A quantitative analysis of cosmeceuticals: business service quality and client satisfaction

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Abstract

Purpose – The purpose of the quantitative correlational research study was to determine the relationship, if any, between the predictor variable, cosmeceutical business service quality, and the outcome variable, cosmeceutical client satisfaction, in the southeast region of the United States of America. Cosmeceuticals were cosmetics and medications administered by estheticians.

Design/methodology/approach – Literature on business service quality and client satisfaction theories was synthesized after extensive review. Quantitative research data were collected and statistically analyzed on the following subscales of consumer satisfaction: general satisfaction, technical quality, interpersonal manner, communication, financial aspects, time spent with professionals and accessibility/convenience. The hypotheses addressed the research question (RQ) of whether cosmeceutical business service quality affects client satisfaction. The Cosmeceutical Client Satisfaction Questionnaire 18 (CCSQ-18), a web-based research instrument, had strong reliability with a Cronbach's alpha of 0.84. The target population ($N = 50$) included randomly selected female cosmeceutical consumers in the southeast region of the United States of America. The researcher did not digress from the detailed research protocol, instrumentation, data collection or data analyses. Through the Likelihood Ratio (LR) chi-squared statistic (18) = 65.35 and its associated probability, Prob > chi-squared = 0.000, the researcher determined the predictor variable cohesively has a statistically significant effect on the outcome variable.

Findings – Research results concluded that a significant relationship exists between cosmeceutical business service quality and cosmeceutical client satisfaction in the southeast region of the United States of America.

Originality/value – The findings detailed in the results complimented the argument that, generally, business service quality is important to consider, because good business is based on client satisfaction.

Keywords Cosmeceuticals, Customer satisfaction, Business service quality, Quantitative research, Popular culture, Beauty industry

Paper type Research paper

1. Introduction

Growth in cosmeceutical sales and demand within the past ten years is associated with the change in the popular beauty culture (Laham, 2020; Lee, 2016). Clients believe the cosmeceutical services consumed would help increase self-image in comparison to popular beauty standards (Laham, 2020). A continued success of esthetic businesses is contingent to the business service quality of administering and facilitating the clients' needs (Kumar and Reinartz, 2018). There is little guarantee any degree of the cosmeceutical business service quality results in beauty consumer satisfaction (Laham, 2020). Globalization, brand awareness, an increase in popular culture media exposure and the classic adage for American women to look good and feel good has help fuel the rapidly growing cosmetic market (Laham, 2020).

The global cosmeceuticals market size is projected to grow from $83.60 billion in 2023 to $155.80 billion by 2030 (McMullen and Dell'Acqua, 2023). The American Academy of Facial Plastic and Reconstructive Surgery (AAFPRS), the largest association of facial cosmetic surgeons in the world, found 80% of all treatments performed by cosmetic professionals in 2022 were non-surgical procedures, predicting the cosmeceutical sector growing at a rate almost double in comparison to the rest of the beauty industry (McMullen and Dell'Acqua, 2023; Shehan et al., 2023). Cosmeceuticals are cosmetic formulations containing bioactive ingredients known for their medical benefits. Cosmeceuticals, a combination of cosmetic products and pharmaceuticals like Botox injections, anti-aging lotions and collagen creams are generally more invasive than traditional cosmetics and must be professionally administered through the service of a cosmeceutical business (Lee, 2016). Cosmeceutical businesses are commonly known in the United States as an esthetic center or medical spa (medi-spa; Laham, 2020).

There are known health and medical benefits, as well as an increase in satisfactory appearance and self-image perceptions, from the consumption of cosmeceuticals (Laham, 2020). Client satisfaction ensures business profits and relates to client perceptions of the business service quality (Olsen et al., 2014). A basic marketing practice for any business to increase profits is to increase business sales. An increase in sales can be achieved through favorable client satisfaction, therefore, the primary desire of the cosmeceutical business is to maximize business profits through client satisfaction (Lee, 2016). Business and research administrators alike have great concern in the continuous assessment of client satisfaction (Lee, 2016). There is a dearth of literature on consumer satisfaction; however, little research exists on the client satisfaction of cosmeceutical businesses (McMullen and Dell'Acqua, 2023). The researcher examined if a relationship exists between cosmeceutical business service quality and client satisfaction, because identifying the relationship between business service quality, regarding client satisfaction, is imperative for cosmeceutical businesses to remain competitive and achieve business success.

1.1 Background of the literature

Client satisfaction is not a novel business concept, although the notion has often been overlooked (Baumann, 2014). During the 1950s development of the marketing era, clients became the focus of businesses (Olsen et al., 2014). The concept of client satisfaction was introduced as a marketing concept of business by Cardozo in 1965 (Ok et al., 2018). In the United States, the cosmeceutical business market has increased in consumer consumption and has undergone enormous market growth in value since the early 1990s (Baumann, 2014; Bellad et al., 2017). Continuing well into the 2000s, cosmeceutical businesses mainly attracted clients with the desire to purchase products such as anti-aging creams, hair removals and facial cleansers (Kumar and Reinartz, 2018; Lee, 2016; Pandey and Sonthalia, 2019).

Since 2010, the growth in the United States population has increased the number of women over the age of 40 (Cox et al., 2016). Cosmetic enhancements to obtain a more youthful appearance have become increasingly common in current popular culture and have overcome the barriers of being taboo (Monteverde, 2016; Pandey and Sonthalia, 2019). Public figures, such as Kimberly Kardashian and her notoriously famous family, who as a family have earned a combined net worth of over two billion dollars from branded sales of cosmetic and beauty products alone, have set the beauty standards of popular culture. With audiences reaching over 2 million viewers for over 230 episodes, the glamorous family openly showcases beauty on the highly viewed reality television series Keeping Up with the Kardashians (Monteverde, 2016; Wissinger, 2016). Each member of the Kardashian family is candidly open about personal cosmetic enhancements and the consumption of cosmeceutical products and services.

Beauty consumers have found satisfaction in the trend of looking like a Kardashian, hence the popular moniker, keeping up (Monteverde, 2016; Pandey and Sonthalia, 2019). Cosmeceutical businesses employ a widely accepted popular culture beauty standard. Through comparisons with other women, an esthetic business may use a woman's anxiety over her appearance to market clients, boosting business sales and enhancing business profits (Bellad *et al.*, 2017; Griva *et al.*, 2018; Wirtz and Ehret, 2017). Cosmeceutical businesses may attract consumers who expect the cosmeceutical service would help better align one's self-image with popular beauty standards (Milam and Rieder, 2016). The quality of service provided by a business and the level of satisfaction with business service quality can become the leading factor in a business' success.

A focus on cosmeceutical client satisfaction requires a review of business service quality (Bansal and Taylor, 2015). Business service quality is important to consider because to facilitate good business, clients must be satisfied with the business service quality received (Lang *et al.*, 2023). The costly nature of cosmeceutical business service quality places high emphasis on client satisfaction, leading to successful business. Marketers contend client satisfaction is the most valuable tool a business can employ to drive an increase in sales and profits (Lang *et al.*, 2023; Peppers and Rogers, 2016). In business, the client is the most important resource related to business performance.

For a cosmeceutical business, every business service is centered on the client (Lun *et al.*, 2016). A cosmeceutical client feels satisfied when the esthetic business' service quality meets predefined expectations (Sivakumar *et al.*, 2018). In business, the client is dissatisfied when the service quality is lower than expected, whereas the client is satisfied when the service quality is higher than expected (Sivakumar *et al.*, 2018). Client satisfaction is a strong marketing tool and value-added benefit for a business, often seen by clients as just as important as the business products and services sold (Gupta *et al.*, 2022; Lun *et al.*, 2016). Exceptional service quality is a key component of the cosmeceutical business and may even be ultimately responsible for business survival and success (Kasiri *et al.*, 2017).

The value of clients in the business realm emerged in the 1980s. It is important to continuously research the clients' satisfaction before, during and after consumption, because variable business service qualities have remained prevalent (Kitapci *et al.*, 2014). As discovered in the literature, businesses consistent with client satisfaction display greater business profits and accomplishments (Arslanagic-Kalajdzic and Zabkar, 2017; Griva *et al.*, 2018; Gupta *et al.*, 2022). Businesses satisfy clients to maintain client relationships, increase sales and ensure productivity. Client satisfaction as a concept has been extensively researched, as the success of any business is greatly dependent on the satisfaction level of the business' clients (Baumann, 2014; Ok *et al.*, 2018).

Client satisfaction has been researched in various ways, from a standard of measure to a correlation with other business processes (Olsen *et al.*, 2014). Business research has led to probable methods of determining client satisfaction, with business service quality as the lead determinant (Oliver, 1980; Parasuraman *et al.*, 1985). Client satisfaction is largely based on the level of service quality of the business (Baumann, 2014; Galib and Paymaei, 2022; Kasiri *et al.*, 2017). As evidence businesses are still discovering the facets of client satisfaction, research is steadily being conducted in the field. To create satisfaction in clients, cosmeceutical businesses need to conduct research to answer questions on how clients perceive business service quality, before, during and after consumption (Bellad *et al.*, 2017; Gupta *et al.*, 2022; Lee, 2016).

