marketing researchers can explore the possibility of other patient-drug emotional relationships and establish other possible connections beyond the scope of brand love.

Overall, this research offers an introductory comprehension of the phenomenon; however, a deeper grasp and understanding of brand love in the pharmaceutical industry is needed, leaving great opportunities and immense potential for future researchers to embark on.

10. Limitations

Overall, this research had several limitations that were unique to the methodology. First, downloading patients’ comments from social media platforms was done manually (copy/paste), while using a programming language such as *Python* would have facilitated the process and allowed for a larger dataset and, thus, more generalizable results and stronger statistical power.

Second, the lack of literature and research performed on brand love in the pharmaceutical industry added to the complexity of the analysis and the methodology selection process. No descriptive models or overview of the phenomenon were present in the literature, which required an initial qualitative analysis to set the basic understatement of the topic, and later, a confirmatory quantitative analysis was needed to solidify the findings.

Third, the monetary resources allocated to the study were limited to the CASA grant, which allowed for a small number of survey participants and thus limited the overall statistical power and generalizability of the findings. Additionally, a freely accessible text analysis software was selected to limit monetary spending, while a paid software could have offered a deeper analysis and more interesting and insightful data display options.

Fourthly, Study 1 was limited to on-patent prescription drugs, thus our qualitative data is descriptive to strictly on-patent prescription drugs. Brand love for off-patent prescription drugs might adopt different elements and dimensions.

11. Conclusion

In conclusion, this research aims to optimize the overall patient journey by extending the phenomenon of brand love to prescription drug brands. Branded drugs' market share is threatened by three major microenvironmental factors: 1. short market exclusivity due to rapid expiry of patents, 2. fast entrance of cheaper me-too drugs (generics) into the market, 3. a noticeable power shift in the prescribing patterns as patients become more informed about their drugs. This study explored the presence of brand love in the pharmaceutical context using both qualitative and quantitative research methodologies. Through social listening tools, the qualitative analysis of Study 1 confirmed 1. the presence of prescription drug brand love, 2. unravelled the general topology of brand love, and 3. identified five variables applicable to the pharmaceutical context. The inductive approach was utilized, permitting the unexpected emergence of brand hate.

Subsequently, the five identified variables were further explored using a survey instrument, resulting in 3 dimensions and 11 subitems describing prescription drug brand love (Figure 8). The three characteristics of brand love are trust, information-exchange, and price. Trust, as described by patients, encompasses assumptions about efficacy, tolerability, and positive word

of mouth. The information exchange factor highlighted the increasing role of social media in sharing and exchanging patient experiences with each branded drug. Lastly, accessibility is a characteristic of prescription branded drugs; more specifically, a drug's coverage status and availability of cheaper generic alternatives were pertinent.

This research offers great implications to academia and industry professionals as it encourages them to use listening tools to gather real-time patient feedback and decipher patients' opinions about their branded drugs. Moreover, it urges digital marketers to cater to the fast-evolving role of social media in patients' lives and develop marketing material to fill the supply gap with reliable online resources. Lastly, it emphasizes the importance of strategic reimbursement plans along with a market-adapted pricing strategy.

In conclusion, establishing patients' love for branded medications holds great promise in optimizing patients' journeys and ultimately their adherence. The scope of our study is limited to unravelling the general characteristics and offering a preliminary definition of the phenomenon in the pharmaceutical industry. However, it paved the road for future researchers to further contribute to the brand love literature by elaborating on our findings.

