This two-part study explored the readiness of college women to adopt organic cosmetics behaviors. Study 1, a cross-sectional study, used the Transtheoretical Model to assess the readiness to buy and use organic cosmetics and to read cosmetics labels. Participants were 262 college women that participated in an online survey. Study 2, a mixed-methods case study, consisted of two college women involved in semi-structured interviews and cosmetics tracking. Participants in Study 1 were in Maintenance for cosmetics use (86.3%) and Precontemplation for organic cosmetics use (48.9%), purchase (49.2%), and reading cosmetics labels (32.4%). Participants in Study 2 used cosmetics daily but were unaware of the regulatory definition of cosmetics. In both studies, organic products had perceived value, however, organic cosmetics were not considered. Using organic food marketing strategies and tailoring these to organic cosmetics may be an effective approach to increase organic attitudes, awareness, and future adoption of organic cosmetics behaviors.
ORGANIC COSMETICS ATTITUDES AND BEHAVIORS
OF COLLEGE WOMEN

A Thesis

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Chapter One: Proposal

Organic Cosmetics Attitudes and Behaviors of College Women

Introduction

The beauty industry promotes the daily use of cosmetics to cleanse, deodorize, and to beautify the face and body (Chaudhri & Jain, 2009; Nohynek, Antignac, Re, & Toutain, 2010; Robertson, Fieldman, & Hussey, 2008); millions of people use cosmetics on a daily basis (Engasser, Long, McNamee, Schlatter, & Gray, 2007; Nohynek et al., 2010). There is an abundance of research that explores the reasons behind cosmetics use such as improved appearance and boosted self-esteem in cosmetics users, and that cosmetics use offers the ability to manipulate the outward image (Cash & Cash, 1982; Robertson et al., 2008). Cosmetics may be used to compliment or enhance positive facial features and can offer positive benefits to the consumer by improving their self-image, self-esteem, and confidence, thus improving the quality of life (Robertson et al., 2008).

Research finds that the average female uses 9 to 15 cosmetics a day and that the average product contains 14 ingredients. This implies that as use increases the exposure to more ingredients increases as well (Malkan, 2007). Many traditional cosmetics products contain controversial ingredients and may either lack safety assessments and/or may not report safety assessments to the public (Engasser et al., 2007; Lundov, Moesby, Zacharie, & Johansen, 2009; Malkan, 2007; Nohynek et al., 2010; Winter, 2009); some ingredients found in cosmetics have been found to disrupt the hormonal system and increase the risk of cancer (Byford, Shaw, Drew, Pope, Sauer, & Darbre, 2002; Darbre, Aljarrah, Miller, Coldham, Sauer, & Pope, 2004; Environmental Working Group, 2010; Malkan, 2007; Mason, Cate, & Baker, 1971; Nohynek et al., 2010; Varvaresu, Papageorgiou, Tsirvas, Kintziou, Kefala, & Demetzos, 2009; Winter, 2009). Concerns over the safety of ingredients and finalized products, in addition to stronger regulations have been on the rise (Nohynek et al., 2010).

Several grassroots organizations such as the Environmental Working Group (EWG) and the Campaign for Safe Cosmetics have questioned the effectiveness of the laws pertaining to the regulations surrounding cosmetics (“About the Environmental,” n.d.; Malkan, 2007). These groups’ current goal is to establish laws that address full regulation of cosmetics, making the process similar to pharmaceutical drugs by requiring strict regulations that mandate individual

There is also a growing body of literature that suggests organic cosmetics alternatives may have improved safety measures over traditional cosmetics and are often formed with fewer synthetic or genetically-modified ingredients (“National Organic Standards,” 2009; Winter, 2009) thereby lowering harmful ingredient-exposure risks. The recent introduction and dispersion of mainstream organic cosmetics has also become more commonplace (“Quick Overview,” 2010). Consumers interested in organic cosmetics with fewer synthetic and/or controversial ingredients (i.e., parabens, phthalates, and fragrances) now have choices with more easily accessible organic products and more locations to find them (“Quick Overview,” 2010). The growing trend towards organic products has also influenced cosmetics advertising and marketing campaigns. The new approach is to angle products with descriptors such as “natural,” and/or “free from,” some ingredient. This marketing approach could be confusing to consumers that rely on imagery or words in the selection of cosmetics and presents the need for assessments of the readiness to read cosmetics labels as a way to increase the level of understanding of terminology frequently used in advertising campaigns to garner product sales.

Research supports that women use cosmetics and do so for various reasons; however research has yet to evaluate how many cosmetics used by women are organic and if they are ready to buy and use organic cosmetics and to read cosmetics labels. Considering these factors and the growing body of literature on the concerns over safety of ingredients and the benefits of using organic products, the current project seeks to determine the readiness of college women to adopt organic cosmetics behaviors. For the purpose of this study, cosmetics are defined as “any makeup, face, body, or hair products used to color, cleanse, hydrate, or exfoliate.” There are three different classifications of cosmetics used in this study; traditional, natural, and organic. Traditional is defined as “cosmetics that do not indicate with words or images that the product is organic,” with natural considered a traditional product type since the term “natural” is not “organic,” or currently defined by law. Organic is defined as “cosmetics indicating with words or images that the product is organic.” To assess the readiness of college women to buy and use organic cosmetics and to read cosmetics labels the Transtheoretical Model’s Stages of Change and Decisional Balance Inventory constructs will be used to determine how ready college women are to begin thinking about the adoption of organic cosmetics behaviors.
The Transtheoretical Model (TTM), is a health behavior change model that is based upon a series of five stages of readiness to change a behavior. The stages include Precontemplation (i.e., those not thinking about changing), Contemplation (i.e., those thinking about changing in the near future), Preparation (i.e., those making preparations to change), Action (i.e., those who are actively changing), and Maintenance (i.e., those who have changed) (Prochaska, Wright, & Velicer, 2008; Velicer & Prochaska, 2008). The TTM’s Decisional Balance Inventory evaluates the pros and cons of changing a behavior in terms of gains and losses for the self and others (Janis & Mann, 1977; Prochaska et al., 1994). The TTM’s Stages of Change and Decisional Balance Inventory constructs assess the interaction of the pros and cons of a behavior in the decision making process. It is hypothesized that as the pros of changing a behavior increase (i.e., to buy and use organic cosmetics and to read cosmetic labels), a progression through the TTM stages will be seen.

The following literature review will detail the launching of the U.S. cosmetics industry and the regulatory and non-regulatory authorities that govern it. Also reviewed will be the safety concerns regarding the use of cosmetics and the current regulations in place to protect consumers. Furthermore, organic cosmetics regulations and organic product trends and revenues will be reviewed as organic products in general have become more mainstream with many consumers showing a willingness to try organic products in both the organic food and non-food (e.g., cosmetics) sectors. This paper will conclude with an overview of literature present on the use of cosmetics (e.g., how many products are used and individual motives for using them) which suggest that further research into determining individual readiness to buy and use organic cosmetics and to read cosmetics labels are behaviors in need of evaluation.

**The Cosmetics Industry: Early to Mid-1900s**

In the United States, the development of the beauty industry began in the early-to-mid 1900s. Cosmetics such as rouge, personal care products (PCP’s) such as moisturizers, and procedures such as hair coloring became available to those who had the funds to purchase these luxury items. The introduction cosmetics initiated with the establishment of beauty, hair, and nail salons; at the time, they were the only places one could go to receive cosmetics procedures and to purchase items for beautification (Allen, 1981). It was during 1910 that the mindset towards cosmetics began to shift. The concept of cosmetics originated as procedures and products to enhance beauty and later shifted towards the improvement of health with use (Allen,
Sales for the beauty industry in 1906 totaled $100,000 annually. However, 33 years later in 1939, this same industry had yearly sales of $40 to $180 million; some of the growth has been attributed to availability and shifts in marketing and advertising of cosmetics (Allen, 1981; Riordan, 2009). In 1952, these numbers increased to $1 billion; this number includes profits from the sale of cosmetics, PCP’s, and procedures in both salons and mass-market stores (Allen, 1981).

In the early-to-mid 1900s, there were several individuals who developed and eventually mass-marketed cosmetics to women (Allen, 1981). Some names recognized today include Elizabeth Arden, Helena Rubenstein, Charles Revson (Revlon), and Max Factor. These manufacturers initiated the process of developing, manufacturing, and marketing specific cosmetics to consumers. Without the cosmetics first introduced by these early entrepreneurs, today’s cosmetics might not be as affordable or available to the public in mass-market form.

**Elizabeth Arden.** Elizabeth Arden in 1910 was the first cosmetics and personal care manufacturer to enter into the U.S. market. Arden’s focus was on boutique facials, development of homemade creams for the face, and in 1915, Venetian Cream that became a best seller (Allen, 1981). In addition to creating popular treatments and creams, Arden was the first to add color into cosmetics with the introduction of colored eye shadow, rouge, and face powders. She was the first to focus on products’ names, packaging, and design (Allen, 1981). In 1934, Arden was the first to establish a health farm at which individuals would stay for a week, with the focus on health, beauty, and spa-like treatments (Allen, 1981).

**Helena Rubenstein.** Helena Rubenstein in 1914 was the second to enter the cosmetics market in the United States. Rubenstein became famous initially in Europe from the development and introduction of color into foundations and face powders made specifically for different skin types (Allen, 1981). In doing so, Rubenstein developed products for oily, dry and combination skin types and introduced matte makeup for oily skin, in which silk was added to create longer-wearing formulas of foundation (Allen, 1981). With the introduction of these products, from 1915 through 1920, Rubenstein became the largest manufacturer of cosmetics in the United States; this could be due to the marketing of her products in *Vogue*, or due to her focus on efficacy (Allen, 1981). In 1928, Rubenstein’s company became the first to mass-market and put cosmetics into drugstores at low prices (Allen, 1981). Additionally, in the early 1940s Rubenstein introduced the first waterproof mascara (Allen, 1981).
Charles Revson. Charles Revson, otherwise known as the creator/founder of the brand Revlon, entered into the U.S. beauty scene in 1931. Revson’s focus was initially on hair and beauty salon services and then later incorporated cosmetics (Allen, 1981). Revson was the first to introduce nail enamel and also package sets that included polish, tweezers, orange sticks, and emery boards. In 1940, Revson added lipstick shades that matched catchy-named, top selling nail polishes, and with this addition to the Revlon line, sales for Revlon doubled in value (Allen, 1981). In 1960, Revlon salon products became available to the public via mass-market drugstores. Additionally, Revson realized that there was a market for men’s products and introduced a line called “That Man,” to capitalize on this population (Allen, 1981).

Max Factor. Max Factor was a cosmetics manufacturer in early 1906 but was unable to achieve mainstream success until 1929. From 1906 to 1929, Max Factor focused on perfume, makeup, and hair products (Allen, 1981). He formulated hair, eyes, and skin product lines specifically for blondes, brownettes (brunettes), and red heads (Allen, 1981). Max Factor’s most well-known concentration was in theatrical makeup, prior to the motion picture boom. In 1927 when the movie business exploded, Max Factor’s panchromatic makeup formula was the only face makeup that did not distort on screen and became the only cosmetics that moviemakers and actresses would use (Allen, 1981).

Influence of Film, Marketing Campaigns, and War

In 1920, cosmetics marketing shifted from word of mouth to advertising and magazine-based campaigns (Peiss, 1998). Advertising campaign space at this time increased to 20% and was reserved for the promotion of cosmetics, PCP’s, and fragrances (Peiss, 1998). Cosmetic marketing messages were characterized by words and images that promoted sensuality of the female (Allen, 1981; Peiss, 1998). The messages suggested that to be attractive and sexy to the opposite sex, the use of cosmetics was necessary. At this time, male business owners dominated these campaigns and women complied with the idea of using cosmetics to improve their appearance (Peiss, 1998). The use of imagery was successful as women accepted the beauty ideal presented to them and began to purchase more products.

Film. Since films were a main form of entertainment from 1920 to the 1940s, the portrayal of stars and the introduction of color films influenced consumer purchases (Angeloglou, 1970; Peiss, 1998). The leading ladies of film were considered glamorous and sexy; this spurred the female population’s urge to mimic their looks (Angeloglou, 1970; Peiss,
Using beauty icons and film stars as faces of cosmetic campaigns, the familiarity of these popular film stars and their attractiveness boosted product sales, suggesting that identification with film stars created the need to improve beauty and increased the perceived need to purchase and use cosmetics (Peiss, 1998). This development has been suggested as the most influential factor in the use of cosmetics among women of the time (Angeloglou, 1970).

**Marketing Campaigns.** During the 1930s, a popular marketing campaign used the tagline, “makeup should make you look naturally more attractive” (Peiss, 1998, p. 152); to achieve this look the use of numerous cosmetics was required (Peiss, 1998). Some women in 1932 stated that advertising campaigns created the pressure to be attractive, which lowered their self-esteem, and felt that the beauty industry was created to fulfill male desires (Welters, 2008). With increased value being placed on women to conform to the ideals set forth by male beauty ideals and by the media, some women felt pressure to conform and resisted the new beauty ideals, while others felt empowered by the ability to change their looks with cosmetics that boosted their self-esteem and confidence (Peiss, 1998; Robertson et al., 2008).

**War.** The biggest measurement of the cosmetics industry boom was in the sales of lipstick in the 1940s. In 1942, it was believed that 98% of adult women used lipstick (Allen, 1981). This measurement is staggering because during WWII the cosmetics supply was low due to ingredients and packaging materials being used in the war; however, these products were in high demand by women and were seen as morale boosters (Peiss, 1998). It was also during this time that many women began to work as a means to sustain the economy (Angeloglou, 1970). This shifted the previous men’s consumer market by presenting women the opportunity to earn money. Women were now able to make more purchases than they were before the war and could now buy cosmetics that had recently entered the market (Angeloglou, 1970).

During the early-to-mid 1900s, cosmetics were purchased and used in more abundance by a greater number of women than ever before. It was also during a time where governmental regulations for cosmetics had not been established. Any product that was marketed and sold could include any ingredient and be produced in any environment—sanitary or not. The next section details two specific incidents that developed due to the lack of cosmetic regulations in the 1930s and discusses product claims and the unforeseen harmful effects of cosmetics use without measures in place to protect consumers.
Cosmetics Safety in the Early to Mid-1900s

Before the passing of the Federal Food, Drug, and Cosmetic Act of 1938 there were widespread false product claims marketed to consumers (Legislative History, 1974). At this time, cosmetics were not under regulation; after several devastating incidents involving unregulated products in the 1930s, the pressure on Congress to pass the FD&C Act was strong.

Koremlu Cream. In the early 1930s, a depilatory cream was introduced as a personal care product for men and women to rid the body of unwanted hair (DeForest Lamb, 1936; Nohynek et al., 2010). It was to be used anywhere on the face, arms, or body. It was said to be safe, effective, and used as a 24-hour cream to relax hair follicles (DeForest Lamb, 1936). The product claimed that with one-year of continuous use hair would be gone; it also stated that if a refund was to be obtained that it could not be processed until that time. If a refund was requested, this required the consumer to provide receipts and empty jars of the product for the full year as proof of purchase (DeForest Lamb, 1936). The active ingredient in this hair removal cream was Thallium Acetate—rat poison, which debilitates if used in an inappropriate manner (DeForest Lamb, 1936; Nohynek et al., 2010).

The idea for the development of this product came from science that treated scalp problems. According to DeForest Lamb (1936), less than 1% of the active ingredient should be used with a warning to not exceed this amount due to health risks. With disregard to this warning, Koremlu Cream entered the market at 3.25%; when the product was reviewed as ineffective, this concentration was increased (DeForest Lamb, 1936). With the increased Thallium in the product, increasing numbers of incidents were reported by hospitals with patients suffering from nausea, severe abdominal cramps, blindness, and lower body paralysis (DeForest Lamb, 1936). In independent studies conducted on this product by an unnamed laboratory and the American Medical Association, the percentage of the Thallium Acetate was found to be at 5% and 7%, respectively (DeForest Lamb, 1936). At this time, the American Medical Association and the U.S. Department of Agriculture (USDA) approached the manufacturer, stores, and publications; they requested that the product be removed from the market and not advertised as the product was extremely dangerous. For example, one individual who used this product, as directed, suffered from blindness and lower limb paralysis. Despite being blind, she drafted a letter to Mrs. Roosevelt (i.e., President Roosevelt’s wife) to explain the many reasons why she felt cosmetics should be tested for safety (DeForest Lamb, 1936). Eventually, the
manufacturer was sued and went bankrupt; they were not able to compensate those affected by Koremlu Cream (DeForest Lamb, 1936).

**Lash Lure.** In 1933, “Lash Lure” (DeForest Lamb, 1936) was another product that caused problems for its users. This product was a synthetic dye applied to the eyebrows and eyelashes to darken the hair. It was typically administered by a parlor worker to clients in the beauty salon setting (DeForest Lamb, 1936). For one individual, the Lash Lure product was applied to the eyebrows and eye lashes. A few hours after receiving the service, she became blind (DeForest Lamb, 1936). Initially, a minor reaction of irritation and itchiness were noticeable to the individual. Shortly thereafter, she suffered serious and visible reactions including swelling, drainage of pus, and ulcers that became prominent in and around the eye area (DeForest Lamb, 1936). Furthermore, the Journal of the American Medical Association documented 17 more cases involving blindness, disfigurement, or death due to use of the Lash Lure product (DeForest Lamb, 1936). Investigations found that the dye used to color the eyebrows and lashes was a synthetic aniline dye, a derivative of coal tar, known to cause irritation and/or severe allergic reactions (DeForest Lamb, 1936; Winter, 2009). While the aniline dye used in the Lash Lure product formula was found to be the direct cause of the ailments and deaths, little could be done to stop the marketing of the product due to a lack of regulations in place to recall products found to be detrimental to health (DeForest Lamb, 1936; Legislative History, 1974).