1.2 Purpose

A prosperous 108 million cosmeceutical client base throughout the United States exists (Feetham *et al.*, 2018). A financial and performance of over $28 billion is at risk if

cosmeceutical business service quality does not result in cosmeceutical client satisfaction (Feetham *et al.*, 2018; Meng and Pan, 2012). Little research focuses on the relationship between cosmeceutical business service quality and cosmeceutical client satisfaction (Lee, 2016). The problem is there is limited empirical evidence on what relationship, if any, exists between cosmeceutical business service quality and cosmeceutical client satisfaction in the Southeast Region of the United States. Specifically, there is a gap in the literature on the relationship of cosmeceutical business service quality and cosmeceutical client satisfaction (Olsen *et al.*, 2014).

The lack of empirical knowledge is an indication there is a considerable need for additional research on the topic to establish the relationship between cosmeceutical business service quality and cosmeceutical client satisfaction (Black, 2005; Lee, 2016). Client expectations determine the level of satisfaction. For favorable satisfaction to be achieved, the cosmeceutical client expectations with business service quality must remain consistent with the service quality delivered by the cosmeceutical business (Baumann, 2014). Client satisfaction with business service quality is the most important part of a business' challenge in building lasting consumer relationships (Baumann, 2014; Peppers and Rogers, 2016). To remain lucrative in the beauty market, cosmeceutical business service quality must facilitate the integration of cosmeceutical client satisfaction and expectations (Laham, 2020).

The purpose of the quantitative research study was to determine what relationship, if any, exists between the predictor variable, cosmeceutical business service quality, and the outcome variable, cosmeceutical client satisfaction, in the Southeast Region of the United States. Research participants included female cosmeceutical consumers over the age of 18 in the Southeast Region of the United States. Cosmeceutical clients' responses to the Cosmeceutical Client Satisfaction Questionnaire 18 (CCSQ-18) concerning the satisfaction with cosmeceutical business service quality were used to determine results of the research. The hypotheses and research questions (RQs) were the focus of the entire cosmeceutical research study. As a RQ construct, the research study sought to determine what relationship, if any, exists between cosmeceutical business service quality and cosmeceutical client satisfaction. For the research study, correlative hypotheses were tested to determine what relationship, if any, exists between cosmeceutical business service quality and cosmeceutical client satisfaction in the Southeast Region of the United States. The hypothesis and RQ became the focus of the cosmeceutical research study.

2. Methodology and design

The research study used the quantitative methodology with a correlational research design. Quantitative research encompasses significant issues where research aims to establish an understanding of the assumptions identified in a given research study, a phase of hypothesis formulation and discipline during the development of the research design (Black, 2005; Burns *et al.*, 2014; Vogt, 2007). To determine what relationship, if any, exists between cosmeceutical business service quality and cosmeceutical client satisfaction was the objective of the quantitative correlational research study. A quantitative analysis was appropriate because the research is led by theory that describes models, study instruments and approaches to the topics of research, including descriptive data for demographics, sample size and tests for data normality (Black, 2005; Vogt, 2007). In quantitative method designs, the hypothesis analysis frames the study and the development of the RQs, which gives the researcher more control over the study (Black, 2005; Burns *et al.*, 2014).

Correlational research designs aim to identify a relationship between sets of variables (Black, 2005; Vogt, 2007). Using technological resources, the relationship is computable (Black, 2005; Konerding, 2016; Vogt, 2007). The quantitative correlational research included a research instrument that enabled the study to benefit from the method design with an

efficient use of statistics for data analysis (Black, 2005; Vogt, 2007). If a significant relationship existed, the researcher could then determine the strength and direction of the relationship (Sekaran and Bougie, 2016). Quantitative research with a correlational design was the most suitable method to determine what relationship, if any, exists between the variables, because it gives the researcher the opportunity to make deductions from the data (Black, 2005; Vogt, 2007; Vogt et al., 2014).

The use of an appropriate research method was based on the objective and approach of the research study and the evaluation of the strengths and weaknesses of each method (Black, 2005; Burns et al., 2014; Vogt, 2007). Although a correlational research design was the optimal choice for determining the relationship of the variables of the research study, other research designs such as descriptive research, quasi-experimental research and experimental research were also considered (Black, 2005; Vogt, 2007). Descriptive research design's data collection is observational in nature and not an ideal choice because the researcher's bias may negate the data's validity (Black, 2005; Vogt et al., 2014). A quasi-experimental research design would not be beneficial because quasi-experimental research design is used to determine the cause-effect relationship between research variables (Black, 2005; Vogt, 2007; Vogt et al., 2014). Experimental research would not be valuable because the design seeks to determine the cause and effect or manipulate variables (Black, 2005; Vogt, 2007; Vogt et al., 2014).

The survey instrument was the Patient Satisfaction Questionnaire 18 (PSQ-18) in a distinctive Likert format, choices denoted the degree of agreement each participant had on the inquiry to assess client opinion of each item (Meng and Pan, 2012). The researcher obtained permissions to use the PSQ-18, scoring tables and other instrumental figures, both electronically and in print, as evidenced in the License for PSQ-18 Usage. Text used in the PSQ-18 was altered to specify the specific business service setting of research interest without losing any psychometric tested properties or strength (Marshall and Hays, 1994; Rand Corporation, 2019). The research questionnaire, the Cosmeceutical CCSQ-18, is an adaptation of the PSQ-18 with the text altered only for specification of the research. Along with the survey questions, the CCSQ-18 presented demographic questions (categorical variables) for age, income and racial identity.

Data collection for the study was administered online through SurveyMonkey™ as the survey instrument to examine the cosmeceutical client satisfaction for cosmeceutical business services received. The researcher used SurveyMonkey™, a self-service secured online interface for users to input, create, deploy and analyze surveys, to input the CCSQ-18 survey instrument with licensed permission for the quantitative research study. Data analysis was completed using version 26 of the statistical testing software by IBM known as the Statistical Package for the Social Sciences (SPSS; Black, 2005; Burns et al., 2014). A correlational Point biserial model two-tail test was used to help the researcher reject or approve the hypothesis in 95% reliability level (Marshall and Hays, 1994; Rand Corporation, 2019; Vogt, 2007). A 5% error and effect size of 0.50 was used in the research study (Black, 2005; Marshall and Hays, 1994; Rand Corporation, 2019; Vogt, 2007; Vogt et al., 2014).

The quantitative correlational research study focused on business service quality and consumer satisfaction. The theoretical basis for the research study is presented in the framework. The hypotheses addressed the RQ of whether cosmeceutical company service quality affects client satisfaction. Quantitative research data collected was statistically analyzed against the following subscales of consumer satisfaction: general satisfaction, technical quality, interpersonal manner, communication, financial aspects, time spent with professionals and accessibility/convenience. The CCSQ-18, a web-based research instrument, had strong reliability with a Cronbach's alpha of 0.84. The target population ($N = 50$) included randomly selected female cosmeceutical consumers in the Southeast Region of the United States.

2.1 Methodology literature
A fundamental step of research a researcher faces is deciding between quantitative or qualitative research methods. The choice is based on the decision of which data collection method would answer the RQ (Black, 2005; Dzwigol, 2020; Vogt, 2007). In the Likert survey design of a quantitative effort, options are offered for each question or statement (Joshi *et al.*, 2015). The presented options represent the degree of agreement a research participant has on each item of inquiry. The Likert design format allows participants to openly respond (Joshi *et al.*, 2015). With the efficient use of statistics for data analysis, the research instrument enables the study to benefit from the quantitative method design.

In the quantitative method, the researcher is given more control over the study, and the opportunity to make more deductions from the data collected (Black, 2005; Burns *et al.*, 2014; Gupta *et al.*, 2022; Sekaran and Bougie, 2016). The quantitative method is best for the exploration of perceptions to provide further insight into cosmeceutical client satisfaction (Black, 2005; Burns *et al.*, 2014; Vogt, 2007). The assessment of cosmeceutical business services and client satisfaction provides an opportunity for quantitative method research to help determine whether a relationship exists between cosmeceutical business service quality and client satisfaction (Black, 2005; Vogt, 2007). Quantitative research involves the use of computational, statistical and mathematical tools to derive results (Dzwigol, 2020). Using a questionnaire as the research instrument, the study can benefit from the quantitative method with a correlational design (Black, 2005; Marshall and Hays, 1994; Vogt, 2007).

Quantitative data is associated with functioning in the deductive research approach against a hypothesis to be tested (Black, 2005; Burns *et al.*, 2014; Vogt, 2007). Quantitative methods focus on a statistical assessment of numerical and scientific data to establish relationships that may exist between variables (Black, 2005; Dzwigol, 2020; Oliver, 2014). Sarstedt *et al.* (2022) posited that although quantitative data is focused on statistical components, business research benefits significantly from the data and statistics discovered. Sarstedt *et al.* (2022), described quantitative as being used principally to describe all parts of the data collection process. The research instrument in a true Likert format, the PSQ-18, was tested and proven to be strong in reliability and validity (Marshall and Hays, 1994; Sarstedt *et al.*, 2022; Valdes *et al.*, 2021).