12. Appendix A. Survey questionnaire

Table 1A. Pilot study questionnaire including 23 items

Question	Measure
This brand is effective in treating my condition	Efficacy 1
Hearing positive experiences from people I trust enhances my trust in this brand	Efficacy 2
I had a previous positive experience with this brand that made me confident in this brand	Efficacy 3
The brand is honest and transparent in explaining the treatment journey and potential challenges	Efficacy 4
I trust this brand has good quality ingredients and solid research supporting it	Efficacy 5
I feel this brand cares about me as a patient and my medical condition	Efficacy 6
	Efficacy 7
I feel this brand does not care for my condition and I feel insignificant as a patient	(Efficacy 6 reverse coded)
The intended results makes the journey tolerable despite the side effects	Tolerability 1
I believe this brand will or is currently treating my medical condition	Tolerability 2
Through self evaluation I feel improvement and progress in my condition	Tolerability 3
Overall this brand is a good choice as it is worth the side effects and challenges I may have experienced	Tolerability 4
This brand completely understands my needs and my specific condition and tries to make my treatment journey better	Tolerability 5
I can tolerate the frequent tests and follow-ups required from my health care provider as part of my treatment plan	Tolerability 6
I am willing to continue purchasing this brand even if my insurance does not fully cover the cost	Price 1
So far I feel this brand has been worth the price I pay for it	Price 2
I will continue to purchase and ask for this brand even if cheaper alternatives were present and offered to me	Price 3
I will choose this brand over cheaper generic substitutes	Price 4
The presence of a patient support program encourages me to use this brand and continue to use it	PSP
I would recommend this brand to friends and family members	PWOM 1
I have shared and posted about my personal experience with this brand on online social media platforms	PWOM 2
I often share my personal experience with this brand within my friends and family	PWOM 3
Watching media advertisements about the medication further enhances my trust in the brand	PWOM 4
I search social media platforms for patient feedback and experiences to better understand the brand	PWOM 5

Table 2A. Full study questionnaire including 22 items

Question	Measure
This brand is effective in treating my condition	Efficacy 1
Hearing positive experiences from people I trust enhances my trust in this brand	Efficacy 2
I had a previous positive experience with this brand that made me confident in this brand	Efficacy 3
The brand is honest and transparent in explaining the treatment journey and potential challenges	Efficacy 4
I trust this brand has good quality ingredients and solid research supporting it	Efficacy 5
I feel this brand cares about me as a patient and my medical condition	Efficacy 6
The intended results makes the journey tolerable despite the side effects	Tolerability 1
I believe this brand will or is currently treating my medical condition	Tolerability 2
Through self evaluation, I feel improvement and progress in my condition	Tolerability 3
Overall this brand is a good choice as it is worth the side effects and challenges I may have experienced	Tolerability 4
This brand completely understands my needs and my specific condition and tries to make my treatment journey better	Tolerability 5
I can tolerate the frequent tests and follow-ups required from my healthcare provider as part of my treatment plan	Tolerability 6
I am willing to continue purchasing this brand even if my insurance does not fully cover the cost	Price 1
So far I feel this brand has been worth the price I pay for it	Price 2
I will continue to purchase and ask for this brand even if cheaper alternatives were present and offered to me	Price 3
I will choose this brand over cheaper generic substitutes	Price 4
The presence of a patient support program encourages me to use this brand and continue to use it	PSP
I would recommend this brand to friends and family members	PWOM 1
I have shared and posted about my personal experience with this brand on online social media platforms	PWOM 2
What are your 2 primary resources for information about your prescription drug brands (Physician, Pharmacist, Social media platforms, Internet, Family & Friends)	Reliability
I often share my personal experience with this brand within my friends and family	PWOM 3
Watching media advertisements about the medication further enhances my trust in the brand	PWOM 4
I search social media platforms for patient feedback and experiences to better understand the brand	PWOM 5