The two aforementioned incidents were due to the use of cosmetics prior to the enactment of cosmetic safety laws. Individuals experienced excruciating pain and suffering due to their use of products that were unregulated and not assessed for safety. While these illustrations portray extreme cases of health issues that occurred with use of cosmetics, they also increased the awareness that lives were being ruined and lost. These incidents and others enabled the transition of cosmetics into the hands of the FDA. This initiated with the Federal Food, Drug, and Cosmetic Act of 1938 (FD&C Act or the Copeland Act), which addressed the inadequacies of the FD&C Act of 1906 that did not include cosmetics (Legislative History, 1974).

**U.S. Cosmetics Regulations: 1906 to Today**

According to the 1974 Legislative History of the Food, Drug, and Cosmetic Act (FD&C Act), during the Depression, the use of harmful ingredients and products developed in unsanitary conditions was abundant and often promoted to consumers through false therapeutic claims
The use of hazardous substances and the promotion of therapeutic claims highlighted the necessity for regulations that addressed safety in cosmetics (Legislative History, 1974). The regulation of cosmetics began in 1938 under federal regulation through the Federal Food, Drug, and Cosmetic Act (FD&C Act) (Legislative History, 1974).

The U.S. Food and Drug Administration (FDA) is the governmental agency that develops and enforces laws governing cosmetics and other products marketed to the public (Legislative History, 1974; “What Does the FDA Do?,” 2010). Also under FDA control, the FDA’s Center for Food Safety and Applied Nutrition Agency (CFSAN) works to ensure that cosmetics and other products are safe and labeled appropriately for consumers (“Cosmetics,” 2010; “What Does the FDA Regulate?,” 2010). These agencies, established by the U.S. Congress, ensure compliance with regulations set forth by the FDA, the FD&C Act, and that other laws pertaining to food, drugs, and cosmetics have been properly followed and enforced (“How is the FDA Organized?,” 2010; “What Does the FDA Do?,” 2010). Discussed in the following section is an overview of the FDA and what aspects of regulations under the FD&C Act it enforces, those it does not regulate, and the limitations within current laws.

The FDA is located within the U.S. Department of Health and Human Services (USDHHS) and is responsible for the protection of public health by determining the safety and efficacy of drugs, vaccines, food, cosmetics, supplements, and medical devices in the United States and U.S. territories (“FDA Fundamentals,” 2010; “How is the FDA Organized?,” 2010; “What Does the FDA Regulate?,” 2010). The FDA works to advance product innovations and conducts independent research to deliver accurate and scientifically-based information that is accessible to consumers. The FDA has six product groups, with the CFSAN being the hub for regulatory development of cosmetics that works with the FDA to enforce laws relating to cosmetics packaging and labeling (“How is FDA Organized?,” 2010). The CFSAN works under the FDA and through the FD&C Act, a set of several acts and laws that regulate the standards for cosmetics (“How is FDA Organized?,” 2010; “What is the Difference,” 2010). The FD&C Act sets forth regulations for cosmetics and product development with established sets of laws for color additives and package labeling (“What is the Difference,” 2010). To obtain a better understanding of the FD&C Act, the next several sections detail the first enactment of the Federal Food and Drug Act of 1906 and follows the Act’s progression by introducing and
detailing important amendments and future Acts. This sequence will lead to the Federal Food, Drug, and Cosmetic Act (FD&C Act) as it is known today (Legislative History, 1974).

Federal Food and Drug Act of 1906. The first law to regulate food and drugs was the Federal Food and Drug Act of 1906 (i.e., the Pure Food and Drug Act, The Wiley, or The Heyburn Act; Legislative History, 1974). The FD&C Act of 1906 established new standards concerning food and drugs and was the first set of laws to prohibit the adulteration and misbranding of food and drugs in the U.S. (Legislative History, 1974). This legislation also made it unlawful for a company to sell a product that falsely claimed to have therapeutic or drug-like properties (Legislative History, 1974; “What is the Difference,” 2010).

With regard to food and drugs, the establishment of clear definitions was needed in order to clarify any misconceptions regarding these items. The FD&C Act of 1906 established that foods were considered “any articles used for food, drink, confectionary, or condiment by man or other animals, whether simple, mixed or compounded,” and that drugs were considered to be “all medicines and preparations recognized in the U.S….for internal or external use, and any substance or mixture of substances intended to be used for the cure, mitigation, or prevention of disease in either man or other animals” (Legislative History, 1974, p. 2). In 1906 this law was sufficient; however, by 1912, limitations of the previous law were challenged beginning with false statements of the health benefits of cosmetics which the Federal Food and Drug Act of 1906, did not acknowledge (Legislative History, 1974).

The Sherley Amendment. In 1906, the Federal Food and Drug Act covered the prohibition of false statements regarding food and drugs, but did not prohibit the statement of false therapeutic claims (Legislative History, 1974). Companies that manufactured food and drugs found loopholes in the law and began to use claims that fell outside the governing of the FD&C Act. During this time, an increased promotion of products was seen that claimed cures for diseases that lacked actual substantiating evidence of safety and efficacy (Legislative History, 1974). To address this issue, the President of the United States, William Taft, made a statement to Congress, “There are none so credulous as sufferers from disease. The need is urgent for legislation which will prevent the raising of hopes of speedy cures of serious ailments by misstatement of facts as to worthless mixture on which the sick will rely while their disease progresses unchecked” (Legislative History, 1974, p. 2). As a result, the Sherley Amendment of 1912 prohibited the “false and fraudulent curative or therapeutic claims on a label” (Legislative
This amendment was a necessary addition to the FD&C Act of 1906 as it prevented the sale of foods and drugs claiming to benefit health and well-being (Legislative History, 1974). The Sherley Amendment resides under the FD&C Act of 1906 and is currently in the revised FD&C Act of 1938 (Legislative History, 1974).

In addition to food and drugs being falsely marketed to consumers as providing “cures for disease,” the cosmetic industry began to see the same claims being made with regard to beauty treatments and the sale of products that promised youth in a bottle (Allen, 1981; Legislative History, 1974, p. 3). For example, in 1935, a New York Salon offered a 6-pack of mask treatments for $200 that was marketed to the public as a way to reactivate dead cells in the face to promote a younger-looking complexion (Allen, 1981). To perform this procedure, a salon worker would place foil and paper maché strips to the face to form a mask; they would hook the mask to a diathermy machine which would pump out electrical currents (Allen, 1981). In the pursuit to look younger, many did not inquire about the electrical treatments that had no safety research behind the procedure (Allen, 1981). Because of similar treatments and the sale of cosmetics that claimed to be beneficial to the body, it was recognized that higher-standards of assessments were needed to protect consumers from fraudulent claims and hazardous product ingredients of cosmetics. Therefore, it was necessary to incorporate cosmetics into the FD&C Act to ensure the safety of consumers (Legislative History, 1974). Beginning with the FD&C Act of 1938, cosmetics fell under governmental law for the first time. This Act is further detailed below (Legislative History, 1974).

**The Federal Food, Drug, and Cosmetic Act of 1938.** The push for revisions to the 1906 FD&C Act to incorporate cosmetics under the law was largely due to a drug disaster, “Elixir of Sulfanilamide,” in which over 100 people died due to poisoning (“Legislation,” 2009; Legislative History, 1974). The drug had been only evaluated by a scientist based on flavor, appearance, and fragrance, but not assessed for safety (Legislative History, 1974). The incident and lack of safety assessments helped to pass the Wheeler-Lea Act in 1938 that focused on safety.

The Wheeler-Lea Act was presented to Congress to help strengthen the 1906 FD&C Act by incorporating safety testing as a mandatory component (Legislative History, 1974). The drug incident and the Wheeler-Lea Act helped to raise awareness about the potentially deadly outcomes to humans that can occur due to lack of safety assessments and regulations (Legislative
History, 1974). With the passage of the Wheeler-Lea Act and the awareness that cosmetics were able to cause health issues, the FD&C Act of 1938 was the first law enacted and addressed marketing and safety concerns of food, drugs, and also cosmetics (“Legislation,” 2009; Legislative History, 1974). Soon after, the FD&C Act of 1906 became the FD&C Act of 1938, otherwise known as The Copeland Act (“Legislation,” 2009; Legislative History, 1974). As with the FD&C Act of 1906 that needed to define foods and drugs, the FD&C Act of 1938 needed to clearly define cosmetics. This clarification would help to define cosmetics and would require any cosmetic manufacturer to comply with the new rules (“Legislation,” 2009; Legislative History, 1974).

**Defining Cosmetics.** According to the FDA, under the FD&C Act, cosmetics are defined by “their intended use, as articles intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body...for cleansing, beautifying, promoting attractiveness, or altering the appearance” (“Federal Food, Drug,” 2010). The FDA does not currently have an established definition by law that governs the term “personal care products” (PCP); however, many cosmetics companies and those that market cosmetics frequently refer to their products as such. Under the FD&C Act, PCP’s are classified as cosmetics and therefore must conform to current regulations (“Personal Care Products,” 2009). However, items such as antiperspirants, acne treatments, and skin protectants are regulated as drugs under the FD&C Act. Furthermore, if a product is meant to make an individual more attractive, without providing a cure for an ailment, it is considered to be a cosmetic. If it is implied that the product is to help relieve or treat an ailment, it is considered a drug (“Is it a Cosmetic,” 2010).

**Defining Drugs.** The FDA defines drugs as “articles intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease” and as “articles (other than food) intended to affect the structure or any function of the body of man or other animals” (“Federal Food, Drug,” 2010; “Is it a Cosmetic,” 2010). Some cosmetic products are considered both a cosmetic and a drug with the designation and evaluation process being based upon the description of the products’ intended use and also by the products’ ingredients (“Is it a Cosmetic,” 2010). If a product is considered to be a cosmetic and a drug, it is regulated as a drug and must comply with the drug guidelines set forth by the FD&C Act and undergo rigorous testing to ensure that the end product can actually treat the disease that the product claims to address (“Is it a Cosmetic,”
However, if a product is considered only to be a cosmetic, under the FD&C Act, the extensive testing that drugs undergo is not conducted on the ingredients or end product, unless it contains dyes or additives that are also regulated (“Is it a Cosmetic,” 2010).

Additionally, the FD&C Act requires that new drugs be subjected to preclinical toxicology testing before drug approval can be granted by the FDA, whereas cosmetics are not required to provide tests results to the FDA or receive FDA approval (Hutt, 2001; “Is it a Cosmetic,” 2010). Drugs are also required to have a “Drug Facts Label,” whereas cosmetics are not, unless the cosmetic also contains an ingredient considered a drug under current regulations (“Is it a Cosmetic,” 2010, para. 15). Achieving FDA approval for a drug takes approximately ten years and costs millions of dollars for one product (Hutt, 2001). However, scientists are aware that cosmetics have the ability to penetrate the skin and affect human functions (Hutt, 2001). While the FDA has banned the use of hormones in over-the-counter drugs, it has allowed for the use of hormones in cosmetics as long as the chemical form of the ingredient name is used and the word “hormone,” is removed. This prevents cosmetics companies from having their cosmetic product classified as a drug (Hutt, 2001).

The FD&C Act’s regulations for cosmetics are therefore limited to enforcing label requirements and eliminating false product claims (“Cosmetic Labeling,” 2006; “Fair Packaging,” 2009; “FDA Authority,” 2009). These processes are under FDA regulation and are covered under the FD&C Act’s adulteration and misbranding clauses and the Fair Packaging and Labeling Act (“Fair Packaging,” 2009). The next section discusses the enforcement of regulations governed through the Fair Packaging and Labeling Act (FPLA) and provides definitions of Adulteration and Misbranding as it is enforced under the FD&C Act.

**The Fair Packaging and Labeling Act.** The FDA regulates cosmetic product packaging through the FPLA and the FD&C Act (“Cosmetic Labeling,” 2006; “Fair Packaging,” 2009; “Inspection of Cosmetics,” 2010; “Key Legal Concepts,” 2009). The FDA works under the FPLA with the responsibility of reviewing cosmetics packaging for specific labeling requirements. These requirements include statements of how the product is to be used, a measurement of contents, the name and place of business of manufacturer, packer or distributor, directions for safe use, warnings or cautions, and an ingredients list in descending order of concentration (“Cosmetic Labeling,” 2006; “Fair Packaging,” 2009; “Inspection of Cosmetics,” 2010). Moreover, the FD&C Act requires a detailed list of ingredients on product packaging
Ingredient information is now available to consumers and is one method that can be used in the decision-making process. The revealing of product ingredients provides consumers with the most accurate information to make the best decisions on cosmetic purchases (“FDA Authority,” 2009). The FDA works under the FPLA and FD&C Act to ensure that the product that the consumer purchases is contaminant free and labeled properly (“Cosmetic Labeling,” 2006; “FDA Authority,” 2009; “Key Legal Concepts,” 2009). The FDA review process also ensures that commercial product labels are in compliance with the FD&C Act and FPLA by performing reviews to check for specific violations that may result from product ingredients, contaminants, processing, packaging, shipping, and handling (“Fair Packaging,” 2009; “FDA Authority,” 2009; “Federal Food, Drug,” 2010; “Inspection of Cosmetics,” 2010). During this process the FDA either establishes that a product is ready for market, or finds the product in violation of the FD&C Act and FPLA and designates it as either adulterated, misbranded, or both (“FDA Authority,” 2009; “Federal Food, Drug,” 2010; “Inspection of Cosmetics,” 2010; “Key Legal Concepts,” 2009).

**Adulteration and Misbranding.** Cosmetics are reviewed for several pieces of information to ensure that the product has not been altered in any way. The FD&C Act addresses adulteration and places strict regulations on the product itself; it also regulates the place in which the product was developed, manufactured, processed, stored, or shipped to ensure that the ingredients used are not poisonous or made from or in locations with filthy or decomposed substances (“FDA Authority,” 2009; “Key Legal Concepts,” 2009, para. 4). In addition, the FD&C Act reviews the ingredients of the container in which the product resides, and it includes exclusions for coal-tar hair dyes (“Key Legal Concepts,” 2009).

In addition to cosmetics being reviewed to ensure that the product is not adulterated, they are also reviewed to ensure that the product is not misbranded. This includes reviewing the information on the packaging for misleading or false statements, missing label information, clarity of the package and ingredient information, misleading forms of packaging, improper packaging or labeling for color additives, and takes into consideration what the label says and what it might imply (“FDA Authority,” 2009; “Key Legal Concepts,” 2009).

**Color Additives.** Color additives are food colors that are used in foods, drugs, and cosmetics to dye products and are regulated by the FDA through the FD&C Act (“Does the FDA Approve,” 2010; “FDA Authority,” 2009; “Key Legal Concepts,” 2009). These colors are often
found with FD&C preceding the color, and are required to be listed on the ingredient label. Cosmetics that incorporate color additives, which many cosmetic product formulations do, are subject to pre-market review and approval by the FDA (“Does the FDA Approve,” 2010; Winter, 2009). The only limitation to this law is that if the substance is generally recognized, among qualified experts, as having been adequately shown to be safe under the conditions of its intended use, or if the use of the substance is otherwise excluded from the definition of a food additive, no pre-market approval is needed (“Does the FDA Approve,” 2010). The only restrictions are in the use of coal-tar colors, which are restricted for use around the eye area. The only exceptions to the restriction of coal tar dyes are if the FDA has previously approved the use with established requirements and if approval has already been determined for the area that the product is to be applied to (“Cosmetic Labeling,” 2006; “Does the FDA Approve,” 2010; “FDA Authority,” 2009; Winter, 2009).

**Reporting Adverse Reactions to the FDA.** Consumer Reports estimate that the number of reported allergic and/or adverse reactions from cosmetics use is low with a range between one and eight complaints for every one million products sold, in comparison to food complaints and reactions which are estimated at one in every 10,000 (Allen, 1981). Lundov et al. (2009) estimates that nearly 6% of the general population suffers from cosmetics related allergies. These reactions are often due to the addition of fragrances and preservatives (Lundov et al., 2009). The FDA recommends that if an individual has a serious reaction due to use of a product, she/he should report the problem to a physician, the cosmetic company, and the FDA (“What Should I Do,” 2010). In addition, the FDA suggests that the report be submitted to the MedWatch Reporting Program and the appropriate district office consumer complaint coordinator. These programs report reactions to the FDA; in addition, the FDA receives consumer complaint data directly from the public, doctors, and those companies enrolled in the Voluntary Cosmetic Registration Program (VCRP) (Lundov et al., 2009; “Voluntary Cosmetic Registration,” 2009; “What Should I Do,” 2010). Reporting reactions from the use of cosmetics helps to ensure that accurate safety data is available and that precautionary measures can be taken as necessary (“What Should I Do,” 2010).