Valdes *et al.* (2021) conducted a review of periodical articles to determine whether careful consideration of measurement goals can be encompassed using the PSQ-18. A systematic review of 28 patient satisfaction scales by researchers Miglietta *et al.* (2018) determined the selection of the most appropriate scale is dependent upon the purpose of the research, the setting of the research, the scope of the research and the allotted time for the research. In quantitative research conducted by Ng and Luk (2019) satisfaction surveys were administered to patients to determine satisfaction with quality and to pinpoint possible opportunities for quality improvement. The researchers determined the instrument to have great reliability and validity to precisely function in the collection of the patient's feedback on service quality (Ng and Luk, 2019). The PSQ-18 has been selected to assess client satisfaction in various settings, but no study has assessed cosmeceutical client satisfaction.

Merk and Michel's (2019) study, "How to measure satisfaction with the service quality of luxury beauty salons," used a quantitative non-experimental descriptive-correlational design to measure service quality and customer satisfaction. The study used primary data from respondents at six beauty salons, with each salon having a quota of 50 customers to rate. The study employed a convenient sampling technique and mean (μ_x) to measure the level of service quality and customer satisfaction. The purpose of the study was to identify the determinants of client satisfaction and the characteristics of service quality favored by luxury salon clients (Ajitha and Sivakumar, 2017). When factor analysis was executed on sixteen variables, the researcher determined four preferred service quality characteristics

based on customer support, service, relations and communication (Herhausen *et al.*, 2019). Responsiveness was found to be most influential concerning client satisfaction in comparison with other characteristics (Mori and Lee, 2019). A significant relationship between luxury salon service quality and client satisfaction was determined. The luxury salon services were assessed, which differs from the business service quality in the administration of cosmeceutical products.

Even though the general topic was an area of research like Merk and Michel's (2019) study, different aspects and variables within the domain of cosmeceutical business service quality were assessed. A focus on different geographic regions, customer demographics and specific components of business service quality led to additional constructs. A variation in the correlational research design and statistical analyses used helped to contribute to the existing literature. The current research incorporated variables to offer an avenue for exploring the intricate dynamics shaping customer perceptions and experiences within the cosmeceutical industry. Differences in industry trends between luxury beauty salons and the cosmeceutical industry, regulatory environments of each, basic consumer preferences and the competitive landscape emphasized the insights of the findings and indications of the current research.

Correlational research involves the determination of the degree of association between quantitative research variables. In correlational research, variables are not manipulated or controlled like variables are in an experimental design (Bell *et al.*, 2018). The most appropriate methodology to describe and measure the degree of association between cosmeceutical business service quality (the predictor variable) and cosmeceutical client satisfaction (the outcome variable) was a quantitative, correlational design.

Correlational designs search for relationships between variables (Vogt *et al.*, 2014). If a relationship exists, the researcher can gather data about the strength and direction of the relationship (Black, 2005; Burns *et al.*, 2014; Vogt, 2007). With evidence of a significant correlation between variables, some statistical inferences can be made to provide answers to the RQ and test the hypotheses (Bell *et al.*, 2018; Vogt *et al.*, 2014). Results also produced descriptive data for demographics and sample size, tests for data normality and independent *t*-tests (Jeon, 2015; Levine *et al.*, 2017). The statistical tests were used to determine what relationship, if any, exists between cosmeceutical business service quality and client satisfaction.

Studies based on a correlational design uses variables the researcher is unable to control. Even though the variables are not manipulated as in an experimental design, a correlational research study is a chance to recognize the relationship among the research variables (Jeon, 2015; Levine *et al.*, 2017). In correlational research, the research concepts are defined in terms of the variables. The correlation statistic is used to describe or measure the relationship between two or more variables or sets of scores (Black, 2005; Jeon, 2015; Levine *et al.*, 2017; Vogt, 2007). The research studied the relationship between cosmeceutical business service quality (i.e. the predictor variable) and cosmeceutical client satisfaction (i.e. the outcome variable) while incorporating an understanding of theory.

Quantitative research using a correlation design involves statistical measurement instead of an experimental manipulation of variables (Black, 2005; Jeon, 2015; Vogt, 2007). A correlational design allows the researcher to identify relationships or predictive relationships which may exist between the variables (Jeon, 2015; Levine *et al.*, 2017). The goal of the presented correlational research was to determine the relationship, if any, existing between cosmeceutical business service quality and cosmeceutical client satisfaction (Jeon, 2015; Levine *et al.*, 2017). In the research study, a primary objective included examining and evaluating the variables in the research to determine what relationship, if any, exists between cosmeceutical business service quality and cosmeceutical client satisfaction in the Southeast Region of the United States.

2.2 Theoretical framework

The theoretical basis for the research study was the expectancy disconfirmation theory (EDT) of satisfaction (Oliver, 1980; Oliver, 2014; Williams, 2015). The EDT, developed by Oliver (1980), served as the underpinning theory in examining the constructs of customer or client satisfaction. One of the most accepted theories of client satisfaction is the EDT (Oliver, 1980; Williams, 2015). EDT considers client satisfaction as an outcome of the gap between the client's expected and perceived business service quality performance (Arslanagic Kalajdzic and Zabkar, 2017; Oliver, 1980). Applying the theory to the present research study aided in understanding the relationship, if any, between cosmeceutical business service quality and cosmeceutical client satisfaction for clients in the Southeast Region of the United States because the constructs of business service quality were assessed for client satisfaction (Bellad et al., 2017; Lee, 2016).

High-quality service can lead to high levels of client satisfaction, which in turn facilitates an increase in business sales and performance (Kumar and Reinartz, 2018). The EDT of satisfaction is based on the needs and wants of business clients (Oliver, 2014; Williams, 2015). According to the interpretations of business researchers, client satisfaction is a sense occurring after the client evaluates what was expected to what was received from a product or service. Client satisfaction occurs when the client assesses whether the business service has met perceived needs and expectations (Olsen et al., 2014; Parasuraman et al., 1985). Business clients perceive service quality as favorable when expectations are met or exceeded (Olsen et al., 2014; Parasuraman et al., 1991). As displayed in Figure 1, Oliver (2014) believed a consumer will only choose a product or service expected to provide the most satisfaction with the consumer experience.

To better understand the relationship between cosmeceutical business service quality and cosmeceutical client satisfaction, the relationship between the constructs in the research study was explained by using the Oliver (1980) satisfaction and service quality model. Oliver (1980) defined the difference between pre-consumption and post-consumption expectations and pre-consumption and post-consumption observed performance as disconfirmation. A positive disconfirmation is the result of the client's observed business service performance exceeding pre-consumption expectations (Oliver, 1980; Oliver, 2014; Parasuraman et al., 1991). In contrast, a negative disconfirmation is the result of the observed business service performance failing to meet 16 pre-consumption expectations. Theoretically, in a cohesive manner, expectation and disconfirmation conjointly produce a measure of client satisfaction.

2.3 Research questions/hypotheses

As the fundamental principle of a research study, the RQ framed the study, determined the methodology and defined all phases of analysis and reporting (Black, 2005; Vogt, 2007). As a RQ construct, the study sought to determine the relationship, if any, between cosmeceutical
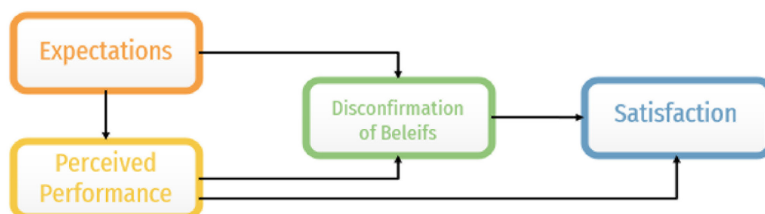
Note(s): Illustration depicting customer satisfaction as a comparison of expectations to experience
Source(s): Oliver (2014)

Figure 1.
Simplified expectation disconfirmation model

business service quality and cosmeceutical client satisfaction. A cross-sectional questionnaire was administered to women in the Southeast Region of the United States to address the following RQ.

RQ. What relationship, if any, exists between cosmeceutical business service quality and cosmeceutical client satisfaction in the Southeast Region of the United States?

For the research study, correlative hypotheses were tested to determine the relationship, if any, between cosmeceutical business service quality and cosmeceutical client satisfaction in the Southeast Region of the United States (Black, 2005; Burns *et al.*, 2014; Vogt, 2007).

The research study tested the following null hypothesis.

H0. There is no significant relationship between cosmeceutical business service quality and cosmeceutical client satisfaction in the Southeast Region of the United States.

The alternative hypothesis is:

H1. There is a significant relationship between cosmeceutical business service quality and cosmeceutical client satisfaction in the Southeast Region of the United States.

For the research study, the variables were defined as.

Variable 1. The predictor variable, cosmeceutical business service quality, was categorized as prepaid beauty services and represented the integrated working of the ten service quality determinants.

Variable 2. The outcome variable, cosmeceutical client satisfaction, was measured by the PSQ-18 and represented the cosmeceutical client's satisfaction with cosmeceutical business services received (Rand Corporation, 2019).