13. Appendix B. Supplementary Study 1 data

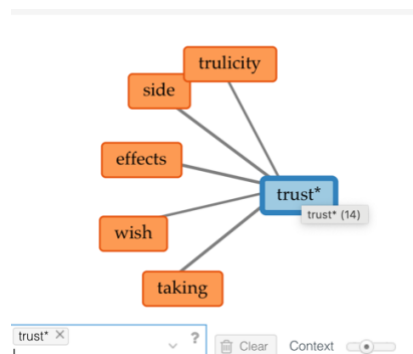


Figure 1B. The collocation among trust and *Trulicity*

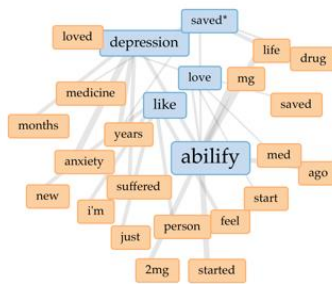


Figure 2B. Love correlating with “saved” and “life” for *Abilify*

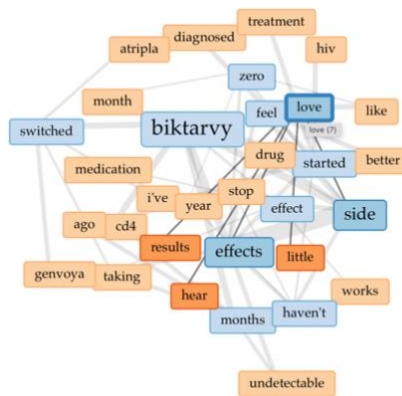


Figure 3B. Love correlating with “results” for *Biktarvy*



Figure 4B. Love correlating with “works” for *Dupixent*

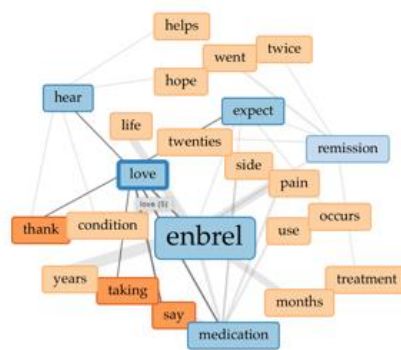


Figure 5B. Words collocating with love for *Enbrel*

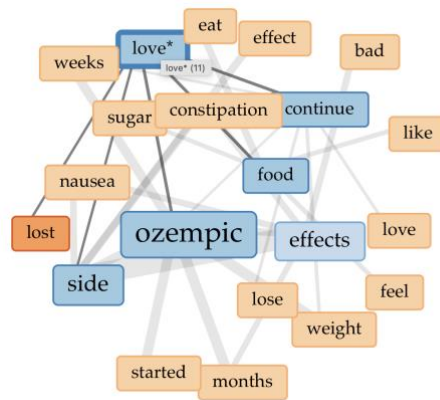


Figure 6B. Love correlating with “side,” “effects,” and “lost” for *Ozempic*

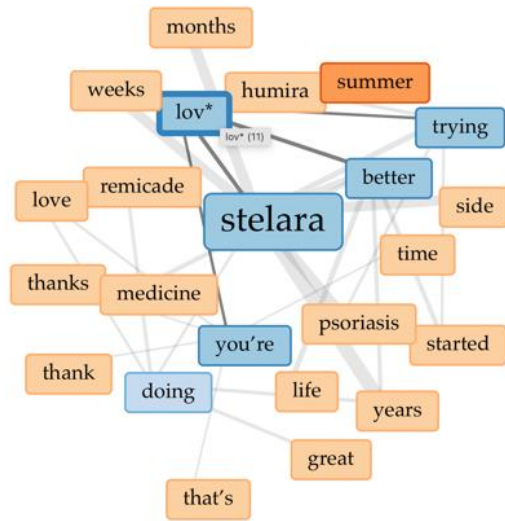


Figure 7B. Love correlating with “better” for *Stelara*

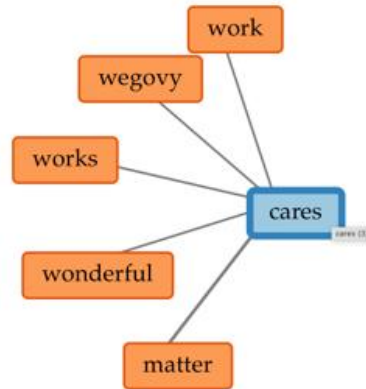


Figure 8B. Cares correlating with *Wegovy*

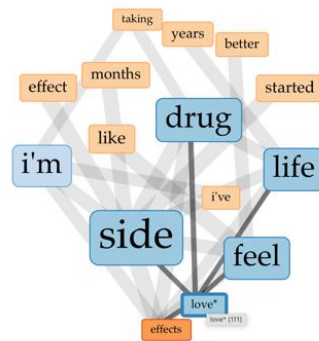


Figure 9B. Words correlating with love for the ten drugs combined

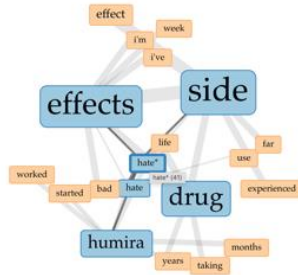


Figure 10B. Emergence of Hate for *Humira*

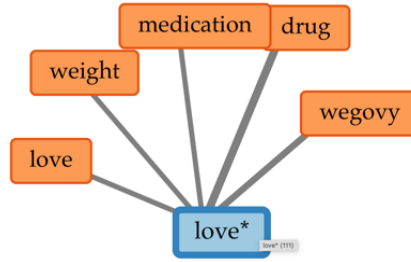


Figure 11B. Love correlating with *Wegovy*, specifically

Table 1B. Words collocating with love

Term	Positive-collocate Count	Negative-collocate Count	Neutral-collocate Count
Love	like	Horrible-3	Drug-12
Love	Better-4	Bad-3	Wagovy-8
Love	Great-3	Pain-2	Weight -5
Love	Worth-2	Lost-2	Medication-5
Love	Remission-2	Worse-1	Abilify-5
Love	Loved-2	Poison-1	Stelara-4
Love	Works-1	Killed-1	Humira-4
Love	Work-1	Issue-1	Continue-4
Love	Thank-1		Ozempic-3
Love	Recommended-1		Trulicity-2
Love	Recommend-1		Keytruda-1
Love	Reasonable-1		Dupixent-1
Love	Positive-1		Biktarvy-1

14. Appendix C. Supplementary pilot study statistical results

Pilot Study:

Table 1C. KMO and Bartlett's test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		
		0.852
Bartlett's Test of Sphericity	Approx. Chi-Square	939.914
	df	253
	Sig.	<.001

Table 2C. Factor commonalities

	Initial	Extraction
Efficacy 1	1	0.686
Efficacy 2	1	0.74