In reviewing the cosmetic laws that the FDA follows under the FD&C Act and the FPLA, the FDA states that their authority does not extend towards the safety of cosmetics available to a consumer, unless it contains color additives or is defined as a drug (“Fair Packaging,” 2009;
“FDA Authority,” 2009; “Federal Food, Drug,” 2010). According to the FDA, conducting safety assessments to ensure that cosmetic ingredients are safe and that the end product is not dangerous for use as directed on the label, is the responsibility of cosmetic firms (“FDA Authority,” 2009; Malkan, 2007; “What Does the FDA Regulate?,” 2010; Winter, 2009).

According to the FDA, “cosmetic products and ingredients are not subject to FDA premarket approval authority, with the exception of color additives,” which makes clear that the laws by which they operate do not reside in individual safety assessments of ingredients and/or products (“FDA Authority,” 2009, para. 6; Malkan, 2007; Winter, 2009). Moreover, the FDA does not test cosmetic ingredients and products or give pre-market approval of a product (FDA Authority,” 2009, para. 6). It is made explicit that the safety assessment of a cosmetic product is to be performed by the cosmetic firm prior to being released onto the market (“FDA Authority,” 2009; Malkan, 2007; Winter, 2009). Furthermore, the FDA does not suggest or promote any product as being considered safe and/or FDA approved, as the FDA’s main objective is to make sure that the information provided by the company is in compliance with established regulations and also that the package contents are accurately listed on package labels, to the best of their knowledge (“Fair Packaging,” 2009).

**Determining the Safety of Cosmetics Today**

The regulation of cosmetics and the laws set forth by the FDA under the FD&C Act have been under scrutiny in recent years (Malkan, 2007; Winter, 2009). This concern is with regard to the lack of regulations surrounding the ingredients commonly used in cosmetics and the ingredients’ link to human health problems. Traditional products (i.e., those not considered to be organic) often contain many synthetic ingredients that have produced cancer and other side effects in animals and humans at varying exposure levels (Byford et al., 2002; Darbre et al., 2004; Environmental Working Group, 2010; Malkan, 2007; Winter, 2009). Current regulations set forth by the FDA acknowledge that cosmetic companies are not required to submit safety assessment reports to the FDA unless the cosmetic is also a drug (“Is It a Cosmetic,” 2010); as a result they do not frequently publish safety assessment studies (Malkan, 2007; Winter, 2009). This suggests that consumers are purchasing products that are marketed as safe based upon the word of the cosmetic company (Malkan, 2007; Winter, 2009).

The FDA maintains that the regulations set forth within the FD&C Act protect consumers from hazardous cosmetic ingredients and product claims (“Cosmetics,” 2010). There are several
organizations that are working to push Congress to enact stricter laws that address issues surrounding the concentration levels of ingredients used in cosmetics; the concerns being that the FDA allows the use of ingredients that may not have sufficient safety assessment reports (“About the Environmental,” n.d.; “About Us,” n.d.; Malkan, 2007). In Europe, laws have been established that prohibit the use of ingredients in cosmetics without proof of sufficient safety assessment reports (Malkan, 2007; Pouillot, Polla, & Polla, 2009; Winter, 2009). In the United States, ingredients are used until safety assessment data provides information that the ingredient has been proven to cause a specific disease or health-related issue. The FDA maintains that the use of ingredients within currently established safe levels of the ingredient in terms of parts per million, and under normal or suggested product usage, does not pose adverse health risks (“Cosmetics,” 2010).

The question has been posed by consumer advocates as to whether the United States should follow the European Union’s guidelines in terms of cosmetics regulations (“About the Environmental,” n.d.; Malkan, 2007). In Europe, under the REACH Program, over 1,100 cosmetics ingredients have been banned for use based upon insufficient safety assessments. Also, if the ingredient has been shown at any dosage level to cause harm to animals or humans, the ingredient is also banned for use (Nohynek et al., 2010). In comparison, the United States as of December 2009 has prohibited and restricted the use of 11 ingredients (e.g., mercury compounds, chloroform, chlorofluorocarbon propellants, zirconium complexes, etc.) and lists 5 others (e.g. dioxane, musk ambrette, nitrosamines, etc.) as pending a full safety assessment (“Cosmetic Product Manufacturers,” 2009; “Ingredients Prohibited,” 2009).

Some frequently used and acceptable cosmetics ingredients found in cosmetics formulations that are not currently pending review by the FDA include phthalates, parabens (preservatives), and petrochemicals. Some studies find these ingredients to be linked to cancer, disruption of the endocrine system, and to have the potential to alter hormonal properties (Byford et al., 2002; Darbre et al., 2004; Environmental Working Group, 2010; Malkan, 2007; Mason et al., 1971; Nohynek et al., 2010; Winter, 2009; Varvaresu et al., 2009). Another unknown is the cumulative effect of using multiple cosmetics at varying exposure levels that contain one or several controversial ingredients (Malkan, 2007; Winter, 2009). Furthermore, cosmetic companies within the United States that export cosmetics to Europe are required to follow established REACH regulations (Pouillot et al., 2009); REACH guidelines require
documentation reports of safety assessments of individual ingredients as well as the safety of the final product and is extended to all imported products (Nohynek et al., 2010).

**FDA Safety Assessment Organizations and Programs**

As mentioned previously, the FDA maintains that the regulations under the FD&C Act protect consumers from adulterated and misbranded cosmetics that have false claims to ensure that the product is safe for use as directed on the cosmetics’ label. The FD&C Act also complies with Good Manufacturing Practice (GMP), which is an inspection checklist that cosmetic companies must follow in manufacturing and production of cosmetics (“Good Manufacturing,” 2009). GMP authorizes the FDA to enter any cosmetic establishment, at any time, to inspect the cosmetic, the building, the equipment, and the personnel to ensure that cleanliness regulations are used; they also inspect raw materials, production, laboratory controls, records, labels, and complaints, to ensure that all GMP guidelines are adhered to (“Good Manufacturing,” 2009).

In addition to companies being required to follow GMP, the FDA has established the VCRP which is a post-market reporting system that provides cosmetics companies with information from the FDA regarding ingredient safety (“Voluntary Cosmetic Registration,” 2009). Registration in the VCRP is free and all ingredients used in cosmetics are required to be given to the FDA; the ingredients list is then delivered to the Cosmetic Ingredient Review Panel (CIR Panel) for use when determining safety assessment conclusions on individual ingredients (“Voluntary Cosmetic Registration,” 2009). Furthermore, the FDA accepts recommendations from agencies such as the Centers for Disease Control and Prevention (CDC) and the Personal Care Products Council (PCPC), to establish additional safety assessments on chemicals and ingredients used in cosmetics.

**Voluntary Cosmetic Registration Program.** The VCRP is an FDA post-market reporting system that cosmetic companies, commercial manufacturers, packers, and distributors can become part of. It is free of cost, and it assists the FDA in determining ingredients used most frequently and to gather a database of cosmetic ingredient safety assessments of ingredients and products (“Voluntary Cosmetic Registration,” 2009). Enrollment in the VCRP requires product and manufacturing registration, disclosure of product and ingredient information, and the filing of a Cosmetic Product Ingredient Statement (CPIS) (“Voluntary Cosmetic Registration,” 2009). Participation in the VCRP provides cosmetics companies with added protection in the case that an ingredient used in a product formula has been determined to be harmful to health.
When this occurs, the FDA notifies the VCRP registrant directly to inform it of the harmful ingredient and to request the prompt removal of the substance from the product (“FDA Recall Policy,” 2009; “Voluntary Cosmetic Registration,” 2009). This safety recall is required when testing samples of ingredients and final product formulations are found to be harmful or not in compliance with the FD&C Act and/or the FPLA (“FDA Recall Policy,” 2009; “Voluntary Cosmetic Registration,” 2009). Registration with the VCRP provides the FDA with direct contact with the company and manufacturer and is helpful when the FDA has a recall or health concern with regard to an ingredient (“FDA Recall Policy,” 2009; “Voluntary Cosmetic Registration,” 2009).

While registration in the VCRP is advised by the FDA, it is currently not mandatory (“Voluntary Cosmetic Registration,” 2009). According to Winter (2009), only 35-40% of cosmetic companies is registered with the VCRP and discloses the ingredients used to create their products (Winter, 2009). The low percentage of ingredient and safety assessment disclosure statements suggest that little is actually known about the ingredients and the safety of these ingredients used in the majority of cosmetics (Winter, 2009).

**Cosmetic Ingredient Review Panel.** The information received from the disclosure of ingredients, products, and safety assessments at the time of VCRP registration, is entered into a database. This information is available for review by the FDA and the CIR Panel (“Cosmetic Ingredient Review,” n.d.; “Voluntary Cosmetic Registration,” 2009). The CIR Panel is an association founded by the Personal Care Products Council (PCPC) that reviews and conducts safety assessments of ingredients used in cosmetics (“Cosmetic Ingredient Review,” n.d.; Lundov et al., 2009). To address concerns relating to the safety of cosmetics, the CIR Panel has established a 6-person committee that consists of a range of educated individuals (“Cosmetic Ingredient Review,” n.d.). Some members include a consumer representative, toxicologist, dermatologist, and industry scientist. These committee members are responsible for the development of general policies that the CIR Panel follows regarding the continuation of safety assessments of ingredients in cosmetics (“Cosmetic Ingredient Review,” n.d.). The CIR Panel committee selects and releases each year a proposed schedule of ingredients for review (“How Does CIR Work,” n.d.). In order to create this report, the panel members review current literature, reports, incidents of questionable ingredients, and information collected from the VCRP registration program. The CIR Panel then uses this information to evaluate ingredients.
based upon composition, absorption and penetration levels, biological makeup, and refers to safety assessments from animal studies (“How Does CIR Work,” n.d.).

Once an ingredient has been evaluated based on CIR Panel criteria, it is placed in 1 of 4 categories. The categories are 1) safe as used, 2) safe with qualifications, 3) unsafe, and 4) insufficient data (“Cosmetic Ingredient Findings,” n.d.). Once the designation of an ingredient has been established, a full report with final data on ingredient assessments is published in the International Journal of Toxicology (“Cosmetic Ingredient Review,” n.d.; “How Does CIR Work,” n.d.).

Personal Care Products Council. The PCPC is a trade association that provides cosmetic safety information to its members, the media, and consumers (“About the Personal,” n.d.; “Public Information,” n.d.). The PCPC is a leading source for science-based consumer safety information and works to scientifically test and evaluate ingredients of PCP’s (“Public Information,” n.d.; “Science and Safety,” n.d.). The PCPC’s goal is to deliver scientifically-tested and trusted information for the PCP industry; it is committed to safety, quality and innovation of cosmetics (“About the Personal,” n.d.). To carry out this goal, the PCPC works with its Science Department, which consists of industry scientists and experts who work together to design cosmetic and PCP safety guidelines that follow and assist the VCRP and FDA in providing accessible tools for the cosmetics industry (“Science and Safety,” n.d.; “Voluntary Cosmetics Reporting,” n.d.). These safety guidelines are adopted to fulfill current cosmetic regulations set forth by the FDA or to exceed these regulations as a way to maintain stringent safety standards (“Science and Safety,” n.d.; “Voluntary Cosmetics Reporting,” n.d.).

Consumer Commitment Code. In 2008, the PCPC started the Consumer Commitment Code program (CCC) to strengthen industry regulations on cosmetics (“Consumer Commitment Code,” n.d.). Participation in the CCC program is voluntary and requires participating companies to sign and commit to following a specific set of guidelines (“Consumer Commitment Code,” n.d.; Lundov et al., 2009). The CCC program requires participants to follow recommendations set forth by the CIR Panel; to register with the VCRP; to follow good manufacturing practices; and to possess safety assessments of every ingredient in the final product marketed to consumers (“Consumer Commitment Code,” n.d.; Lundov et al., 2009).
Non-FDA Safety Assessment Organizations

The FDA expects cosmetics companies to follow GMP, it has established the VCRP, and it works with the CIR Panel and the PCPC. Of course, the benefits for consumers to obtain accurate safety data are increased when cosmetic companies and manufacturers actively participate in these voluntary programs (“Voluntary Cosmetic Registration,” 2010). Other organizations, agencies, and advocacy groups work to conduct safety assessments to broaden the depth of information available on cosmetics ingredients. The CDC, the EWG, the Campaign for Safe Cosmetics, and others have similar objectives and work to promote the awareness of cosmetic safety. Moreover, these groups work to determine chemical thresholds, establish new laws, and to update previous laws to ensure that ingredients used in product formulations for cosmetics, personal care, and household products are free of toxic chemicals (“About ATSDR,” 2010; “CDC Organization,” 2010; Malkan, 2007). Additionally, ingredient safety assessments conducted by independent groups have uncovered that many commonly used ingredients in cosmetics have the potential to and may reside in the body. Furthermore, finalized cosmetics may contain low to high levels of ingredients that in the long-term may cause unknown, hazardous effects (Malkan, 2007).

Centers for Disease Control and Prevention. The CDC is an organization that operates under the USDHHS (“CDC Organization,” 2010). It consists of many centers and offices; each group operates to research, to prevent, and to promote awareness within specific health concern categories (“CDC Organization,” 2010). The Agency for Toxic Substances and Disease Registry (ATSDR) is the center within the CDC that is responsible for assessing the safety of chemicals (“About ATSDR,” 2010; “ATSDR Background,” 2009). This agency has a goal of making the environment safe by responding in a reactive manner to limit and prevent the harmful exposure to chemicals (“About ATSDR,” 2010). The laws the agency operates under were enacted by Congress in 1980. The goals of the laws enacted are to eliminate toxic materials and environmental wastes that lead to widespread public health issues (“About ATSDR,” 2010). Moreover, the ATSDR conducts tests at waste sites, performs health assessments pertaining to toxic substances, develops emergency plans for cleanup of substances, conducts research to determine safe levels of chemicals, and works to distribute this information to the public (“About ATSDR,” 2010; “ATSDR Background,” 2009).
Another CDC group that evaluates the safety of chemicals in the environment is the Environmental Health Laboratory at the National Center for Environmental Health ("CDC Organization," 2010). Each year, the Environmental Health Agency (EHA) releases the National Report on Human Exposure to Environmental Chemicals (i.e., National Exposure Report) that details the U.S. population’s exposure to environmental chemicals ("National Report," 2010). This report is compiled using a technique called "biomonitoring," which determines the type and the number of chemicals present in the urine and blood of humans. The National Exposure Report defines a chemical as "a chemical compound or chemical element present in air, water, food, soil, dust, or other environmental media, such as consumer products" ("National Report," 2009, para. 3).

The CDC’s National Exposure Report does not provide information that determines or assesses the safety of environmental chemicals ("Fourth National Report," 2010). The thresholds of the chemicals found in the body are used to determine whether the level of presence is considered to be low and not likely to cause adverse health effects. If large amounts are present, the CDC suggests that these chemicals be submitted for research to determine potential health concerns with exposure ("Fourth National Report," 2010; "National Report," 2009). While these reports establish the level of chemicals present in the body, the CDC and the EHA do not assess the safety of chemicals. Their main objectives are to determine what chemicals are present in the body and to suggest that research studies be conducted to determine the exact levels at which negative health effects may be seen ("Fourth National Report," 2010; "National Report," 2009).

The Fourth Report builds on information from previous environmental chemical assessments such as those from The First, Second, and Third Reports. The current report details the U.S. population and exposure to 212 environmental chemicals. In the most recent report, 75 environmental chemicals were assessed for the first time ("National Report," 2009). This report is beneficial to the public, doctors, scientists, and public health officials. The National Exposure Report and The Fourth Report have determined that high numbers of the U.S. population contain within their body many environmental chemicals and other chemicals found in consumer products ("Fourth National Report," 2009; "National Report," 2009). The CDC’s responsibility is to determine thresholds of chemicals present in the human body, but is not responsible for testing of ingredients or determining their safety ("Fourth National Report," 2009).
**Environmental Working Group.** The EWG is an organization that focuses on providing the public with information concerning health and environmental hazards (“About the Environmental,” n.d.). The EWG is a non-profit organization that employs scientists and lawyers to review legal documents, scientific studies, and public records to reveal possible health concerns associated with the use of popular consumer products (“About the Environmental,” n.d.). The goals of the EWG are also to provide information that can help to protect consumers and special groups such as infants and also to challenge governmental policies that do not protect such consumers and the environment (“About the Environmental,” n.d.). The EWG’s stance is that due to safety testing being voluntary and controlled by the cosmetic manufacturer that many ingredients in cosmetics are likely not safety tested at all (Malkan, 2007; “Report on Cosmetics,” n.d.).