2.4 Data analysis

Data analysis applied the Statistical Package for the Social Sciences (SPSS) software to statistically assess what relationship, if any, exists between cosmeceutical business services quality and cosmeceutical client satisfaction. First, a correlation Point biserial model two-tail test was used at 95% reliability level and 5% error to specify the impact or non-impact of each questionnaire sub-category (Marshall and Hays, 1994; Parasuraman *et al.*, 1985; Vogt *et al.*, 2014). The two-tail test was used to help the researcher reject or approve the hypothesis in 95% reliability level, 5% error and effect size of 0.50 (Marshall and Hays, 1994; Rand Corporation, 2019; Vogt, 2007). A priori analysis was used to compute the required sample size. While the noncentrality parameter output was 3.741657, the critical t was 2.021075, the df was 40, the total sample size was 42, and the actual power was 0.954528.

The SPSS helped to determine what relationship, if any, exists between the research study's variables. In the case of the research study, the predictor variable was the cosmeceutical business service quality, and the outcome variable was cosmeceutical client satisfaction. The CCSQ-18 inquiry items were asked in a way an indication of agreement reflected satisfaction with services, while other inquiry items were asked in a way disagreement reflected dissatisfaction with services (Marshall and Hays, 1994; Rand Corporation, 2019; Vogt *et al.*, 2014). Rand Corporation (2019) explained how the PSQ-18 produces separate scores for each of seven different subscales: General Satisfaction (Items 3 and 17); Technical Quality (Items 2, 4, 6 and 14); Interpersonal Manner (Items 10 and 11); Communication (Items 1 and 13); Financial Aspects (Items 5 and 7); Time Spent with Professionals (Items 12 and 15); Accessibility and Convenience (Items 8, 9, 16 and 18) as shown in Table 1.

The conventional way to analyze a Likert scale instrument, such as the CCSQ-18, is to find the sum of each selection and determine a score for each value (Joshi *et al.*, 2015; Vogt *et al.*,

Item numbers	Original response value		Scored
1, 2, 3, 5, 6, 8, 11, 15, 18	1	→	5
	2	→	4
	3	→	3
	4	→	2
	5	→	1
4, 7, 9, 10, 12, 13, 14, 16, 17	1	→	1
	2	→	2
	3	→	3
	4	→	4
	5	→	5
Source(s): Author's own research			

Table 1.
CCSQ-18 response
value and item scoring

2014). Responses from each of the 18 items of the CCSQ-18 are coded 1–5 from strongly agree to strongly disagree. In the CCSQ-18, negatively worded questions are reverse scored (1 = 5, etc.) so in all cases a low score indicated satisfaction (Marshall and Hays, 1994; Rand Corporation, 2019). Determined scores represent specific traits which are used in the data analysis of the research, and the scores were useful for determining a research participant's opinion of the perceived satisfaction (Marshall and Hays, 1994; Rand Corporation, 2019; Vogt *et al.*, 2014). After item scoring, items within the same subscale were averaged together to create the seven subscale scores as shown in Tables 1 and 2, and the scores could then be analyzed and depicted on a chart of the distribution of opinions across the population (Marshall and Hays, 1994).

The descriptive statistics defined a depiction of the results to determine if a relationship exists, while inferential statistics determined the strength and direction of the relationships (Jeon, 2015; Black, 2005; Vogt, 2007; Vogt *et al.*, 2014). A correlation in the same direction is referred to as a positive correlation, meaning if one variable increases the other also increases (Jeon, 2015; Vogt, 2007). More so, when one variable decreases the other also decreases (Jeon, 2015; Vogt, 2007). In a negative correlation, the variables move in the inverse, or the opposite, direction as one variable increases, the other variable decreases (Jeon, 2015; Vogt, 2007). In an effort of more in-depth data exploration, the researcher cross-tabulated the means of contributing service quality factors (Marshall and Hays, 1994).

3. Findings

The sample consisted of 50 subjects. Of all contacts made with the CCSQ-18 survey link ($N = 59$), 59 web-based questionnaires were completed. However, 50 responses qualified for research use. The response rate for those accessing the instrument through the research

Scale	Average these items
General satisfaction	3, 17
Technical quality	2, 4, 6, 14
Interpersonal manner	10, 11
Communication	1, 13
Financial aspects	5, 7
Time spent with professional	12, 15
Accessibility and convenience	8, 9, 16, 18
Source(s): Author's own research	

Table 2.
Creating the CCSQ-18
scores

recruitment link and completing the questionnaire thereafter was 83%. Respondents were required to answer qualifier questions about cosmeceutical consumption, region of residence and gender before being able to access the 18 questions of the CCSQ-18. If a respondent initially refused to provide informed consent or to participate in the research, the respondent was disqualified from participating in the research. The mean ($\bar{x}$) age (SD) of the sample was 49 ($\pm$ 1.199) years. The difference in mean age across the states within the Southeast Region of the United States respondents was not statistically significant. Female respondents comprised 100% of the sample, with 50 respondents. 100% of respondents indicated consumption of cosmeceuticals within the past 5 years and 100% resided in the Southeast Region of the United States as shown in Table 3.

The respondent sample was from the Southeast Region of the United States; the distribution by state did not differ significantly across the region. The respondent sample was predominantly White 26 (52%). Interestingly, a significantly greater proportion of minorities chose African American 13 (26%) as ethnicity than any other ethnic groups, with Multi-racial 5 (10%), Hispanic 4 (8%), Asian 1 (2%) and Indian 11 (2%) following behind. The respondents differed in the distribution of total household income level. Respondents indicated income levels responses as 12% reporting an income of $40,000 and under, 30%

Characteristic	N	%
State of residence		
South Atlantic	19	38
East South Central	15	30
West South Central	16	32
Age		
21 – under	0	0
22–25	0	0
26–30	12	6
31–39	12	24
40–49	18	36
50–59	11	22
60–69	2	4
70 – older	0	0
I prefer not to respond	1	2
Level of income		
$40,000 – under	6	12
$41,000–50,000	15	30
$51,000–60,000	11	22
$61,000–70,000	8	16
$70,000 – above	7	14
I prefer not to respond	3	6
Race/ethnicity		
African American/Black	13	26
American Indian/Alaskan	1	2
Asian/Pacific Islander	1	2
Hispanic/Latino	4	8
White	26	52
Multi-racial	5	10
I prefer not to respond	0	0
Total participants	50	100
Source(s): Author's own research		

Table 3.
Demographic characteristics of research participants

reporting an income of $41,000–50,000, 22% reporting an income of $51,000–60,000, 16% reporting an income of $61,000–70,000 and 14% reporting an income of $71,000 and above.

An initial analysis to test the assumption that the research data is normally distributed was performed on the research data. From the data represented in the table, the researcher found the data is normally distributed. A normal distribution was determined because the absolute numbers for positive kurtosis and skewness were low. In addition, the absolute numbers for the negative skewness and kurtosis were not very high. The mean, standard deviation, skewness and kurtosis of the variables are displayed in Table 4.

As a first approach to determine the existence of a relationship between cosmeceutical business service quality and cosmeceutical client satisfaction, the estimated results of Pearson's chi-squared test were used. According to the coefficient and the level of statistical significance, the results are mostly consistent for each item. Through the results, the alternative hypothesis can be accepted for each item except for I have to pay more for my cosmeceutical services than I can afford, I have some doubts about the ability of the cosmeceutical professionals who service me and I find it hard to get an appointment for cosmeceutical services, whose level of significance is greater than 0.05. However, the test only provides valuable information in which it is determined if there is a relationship, and it is not possible to know whether this is positive or negative and the expected effect by including Pearson's chi-squared test analysis. The results presented in Table 5 compare Items 2 through 18 against Item 1 to determine the relationship.

To determine whether there is a significant relationship between cosmeceutical business service quality and cosmeceutical client satisfaction in the Southeast Region of the United States, an estimate of an ordered probit model was used to determine the influence of the categorical variables corresponding to the responses to items of the CCSQ-18. The model is expressed in the functional form:

$$y_i^* = x_i'\beta + \mu_i$$

The predictor variable y^* is the measure of the observed quality of service for each individual i. The variable x represents the matrix of the predictor variables and β as the vector of the estimated coefficients of the model. Finally, μ is presented as the error term for each individual i. According to the pseudo-R^2 of the model, it is considered that there is a good fit of the model with a 0.626 for 50 observations. Through the Likelihood Ratio (LR) chi-squared statistic (18) = 65.35 and its associated probability, Prob > chi-squared = 0.000, the researcher determined the predictor variable cohesively has a statistically significant effect on the outcome variable, which indicates the correct specification and validity of the model. In further evaluation, it was observed that Item 2 and Item 3 are not statistically significant with a p-value greater than 0.05. However, Item 4 is significant (p-value < 0.05), and the estimated coefficient indicates the existence of a negative relationship with cosmeceutical business service quality. Table 6 presents the results, which reflect different effects depending on the CCSQ-18 items. Observations reveal that Item 5 also presents a statistically significant p-value, but the variable has a positive relationship with cosmeceutical business service quality. Item 4, Item 7 and Item 14 are also negatively related to the other variables, whereas Item 17 has a positive association.