Efficacy 3	1	0.78
Efficacy 4	1	0.798
Efficacy 5	1	0.698
Efficacy Arespect 6	1	0.61
Efficacy respect 7	1	0.678
Tolerability 1	1	0.683
Tolerability 2	1	0.696
Tolerability 3	1	0.782
Tolerability 4	1	0.757
Tolerability 5	1	0.767
Tolerability 6	1	0.636
Price 1	1	0.59
Price 2	1	0.621
Price 3	1	0.804
Price 4	1	0.726
PSP 1	1	0.567
PWOM 1	1	0.552
PWOM 2	1	0.483
PWOM 3	1	0.653
PWOM 4	1	0.648
PWOM 5	1	0.6
Extraction Method: Principal Component Analysis.		

Table 3C. Total Variance explained by the six factors

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.217	35.725	35.725	8.217	35.725	35.725
2	1.874	8.147	43.871	1.874	8.147	43.871
3	1.7	7.393	51.264	1.7	7.393	51.264
4	1.37	5.958	57.222	1.37	5.958	57.222
5	1.233	5.362	62.584	1.233	5.362	62.584
6	1.162	5.05	67.634	1.162	5.05	67.634
7	0.886	3.851	71.485			
8	0.746	3.245	74.73			
9	0.739	3.212	77.943			
10	0.683	2.969	80.912			
11	0.605	2.629	83.54			
12	0.506	2.201	85.741			
13	0.494	2.148	87.889			
14	0.418	1.817	89.706			
15	0.397	1.727	91.433			
16	0.351	1.524	92.957			
17	0.332	1.443	94.401			
18	0.3	1.304	95.704			
19	0.268	1.167	96.871			
20	0.222	0.964	97.836			
21	0.196	0.853	98.689			
22	0.17	0.74	99.429			
23	0.131	0.571	100			

Extraction Method: Principal Component Analysis.

Table 4C. Pilot study descriptive statistics

	Mean	Std. Deviation	Analysis N
Efficacy 1	1.54	0.682	85
Efficacy 2	2.01	1.041	85
Efficacy 3	3.18	2.546	85
Efficacy 4	2.01	0.838	85

Efficacy 5	1.67	0.73	85
Efficacy			
Arespect 6	3.79	1.292	85
Efficacy respect			
7	2.47	1.119	85
Tolerability 1	1.67	0.777	85
Tolerability 2	1.65	0.909	85
Tolerability 3	1.75	0.83	85
Tolerability 4	1.78	0.864	85
Tolerability 5	2.24	1.043	85
Tolerability 6	1.81	0.982	85
Price 1	2.67	1.375	85
Price 2	1.72	0.854	85
Price 3	2.78	1.366	85
Price 4	2.88	1.401	85
PSP 1	3.58	1.809	85
PWOM 1	2.04	0.981	85
PWOM 2	3.67	0.822	85
PWOM 3	2.89	1.38	85
PWOM 4	2.93	1.089	85
PWOM 5	3.44	1.476	85

Table 5C. Group statistics to compare efficacy 6 and 7.