**Campaign for Safe Cosmetics.** The Campaign for Safe Cosmetics is a coalition with over 100 advocacy groups; it formed in 2004 with the goal to protect the health and safety of consumers who purchase and use cosmetics (“About Us,” n.d.; Malkan, 2007). This group fights for tighter restrictions and for the elimination of chemicals that are known carcinogens used in cosmetics. The Campaign for Safe Cosmetics created the Compact for Safe Cosmetics which targets cosmetics companies, requesting the removal of phthalates and other chemically-altered ingredients from their products; they also request that the companies incorporate the use of safer ingredient alternatives (Malkan, 2007; “The Compact for Safe,” n.d.). To date, this pledge has been signed by over 1,300 cosmetics companies (“About Us,” n.d.). The Campaign for Safe Cosmetics challenges the cosmetics industry by making the public aware of safety concerns with regard to cosmetic ingredients and also provides information on company and product violations through their extensive cosmetic database (“About Us,” n.d.; “Campaign History,” n.d.; Malkan, 2007; “Skin Deep,” n.d.). Additionally, the Campaign for Safe Cosmetics works with the EWG to bring information to the public about potential dangers of using consumer products and cosmetics with ingredients likely detrimental to health and the environment (“About the Environmental,” n.d.; “Campaign History,” n.d.; Malkan, 2007). The EWG and the Campaign for Safe Cosmetics work together to establish new laws challenging cosmetic companies and governmental agencies to make consumer products safer for humans. In addition to lobbying against cosmetics companies and governmental policies, the EWG and the Campaign for Safe Cosmetics work at
the state level to help change state laws. In 2008, nine states considered state legislation that would ban toxic chemicals from use in PCP's (“About the Environmental,” n.d.; “About Us,” n.d.; “State Legislation,” n.d.). Washington State and California have since adopted state laws that ban the sale of products marketed towards kids that contain phthalates; in addition, they legislated the disclosure of chemicals known to be carcinogens and made this information available to the public (Malkan, 2007; “State Legislation,” n.d.). The partnership between the Campaign for Safe Cosmetics and the EWG established the Skin Deep Cosmetics Safety Database that includes information from over 50 toxicity databases to determine individual safety assessments for consumer products and cosmetics. This database is available to consumers via the web and has nearly 5 million searches monthly (“Campaign History,” n.d.; Malkan, 2007; “Skin Deep,” n.d.).

**American Cancer Society.** The American Cancer Society (ACS) is an organization that has recently considered cosmetics use as a potential health concern and generally works to educate the public about cancer and the concerns surrounding individual susceptibility (“Cosmetics,” n.d.). The main goals of the ACS are to uncover the potential causes for cancer and to reduce exposure to agents that increase susceptibility (“Cosmetics,” n.d.). Cosmetics have recently become a concern for the public with requests for additional information on ingredients that have been linked to health problems (“Cosmetics,” n.d.). Therefore, the ACS encourages using information from the FDA, the PCPC, CIR Panel, and the Skin Deep Cosmetics Safety Database to make personal decisions on use and safety (“Cosmetics,” n.d.). Furthermore, the ACS maintains that their responsibilities are not in the record keeping of chemical ingredients but, are instead, focused on supporting the advancement of science-based research with regard to controversial, and potential cancer-causing chemicals of concern (“Cosmetics,” n.d.; “Known and Probable,” n.d.). This stance includes informing the public about the potential risks of using cosmetics that may result in short-term irritations and allergic reactions in some people. The ACS notes that research indicating long-term health problems resulting from the use of certain ingredients and products is currently unavailable (“Cosmetics,” n.d.). The ACS states that presently there is little research available suggesting long-term effects associated with use of cosmetics and that cosmetics use does not increase the risk for cancer (“Cosmetics,” n.d.; “Known and Probable,” n.d.).
The ACS’s stance is supported by lab studies with animals and humans. It has been determined that all substances that cause cancer in humans cause cancer in animals as well; however, this is not always true in reverse (“Known and Probable,” n.d.). In addition to lab studies, the ACS reviews epidemiological studies that determine which factors can be linked to cancer. These studies are costly, and in human studies the environment is difficult to control. Also, effects of the studies may not be immediate or develop until many years after exposure (“Cosmetics,” n.d.). Through lab and epidemiological studies ACS scientists are able to obtain enough information to classify a substance as: 1) carcinogenic to humans, 2) probably carcinogenic to humans, 3) possibly carcinogenic to humans, 4) unclassifiable as to carcinogenicity in humans, and 5) probably not carcinogenic to humans (“Known and Probable,” n.d.). The ACS suggests that most substances fall into the “possibly carcinogenic to humans” category, which means that there is potential for cancer; however, the evidence supporting this claim is unavailable, possibly due to the low number of ingredients thoroughly tested for safety. Moreover, there is not a clear definition of what “safe” means with regard to cosmetics (“Known and Probable,” n.d.). In the United States, when substances are found to be possible carcinogens, these ingredients are authorized for use in cosmetics (“How Does CIR Work,” 2010); however, in Europe, under the REACH initiative, ingredients with this classification are banned for use (“What is Reach?,” 2010).

**REACH.** In Europe, the Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) regulation system was adopted in 2007 and imposed revised rules for the use of chemicals and extended it to those used in cosmetics (Pouillot et al., 2009; “What is Reach?,” 2010). The REACH program defines cosmetics as “preparations of several substances in a container (the packaging),” and requires that all manufacturers, importers, and exporters register their cosmetics with the European Chemicals Agency (ECHA) (Pouillot et al., 2009, p. 4). This regulation helps to create transparency between the EU, the manufacturer, and the end user. It helps to ensure that the ingredients are documented and the manufacturers comply with all rules regarding safety. The REACH program has banned over 1,100 chemicals due to being a known carcinogen, mutagen, reproductive disrupter or lack science supporting its safety (Malkan, 2007; Pouillot et al., 2009; “What is Reach?,” 2010). The REACH initiative also requires products that are imported from the United States to comply with REACH standards in addition to the FDA’s current cosmetic regulatory standards (Pouillot et al., 2009).
Under the Registration section of REACH, companies must submit the physical, chemical, toxicological, and ecotoxological properties of the ingredient along with information about its effects on the environment (Pouillot et al., 2009; “What is Reach?,” 2010). This information determines if a chemical should or should not be evaluated further; it ensures that the chemicals are not on the banned list with known properties of being carcinogens, mutagens, or reproductive disrupters (Pouillot et al., 2009; “What is Reach?,” 2010). The general REACH rule is that any ingredient or chemical without sufficient science and safety testing to prove that it is safe is banned for use in cosmetics; this decision is based on the REACH “precautionary principle” until more information on safety is available (Pouillot et al., 2009; “What is Reach?,” 2010). The Evaluation and Authorization stages of REACH use these toxicological reports to determine the safety of the ingredient and to identify whether there is a safer alternative that could be used. In addition, they set restrictions and suggest further research for chemicals found to be toxic. If further research is requested, the product under the Restriction section of REACH, is banned, practicing the precautionary principle, until further research is presented that suggests the chemical is safe for use (Pouillot et al., 2009; “What is Reach?,” 2010).

**Safety Concerns with Use of Cosmetics**

Millions of individuals use and apply cosmetics frequently to the face and body to cleanse, treat, and to improve appearance (Engasser et al., 2007; Nohynek et al., 2010). However, these practices may inadvertently position individuals at greater risk for development of short- and long-term adverse health issues (“Executive Summary,” n.d.; Malkan, 2007). Some ingredients in cosmetics have been found to be carcinogenic, mutagenic, and linked to development of reproductive and endocrine system abnormalities (“Executive Summary,” n.d.; Nigam, 2009). The EWG in conjunction with the Mount Sinai School of Medicine conducted a study based upon the body burden of 9 participants and found over 167 chemicals within their blood and urine samples. All chemicals were categorized and it was found that 76 were cancer causing agents in animals or humans, 94 were detrimental to the brain and nervous systems, and that 79 were linked to birth defects and or abnormal patterns of growth; some chemicals spanned across all categories (“Executive Summary,” n.d.).

Furthermore, it is suggested that cosmetic companies conduct short-term safety assessments on ingredients used in cosmetics but under the FD&C Act, these assessments are not required to be delivered to the FDA, unless the company is a VCRP member (“Consumer
Commitment Code,” n.d.; “FDA Authority,” 2009; “Voluntary Cosmetic Registration,” 2009). With little governmental regulation and transparency for consumers to access safety assessment reports, there is an increased likelihood that short- and/or long-term safety assessments have not been conducted at all; high-frequency users are then positioned to be at greater risk for the development of unknown, long-term health related issues (Malkan, 2007; Winter, 2009). Since cosmetic companies are not required to provide proof of their safety assessments to any governmental agency, it is suggested by the FDA and expected that cosmetic companies have conducted safety assessments across all stages of product development to determine risk assessment with use (“Consumer Commitment Code,” n.d.; Engasser et al., 2007; “FDA Authority,” 2009; Malkan, 2007).

To identify associated risks and hazards associated with the use of cosmetics it is necessary to conduct safety assessments to determine the likelihood that exposure to an ingredient will bring about adverse effects; they should also determine the doses at which harmful effects are seen (Engasser et al., 2007). In addition to both the risk and hazard assessments, exposure assessments such as those that determine how much of the product is used by the average individual should be evaluated further. Following these safety assessment steps could help to ensure that under normal use the ingredient levels within cosmetics are safe (Engasser et al., 2007). Safety assessments of cosmetics depend upon how much of a cosmetic is used, the frequency of use per application, and also the location of where the product is applied; these assessments are used when examining exposure data as they are the best indicators of absorption, inhalation, and ingestion (Nigam, 2009). Moreover, the product should also be evaluated in each state to determine the concentration levels of ingredients present (Nigam, 2009). However, determining the risks associated with ingredients is expensive; it requires knowledge of the dangers of ingredients, and how much exposure to the ingredient is considered detrimental to health, which is often unknown (Loretz et al., 2005; Lundov et al., 2009).

**Safety Concerns.** Considering questions raised over the safety of ingredients used in cosmetics, consumers and advocate groups have asked the FDA and other governmental agencies to adopt more stringent guidelines that require cosmetic companies to use fewer and safer ingredients (Malkan, 2007; “The Compact for Safe,” n.d.; “Toxic Chemicals in Cosmetics,” 2010; Winter, 2009). The incorporation of new guidelines governing ingredients that are used to create products could effectively reduce the number of controversial chemicals used as
ingredients and lower exposure concerns. It could also prevent the use of ingredients that currently have insufficient data present to determine the safety of their use (Malkan, 2007; “Toxic Chemicals in Cosmetics,” 2010; Winter, 2009). One criticism of the regulation of cosmetics is that the FD&C Act has only been slightly modified in its more than 70 years of existence; therefore, it does not meet the needs of the new consumer (Hutt, 2001; Malkan, 2007). In contrast, the FDA argues that the use of cosmetics, as directed on the label, is considered safe and not harmful to health in any manner (“Cosmetics,” 2010). Two examples of ingredients that have raised concern include phthalates and parabens, which are detailed below.

**Phthalates.** The EWG (2003) reported that women who are of reproductive age have higher levels of phthalates in their bodies than other age groups in the population (Malkan, 2007; “Report on Cosmetics,” n.d.); a CDC National Exposure Report in 2001 came to the same conclusion (“Phthalates and Cosmetic,” 2008). Phthalates are suspected to be hormone disruptors (Nigam, 2009), and are used in numerous products as plasticizers found in vinyl flooring, packaging materials, and in cosmetics (“Phthalates and Cosmetic,” 2008). As a result of the EWG’s 2003 study and the CDC’s 2001 report, researchers began to look more closely for the reasons behind the increased levels of phthalates among this age group and found that approximately 70% of cosmetics, including fragrances, contain phthalates; these ingredients are not listed on ingredient labels (“Campaign Victories,” n.d.; Malkan, 2007; “Phthalates and Cosmetic,” 2008). These reports suggest that increased and often unknown exposure to phthalates, may then increase the risk of reproductive mutations and the development of birth defects (“Campaign Victories,” n.d.; “Report on Cosmetics,” n.d.; Malkan, 2007); however it has not been causally linked to these developments (“Phthalates and Cosmetic,” 2008).

In 2007, as an attempt to decrease the use of phthalates, the EWG and the Campaign for Safe Cosmetics pressured cosmetic companies to reduce their use of these ingredients. This resulted in many cosmetics companies either reducing or eliminating phthalates in their products (“Campaign Victories,” n.d.; “Toxic Chemicals in Cosmetics,” 2010). More specifically, the EWG and Campaign for Safe Cosmetics found one group of products, nail polishes, to contain the highest amounts of phthalates and other toxic ingredients such as formaldehyde and toluene (“Campaign Victories,” n.d.; “Toxic Chemicals in Cosmetics,” 2010). Many nail polish manufacturers were among those who chose to remove phthalates and either reduced or eliminated formaldehyde and toluene use in their nail polishes (“Campaign Victories,” n.d.;
“Toxic Chemicals in Cosmetics,” 2010). As a result of the research and advocacy group pressure on the cosmetic companies and industry, many products are now free from and promoted as being free of dibutyl phthalate, formaldehyde, and toluene (“Campaign Victories,” n.d.; Malkan, 2007; “Report on Cosmetics,” n.d.; “Toxic Chemicals in Cosmetics,” 2010).

**Parabens.** While it is known that exposure to certain ingredients in cosmetics may cause allergic reactions in some persons, research suggests that the some reactions are due to sensitivity of preservatives and fragrances (Engasser et al., 2007; Lundov et al., 2009; Varvaresu et al., 2009). Lundov et al. (2009) suggest that approximately 6% of individuals who use cosmetics develop an allergic reaction. Determining whether a cosmetic contains ingredients that may be of concern is oftentimes difficult as some ingredients, specifically those used in fragrances, are often protected and not required to be listed on ingredient labels (“Trade Secrets,” 2010). Furthermore, actual levels of preservatives, fragrances, and other ingredients used in cosmetics vary greatly in actual concentration levels—even within products produced from the same batch (Lundov et al., 2009; Varvaresu et al., 2009). This variation makes assessing actual exposure to preservatives, fragrances, and other compounds complicated to establish (Lundov et al., 2009). One specific group of commonly used preservatives is parabens. In fact, parabens are the most widely used preservatives to protect final products for stable shelf life and to eliminate the possibility of bacterial growth (Engasser et al., 2007; Lundov et al., 2009; Varvaresu et al., 2009). Preservatives are used in cosmetics because they are toxic to microorganisms; with these ingredients being toxic in general, there may be reason to believe that they may also cause adverse reactions or effects in humans (Engasser et al., 2007). This specific concern has sparked interest from consumers and activist groups requesting cosmetics formulated without the use of parabens or other controversial preservatives (Varvaresu et al., 2009). The removal of these ingredients does not always eliminate the chance of side effects or allergic reactions from their use (Varvaresu et al., 2009). It is estimated that nearly 70-90% of cosmetics contain forms of parabens (Lundov et al., 2009; Winter, 2009). In addition, Lundov et al. (2009) estimates that more than 35% of products registered with the VCRP contain one or more parabens.

One reason that parabens may be a cause for concern is that a set of recent studies found traces of parabens in cancerous tumors of human breast tissue (Byford et al., 2002; Darbre et al., 2004; Winter, 2009). This suggests that there may be a link between parabens exposure and the increased risk of breast cancer (Varvaresu et al., 2009); animal studies have shown that parabens
increase the risk for the development of reproductive abnormalities (Byford et al., 2002; Darbre et al., 2004; Mason et al., 1971). Parabens have the ability to penetrate skin and organ tissues; parabens act like the female hormone estrogen and when women are exposed to parabens, breast cancer is more likely to form (Darbre et al., 2004; Winter, 2009). In contrast, the FDA suggests that cosmetics containing parabens are safe as currently used per the CIR Panel’s review in 2007, which was conducted due to an increase in consumer inquiries about parabens (“Parabens,” 2007). Additionally, the FDA is aware that estrogenic compounds have the ability to increase breast cancer development and acknowledges that it is possible for parabens to act in this manner, but the FDA has stated that parabens currently established levels have not been determined as a causal factor in the development of cancer. This conclusion, drawn from the CIR Panel’s safety assessment of parabens, resulted in the FDA’s current stance on parabens and its use in cosmetics (“Parabens,” 2007).

To test the concentration levels of parabens and to determine the products’ level of antimicrobial resistance, challenge testing is suggested, but not mandatory. This process takes approximately 28 days for the final outcome of a microbiological contamination assessment for one preservative at one exposure level (Lundov et al., 2009). This safety assessment test could be costly with respect to money and time for companies and can be especially costly when a product contains numerous preservatives at varying exposure levels. This is potentially one of the reasons that testing of all ingredients in cosmetics by cosmetic companies is oftentimes neglected (Lundov et al., 2009). Additionally, some companies prefer to not test preservatives in lower concentrations when the products’ ability to withstand microbiological contamination is sufficient at the current level, due to the extenuating costs associated (Lundov et al., 2009). The development of a cost-effective method to determine if a product is completely safe for use without preservatives is a process that is currently unavailable; this form of safety assessment will most likely never become available (Varvaresu et al., 2009).

**Absorption, Inhalation, and Oral Ingestion Concerns.** Cosmetics are generally applied to the face and body. The absorption of cosmetics and its use in and around areas of the face, eyes, and mouth, have the potential to make certain ingredients systemically available within the body (Nigam, 2009; Nohynek et al., 2010). Some cosmetics are designed to be used and washed away as in soap; some are applied and left on the skin as in moisturizers; and others come in contact with the eyes and mucous membranes such as eye and face makeup (Loretz et
Cosmetics applied to areas surrounding the mucous membranes increase the potential for inhalation, especially if it is a powdery substance that may be dispersed into the air (Loretz et al., 2005; Nigam, 2009; Nohynek et al., 2010). For cosmetics that are applied to the lips (e.g., lipstick, lip gloss, and lip protectants), the potential for oral ingestion of the product is likely. For cosmetics that are leave-on types (e.g., foundation, face cream, and body lotion), these rest on the skin for longer periods of time in comparison to wash-off products which may in turn result in higher absorption of the product into the dermis (Loretz et al., 2005; Loretz et al., 2006; Loretz et al., 2008; Nigam, 2009; Nohynek et al., 2010). Up until the 1960s, it was believed that products were unable to penetrate the skin’s dermis. Not until safety assessment tools were developed in the 1970s was it determined that certain ingredients actually do have the ability to penetrate the skin and become available within the body’s tissues (Nohynek et al., 2010).