Finally, the income level of the participants was included and was determined to be statistically significant, given a p-value of less than 0.05. According to its estimated coefficient, a positive relationship with the variable is observed; that is, at a higher level of income, there is a greater probability that there is a better degree of cosmeceutical client satisfaction. Although some variables had a p-value greater than 0.05 and were not significant, it is possible to determine that the sign of each coefficient can provide an intuition of the expected effect. Nonetheless, the evidence shows that there is a positive and negative

	N	Minimum	Maximum	Mean (x̄)	Std. Deviation (σₓ)	Variance (s²)	Skewness (β1) Statistics	Std. Error	Kurtosis (K) Statistics	Std. Error
Item 1	50	1	5	4.20	0.857	0.735	−1.620	0.337	3.802	0.662
Item 2	50	2	5	3.98	0.958	0.918	−0.829	0.337	−0.068	0.662
Item 3	50	2	5	3.92	0.944	0.891	−0.745	0.337	−0.148	0.662
Item 4	50	1	5	3.64	1.083	1.174	−0.828	0.337	−0.061	0.662
Item 5	50	1	5	3.68	1.019	1.038	−0.995	0.337	0.590	0.662
Item 6	50	2	5	4.22	0.708	0.502	−1.062	0.337	2.250	0.662
Item 7	50	1	5	3.70	0.995	0.990	−0.907	0.337	0.763	0.662
Item 8	50	1	5	1.94	1.058	1.119	1.417	0.337	1.686	0.662
Item 9	50	1	5	3.76	1.021	1.043	−0.688	0.337	−0.076	0.662
Item 10	50	2	5	3.98	0.869	0.755	−0.739	0.337	0.172	0.662
Item 11	50	4	5	4.50	0.505	0.255	0.000	0.337	−2.085	0.662
Item 12	50	2	5	3.78	0.932	0.869	−0.797	0.337	−0.083	0.662
Item 13	50	2	5	4.08	0.752	0.565	−1.035	0.337	1.835	0.662
Item 14	50	1	5	3.96	1.009	1.019	−1.158	0.337	0.909	0.662
Item 15	50	2	5	3.92	0.944	0.891	−0.442	0.337	−0.733	0.662
Item 16	50	2	5	3.96	0.925	0.856	−0.724	0.337	−0.127	0.662
Item 17	50	1	5	3.86	0.948	0.898	−1.058	0.337	1.039	0.662
Item 18	50	1	5	4.02	0.937	0.877	−1.283	0.337	1.810	0.662

Source(s): Author's own research

Table 4.
Descriptive statistics of
CCSQ-18

Item	N	Pearson's chi-squared	Sig
Item 2: I think cosmeceutical businesses have everything needed to provide complete services	50	43.950	0.000
Item 3: The cosmeceutical services I have been receiving is just about perfect	50	33.738	0.001
Item 4: Sometimes cosmeceutical professionals make me wonder if their diagnosis is correct	50	28.351	0.029
Item 5: I feel confident that I can get the cosmeceutical service I need without being set back financially	50	75.405	0.000
Item 6: When I go for cosmeceutical services, they are thorough when treating and examining me	50	65.836	0.000
Item 7: I must pay more for me cosmeceutical services than I can afford	50	23.462	0.102
Item 8: I have easy access to the cosmeceutical services that I need	50	60.812	0.000
Item 9: Where I get cosmeceutical services, clients have to wait too long for treatment	50	79.519	0.000
Item 10: Cosmeceutical business professionals act too businesslike and impersonal towards me	50	27.182	0.007
Item 11: Cosmeceutical professionals treat me in a very friendly and courteous manner	50	12.907	0.012
Item 12: Those who provide my cosmeceutical services sometimes hurry too much when they treat me	50	30.120	0.003
Item 13: Cosmeceutical professionals ignore what I tell them	50	21.297	0.046
Item 14: I have some doubts about the ability of the cosmeceutical professionals who service me	50	27.955	0.320
Item 15: Cosmeceutical professionals usually spend plenty of time with me	50	31.518	0.002
Item 16: I find it hard to get an appointment for cosmeceutical services	50	10.792	0.547
Item 17: I am dissatisfied with some things about the cosmeceutical services I receive	50	52.169	0.000
Item 18: I am able to get cosmeceutical services whenever I need them	50	42.957	0.000
Source(s): Author's own research			

Table 5.
Pearson's chi-squared
test values

relationship between the items in the model, and the information presented by the model is conclusive in determining the influence of each individual variable on satisfaction and quality of service.

In addition, the generalizability, trustworthiness, validity and reliability of the research is also based on the research results revealing most participants ($N = 23$, 46%) from the questionnaire agreed the cosmeceutical services are available as desired as well as agreed to the providers delivering the services needed. Many participants ($N = 28$, 56%) also agreed with cosmeceutical professionals explaining services well, while ($N = 26$, 52%) disagreed with cosmeceutical professionals making them wonder about diagnosis. A high percentage of participants ($N = 29$, 58%) agreed when going for services cosmeceutical professionals are thorough; additionally, most participants ($N = 25$, 50%) agreed that the professionals deliver treatments in a friendly manner and ($N = 25$, 50%) disagreed with services being unaffordable. Notably, participants ($N = 24$, 48%) agreed the cosmeceutical business service quality received was just about perfect and ($N = 28$, 56%) indicated disagreement with being dissatisfied. Frequencies and percentages of the 18-question questionnaire confirmed the significance of cosmeceutical client satisfaction to cosmeceutical businesses and the beauty industry.

The research study was executed as a response to the need for a deeper understanding of the relationship that may exist between cosmeceutical business service quality and

Variable	Coef	Std. Err	*p*-value
Item 1	0.969	0.562	0.085
Item 2	0.576	0.655	0.379
Item 3	−1.398	0.707	0.048
Item 4	1.420	0.611	0.020
Item 5	−0.476	1.164	0.682
Item 6	−1.560	0.655	0.017
Item 7	−0.797	0.439	0.070
Item 8	0.962	0.635	0.129
Item 9	−0.108	0.538	0.841
Item 10	−0.130	0.817	0.873
Item 11	−0.221	0.566	0.697
Item 12	0.302	0.638	0.636
Item 13	−1.202	0.581	0.039
Source(s): Author's own research			

Table 6.
Ordered probit model test values

cosmeceutical client satisfaction. Relationships among cosmeceutical clients' perceived cosmeceutical business service quality satisfaction through a self-reported research questionnaire, the Cosmeceutical CCSQ-18. This research study is unique because the measure applied to assess the relationship existing between cosmeceutical client satisfaction and cosmeceutical business service quality consists of a research instrument that has been deemed valid and reliable across a multitude of previous research settings. Before the present research study, minimal empirical evidence linking cosmeceutical business service quality with cosmeceutical client satisfaction was discovered. Consistent with the hypothesis set forth in the study, the results from this study indicate that a significant relationship exists between the predictor variable, cosmeceutical business service quality, and the outcome variable, cosmeceutical client satisfaction, in the Southeast Region of the United States.

The research findings remain consistent with previous research, which revealed that consumer satisfaction is based upon and directly related to the service quality determinants and the disconfirmation theory of customer satisfaction (Herhausen *et al.*, 2019; Marshall and Hays, 1994; Oliver, 2014; Parasuraman *et al.*, 1985, 1991). Research results from evaluating the RQ presented in the current study indicate that cosmeceutical business service quality is significantly related to cosmeceutical client satisfaction. Specifically, research results from studies conducted by Ramya *et al.* (2019) revealed that the more favorable business service quality was perceived, the more clients were satisfied, which was affirmed through the findings of the current cosmeceutical research. The findings directly support the arguments of Hill and Alexander (2017) who believed client satisfaction is one of the most critical issues faced by businesses of all types. Although the relationships between business service quality and consumer satisfaction have been researched in past research, the introduction of cosmeceutical client satisfaction facets is innovative to the industry literature.

The research results did not reveal any data to support the arguments of Kumari and Khurana (2013), who believed the cosmeceutical sector has a raised competitive advantage over the cosmetics industry. However, the results supported previous literature stating the cosmeceutical business' focus has been on remaining unique through providing favorable service quality and not just selling cosmetic products (Lee, 2016; Bellad *et al.*, 2017). Being innovative with operations and strategies has made the cosmeceutical market what it is today, and the research results have helped determine favorable business service quality and have helped push the market forward. In addition, the results did not reveal any data to support women use cosmetics to change the appearance of age or to appear sexier (Walker *et al.*, 2021).

More importantly, the research results revealed data in opposition to the Walker *et al.* (2021) argument women do not consider the use of cosmetics as favorable.

The research findings clearly support the arguments of Kumar and Reinartz (2018), who posited business leaders should constantly seek opportunities to apply technical knowledge, skills, abilities and proficiency to improve business service quality to create consumer satisfaction. Research assessing client satisfaction in the cosmeceutical market is significant, because with the proper strategic response, the twofold goal of cosmeceutical businesses satisfying clients and generating business success may be accomplished (Bellad *et al.*, 2017).

4. Conclusions

Beauty consumers have interest in the trend to look like a Kardashian-hence the popular moniker, keeping up (Monteverde, 2016). Through a research design which business administrators and industry leaders have had a long interest in understanding, the study explores the problem of client satisfaction. The purpose of the quantitative correlational research study was to determine what relationship, if any, exists between the predictor variable, cosmeceutical business service quality, and the outcome variable, cosmeceutical client satisfaction, in the Southeast Region of the United States. Cosmeceutical business service quality, the predictor variable, was categorized as prepaid beauty services.