				Std.	Std. Error
	2	N	Mean	Deviation	Mean
1	1	19	4.63	1.116	0.256
	2	22	4.05	0.950	0.203

Table 6C. Levene's test of non-nsignificant for efficacy 6 and 7

	F	Sig.	t	df	One-Sided p	Two- Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	0.022	0.884	1.817	39	0.38	0.077	0.586	0.323	-0.066	1.239
Equal variances not assumed			1.795	35.621	0.041	0.081	0.586	0.326	-0.076	1.248

15. Appendix D. Supplementary full study statistical results

EFA sections A, B, & C

Variable Efficacy:

Table 1D. Item-Total statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Efficacy 1	11.67	13.998	0.519	0.347	0.627
Efficacy 2	11.08	13.655	0.411	0.186	0.644
Efficacy 3	10.2	10.636	0.289	0.101	0.763
Efficacy 4	11.05	13.11	0.525	0.393	0.613
Efficacy 5	11.47	13.616	0.523	0.43	0.621
Efficacy respect 7	10.65	12.624	0.521	0.324	0.608

Table 2D. Communality values

	Initial	Extraction
Efficacy 1	1	0.518
Efficacy 2	1	0.354
Efficacy 3	1	0.18
Efficacy 4	1	0.573
Efficacy 5	1	0.593
Efficacy respect 7	1	0.523
Extraction Method: Principal Component Analysis.		

Variable Tolerability:

Table 3D. Item-Total statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Tolerability 1	9.45	11.404	0.646	0.506	0.786
Tolerability 2	9.83	12.261	0.689	0.533	0.784
Tolerability 3	9.59	11.732	0.628	0.43	0.79
Tolerability 4	9.56	11.097	0.725	0.62	0.769
Tolerability 5	9.07	11.875	0.494	0.254	0.821
Tolerability 6	9.35	12.406	0.437	0.197	0.831

Table 4D. Communalities values

	Initial	Extraction
Tolerability 1	1	0.61
Tolerability 2	1	0.664
Tolerability 3	1	0.587
Tolerability 4	1	0.721
Tolerability 5	1	0.402
Tolerability 6	1	0.33
Extraction Method: Principal Component Analysis.		

Variable Price:

Table 5D. Item-Total statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Price 1	7.61	7.088	0.491	0.243	0.687
Price 2	8.87	9.982	0.361	0.139	0.741
Price 3	7.57	6.873	0.654	0.482	0.574
Price 4	7.53	7.2	0.584	0.437	0.619

Table 6D. Communality values

	Initial	Extraction
Price 1	1	0.514
Price 2	1	0.329
Price 3	1	0.722
Price 4	1	0.647
Extraction Method: Principal Component Analysis.		

Variable PWOM:

Table 7D. Item-Total statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PWOM 1	13.49	10.378	0.23	0.115	0.558
PWOM 2	11.87	10.339	0.301	0.115	0.53
PWOM 3	12.63	7.84	0.408	0.175	0.458
PWOM 4	12.14	9.003	0.398	0.172	0.474
PWOM 5	12	7.775	0.33	0.154	0.521

Table 8D. Communality values

	Initial	Extraction
PWOM 1	1	0.745
PWOM 2	1	0.582
PWOM 3	1	0.497
PWOM 4	1	0.515
PWOM 5	1	0.585
Extraction Method: Principal Component Analysis.		

Table 9D. Rotated component matrix

	Component	
	1	2
PWOM 1	0.842	
PWOM 2		0.762
PWOM 3	0.566	0.421
PWOM 4	0.656	
PWOM 5		0.753
Extraction Method: Principal Component Analysis.		
Rotation Method: Varimax with Kaiser Normalization.a		
a Rotation converged in 3 iterations.		

Table 10D. Rotated Component Matrix and factor loadings

Factors	1	2	3
PWOM 1	0.724		
PWOM 2			0.832
PWOM 5			0.749
Price 1		0.696	
Price 3		0.83	
Price 4		0.842	
Tolerability 1	0.758		
Tolerability 2	0.822		
Tolerability 3	0.758		
Tolerability 4	0.844		
Efficacy 1	0.799		

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