With a variety of ways to be exposed to cosmetics and their ingredients, it is necessary to have accurate data on exposure levels. Determining the levels at which an individual is exposed to an ingredient is a difficult, but not impossible task to complete. For example, two forms of tests available to assess concentration levels of ingredients available in products consist of In Vivo and In Vitro models; they use chemical analysis, repeated applications, mutagenicity and genotoxicity, patch tests, and other methods to determine ingredient safety in humans, animals, or both (Nigam, 2009). These tests can range from inexpensive to costly and cosmetic ingredient safety testing for carcinogenicity and health hazard thresholds are two very different assessments—with varying price tags (Allen, 1981; Nigam, 2009). However, the In Vitro test is an inexpensive option and can be used to estimate systemic exposure and to determine skin penetration levels.

Additionally, In Vivo Skin Analysis (INSA) is a test that the cosmetic industry has the ability to use that is inexpensive, reliable, and causes little to no detrimental effects to human skin. Ebrahimpour and Ullman (2009) utilized the INSA test to evaluate lotion transfer of five facial tissue products (two without lotion and three with lotion) onto human forearm skin. What the use of the INSA test found was that the available lotion within each sheet and the deposit of the lotion to the skin varied significantly among those in the same product (Ebrahimpour & Ullman, 2009). While safety assessment tests may range in terms of availability, cost, and time, Nohynek et al. (2010) argue that conducting evaluations on ingredients and final product safety
should be mandatory, therefore making cosmetics use associated with little to no risk of health concerns.

**Use of Cosmetics**

Consumers use cosmetics and in many cases use them daily (Malkan, 2007; Nigam, 2009; Nohynek et al., 2010). Malkan (2007) reports that cosmetics are used daily with the average female using 12 or more, while the average male uses six; Nigam (2009) reports that the average adult uses nine products but that 25% of women users apply 15 or more. This suggests that cosmetics are frequently purchased and used by both sexes, but are used more by females (Malkan, 2007; Nigam, 2009). The products offered in today’s cosmetics market provide benefits to the consumer in the forms of deodorizing, cleansing, protection from UVA/UVB rays, and beautifying (Chaudhri & Jain, 2009; Nohynek et al., 2010).

Nearly 250 billion dollars a year is spent by consumers on products that are created and sold as cosmetics (Nigam, 2009). The revenue of the cosmetics industry is supported heavily by those ages 18-39 who purchase and use products more frequently and in higher amounts than those ages 40-60 and older (Loretz et al., 2005; Loretz et al., 2006; Loretz et al., 2008; Malkan, 2007). While it is known that women use cosmetics and do so for various reasons, what is unknown is the number of products used and the amount used per application, as this may vary significantly from user to user (Loretz et al., 2005; Loretz et al., 2006; Loretz et al., 2008; Robertson et al., 2008). Calculating the exact number is complicated because use varies significantly among individuals in general, and also among individuals per use; some may use a greater amount of a product which can vary day-to-day (Loretz et al., 2005; Loretz et al., 2006; Loretz et al., 2008; Robertson et al., 2008). Some people use a few products, some people use products frequently in moderate application amounts, and some people use products daily in high application amounts (Loretz et al., 2005; Loretz et al., 2006; Loretz et al., 2008). With the variance in the amount of products used and the quantity used per application, studies have attempted to uncover the reasons for the discrepancy. A series of studies evaluated several types of cosmetics to determine answers to these questions and found that use in fact does vary significantly.

**Lipstick, Body Lotion, and Face Cream Use.** Loretz et al. (2005) evaluated exposure data for three commonly used cosmetics products including lipstick, body lotion, and face cream. The study measured how many applications were used daily by females ages 18-69 and how
much of the product was used over the course of a two-week time period (Loretz et al., 2005). The study found that participant’s daily applications of lipstick ranged from zero to 20, with approximately 78% of participants using lipstick three or fewer times a day. For the use of body lotion, applications ranged from zero to 28, with approximately 80% of participants reporting use of three or fewer applications a day. For the use of face cream, applications ranged from zero to 11, with approximately 86% of participants reporting daily use of two or fewer applications (Loretz et al., 2005).

**Hairspray, Spray Perfume, Liquid Foundation, Shampoo, Body Wash, and Solid Antiperspirant Use.** Loretz et al. (2006) evaluated the use and frequency of use of several cosmetics including hairspray, spray perfume, liquid foundation, shampoo, body wash, and one drug, solid antiperspirant. Assessments for these six products were based on the amount of product applied and how often the products were used during a two-week period (Loretz et al., 2006). The study consisted of female participants with ages ranging from 19-65. The frequency of use of hair spray indicated that participants used the product from zero to 9 times a day with 90% using hairspray two times or less daily (Loretz et al., 2006). For the frequency of use of spray perfume, participants reported use from zero to 30 sprays daily with 90% using three sprays or less a day. For liquid foundation, 69% to 75% of participants used this product once a day, with 23% using liquid foundation two or more times a day. For shampoo, 65% to 83% of participants used this product daily with 10% reporting use of two or more times a day (Loretz et al., 2006). As for body wash, 57% to 70% of participants used body wash once a day, with 27% using it two or more times a day. The last assessment was on solid antiperspirant, a drug according to the FDA, with 61% to 72% of participants reporting use of this product once a day with 28% using two or more applications a day (Loretz et al., 2006).

**Facial Cleanser, Hair Conditioner, and Eye Shadow Use.** Loretz et al. (2008) evaluated usage data for facial cleanser, hair conditioner, and eye shadow. Assessments for these three products were based on the amount of product applied and how often the products were used during a two-week period. The study consisted of female participants with ages ranging from 18-69. It was found that facial cleanser was used two or more times a day by 49% of the participants (Loretz et al., 2008). For hair conditioner, 62% to 80% of participants used the product once daily with 5% using hair conditioner two or more times daily. As for eye
shadow, the results found that 55% to 78% applied this product once a day with 17% reporting usage of two or more applications daily (Loretz et al., 2008).

The results from these three studies (Loretz et al., 2005; Loretz et al., 2006; Loretz et al., 2008) reflect that women across the United States use lipstick, body lotion, face cream, hairspray, spray perfume, liquid foundation, shampoo, body wash, solid antiperspirant, facial cleanser, hair conditioner, and eye shadow, on a regular basis. Also indicated is that the use of these products vary significantly among, and within, users. This suggests that the actual amount of product use, frequency of applications, and duration of exposure to cosmetic ingredients vary significantly. It has been estimated that the average cosmetic contains an average of 14 ingredients (Malkan, 2007). These estimations are troubling in that research suggests that the average woman uses 9 to 15 cosmetics daily, with multiple applications likely (Loretz, et al., 2005; Loretz et al., 2006; Loretz et al., 2008; Malkan, 2007; Nigam, 2009). The information from the studies by Loretz et al., 2005; Loretz et al., 2006; Loretz et al., 2008, provide self-reported data regarding cosmetic usage and provide evidence that women are using many cosmetics on a regular basis.

**Influential Factors in Use of Cosmetics**

As detailed previously, cosmetics are used by women on a daily basis (Malkan, 2007; Nigam, 2009), and through the availability of cosmetics found at the local supermarket, online, and through magazines, these avenues provide the ability to obtain desired products, including those considered organic (“Quick Overview,” 2010). Research also supports that women use cosmetics to improve appearance, boost self-esteem, and for the ability to manipulate their image (Cash & Cash, 1982; Rudd & Lennon, 2000; Robertson et al., 2008). Cosmetics are also used to compliment or enhance positive attributes in appearance and offer reported benefits to the consumer through increases in positive self-image, self-esteem, and confidence, thus improving the quality of life (Robertson et al., 2008). In looking at college women, Rudd and Lennon (2000) identified social comparison behaviors as the second most prevalent factor in adoption of appearance-management behaviors. This suggests that college women engage in behaviors (i.e., cosmetics use) that help to close the gap between actual and ideal attractiveness through various appearance-management manipulations of the self (Rudd & Lennon, 2000). The following section explores some of the factors relating to the adoption of appearance-management behaviors in women.
**Media Messaging.** Research suggests that frequent exposure to images in the media that depict a certain idealized body may have negative implications for women who compare their image to that of the atypical ideal (Nabi, 2009; Rudd & Lennon, 2000; Tucci & Peters, 2008). Thompson, Van den Berg, Roehrig, Guarda, and Heinberg (2003) found that the location in which college women retrieved health messages had the ability to alter inward views of appearance and body image and that media messages in fashion and fitness magazines were the most accessed forms of health messaging (Thompson et al., 2003). Furthermore, Brooks (2008) identified cosmetics advertising as one of the two largest categories found in women’s magazines; cosmetics ads are often marketed to a specific audience and often promote youth as a necessity (Schlessinger, 2007). Since many women’s magazines feature women (i.e., celebrities) promoting cosmetics this often implies that with use of the advertised products that an increase in beauty and sex appeal can be achieved. Furthermore, cosmetics are marketed as beneficial to health with claims of the product being natural and/or organic (Brooks, 2008). According to Field (2000), women who frequently read magazines were three times more likely to report that the images influenced their personal views of the ideal body type. This suggests that females who read magazines may have a higher tendency to compare their body, weight, and attractiveness against the ideals presented in magazines (Field, 2000; Thompson et al., 2003). These internalized negative views of the self may increase motivation to seek out appearance-management behaviors as methods to decrease the gap between the actual and accepted ideals of beauty (Field, 2000; Nabi, 2009; Rudd & Lennon, 2000; Thompson et al., 2003).

**Manipulation of Image.** Another suggestion in the implications of cosmetics use is the increased ability to manipulate and improve self-image (Cash & Cash 1982; Robertson et al., 2008). The ability to control the outward look of the face and body with cosmetics offers positive benefits to the consumer by increasing self-image, self-esteem, and confidence (Robertson et al., 2008). Robertson et al. (2008) found that possession of certain personality traits can either increase or decrease the use of cosmetics by providing a mask in which a self-projected image of attractiveness could be attained. Cosmetics use can then be seen to offer the ability to positively change self-perceptions, and to increase self-esteem and confidence levels (Robertson et al., 2008). Research also finds that the use of cosmetics improves self-confidence and social interactions with others, in comparison to when no cosmetics are worn (Cash & Cash 1982; Robertson et al., 2008).
**Social Aspects.** Research also finds that use of cosmetics has many social implications. When cosmetics are used by women, there is an increase in positive observer perceptions with regard to social acceptance, femininity, sexiness, facial symmetry, enhanced attractiveness, confidence, and health (Brooks, 2008; Cash & Cash 1982; Gueguen, 2008; Robertson et al., 2008). Nash, Fieldman, Hussey, Leveque, and Pineau (2006) found that photographed images of women wearing makeup were perceived by others to have higher levels of attractiveness, health, earning potential, and confidence; the women in the photographed images without makeup were perceived by others to have lower earning potential, social class, professional class, health, and confidence (Nash et al., 2006). This research suggests that those who wear makeup are perceived in a more positive light than those without makeup, thus reflecting an increased level of acceptance in many social settings (Nash et al., 2006).

The active use of cosmetics has also been found to boost self-esteem through the improvement of facial attractiveness thus altering the way others perceive the cosmetics wearer (Robertson et al., 2008). Cash, Dawson, Davis, Bowen, and Galumbeck (2001) found that there were differences in how college women were perceived by male and female peers on attractiveness with and without makeup. This study found that when women were portrayed without makeup, male reviewers found this state to be less favorable than when the same women were portrayed with makeup; female peers indicated that makeup use had little difference on attractiveness (Cash et al., 2001). Additionally, college women reported that while wearing cosmetics that an improvement in their appearance and perception of peer acceptance was achieved (Cash et al., 2001). Gueguen (2008) also found that women’s use of cosmetics influences male perceptions in that cosmetics use increases male solicitations in comparison to when no cosmetics are worn in the bar setting (Gueguen, 2008). These studies suggest that women can use cosmetics to enhance attractiveness and to encourage encounters from the opposite sex (Gueguen, 2008), and supports research on opposite sex perceptions which favor the use of cosmetics among women (Cash et al., 2001).

**Natural, Traditional, and Organic Cosmetics Trends**

There are also many ways that cosmetics are made available and advertised to consumers. Cosmetics are available in many locations with an array of product types and brands to choose from. Categories of cosmetics types now include traditional, natural, and organic, with each category competing for sales in the same cosmetics marketplace. Organic products in general
have become more available and studies have reported that consumers perceive the consumption of organic products to offer benefits in health and that they are becoming more open to the idea of purchasing organic products. With positive associations tied to organic products in general, the acceptance of organic products both by the consumer and by stores has increased. This has enabled organic products to be more widely dispersed into groceries and drug stores as a new avenue for sales, but also as a way to meet the needs of the consumers shopping for organic products (“Quick Overview,” 2010). This movement has influenced traditional cosmetics advertising campaigns with the new objective to angle their products to appear more natural through images or words by highlighting one ingredient in the product that is naturally-derived and downplaying the many others within the product that may be synthetic. The most frequently used approaches are to package cosmetics in materials that look natural as in earth-toned packaging and also to use the term “natural,” or “antioxidant,” in product descriptions. The natural marketing trend in however, is not new.

The natural marketing trend began in the 1970s as the beauty and fashion industry evolved (Welters, 2008); it created a new space for revolutions in the natural cosmetics market. During this time, media such as newspapers, journals, and popular literature began to promote the natural niche by initiating the use of “natural,” “herbal,” and “earthy” terminology into the realm of the cosmetics marketing industry (Brooks, 2008; Welters, 2008). The marketing industry created the concept of natural beauty and used advertising mechanisms, all the while promoting a makeup line to achieve this natural look (Peiss, 1998). According to Welters (2008), consumers in the 1970s considered products with nature-like words and images to be more natural than those not using this approach. Natural cosmetics began selling better than traditional products and more companies began using names that referred to nature as a way to boost sales (Brooks, 2008; Welters, 2008). Examples of this natural trend include the introduction of a shampoo called “Herbal Essences” and a popular lipstick named “Red Maple” (Welters, 2008, p. 502-503). When products were not originally packaged with nature-inspired textures, images, and words, the use of taglines that suggested nature were developed and used to market products (Brooks, 2008; Welters, 2008).

Based on the trends from the 1970s that found that sales increase with the use of natural marketing terminology, it can be assumed that individuals today also perceive these products as better for their health (Welters, 2008). There are an increasing number of products made
accessible to consumers through the media; cosmetics are often advertised as natural and organic through the television, radio, and magazines (Brooks, 2008). It is suggested by Brooks (2008) that marketing combining food terminology with cosmetics has the ability to produce hunger and temptation, which suggests that certain cosmetics should be incorporated into daily routines. Furthermore, some cosmetics marketing campaigns claim that their products have benefits from the use of fruit ingredients making their products appear nutritious, with the claims closely linked to both food and cosmetics (Brooks, 2008).

Another cosmetic marketing trend is the introduction of cosmetics which claim to have “nutrient-based, scientifically formulated technology,” or cosmetic surgery-like benefits to address aging concerns (Bayer, 2005, p. 13). These products are often called cosmeceuticals, and claim to have pharmaceutical-type properties that work better than traditional products (Bayer, 2005). Cosmeceuticals declare deeper, faster, and better results with use and are marketed to help benefit the body from the inside out (Bayer, 2005). Consumers are also purchasing these forms of cosmetics and this is evident in sales of approximately $3.8 to $5.1 billion from 1997 to 2001, respectively (Bayer, 2005). However, this term is not currently recognized by the FDA and these products are therefore considered to be and regulated as a cosmetic (Bayer, 2005; “Cosmeceuticals,” 2009).

**Organic Revenues.** Organic products are becoming more widely distributed and manufactured in more abundance than ever before. The introduction of organic foods and organic non-food products (i.e., personal care products, nutritional supplements, pet food, etc.) are now available in many locations, including mass market stores (“Quick Overview,” 2010). The U.S. Organic Industry according to the Organic Trade Association (OTA) and The Organic Trade Association’s Manufacturer Survey found that the organic food sector grew 16%, resulting in $14 billion in sales in 2006; in 2008, this same sector grew an additional 16% resulting in an increase of $23 billion in sales (“Organic Industry,” 2009; “Quick Overview,” 2010). It is evident that the yearly revenues for organic food are increasing. With organic foods now accounting for 3.5% of the total food sales (e.g., organic versus non-organic foods) and the widening availability of organic products, consumers are now more open to try other organic products such cosmetics, which fall into the non-food organic products sector (“Organic Industry,” 2009).
The non-food organic sector has also seen substantial growth in yearly revenues (“Quick Overview,” 2010; Singer, 2007). In 2006, the organic non-food products sector grew 26%, placing sales of organic products at $938 million, according to The Organic Trade Association’s 2007 Manufacturer Survey (“Quick Overview,” 2010). Furthermore, The Organic Trade Association’s 2008 Organic Industry Survey reported that in 2008, the non-food organic products sector grew 39% with sales reaching $1.6 billion (“Organic Industry,” 2009). The increases in organic revenue are significant in that the numbers demonstrate that consumers are purchasing organic products in more abundance than in previous years. It is also evident that today’s consumers are interested in organic products with this being reflected in the non-foods organic product sector growing at a faster rate than the organic foods sector (“Organic Industry,” 2009; “Quick Overview,” 2010).