Cosmeceutical client satisfaction, the outcome variable, which occurs after the client evaluated what was expected to what was received from a product or service was measured by the CCSQ-18 (Konerding, 2016; Marshall and Hays, 1994; Olsen *et al.*, 2014; Rand Corporation, 2019). The significance of the study was based on the increasing global cosmeceuticals market valued at $83.60 billion in 2023 (Cosmeceuticals Market, 2023; McMullen and Dell'Acqua, 2023). The global cosmeceuticals market is projected to reach around USD 155.80 billion by 2030, with a compound annual growth rate (CAGR) of about 8.09% from 2023 to 2030 (Cosmeceuticals Market, 2023). The nature of the study used the quantitative method with a correlational design, with a theoretical basis as the EDT of satisfaction (Bellad *et al.*, 2017; Oliver, 1980).

Research participants included female cosmeceutical consumers over the age of 18 in the Southeast Region of the United States. The RQ probed what relationship, if any, exists between cosmeceutical business service quality and cosmeceutical client satisfaction in the Southeast Region of the United States. With the results detailed, a correlational Point biserial model two-tail test helped the researcher reject or approve the hypothesis in 95% reliability level, 5% error and effect size of 0.50 (Marshall and Hays, 1994; Rand Corporation, 2019).

The recommendation is made for cosmeceutical businesses to improve brand loyalty through personalized customer experiences, while for consumers, identifying high-quality products and services is key. Focus was put on presenting practical insights that businesses can readily implement, such as optimizing online engagement strategies or enhancing employee training programs. The engagement of stakeholders throughout the research process was valuable and further research may include conducting interviews with industry professionals and hosting workshops to gather input and disseminate findings. This collaborative approach will ensure the research resonates with stakeholders and has a meaningful impact on the cosmeceutical industry as a whole.

The research findings are aligned with the disconfirmation theory of satisfaction concepts. The disconfirmation theory of satisfaction emphasizes consumer perceived quality with each of the business service quality determinants (Oliver, 1980). The main takeaway from the results of the research study is a significant relationship between cosmeceutical business service quality and cosmeceutical client satisfaction exists, hence key decisions may be based on the concept within the parameters of identified limitations.

The continual success of the cosmeceutical market, both globally and domestically in the United States, brings up extensive consumer attention on cosmeceuticals and the functional promises that have been emphasized in popular culture media. The combined nature of cosmeceuticals (cosmetics and pharmaceuticals) presents the beauty industry as an exploratory experience to target consumers in both topical and ingestible forms. To understand female consumers' satisfaction with cosmeceuticals and the business service quality, the research investigates what relationship, if any, exists between cosmeceutical business service quality and cosmeceutical client satisfaction. More importantly, female cosmeceutical consumers' perception of cosmeceutical business service quality is assessed in the cosmeceutical research. As detailed in the manuscript, research results can be used by industry leaders and providers to make informed business decisions.

The purpose of the quantitative correlational research study was to determine what relationship, if any, exists between the predictor variable, cosmeceutical business service quality, and the outcome variable, cosmeceutical client satisfaction, in the Southeast Region of the United States. For the research study, cosmeceuticals were defined as non-invasive cosmetic services and procedures often performed by esthetic professionals to modify physical appearance. Cosmeceutical business service quality, the predictor variable, was categorized as prepaid beauty services. Cosmeceutical client satisfaction, the outcome research variable, was measured by the PSQ-18, which is a tool to examine the client satisfaction for cosmeceutical business services received (Rand Corporation, 2019). As primary objective, examining and evaluating the research's variables to determine what relationship, if any, exists between cosmeceutical business service quality and cosmeceutical client satisfaction in the Southeast Region of the USA is essential.

The hypotheses addressed the RQ, which questioned what relationship, if any, exists between cosmeceutical business service quality and cosmeceutical client satisfaction. General satisfaction, technical quality, interpersonal manner, communication, financial aspects, time spent with professionals and accessibility and convenience were scored to help determine if a relationship exists between cosmeceutical business service quality and cosmeceutical client satisfaction. The CCSQ-18, the questionnaire used in the current research, was web-based. The target population consisted of $N = 50$ randomly selected female cosmeceutical consumers residing in the Southeast Region of the United States. Adding to the limitations of the study was the geographic selection of the Southeast Region of the United States, instead of the entire country, excluding the male gender and accessing only cosmeceutical consumers instead of medical esthetic or marketing professionals as well.

The research had 50 total participants who responded to all questions and items of the CCSQ-18 which fueled the RQ used in the study. Rand Corporation (2019) detailed how the CCSQ-18 produces separate scores for each of seven different subscales: General Satisfaction (Items 3 and 17); Technical Quality (Items 2, 4, 6 and 14); Interpersonal Manner (Items 10 and 11); Communication (Items 1 and 13); Financial Aspects (Items 5 and 7); Time Spent with Professionals (Items 12 and 15); Accessibility and Convenience (Items 8, 9, 16 and 18) as shown in Table 2. Responses to the survey questions were contingent upon a 5-point Likert scale (5 = strongly disagree, 4 = disagree, 3 = neither agree nor disagree, 2 = agree and 1 = strongly agree). The average estimations were computed for each of the 18 items in the data analyzation of the survey responses, with the means presented in Table 4. Through the LR χ^2 statistic (18) = 65.35 and its associated probability Prob > χ^2 = 0.000, it was determined that the research study variables have a statistically significant effect on one another which indicates the correct specification and validity of the research model.

The research study was executed as a response to the need for a deeper understanding of what relationship that may exist between cosmeceutical business service quality and cosmeceutical client satisfaction. The relationships among cosmeceutical clients' perceived cosmeceutical business service quality satisfaction through a self-reported research

questionnaire, the Cosmeceutical CCSQ-18. The research study is unique because the measure applied to assess the relationship existing between cosmeceutical client satisfaction and cosmeceutical business service quality consists of a research instrument that has been deemed valid and reliable across a multitude of previous research settings as determined in the background literature. Prior to the present research study, minimal empirical evidence linked cosmeceutical business service quality with cosmeceutical client satisfaction. Consistent with the hypothesis set forth in the study, results from this study indicate that a significant relationship exists between the predictor variable, cosmeceutical business service quality, and the outcome variable, cosmeceutical client satisfaction, in the Southeast Region of the United States.

The research findings remain consistent with previous research which revealed that consumer satisfaction is based upon and directly related to the service quality determinants and the disconfirmation theory of customer satisfaction (Herhausen *et al.*, 2019; Marshall and Hays, 1994; Oliver, 1997; Parasuraman *et al.*, 1985, 1991). Research results from evaluating the RQ presented in the current study indicate that cosmeceutical business service quality is significantly related to cosmeceutical client satisfaction. Specifically, research results from a study conducted by Daniels (2018) revealed that the more favorable business service quality was perceived, the more clients were satisfied, which was affirmed through the findings of the current cosmeceutical research. The findings directly support the arguments of Hill and Alexander (2017) which believed client satisfaction is one of the most critical issues businesses of all types face. Although the relationships between business service quality and consumer satisfaction have been researched in past research, the introduction of cosmeceutical client satisfaction facets is innovative to the industry literature.

The research results did not reveal any data to support the arguments of Kumari and Khurana (2013) which believed the cosmeceutical sector has raised competitive advantage over the cosmetics industry. However, the results supported previous literature stating the cosmeceutical business' focus has been on remaining unique through providing favorable service quality and not just selling cosmetic products (Lee, 2016; Nanjwade *et al.*, 2017). Being innovative with operations and strategies has made the cosmeceutical market what it is today, and the research results helped determine favorable business service quality has helped push the market forward. Also, the results did not reveal any data to support the women use cosmetics to change the appearance of age or to appear sexier (Laham, 2020). More importantly, the research results revealed data in opposition of the Davis (2013) argument women do not consider the use of cosmetics as favorable.

The research findings clearly support the arguments of which Kumar and Reinartz (2018) posited business leaders should constantly seek opportunities to apply technical knowledge, skills, abilities and proficiencies to better business service quality to create consumer satisfaction. As previously discussed, research assessing client satisfaction in the cosmeceutical market is significant, because with the proper strategic response the twofold goal of cosmeceutical businesses satisfying clients and generating business success may be ultimately accomplished (Bryman and Bell, 2015). Again, supporting the literature, the research findings are aligned with disconfirmation theory of satisfaction concepts. The disconfirmation theory of satisfaction emphasizes consumer perceived quality with each of the business service quality determinants (Oliver, 1980). The main take away from the results of the research study is a significant relationship between cosmeceutical business service quality and cosmeceutical client satisfaction exists, hence key decisions may be based on the concept within the parameters of identified limitations.

5. Research limitations
Limitations of the current research study relating to the generalizability, trustworthiness, validity and reliability of the hypotheses exist. Limitations describe the uncontrollable

factors of the research narrowing the scope of the study (Black, 2005; Vogt, 2007). Every research design, despite the strength of the method, has some limitations (Simon and Goes, 2013). Furthermore, limitations reveal why it is impractical to employ the words "prove" and "disprove" when referencing research results (Simon and Goes, 2013). Identifying the limitations of the research helps strengthen the significance of the study.

The main limitation of the study is that the direction of the effect on the variables, as a whole, cannot be determined. Differentiating positive or negative influences on cosmeceutical business service quality is not possible; however, an observation of the individual effect of each of the questions is probable. The research is based on EDT of satisfaction, but the construct can be improved with the use of additional variables and mediation thereof. Simon and Goes (2013) noted individual research designs might only be significant to a group, or the relationship among the variables in a correlational analysis might only be tested in specific research settings. The relationship discovered among the variables may not be sufficiently informative enough for the researcher to rule out all alternative explanations for correlational findings and offer evidence for causation. Another limitation is the researcher was not allowed to go beyond the data collected in the study; therefore, no additional inferences in the research transpired (Simon and Goes, 2013).

General satisfaction, technical quality, interpersonal manner, communication, financial aspects, time spent with professionals and accessibility and convenience were scored to help determine whether a relationship exists between cosmeceutical business service quality and cosmeceutical client satisfaction. The CCSQ-18, the questionnaire used in the current research, was web-based. The target population consisted of $N = 50$ randomly selected female cosmeceutical consumers residing in the Southeast Region of the United States. Adding to the limitations of the study was the geographic selection of the Southeast Region of the United States. Instead of the entire country, excluding the male gender and accessing only cosmeceutical consumers instead of medical esthetic or marketing professionals.

The research instrument of the study had high internal validity as the instrument had undergone extensive psychometric testing, as the PSQ-18 is in its third iteration (Rand Corporation, 2019). With the high external validity of the research, the researcher was confident that the preference is relevant to all cosmeceutical consumers' decisions. In evaluating the research design, the construct validity was extremely high because the research processes were aligned with the RQ. The appropriate sample size of 42 participants for the research was determined using G*Power Analysis. Cronbach's alpha for the CCSQ-18 questionnaire instrument was 0.84, which indicated strong reliability (Dzwigol, 2020; Marshall and Hays, 1994). The researcher did not digress from the detailed research protocol, instrumentation, data collection and data analyses at any time.

The generalizability, trustworthiness, validity and reliability of the research is based on the research results revealing most participants ($N = 23, 46\%$) from the questionnaire agreed the cosmeceutical services are available as desired as well as agreed to the providers delivering the services desired. Many participants ($N = 28, 56\%$) also agreed with cosmeceutical professionals explaining services well, while ($N = 26, 52\%$) disagreed with cosmeceutical professionals making them wonder about diagnosis. A high percentage of participants ($N = 29, 58\%$) agreed that when going for services, cosmeceutical professionals are thorough; additionally, majority of participants ($N = 25, 50\%$) agreed that the professionals deliver treatments in a friendly manner and ($N = 25, 50\%$) disagreed with not being able to afford the services. Notably, participants ($N = 24, 48\%$) agreed the cosmeceutical business service quality received was just about perfect and ($N = 28, 56\%$) indicated disagreement with being dissatisfied. The results showed and confirmed the significance of cosmeceutical client satisfaction to cosmeceutical businesses and the beauty industry.

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References

Ajitha, S. and Sivakumar, V.J. (2017), "Understanding the effect of personal and social value on attitude and usage behavior of luxury cosmetic brands", *Journal of Retailing and Consumer Services*, Vol. 39, pp. 103-113, doi: 10.1016/j.jretconser.2017.07.009.

Arslanagic-Kalajdzic, M. and Zabkar, V. (2017), "Is perceived value more than value for money in professional business services?", *Industrial Marketing Management*, Vol. 65, pp. 47-58, doi: 10.1016/j.indmarman.2017.05.005.

Bansal, H.S. and Taylor, S. (2015), "Investigating the relationship between service quality, satisfaction and switching intentions", *Proceedings of the 1997 Academy of Marketing Science (AMS) Annual Conference*, Springer International Publishing, Cham, pp. 304-313, doi: 10.1007/978-3-319-13141-2_107.

Baumann, L. (2014), *Cosmeceuticals and Cosmetic Ingredients*, McGraw-Hill Education, New York, NY.

Bell, E., Bryman, A. and Harley, B. (2018), *Business Research Methods*, Oxford University Press, Oxford.

Bellad, K.A., Nanjwade, B.K., Kamble, M.S., Srichana, T. and Idris, N.F. (2017), "Development of cosmeceuticals", *World Journal of Pharmacy and Pharmaceutical Sciences*, Vol. 6 No. 4, pp. 643-682, doi: 10.20959/wjpps20174-8927.

Black, T.R. (2005), *Doing Quantitative Research in the Social Sciences: An Integrated Approach to Research Design, Measurement and Statistics*, SAGE Publications, Thousand Oaks, CA.

Bryman, A. and Bell, E. (2015), *Business Research Methods*, Oxford University Press, New York, NY.

Burns, A.C., Bush, R.F. and Sinha, N. (2014), *Marketing Research*, Vol. 7, Pearson, Harlow.

Cosmeceuticals Market (2023), *Cosmeceuticals Market*, Precedence Statistics.

Cox, E.P., O'Dwyer, N., Cook, R., Vetter, M., Cheng, H.L., Rooney, K. and O'Connor, H. (2016), "Relationship between physical activity and cognitive function in apparently healthy young to middle-aged adults: a systematic review", *Journal of Science and Medicine in Sport*, Vol. 19 No. 8, pp. 616-628, doi: 10.1016/j.jsams.2015.09.003.

Daniels, L.M. (2018), "The quest for a paradigm shift in leadership for the next decade and beyond", in *The Future of Leadership*, Palgrave Macmillan, London, pp. 15-37, doi: 10.1007/978-3-319-73870-3_2.

Davis, K. (2013), *Reshaping the Female Body: the Dilemma of Cosmetic Surgery*, Routledge, New York, NY.

Dzwigol, H. (2020), "Innovation in marketing research: quantitative and qualitative analysis", *Marketing and Management of Innovations*, No. 1, pp. 128-135, doi: 10.21272/mmi.2020.1-10.

Feetham, H.J., Jeong, H.S., McKesey, J., Wickless, H. and Jacobe, H. (2018), "Skin care and cosmeceuticals: attitudes and trends among trainees and educators", *Journal of Cosmetic Dermatology*, Vol. 17 No. 2, pp. 220-226, doi: 10.1111/jocd.12460.

Galib, M. and Paymaei, H. (2022), "Sponsored advertisement: does it contribute to brand equity?", *International Journal of Sales Retailing and Marketing*, Vol. 11 No. 1, pp. 55-79.

Griva, A., Bardaki, C., Pramatari, K. and Papakiriakopoulos, D. (2018), "Retail business analytics: customer visit segmentation using market basket data", *Expert Systems with Applications*, Vol. 100, pp. 1-16, doi: 10.1016/j.eswa.2018.01.029.

Gupta, M.J., Chaturvedi, S., Prasad, R. and Ananthi, N. (2022), *Principles and Practice of Management*, AG Publishing House (AGPH Books), London.

Herhausen, D., Kleinlercher, K., Verhoef, P.C., Emrich, O. and Rudolph, T. (2019), "Loyalty Formation for different customer journey segments", *Journal of Retailing*, Vol. 95 No. 3, pp. 9-29, doi: 10.1016/j.jretai.2019.05.001.

Hill, N. and Alexander, J. (2017), *The Handbook of Customer Satisfaction and Loyalty Measurement*, Routledge, New York, NY.

Jeon, J. (2015), "The strengths and limitations of statistical modeling of complex social phenomenon: focusing on SEM, path analysis, or multiple regression models", *International Scholarly and Scientific Research and Innovation*, Vol. 9 No. 5, pp. 1634-1642, doi: 10.5281/zenodo.1105869.

Joshi, A., Kale, S., Chandel, S. and Pal, D. (2015), "Likert scale: explored and explained", *British Journal of Applied Science and Technology*, Vol. 7 No. 4, pp. 396-403, doi: 10.9734/BJAST/2015/14975.

Kasiri, L.A., Cheng, K.T.G., Sambasivan, M. and Sidin, S.M. (2017), "Integration of standardization and customization: impact on service quality, customer satisfaction, and loyalty", *Journal of Retailing and Consumer Services*, Vol. 35, pp. 91-97, doi: 10.1016/j.jretconser.2016.11.007.

Kitapci, O., Akdogan, C. and Dortyol, I.T. (2014), "The impact of service quality dimensions on patient satisfaction, repurchase intentions and word-of-mouth communication in the public healthcare industry", *Procedia-Social and Behavioral Sciences*, Vol. 148, pp. 161-169, doi: 10.1016/j.sbspro.2014.07.030.

Konerding, U. (2016), "Which kind of psychometrics is adequate for patient satisfaction questionnaires?", *Patient Preference and Adherence*, Vol. 10 No. 1, pp. 2083-2090, doi: 10.2147/PPA.S112398.

Kumar, V. and Reinartz, W. (2018), *Customer Relationship Management: Concept, Strategy, and Tools*, Springer, New York, NY.

Kumari, S. and Khurana, S.P. (2013), "Cosmeceuticals: current trends and market preparations", *IOSR Journal of Pharmacy and Biological Sciences*, Vol. 8 No. 3, pp. 45-48, doi: 10.9790/3008-0834548.