**Organic Cosmetics Regulations**

Similar to entities that ensure the safety of cosmetics, there are entities that regulate products that claim to be organic and also those that support these entities. Some groups that regulate the organic products industry include the National Organic Program (NOP) through the USDA organic regulations, ECOCERT, Quality Assurance International (QAI), and the Organic Trade Association (OTA) who work to establish and refine the organic food and non-foods industry (“About Us,” 2010; “About Us,” n.d.; “Background Information,” 2010; “Our Services,” n.d.; “Who We Are,” 2010). The organic designation recognizes various food, cosmetics, and PCP’s as “Certified Organic” typically pending full review of ingredients used, location where ingredients were grown, how ingredients were processed, and how much of the ingredients used in the product are considered organic, which may vary among each organic certification organization (“About Us,” 2010; “About Us,” n.d.; “Background Information,” 2010; “Our Services,” n.d.). The inclusion of cosmetics to the established organic food regulations stemmed from recent increases in the unauthorized labeling and sale of products claiming to be organic (“Solving the Problem,” 2009).

**National Organic Program.** The NOP is a marketing program located within the USDA under the Agricultural Marketing Service (AMS). It consists of 15 members who sit on the National Organic Standards Board (NOSB) that review current and proposed organic standards (“Background Information,” 2008; “National Organic Standards,” 2009). The NOP follows the regulations under the authority of the USDA and operates through the Organic Foods Production
Act (OFPA) of 1990 ("National Organic Standards," 2009). The OFPA was enacted by Congress and required the USDA to establish rules for organic foods and create a standard for the term “organic” ("National Organic Standards," 200.). The OFPA required that all products labeled as “organic” have ingredients that were processed in a location that is accredited by the state and also the USDA ("National Organic Standards," 2009).

Additionally, foods classified as organic follow specific rules including the prohibition of pesticides and chemical fertilizers use. Other regulations that are prohibited under the OFPA include the use of synthetic or man-made ingredients, genetically modified organisms (GMOs), and waste byproducts ("Background Information," 2008; "National Organic Standards," 2009). Following these policies helps to ensure that the product is in accordance with NOP and OFPA and position the product to be considered a certified organic product. According to the NOP, one area under federal regulations is in the labeling of products considered to be organic ("Background Information," 2008; "National Organic Standards," 2009). To receive a certified organic designation and display the USDA Organic seal a product must contain at least 70% organically-derived ingredients. However, products can picture or use the phrase “made with organic ingredients” when less than 70% of the ingredients were organically derived but are not authorized to use the USDA Organic seal either through images or words (“Background Information,” 2008; “Cosmetics, Body Care,” 2008; “National Organic Standards,” 2009). The NOP also prohibits use of the USDA Organic seal or claims of organic when the criteria under the OFPA have not been met ("National Organic Standards," 2009).

In addition to the NOP and the USDA’s policies for foods, the USDA extends organic certification to cosmetics. To be considered an organic cosmetic, body care product, or PCP, the ingredients used in product formulations follow the same organic policies and regulations currently established for food (“Cosmetics, Body Care,” 2008; “National Organic Standards,” 2009). Also, the FDA does not regulate the term organic; therefore, the NOP regulates the term as it applies to agricultural products. The NOP recognizes that it is not the only organic certification organization; there are other establishments that operate under private standards and provide organic certification. The NOP organization does not currently regulate these other private entities (“Cosmetics, Body Care,” 2008; “National Organic Standards,” 2009).

**Quality Assurance International.** QAI is a third party organic certification organization that certifies PCP’s, dietary supplements, and many forms of food as organic within the United
States (“Frequently Asked Questions,” n.d.). QAI is an independent organic certification organization but follows the standards set forth under federal regulation through the NOP. These include yearly inspections and compliance with all NOP regulations for organic standards. One difference between the two programs (i.e., QAI vs. NOP) is their stance on genetically modified organisms (GMOs). The NOP does not allow GMOs to be used in organic production. However, the QAI cannot guarantee that their organically certified products are free from GMOs (“Frequently Asked Questions,” n.d.). To receive certification from QAI the land, manufacturing, handling, and processing facilities are inspected to verify the integrity of all aspects of organic production (“About Us,” n.d.). The cost to participate in QAI is based upon the location and size of production. QAI is also one of the few international organic certification organizations for organic products and spans a wide range of certification areas including production, processing, distribution, to retail, and more (“Frequently Asked Questions,” n.d.).

ECOCERT. ECOCERT is an independent organic certification establishment not associated with the NOP or the USDA, thereby not subject to NOP regulations. ECOCERT offers inspection and certification of a wide range of natural and organic products, including cosmetics. The main goal of ECOCERT is to promote transparency of ingredients to ensure the consumer that the ingredients within products are in fact natural or organically derived (“Our Services,” n.d.; “Standards for Natural,” n.d.). To receive the ECOCERT certificate classifying a product as natural and/or organic, the company must enter an agreement with ECOCERT which includes the disclosure of inspection plans, quality sources, and traceability of ingredient sources (“Our Services,” n.d.; “Standards for Natural,” n.d.).

Organic Trade Association. The Organic Trade Association (OTA) is an association that formed in 1985 to advocate and protect the standards of organic products within the United States and Canada (“Who We Are,” 2010). The OTA has the goal to spread the word about benefits of organic products (i.e. organic foods and non-food items such as personal care products) and aims to increase the confidence of the consumer in products that are labeled or marketed as organic. The OTA conducts organic industry-specific surveys on organic product consumption, works to evaluate current organic standards set forth by the government, and voices their positions on issues relating to organic legislation and policy (“Who We Are,” 2010).
Summary

As detailed in the previous section, research into cosmetics has identified that many women use cosmetics and that use can vary significantly from day-to-day, and from user-to-user. It is also known that cosmetics are used more often by females than males (Malkan, 2007; Nigam, 2009); and suggested that if fewer cosmetics are used that the exposure to the ingredients and chemicals in the products would likely be fewer. In contrast, if high numbers of cosmetics are used, an increase in the exposure to more ingredients and chemicals would be higher (Malkan, 2007). There is also new concern from consumers and advocacy groups over how safe cosmetics use is, over how there is little transparency with regard to cosmetic safety assessments, and also in the introduction of research studies that link use of cosmetics ingredients’ to cancer, reproductive and endocrine disorders, among other negative detriments (Malkan, 2007; Winter, 2009). With recent news highlighting the health benefits with use of organic cosmetics, the non-foods organic products sector has seen increases in the purchase of organic cosmetics over the last five years (“Quick Overview,” 2010). This suggests that the new consumer not only supports the production of more natural and organic products, but wants them to be formulated, not just labeled, with fewer and safer ingredients (“About the Environmental,” n.d.; “About Us,” n.d.; Malkan, 2007; “Market Trends,” 2010; Winter, 2009).

However, there are gaps in the literature that evaluates how many cosmetics are used and purchased regularly by college women and whether or not they read cosmetics labels prior to purchase. Furthermore, there is also a gap in the literature on cosmetics habits that looks in-depth into the attitudes, beliefs, about cosmetics and organic cosmetics, held by college women. This study aims to close these gaps in literature by evaluating through quantitative and qualitative methods, the attitudes, experiences, and habits surrounding cosmetics and organic cosmetics. College women will be evaluated through use of an online survey and also through a mixed-methods case study to gain an in-depth view of individual cosmetics attitudes, beliefs, and behaviors.

Specifically, this study will use the Transtheoretical Model and its Stages of Change and Decisional Balance Inventory constructs to evaluate college women on their cosmetics habits and their readiness to buy and use organic cosmetics and to read cosmetics labels (See Appendix A for Operational Definitions). Previous research has not used a health behavior change model to assess these cosmetics behaviors. The use and purchase of organic cosmetics and reading
cosmetics labels behaviors can reduce exposure to synthetic cosmetics ingredients. Furthermore, practicing these cosmetics behaviors when looking for new cosmetics may increase the awareness of organic cosmetics and provide information to consumers about the abundance of products available that may be misleading and promote health with words and images that from a regulatory standpoint possess little or no meaning. Research suggests that women of college age use cosmetics and do so more than their male counterparts. Therefore, the current study will focus on college women and seeks to determine female college students’ readiness to buy and use organic cosmetics and to read cosmetics labels. To assess the participants’ readiness, the Transtheoretical Model framework will be used, and is described more fully below.

**Theoretical Framework**

This study utilized the Transtheoretical Model and its Stages of Change and Decisional Balance constructs. The TTM is a behavior change model that has been successfully used in determining the readiness to change a harmful health behavior into a healthy behavior by progression into and through a series of five stages (Prochaska, Wright, & Velicer, 2008; Velicer & Prochaska, 2008). Stage models, in general, aim to predict how an individual progresses from being considered at-risk for a health issue to achieving not-at-risk status (Velicer & Prochaska, 2008). To determine readiness to change a behavior, Prochaska and colleagues (Velicer & Prochaska, 2008) define the five Stages of Change as Precontemplation (PC; i.e., those who do not intend to change a behavior), Contemplation (C; i.e., those who have thought about changing a behavior and plan to do so within a period of six months), Preparation (PR; i.e., those who have thought about a behavior and have made advancements to get ready to make the behavior change within a period of 30 days), Action (A; i.e., those who have effectively changed and practiced the behavior for six months or less), and Maintenance (M; i.e., those who have effectively changed the behavior for a period of time longer than six months) (Prochaska, Wright, & Velicer, 2008; Velicer & Prochaska, 2008).

An additional construct of the TTM is the Decisional Balance Inventory. The Decisional Balance Inventory evaluates the pros and cons of changing a behavior in terms of gains and losses for self and others (Prochaska et al., 1994). The pros and cons have a predictable relationship across the Stages of Change. The pros of the positive health behavior are low in the earlier stages (i.e., PC, C) and higher in the later stages (i.e., A, M). In contrast, the cons of the positive health behavior are high in the earlier stages and lower in the later stages (Hall & Rossi,
2008; Prochaska et al., 1994). This pattern suggests that individuals in the earlier stages weigh the disadvantages or costs of the behavior more heavily than those in the later stages. In addition, the benefits or advantages of health behavior become more apparent to those who are currently practicing the positive health behavior. The goal of the current project is to assess the readiness of college women to buy and use organic cosmetics and to read cosmetics labels by developing an initial set of Stage of Change and Decisional Balance measures.

**Hypotheses**

The goal of the current project is to use the TTM framework to develop a series of Stage of Change measures and Decisional Balance Inventory measures to evaluate how ready college women are to buy and use organic cosmetics and to read cosmetics labels. Specifically, the current project hypothesizes that:

1. college women will use cosmetics, in the forms of either traditional and/or organic cosmetics,
2. the use and purchase of organic cosmetics among college women will be lower than the use and purchase of traditional cosmetics,
3. college women will represent a variety of levels of readiness to buy and use organic cosmetics and to read cosmetics labels, and
4. the pros and cons of using organic cosmetics exist. The pros and cons of using organic cosmetics will vary across the Stages of Change as predicted by previous literature (see Hall & Rossi, 2008; Prochaska et al., 1994).

**Method**

**Participants**

The goal of the study is to recruit approximately 300 females, enrolled in a mid-sized Midwestern university to participate in an online survey on their cosmetics habits (See Appendix B for Recruitment Materials). All female college students at the mid-sized University will be eligible for the study regardless of ethnicity, year in school, marital status, or other demographic. In addition, two college women will be recruited to participate in a case study that will explore their use, purchase, label reading, and the social and cultural situations that may impact their personal cosmetics attitudes, beliefs, and habits. Individual cosmetics use patterns will also be evaluated through cosmetics tracking logs. Additionally, case study data obtained from digitally-recorded interview sessions will be analyzed using content analysis. Furthermore, the TTM
Stage of Change position will be determined through a series of questions asked within interview sessions and through participant answers in an online survey.

**Procedure**

Prior to the commencement of the online survey and case study, university Institutional Review Board approval will be pursued. For the online study (Study 1), participants will be recruited through flyers, Facebook event pages, and/or will be invited to participate in the study via courses in which the instructor(s) have agreed to advertise the experiment. Participants will be invited to participate in the current cross-sectional measurement development study on the “Cosmetic Habits of College Women.” Additionally, two college women will be recruited to participate in a case study (Study 2) to obtain an in-depth analysis of individual cosmetics habits, attitudes, and beliefs. The case study will involve completion of the “Cosmetics Habits of College Women” online survey; presenting physically all cosmetics used regularly for primary investigator review; tracking cosmetics use for two consecutive weeks consisting of identifying brands of cosmetics used, the number of applications per day, etc.; and involvement in three, 20 minute semi-structured interview sessions with the primary investigator (digitally recorded). It is hoped that the interview process will provide an in-depth look into cosmetics use, purchase, and label reading behaviors, in addition to attitudes and beliefs about cosmetics and organic cosmetics across social situations.

Upon entrance into the “Cosmetics Habits of College Women” online survey through Checkbox, participants will be greeted with an online welcome message and the study’s consent form (See Appendix C). At this time, the participant can decide to partake in the study by completing an online informed consent form. The consent form will require a “yes” reply to consent prior to the start of the survey; or a “no” reply to exit the survey. For the online survey (Study 1), compensation for participant time will be through a gift card drawing to a local eatery or grocery. For the case study (Study 2), compensation for time and travel will be a gift card to a location of the participants’ choice.

The Cosmetics Habits of College Women online survey will obtain demographics by asking the participant about their current age, current educational status (graduate or year in school), racial and ethnic background, gender, etc. All responses to demographic questions (and all survey questions) will be kept confidential and are obtained to present a detailed description
of the participant population for future replication of the study and also for generalizing results to similar populations.

After successful completion of the first section consisting of demographic questions, the participant will move on to several pages of questions that ask about their regular use and purchase of cosmetics and organic cosmetics, reading of cosmetics labels, the number of cosmetics used, their attitudes towards and beliefs about organic cosmetics, and their knowledge of U.S. cosmetics regulations. Upon completion of the survey, participants will be directed to the debrief sheet, which thanks the participant for their time and details information for contacting the researcher in the case of questions or concerns (See Appendix D).

Measures

The measures for this study will consist of the TTM’s Stages of Change (i.e., Precontemplation, Contemplation, Preparation, Action, Maintenance); Decisional Balance Inventory measures (i.e., Pros, Cons); Cosmetic Habits Survey (CHS); Consumer Susceptibility to Interpersonal Influence Scale (i.e., Normative and Informational beliefs); and the Hedonic and Utilitarian Consumer Attitudes Scale (i.e., Hedonic and Utilitarian attitudes).

Transtheoretical Model. The Stages of Change construct of the TTM will be used to evaluate stage position for the readiness to use and purchase organic cosmetics and to read cosmetics labels. The TTM Stages of Change include Precontemplation (PC), Contemplation (C), Preparation (PR), Action (A), and Maintenance (M). College women’s stage position will determine how ready they are to make the aforementioned changes in cosmetic habits (See Appendix E). The TTM’s Stages of Change have been found to be reliable and valid across many health behaviors including sunscreen use, smoking cessation, condom use, and alcohol consumption (Prochaska et al., 1994).

Decisional Balance Inventory. The pros and cons for use and purchase of organic cosmetics and reading cosmetics labels will be developed utilizing the recommendations of Janis and Mann (1977). Specifically, items will be written to address instrumental gains or losses for self and others and approval or disapproval for the self and others (Prochaska et al., 1994), which is dependent upon the current Stage of Change. Participants will be asked how important statements are in their decision to use and purchase organic cosmetics and to read cosmetics labels (See Appendix F for Decisional Balance Measures). The Decisional Balance Inventory
evaluation is an important construct of the TTM and has shown reliability and validity across Stages of Change and additional TTM constructs (Prochaska et al., 1994).

**Cosmetics Habits Survey.** The Cosmetics Habits of College Women Survey (CHS) will be administered to identify the number and types of cosmetics used and purchased and will determine if the cosmetics regularly used are considered to be organic or traditional based upon operational definitions provided to the participants throughout the survey. Additionally, the CHS includes several scale and open-ended questions to obtain a better view of cosmetics habits. The CHS was specifically created for this study and will be used for the first time (See Appendix G for survey items). The CHS was pretested by a group of college women prior to implementation in this study to ensure reliability of questions. Additionally, a subset of questions from the CHS will be used as a guide for the principal investigator during case study interview sessions (See Appendix H for Interview Questions).

**Consumer Susceptibility to Interpersonal Influence Scale.** The Consumer Susceptibility to Interpersonal Influence Scale is a 12-item scale developed by Bearden, Netemeyer, & Teel (1989) used to measure the Normative (8 items) and Informational beliefs (4 items) of purchasing. The scale determines the degree to which a person expresses the desire to conform to self and others’ expectations with regard to a purchase decision. The Normative and Informational items are based upon a 7-point Likert Scale (7 = Strongly Agree to Strongly Disagree = 1). This scale has shown reliability and validity across students and non-students (See Appendix I). This scale will be used to determine the Normative and Informational beliefs college women have about organic cosmetics and will be used to further validate the Decisional Balance Inventory measures developed for the proposed studies.

**Hedonic and Utilitarian Consumer Attitudes Scale.** The Hedonic and Utilitarian Consumer Attitudes scale is an 8-item scale developed by Batra and Ahtola (1991) to determine Hedonic (4 items) and Utilitarian evaluations (4 items) of consumer products. The Utilitarian evaluation takes into account the perceived benefits and consequences of product usage; the Hedonic evaluation looks at the perceived emotional aspects associated with product usage (Batra & Ahtola, 1991). The scale items are measured on a 7-point scale and can be summed within each evaluation category to achieve individual Hedonic and Utilitarian scores. The scales have been shown to have internal validity across several studies (Batra & Ahtola, 1991; Crowley, Spangenberg, & Hughes, 1992) (See Appendix J). This scale will be used to determine hedonic
and utilitarian beliefs and attitudes of college women and will be used to further validate the
Decisional Balance Inventory measures developed for the proposed studies.

Proposed Analyses

The purpose of this study is to determine the readiness of college women to regularly buy
and use organic cosmetics and to actively read cosmetics labels. All data received through the
online survey will be analyzed using the Statistical Program for Social Sciences (SPSS v.19) to
complete statistical analysis.

It is hypothesized that:

1. college women will use cosmetics, in the forms of either traditional and/or organic
cosmetics. To examine this hypothesis, a series of descriptives (i.e., means, standard
deviations, and percentages) will examine the levels of college women’s cosmetics use.
2. the use and purchase of organic cosmetics among college women will be lower than the
use and purchase of traditional cosmetics. To examine this hypothesis, for each
participant, the number of cosmetics used in addition to the number of organic and
Traditional cosmetics will be calculated. A dependent t test will determine if the number
of organic cosmetics differs from the number of Traditional cosmetics.
3. college women will represent a variety of levels of readiness to buy and use organic
cosmetics and to read cosmetics labels. To examine this hypothesis, the percent and
number of participants in each stage will be examined. Additionally, chi-square tests will
determine if the Stages of Change for use and purchase of organic cosmetics varies across
the Stages of Change for reading cosmetic labels (and all other stage combinations).
4. the pros and cons of using organic cosmetics exist. The pros and cons of using organic
cosmetics will vary across the Stages of Change as predicted by previous literature (see
Hall & Rossi, 2008; Prochaska et al., 1994). After the sequential measurement
development process (i.e., using factor analysis and reliability estimates), the resulting
Decisional Balance Inventory will be examined using one-way ANOVAs (IV – Stages of
Change; DV1 – Pros; DV2 – Cons) to determine if the crossover pattern exists.
Chapter Two: Manuscript – Study 1
Running Head: ORGANIC COSMETICS ATTITUDES AND BEHAVIORS

HOW PREPARED ARE WOMEN TO “GO ORGANIC” WITH THEIR COSMETICS? EVALUATIONS OF READINESS USING THE TRANSTHEORETICAL MODEL

Manuscript Type: Original Research

Keywords: Transtheoretical Model; Stages of Change; Decisional Balance; Organic Cosmetics; Organic Attitudes; Behavior Change

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ABSTRACT

Objective: This cross-sectional study utilized the Transtheoretical Model’s Stages of Change and Decisional Balance constructs to assess the readiness of college women to use and purchase organic cosmetics and to read cosmetics labels. Participants: Participants were 262 female college students, primarily white (92.4%), with a mean age of 20.21 (SD = 1.40).
Method: Participants were recruited to complete an online survey on their cosmetics habits through flyers, Facebook pages, and courses in which instructors agreed to advertise the study.
Results: Participants were in Maintenance for use of cosmetics (86.3%) but were in Precontemplation for organic cosmetics use (48.9%), purchase (49.2%), and reading cosmetics labels (32.4%). Participants reported the purchase of organic food (79.4%), yet fewer participants reported the purchase of organic cosmetics (11.5%). Discussion: Organic food behaviors are increasingly adopted by consumers, yet organic cosmetics behaviors are slower to be adopted. Development of informational materials and media campaigns that provide the benefits of organic cosmetics are needed to promote the adoption of healthy cosmetics behaviors. Identifying effective messages used in the promotion of organic food and tailoring these towards organic cosmetics behaviors could be an effective approach that could mobilize Precontemplators towards reaching the Contemplation stage.
Introduction

Nearly 250 billion dollars a year is spent by consumers on products that are created and sold as cosmetics.\(^1\) The beauty industry also advertises and promotes the daily use of cosmetics to cleanse, deodorize, and to beautify the face and body.\(^7-10\) The cosmetics industry is greatly supported by those ages 18-39,\(^2-5\) with women of childbearing age being the heaviest users.\(^5-6\) Nigam (2009) estimates that the average adult uses 9 cosmetics but that women use up to 25% more,\(^1\) while Malkan (2007) estimates that women use 12 cosmetics daily and that each cosmetic contains an average of 14 ingredients.\(^5\) Furthermore, O’Connor & Spunt (2009) estimate that the number of cosmetics used daily by women could be as high as 20 products.\(^11\) Increased exposure to more cosmetics ingredients in general, positions high-end cosmetics users at greater risk for the development of short-term allergic reactions and/or other long-term unknown health dangers.\(^1,5\)

Organic products are often purchased by consumers because they are perceived as a healthier choice,\(^12\) with health, quality, and environment cited as the top three factors considered in the decision to purchase organic over traditional products.\(^13\) One reason organic products have seen increased acceptance among consumers is that in order to claim that a product is “organic,” companies are required to have received organic designation from a reputable organic certification agency, preferably through the U.S. Department of Agriculture (USDA).\(^14\) Groups that regulate organic products include the USDA through the National Organic Program (NOP), ECOCERT, Quality Assurance International (QAI), the Organic Trade Association (OTA), among others, that work to establish and refine the organic food and non-foods industry.\(^15-18\)

The organic food and non-food product sectors are growing steadily,\(^19-20\) however, there are considerably fewer consumers choosing to adopt organic cosmetics behaviors, in contrast to the adoption of organic food behaviors. This raises questions over whether thoughts have been given to organic cosmetics behaviors and also whether there are perceived important factors considered in the decision-making process. Given these unanswered questions, the purpose of this cross-sectional study is to evaluate how ready women are to buy and use organic cosmetics and to read cosmetics labels. In the context of this study, the use and purchase of organic cosmetics and reading cosmetics labels are considered healthy behaviors that lower the exposure to synthetic cosmetics ingredients and decrease unknown health risks. Furthermore, this study considers the use and purchase of traditional cosmetics and not reading cosmetics labels as
unhealthy behaviors that increase exposure to synthetic cosmetics ingredients and increase unknown health risks. Since this study is interested in the readiness to change an unhealthy behavior into a healthy behavior, the Transtheoretical Model (TTM) theoretical framework was used.

**Theoretical Framework**

The TTM is a behavior change model that aims to predict how an individual progresses from being considered at-risk for a health issue to achieving not-at-risk status. The TTM assesses the readiness to change a harmful health behavior into a healthy behavior by progression into and through a series of five stages. Prochaska and colleagues define the five Stages of Change as Precontemplation (PC; i.e., those who do not intend to change a behavior), Contemplation (C; i.e., those who have thought about changing a behavior and plan to do so within a period of six months), Preparation (PR; i.e., those who have thought about a behavior and have made advancements to get ready to make the behavior change within a period of 30 days), Action (A; i.e., those who have effectively changed and practiced the behavior for six months or less), and Maintenance (M; i.e., those who have effectively changed the behavior for a period of time longer than six months). The TTM’s Stages of Change measures have been found to be reliable and valid across many health behaviors including sunscreen use, smoking cessation, condom use, and alcohol consumption.

Another construct of the TTM is the Decisional Balance Inventory, which evaluates the pros and cons of changing a behavior in terms of gains and losses for the self and others. The pros and cons have a predictable relationship across the Stages of Change. The pros of the positive health behavior are low in the earlier stages (i.e., PC, C) and higher in the later stages (i.e., A, M). In contrast, the cons of the positive health behavior are high in the earlier stages and lower in the later stages. This pattern suggests that individuals in the earlier stages weigh the disadvantages or costs of the behavior more heavily than those in the later stages. In addition, the benefits or advantages of the health behavior become more apparent to those who are currently practicing the positive health behavior. Applying the TTM’s Stages of Change and Decisional Balance constructs to this study suggest that as the pros of use and purchase of organic cosmetics and reading cosmetics labels increase, that a progression through later TTM stages (i.e., PR, A, M) would be seen.
Since the larger focus of this study is on cosmetics, it is important to understand the definition of cosmetics, the regulations of both traditional and organic cosmetics, and also to acknowledge growing concerns consumers have with the overall safety of cosmetics. The next section details how the U.S. Food and Drug Administration (FDA) through the U.S. Federal Food, Drug, and Cosmetic Act (FD&C Act) defines cosmetics and discusses how use of traditional cosmetics formulated with controversial ingredients, is emerging as a concern chiefly focused on health.

**Cosmetics Definition and Safety Concerns**

The FDA defines cosmetics under the FD&C Act by “their intended use, as articles intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body...for cleansing, beautifying, promoting attractiveness, or altering the appearance.” The FDA’s definition includes many forms of products including those used as makeup, and also products used on the face, body, and hair. With the average female using between 9 to 20 cosmetics daily, use of a product that falls into one or more of these categories is likely. It is possible to calculate the number of cosmetics used daily, however, it is more difficult to determine the exact amount of product used per application, as the amount often varies significantly per use, and also between and among users.

Knowing that cosmetics are used regularly and are applied to the face and body where penetration through the dermis, inhalation of powdery products, and contact with mucous membranes is likely, concerns have grown over how safe the use of cosmetics is. The concerns stem from the exposure to commonly used cosmetics ingredients including parabens (i.e., preservatives), phthalates (i.e., plasticizers), and fragrances. These ingredients have been found to have the potential to initiate skin reactions, disrupt the hormonal, endocrine and reproductive systems, and may increase risk factors in the development of cancer.

The FDA states that the use of cosmetics as directed on the label is considered safe and not harmful to health. Even though the FDA has stated that the exposure to cosmetics ingredients is not harmful to health, consumers and advocate groups are still focused on increasing the production of cosmetics that contain fewer and safer ingredients. Specifically, the requests are for the production of cosmetics developed using natural preservatives such as essential oils, rather than the current synthetic preservatives most frequently used. Cosmetics that are certified organic, however, prohibit the use of synthetic
ingredients and are positioned as safer alternatives to traditional cosmetics that contain synthetic ingredients.\textsuperscript{39} The next section highlights consumers growing acceptance in the purchase of organic products and discusses organic product regulations as enforced through the USDA’s federal guidelines.

**The Organic Products Industry**

Organic behaviors are becoming more widely adopted with the availability of organic products becoming more prevalent over the last five years.\textsuperscript{19-20} The increase in the availability of organic products has provided consumers with the option to conveniently try organic products.\textsuperscript{19} Organic foods and organic non-food products (i.e., personal care products and cosmetics, nutritional supplements, pet food, etc.) are now available in many locations, including mass market stores.\textsuperscript{20} Additionally, nearly 75\% of U.S. consumers report the occasional purchase of organic products and 23\% of consumers report that they purchase organic products on a weekly basis.\textsuperscript{40} Sales of organic products has also substantially increased in both the organic food and non-foods sectors.\textsuperscript{19,20} The organic food sector has benefited from this expansion with its 3.5\% share in the overall food sales marketplace (e.g., organic versus non-organic foods).\textsuperscript{19}

The non-food organic sector (i.e., the sector that organic cosmetics are housed), has also seen substantial growth in yearly revenues.\textsuperscript{20,41} According to The Organic Trade Association’s 2007 Manufacturer Survey, in 2006 the non-food organic products sector grew 26\%;\textsuperscript{20} The Organic Trade Association’s 2008 Organic Industry Survey reported that in 2008 this same sector grew 39\% with sales reaching $1.6 billion.\textsuperscript{19} Organic, non-food product interest is on the rise with the non-foods organic product sector growing at a faster rate than the organic foods sector.\textsuperscript{19-20}

**Organic Cosmetics Regulations**

Organic product interest may be on the rise due to organic product ingredients being held to different standards than traditional ingredients. Organic cosmetics ingredients are regulated under the same standards as organic food.\textsuperscript{39,42} The use of organic cosmetics reduces exposure to preservatives, synthetic ingredients, hormones, bioengineering, and pesticide residues during ingredient and product production.\textsuperscript{39} USDA Organic cosmetics are certified organic by the USDA and the National Organic Program (NOP), pending compliance with the USDA’s Organic Foods Production Act of 1990 (OFPA) which sets organic standards for production, handling, processing, labeling of foods and cosmetics.\textsuperscript{39}
One area under federal regulations is in the labeling of products considered to be organic. Cosmetics that are certified organic through the USDA are placed within 1 of 4 categories. Certified organic categories include: 1) “100% Organic,” with all ingredients being organically produced, 2) “Organic,” with 95% of ingredients being organic, 3) “Made with Organic Ingredients,” with 70% organic ingredients being organic, and 4) “Less than 70% Organic Ingredients,” where the term “organic” is prohibited on the main label, but ingredients that are certified organic can be detailed within the ingredients panel. The NOP also prohibits use of the USDA Organic seal or claims of organic when the criteria under the OFPA have not been met. Federal regulation of the word “organic” initiated due to products being sold as organic that were not, therefore misleading consumers. Since marketing techniques are often used to boost sales, the next section discusses how the advertisement of traditional cosmetics has shifted the focus towards the promotion and use of “natural,” “pure,” “herbal,” and “healthy,” cosmetics descriptions. This is often done through use of words or images on cosmetics product packaging and advertised through television and magazines where highlighting the use of naturally-derived ingredients is common.

**Cosmetics Marketing Trends**

There are numerous cosmetics types and brands available for consumers to purchase which has made it more difficult for women to decide on what products to purchase. Since health has become a main focus of consumers when shopping for cosmetics, and specifically in the perceptions of organic products, traditional product brands have begun to shift their marketing approaches. The new marketing trends are to advertise products, including cosmetics, as beneficial to health and the environment—even if the products being promoted consist of synthetic ingredients or are packaged in non-recyclable materials. The marketing is performed through use of natural and/or nutritious words in ads and also through images on packaging with claims that their products provide benefits from use of fruit ingredients positioning their products as nutritious. The use of descriptors such as “natural,” “herbal,” “pure,” and “healthy,” are descriptors often used to promote the benefits of traditional cosmetics. However, the term “natural,” among others, is not defined or regulated by any governmental or organic certification agency.

Furthermore, traditional cosmetics, those that typically do not contain organic ingredients, are now being labeled with descriptors and taglines such as “made with natural
ingredients,” and/or “free from,” some media-highlighted or controversial ingredient, such as parabens or sulfates. Because this approach insinuates that the ingredients used in the cosmetics are more natural, it may be confusing to consumers that rely on imagery and/or words when attempting to select cosmetics. Reading cosmetics labels provides consumers access to important details about a cosmetic (i.e., items such as the drug facts panel for usage warnings, the ingredients panel for identification of the types of ingredients used in the formulation, and the identification of organic ingredients and organic certifications), and is the best way to know if a product is organic. Performing a close-read of the cosmetics label and ingredients list provides consumers with the most transparent information available from cosmetics companies.

**Summary and Hypotheses**

Previous research has not used a health behavior change model to assess the readiness of women to practice organic cosmetics behaviors. Since women ages 18-34 have been found to use cosmetics more frequently than other age groups, and with the college setting being an environment where individual attitudes and behaviors towards appearance are developed, college women were the focus of this study.

This study evaluated college women’s cosmetics use, purchase, and label reading behaviors through use of quantitative assessments via an online cosmetics habits survey. There were four hypotheses explored in the following study and it was predicted that: 1) consistent with previous study levels, college women will use cosmetics, in the forms of either traditional and/or organic cosmetics, 2) the use and purchase of organic cosmetics among college women would be lower than the use and purchase of traditional cosmetics, 3) college women would represent a variety of levels of readiness to buy and use organic cosmetics and to read cosmetics labels, and 4) the pros and cons of using and purchasing organic cosmetics and reading cosmetics labels exist, with the pros and cons varying across the Stages of Change as predicted by previous literature.

**Methods**

**Participants**

Participants consisted of 262 female college students from a mid-sized Midwestern public university. They had a mean age of 20.21 ($SD = 1.40$) years, were primarily White (Caucasian) (92.4%) and Non-Hispanic (98.1%), were not married (95.8%), were Junior
undergraduate students (34.7%), had a mean grade point average (GPA) of 3.27 ($SD = .450$), and reported not living on campus (51.5%).

**Recruitment Procedure**

Participants were recruited through flyers, Facebook event pages, and courses in which instructors agreed to advertise the study. Participants were invited to take an online survey that asked questions about their cosmetics habits. In consideration of time, participants were entered into a drawing to receive one of 20, $10.00 gift cards to a local grocery or eatery. The online survey was housed within Prezza Checkbox software at the principal investigator’s host institution. Data was kept confidential, was secured behind the institution’s firewall, and IP addresses were not pursued. The host institution’s Institutional Review Board for Human Subjects approved this study.