Laham, M. (2020), *Made up: How the Beauty Industry Manipulates Consumers, Preys on Women's Insecurities, and Promotes Unattainable Beauty Standards*, Rowman & Littlefield, London.

Lang, L.D., Behl, A., Guzmán, F., Pereira, V. and Del Giudice, M. (2023), "The role of advertising, distribution intensity and store image in achieving global brand loyalty in an emerging

market", *International Marketing Review*, Vol. 40 No. 1, pp. 127-154, doi: 10.1108/IMR-06-2021-0200.

Lee, C.M. (2016), "Fifty years of research and development of cosmeceuticals: a contemporary review", *Journal of Cosmetic Dermatology*, Vol. 15 No. 4, pp. 527-539, doi: 10.1111/jocd.12261.

Levine, D., Stephan, D. and Szabat, K. (2017), *Statistics for Managers*, Pearson Education, Boston, MA.

Lun, Y.V., Shang, K.C., Lai, K.H. and Cheng, T.C.E. (2016), "Examining the influence of organizational capability in innovative business operations and the mediation of profitability on customer satisfaction: an application in intermodal transport operators in Taiwan", *International Journal of Production Economics*, Vol. 171, pp. 179-188, doi: 10.1016/j.ijpe.2015.02.019.

Marshall, G.N. and Hays, R.D. (1994), *The Patient Satisfaction Questionnaire Short-form (PSQ-18)*, RAND Corporation, Santa Monica, CA.

McMullen, R.L. and Dell'Acqua, G. (2023), "History of natural ingredients in cosmetics", *Cosmetics*, Vol. 10 No. 3, p. 71, doi: 10.3390/cosmetics10030071.

Meng, J. and Pan, P. (2012), "Investigating the effects of cosmeceutical product advertising in beauty-care decision making", *International Journal of Pharmaceutical and Healthcare Marketing*, Vol. 6 No. 3, pp. 250-266, doi: 10.1108/17506121211259412.

Merk, M. and Michel, G. (2019), "The dark side of salesperson brand identification in the luxury sector: when brand orientation generates management issues and negative customer perception", *Journal of Business Research*, Vol. 102 No. 11, pp. 339-352, doi: 10.1016/j.jbusres.2019.01.037.

Miglietta, E., Belessiotis-Richards, C., Ruggeri, M. and Priebe, S. (2018), "Scales for assessing patient satisfaction with mental health care: a systematic review", *Journal of Psychiatric Research*, Vol. 100 No. 1, pp. 33-46, doi: 10.1016/j.jpsychires.2018.02.014.

Milam, E.C. and Rieder, E.A. (2016), "An approach to cosmeceuticals", *Journal of Drugs in Dermatology: JDD*, Vol. 15 No. 4, pp. 452-456, doi: 10.1111/j.0022-202X.2004.23550.x.

Monteverde, G. (2016), "Kardashian komplicity: performing post-feminist beauty", *Critical Studies in Fashion and Beauty*, Vol. 7 No. 2, pp. 153-172, doi: 10.1386/csfb.7.2.153_1.

Mori, S. and Lee, E.H. (2019), "Beyond the physician's perspective: a review of patient-reported outcomes in dermatologic surgery and cosmetic dermatology", *International Journal of Women's Dermatology*, Vol. 5 No. 1, pp. 21-26, doi: 10.1016/j.ijwd.2018.08.001.

Nanjwade, B., Bellad, K., Kamble, M., Srichana, T. and Idris, N. (2017), "Development of cosmeceuticals", *World Journal of Pharmacy and Pharmaceutical Sciences*, Vol. 6 No. 4, pp. 643-691, doi: 10.20959/wjpps20174-8927.

Ng, J.H. and Luk, B.H. (2019), "Patient satisfaction: concept analysis in the healthcare context", *Patient Education and Counseling*, Vol. 102 No. 4, pp. 790-796, doi: 10.1016/j.pec.2018.11.013.

Ok, S., Suy, R., Chhay, L. and Choun, C. (2018), "Customer satisfaction and service quality in the marketing practice: study on literature review", *Asian Themes in Social Sciences Research*, Vol. 1 No. 1, pp. 21-27, doi: 10.18488/journal.139.2018.11.21.27.

Oliver, R.L. (1980), "A cognitive model of the antecedents and consequences of satisfaction decisions", *Journal of Marketing Research*, Vol. 17 No. 4, pp. 460-469, doi: 10.2307/3150499.

Oliver, R.L. (1997), *Satisfaction: A Behavioral Perspective on the Consumer*, Irwin-McGraw-Hill, New York, NY.

Oliver, R.L. (2014), *Satisfaction: A behavioral Perspective on the Consumer*, Routledge, New York, NY.

Olsen, L.L., Witell, L. and Gustafsson, A. (2014), "Turning customer satisfaction measurements into action", *Journal of Service Management*, Vol. 25 No. 4, pp. 556-571, doi: 10.1108/JOSM-01-2014-0025.

Pandey, A. and Sonthalia, S. (2019), *Cosmeceuticals*, StatPearls Publishing, Treasure Island, FL, available at: https://www.ncbi.nlm.nih.gov/books/NBK544223/

Parasuraman, A., Zeithaml, V. and Berry, L. (1985), "A conceptual model of service quality and its implications for future research", *Journal of Marketing*, Vol. 49 No. 4, pp. 41-50, doi: 10.2307/1251430.

Parasuraman, A., Berry, L.L. and Zeithaml, V.A. (1991), "Perceived service quality as a customer-based performance measure: an empirical examination of organizational barriers using an extended service quality model", *Human Resource Management*, Vol. 30 No. 3, pp. 335-364, doi: 10.1002/hrm.3930300304.

Peppers, D. and Rogers, M. (2016), *Managing Customer Experience and Relationships: A Strategic Framework*, John Wiley & Sons, Hoboken, NJ.

Ramya, N., Kowsalya, A. and Dharanipriya, K. (2019), "Service quality and its dimensions", *EPRA International Journal of Research and Development*, Vol. 4 No. 2, pp. 38-41.

RAND Corporation (2019), "Patient satisfaction questionnaire 18", *Marshall and Hays*, available at: https://www.rand.org/content/dam/rand/pubs/papers/2006/P7865.pdf

Sarstedt, M., Hair, J.F., Pick, M., Liengaard, B.D., Radomir, L. and Ringle, C.M. (2022), "Progress in partial least squares structural equation modeling use in marketing research in the last decade", *Psychology and Marketing*, Vol. 39 No. 5, pp. 1035-1064, doi: 10.1002/mar.21640.

Sekaran, U. and Bougie, R. (2016), *Research Methods for Business: A Skill Building Approach*, John Wiley & Sons, Hoboken, NJ.

Shehan, J.N., Ryll, L.S., LeClair, J. and Ezzat, W.H. (2023), "Current practices and trends in midface rejuvenation", *Annals of Plastic Surgery*, Vol. 90 No. 2, pp. 118-122.

Simon, M.K. and Goes, J. (2013), "Assumptions, Limitations, Delimitations, and Scope of the Study", Doctoral dissertation, Dissertation and scholarly research: Recipes for success, LLC, Seattle, WA, Doctoral dissertation, Dissertation Success.

Sivakumar, K., Li, M. and Dong, B. (2018), "Service quality: the impact of frequency, timing, proximity, and sequence of failures and delights", *Journal of Marketing*, Vol. 78 No. 1, pp. 41-58, doi: 10.1509/jm.12.0527.

Valdes, K., Kannas, S., Kakar, S., Veneziano, J., Dake, T. and Sierra, F. (2021), "Patient satisfaction of hand therapy services", *Journal of Hand Therapy*, Vol. 34 No. 4, pp. 585-590, doi: 10.1016/j.jht.2020.07.006.

Vogt, W.P. (2007), *Quantitative Research Methods for Professionals in Education and Other Fields*, Allyn & Bacon, Boston, MA.

Vogt, W.P., Gardner, D.C., Haeffele, L.M. and Vogt, E.R. (2014), *Selecting the Right Analyses for Your Data: Quantitative, Qualitative, and Mixed Methods*, Guilford Publications, New York, NY.

Walker, C.E., Krumhuber, E.G., Dayan, S. and Furnham, A. (2021), "Effects of social media use on desire for cosmetic surgery among young women", *Current Psychology*, Vol. 40 No. 7, pp. 3355-3364, doi: 10.1007/s12144-019-00282-1.

White, M.G. (2020), "Why human subjects research protection is important", *Ochsner Journal*, Vol. 20 No. 1, pp. 16-33, doi: 10.31486/toj.20.5012.

Williams, C. (2015), *Effective Management*, Cengage Learning, Boston, MA.

Wirtz, J. and Ehret, M. (2017), "Capturing value in the service economy", *SMR-journal of Service Management Research*, Vol. 1 No. 1, pp. 22-38, doi: 10.15358/2511-8676-2017-1-22.

Wissinger, E. (2016), "Glamour labor in the age of Kardashian", *Critical Studies in Fashion and Beauty*, Vol. 7 No. 2, pp. 141-152, doi: 10.1386/csfb.7.2.141_1.

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