**Measures**

Initial measures included basic demographic questions including age, gender, race, ethnicity, marital status, housing, grade level, and GPA.

**Cosmetics Habits Survey.** The Cosmetics Habits of College Women Survey (CHS) was developed to evaluate the cosmetics attitudes, beliefs, and behaviors of college women. A subset of the questions from the survey included assessments of the types of products used and considered to be cosmetics (“Do you use organic cosmetics, that is cosmetics indicating with words or images that the product is organic?” and “What types of products do you consider cosmetics?”), the number of cosmetics used daily (“How many individual cosmetics do you regularly use, that is cosmetics used 4 or more days a week?” and “How many days a week do you use any cosmetic product?”), perceived cosmetics safety (“Do you question the safety of your cosmetics?”), label reading behaviors (“Do you actively read cosmetics labels, that is the packaging or the ingredients label?”), purchasing behaviors (“Do you purchase traditional cosmetics?”), and organic cosmetics and food behaviors and beliefs (“Do you feel that use of organic cosmetics is beneficial to your health?” and “Have you ever purchased organic food?”). The CHS was specifically developed for this study (See Appendix F) and was pretested prior to implementation in this study to ensure reliability of questions.

**Stages of Change.** The TTM’s Stages of Change is a frequently used health behavior change model that evaluates the readiness to change a behavior. The Stages of Change include Precontemplation (PC), Contemplation (C), Preparation (PR), Action (A), and
Maintenance (M).\textsuperscript{21,23} Stages of Change measures were developed for the Use of Cosmetics ("Do you use cosmetics 4 or more days a week?"), Use of Organic Cosmetics ("Do you use organic cosmetics 4 or more days a week?"), Purchase of Organic Cosmetics ("Do you regularly purchase organic cosmetics?"), and Reading Cosmetics Labels ("Do you actively read cosmetics labels/packaging?"). Response options were in the form of a 5-point Likert-type scale (5 = Yes, and I have been for more than 6 months; 4 = Yes, and I have been for less than 6 months; 3 = No, but I am thinking about starting in the next 30 days, 2 = No, but I am thinking about starting in the next 6 months, 1 = No, I do not intend to) based upon definitions from the TTM’s Stages of Change (i.e., PC, C, PR, A,M).\textsuperscript{21-22}

**Decisional Balance Inventory.** An additional construct of the TTM, is Janis and Mann’s Decisional Balance Inventory.\textsuperscript{24} According to the Decisional Balance Inventory, when evaluating whether or not to change a behavior, internal evaluations of gains or losses for the self and others is performed\textsuperscript{22}; these evaluations are dependent upon the current stage of change. The Decisional Balance Inventory is an important construct of the TTM and has shown reliability and validity across Stages of Change and additional TTM constructs.\textsuperscript{22} Decisional Balance Inventory scale items in the current study were created for Use of Organic Cosmetics, Purchase of Organic Cosmetics, and Reading Cosmetics Labels based upon positive and negative influential factors for each scale, in terms of gains and losses for self and others, as consistent with Janis & Mann’s definition of Decisional Balance. Participants were asked the general question, “How important to you are the following statements in your decision to or not to…use organic cosmetics…purchase organic cosmetics…read cosmetics labels?” A subset of the scale items included, “Using organic cosmetics is beneficial to my health,” “I can find many organic cosmetics for purchase at the local store,” and “Knowing what ingredients are in my cosmetics is important to me” (see Tables 2-4 for a list of significant scale items and Cronbach’s alphas). The response options were in the form of a 5-point Likert-type scale (5 = extremely important to 1 = not at all important). High scores on each of the Decisional Balance Inventory measures signify that the participant perceived the item to be extremely important in the decision making process; low scores indicate that the item was perceived to be not at all important in the decision making process. Additionally, items within each scale were randomized within the online survey system to ensure validity of the resulting constructs.
Validation Measures

**Consumer Susceptibility to Interpersonal Influence Scale.** The Consumer Susceptibility to Interpersonal Influence Scale is a 12-item scale developed by Bearden, Netemeyer, & Teel (1989)\(^48\) used to measure Normative (8 items) and Informational beliefs (4 items) of purchasing. The scale determines the degree to which a person expresses the desire to conform to self and others’ expectations with regard to a purchase decision. The Normative and Informational items were measured on a 7-point Likert Scale (1 = *Strongly Disagree* to 7 = *Strongly Agree*). Some examples of Normative items included, “It is important that others like the products and brands that I buy,” and “If other people can see me using a product, I often purchase the brand they expect me to buy.” High scores on the Normative scale indicate that conformity to others’ expectations is important in purchasing behaviors; low scores indicate that conformity to others expectations is not as important.\(^48\) Examples of Informational items included, “I frequently gather information from friends or family about a product before I buy,” and “To make sure I buy the right product or brand, I often observe what others are buying and using.” High scores on the Informational scale indicate that obtaining information from others through dialogue and/or observation is an important factor in purchasing behaviors; low scores represent that information-gathering involving others is not as important.\(^48\) This scale has shown reliability and validity across students and non-students.\(^48\) The current study used the 12-item measure with response options on a 5-point Likert-type scale (1 = *Strongly Disagree* to 5 = *Strongly Agree*).

**Hedonic and Utilitarian Consumer Attitudes Scale.** The Hedonic and Utilitarian Consumer Attitudes scale is an 8-item scale developed by Batra and Ahtola (1991)\(^49\) to determine Hedonic (4 items) and Utilitarian evaluations (4 items) of consumer products. The Hedonic items evaluate the perceived emotional aspects associated with product usage; the Utilitarian items assess the perceived benefits and consequences of product usage. The scale has been shown to have internal validity across several studies.\(^49\)-\(^50\) Scale items are measured on a sliding 7-point Likert-type scale and items within each evaluation category can be summed to achieve individual Hedonic and Utilitarian scores. The scale consists of Hedonic items (7 = *Pleasant* to 1 = *Unpleasant*, 7 = *Nice* to 1 = *Awful*, 7 = *Agreeable* to 1 = *Disagreeable*, 7 = *Happy* to 1 = *Sad*), and Utilitarian items (7 = *Useful* to 1 = *Useless*, 7 = *Valuable* to 1 = *Worthless*, 7 = *Beneficial* to 1 = *Harmful*, and 7 = *Wise* to 1 = *Foolish*). High scores on the...
Hedonic scale indicate that the scale items are perceived by the participant to have a greater evaluative weight of emotional, feel good or pleasurable components; low scores indicate that there is a lower hedonic evaluative weight placed on the item. For the Utilitarian scale, high scores indicate that the scale item is considered by participants to possess a greater evaluative weight of a rational component; low scores indicate a lesser informational evaluative weight placed upon the item. Participants were asked the question, “Indicate your personal beliefs, attitudes, and feelings in terms of use, or the process of using organic cosmetics, in relation to the below categories” with Hedonic and Informational items presented on the 7-point, Likert-type scale as detailed above.

Results

Overview of Analysis

Statistical analyses were performed through use of SPSS v.19. Data was evaluated initially through a series of descriptive statistics (means and standard deviations). For the Stages of Change measures, descriptive statistics were used to identify participants’ stage position. For the Decisional Balance measures of Organic Cosmetics Use, Organic Cosmetics Purchase, and Reading Cosmetics Labels, exploratory factor analysis was used to identify the factors and loadings of best fit through principal components extraction and Varimax rotation. The number of factors was determined through parallel analysis. Items were retained on factors when the item was saturated (> .50) and not complex (difference of loading across factors / .2/). Once items and factors were stable, reliability analyses were conducted and Cronbach’s alphas were determined to ensure internal consistency estimates of reliability for each measure. Analysis of variance between Stages of Change and each measure was conducted, with follow up Tukey’s HSD post-hoc comparisons for significant ANOVAs. Significant correlations were found between Decisional Balance measures and validation scales of Consumer Susceptibility to Interpersonal Influence and Hedonic and Utilitarian Consumer Attitudes.

Stages of Change. Stage of Change for Use of Cosmetics (n = 253), indicated that participants fell mostly within M (86.3%, n = 226), followed by PC (5%, n = 13), C (1.9%, n = 5), A (1.9%, n = 5), and PR (1.5%, n = 4). Stage of Change for Use of Organic Cosmetics (n = 250), indicated that participants fell mostly within PC (48.9%, n = 128), followed by C (27.1%, n = 71), M (9.2%, n = 24), PR (7.6%, n = 20), and A (2.7%, n = 7). Stage of Change for Purchase of Organic Cosmetics (n = 251) indicated that participants fell mostly within PC (49.2%, n =
129), followed by C (30.5%, n = 80), PR (6.9%, n = 18), M (5.3%, n = 14), and A (3.8%, n = 10). Stage of Change for Reading Cosmetics Labels (n = 253), indicated that participants fell mostly within PC (32.4%, n = 85), followed by C (23.7%, n = 62), PR (17.9%, n = 47), M (16.4%, n = 43), and A (6.1%, n = 16) (see Table 1 for Percent of Participants in each Stage of Change).

To determine if participants in different stages use cosmetics differently, a one-way analysis of variance (ANOVA) was conducted between Stage of Change position and the number of individual regularly used cosmetics. The independent variable was the Stages of Change and included five levels (PC, C, PR, A, and M). The dependent variable was the survey item, “Please indicate the number of individual cosmetics use regularly (i.e., cosmetics used 4 or more days a week).” The ANOVA indicated that there were differences between the Stages of Change based the number of cosmetics used regularly, $F(4, 248) = 5.62, p < .001$, partial $\eta^2 = .08$. Tukey’s HSD post-hoc comparisons indicated that M ($M = 2.7, SD = .84$) scored significantly higher than PC ($M = 1.69, SD = .63$). The data suggest that participants in Maintenance do use cosmetics differently; they use significantly more cosmetics than participants in Precontemplation stage, who use fewer cosmetics.

**General Cosmetics Behaviors**

The CHS results indicated that majority of participants (57.4%, n = 153) used cosmetics 7 days a week; they used between 1 to 4 cosmetics (49.6%, n = 130) and 5 to 8 cosmetics (34.4%, n = 90), daily. Most participants (88.2%, n = 231) indicated regular use of traditional cosmetics, but relatively fewer college women reported regular use of organic cosmetics (16.4%, n = 43). Participants also identified that cosmetics were largely perceived to be “Makeup” cosmetics (38.5%, n = 101). It was found that an average of $157.21 (SD = $203.33) was spent in a 12-month period by participants (n = 238) to purchase cosmetics. Effectiveness of cosmetics was valued as the most important factor in purchase (56.9%, n = 149) with price as the second most important purchasing factor (23.7%, n = 62). Additionally, few participants (7.6%, n = 20) indicated that they always read cosmetics labels, in contrast to the majority that reported never (32.1%, n = 84), rarely (29.8 %, n = 78), or sometimes (24.4 %, n = 64) reading cosmetics labels.

Participant attitudes towards organic cosmetics were favorable and 25.6% (n = 67) of participants reported increased value placed organic products with 53.4% (n = 140) of participants sometimes considering organic products to be more valuable. Most participants
(55.7%, n =146) indicated that they were somewhat interested in the purchase of organic cosmetics as an alternative to their current cosmetics. Additionally, 79.4% of participants reported having purchased organic food at least once (n = 208) with only 11.5% (n = 30) reporting the purchase of organic cosmetics. Majority of participants also estimated that 25% of their regular food purchases consisted of organic foods (43.5%, n = 114).

A large number of participants (44.3%, n = 116) indicated that they did not question the safety of their cosmetics, with some participants (35.5%, n = 93) reporting that they sometimes questioned the safety of their cosmetics. Cosmetics use was seen as a safe practice (55.3%, n = 145), but a large number of participants (30.5%, n = 80) reported being unsure of cosmetics use as a safe practice. Majority of participants (44.3%, n = 116) also reported that they did not believe that cosmetics were thoroughly tested for safety by the FDA; however, a similar proportion of participants (43.9%, n = 115) believed that cosmetics were thoroughly tested for safety by the FDA.

**Organic Cosmetics Use**

Initial factor analysis was a 16 X 16 correlation matrix and was evaluated using principal components extraction and Varimax rotation to assess how well items measured concepts. Final factor analysis (n = 237) showed stability of 2 factors; 1 factor with 4 items and 1 factor with 3 items. The two factors were named Important Organic Use Perceptions (IOUP) and Non-Important Organic Use Perceptions (NIOUP). The IOUP measure contained 4 items and the NIOUP measure contained 3 items. The IOUP items addressed perceived benefits in health and safety and the importance of cost and time; NIOUP items addressed guilt, perceived benefits, and importance of other’s approval of use. Reliability analyses were assessed and Cronbach’s alphas\(^{51}\) were computed to obtain estimates of reliability for the two scales. Cronbach’s alphas were .74 and .74 for IOUP and NIOUP, respectively. Additional factor loadings and Cronbach’s alphas from the final factor analysis are presented in Table 2.

One-way analysis of variance (ANOVA) was conducted independently for both Decisional Balance measures of IOUP and NIOUP. The independent variable for the first ANOVA was the Stages of Change and included five levels (PC, C, PR, A, and M). The dependent variable was the Decisional Balance measure of Important Organic Use Perceptions. The ANOVA indicated that there were differences between the Stages of Change based on IOUP, \(F(4, 229) = 2.68, p = .03, \text{ partial } \eta^2 = .05\). The strength of the relationship between
Important Organic Use Perceptions and Stages of Change, as assessed by partial $\eta^2$, was small, with an observed power of .74, indicating that Stages of Change accounted for 5% of the variance in the dependent variable. Tukey’s HSD post-hoc comparisons indicated that C ($M = 13.69$, $SD = 2.79$, 95% CI [12.89, 14.49]) scored significantly higher than PC ($M = 12.20$, $SD = 3.56$, 95% CI [11.62, 12.78]). Comparisons between the Decisional Balance measure of Important Organic Use Perceptions and the stages of Preparation, Action, and Maintenance, were not statistically significant at $p < .05$.

For the second ANOVA, the independent variable was the Stages of Change and included five levels (PC, C, PR, A, and M). The dependent variable was the Decisional Balance measure of Non-Important Organic Use Perceptions. The ANOVA found that there were differences between the Stages of Change based on NIOUP, $F(4, 230) = 6.65$, $p < .001$, partial $\eta^2 = .10$. The strength of the relationship between Non-Important Organic Use Perceptions and Stages of Change, as assessed by partial $\eta^2$, was small, with an observed power of .10, indicating that Stages of Change accounted for 10% of the variance in the dependent variable. Tukey’s HSD post-hoc comparisons indicated that PR ($M = 8.35$, $SD = 2.32$, 95% CI [7.38, 9.32]) scored significantly higher than A ($M = 5.29$, $SD = 1.70$, 95% CI [3.64, 6.93]), C ($M = 6.19$, $SD = 1.93$, 95% CI [5.64, 6.73]), and PC ($M = 5.72$, $SD = 2.30$, 95% CI [5.33, 6.12]). Comparisons between NIOUP and Maintenance were not statistically significant at $p < .05$.

**Organic Cosmetics Purchase**

Initial factor analysis was a 16 X 16 correlation matrix and was evaluated using principal components extraction and Varimax rotation to assess how well items measured concepts. Final factor analysis ($n = 228$) showed stability of 2 factors; 1 factor with 4 items and 1 factor with 7 items. The two factors were named Important Organic Purchase Perceptions (IOPP) and Non-Important Organic Purchase Perceptions (NIOPP). The IOPP measure contained 4 items and the NIOPP measure contained 7 items. The IOPP items addressed perceived costs, health benefits, and convenience; NIOPP items addressed how influential self-approval was in terms of internal conflict and whether others’ attitudes, embarrassment, and approval were important in organic cosmetics purchases. Reliability analyses were assessed and Cronbach’s alphas were computed to obtain estimates of reliability for the two scales. Cronbach’s alphas were .82 and .93 for IOPP and NIOPP, respectively. Additional factor loadings and Cronbach’s alphas from the final factor analysis are presented in Table 3.
One-way analysis of variance (ANOVA) was conducted independently for both Decisional Balance measures of IOPP and NIOPP. The independent variable for the first ANOVA was the Stages of Change and included five levels (PC, C, PR, A, and M). The dependent variable was the Decisional Balance measure of Important Organic Purchase Perceptions. The ANOVA indicated that there were differences between the Stages of Change based on IOPP, $F(4, 225) = 5.22, p < .001$, partial $\eta^2 = .09$. The strength of the relationship between IOPP and Stages of Change, as assessed by partial $\eta^2$, was small, with an observed power of .97, indicating that Stages of Change accounted for 9% of the variance in the dependent variable. Tukey’s HSD post-hoc comparisons indicated that C ($M = 13.27, SD = 2.92, 95\% CI [12.47, 14.08]$) scored significantly higher than PC ($M = 11.02, SD = 4.00, 95\% CI [10.39, 11.64]$). Comparisons between IOPP and the stages of PR, A, and M, were not statistically significant at $p < .05$.

For the second ANOVA, the independent variable was the Stages of Change and included five levels (PC, C, PR, A, and M) and the dependent variable was Non-Important Organic Purchase Perceptions. The ANOVA was not significant, $F(4, 223) = 2.29, p = .06$, partial $\eta^2 = .04$.

**Reading Cosmetics Labels**

Initial factor analysis was a 16 X 16 correlation matrix and was evaluated using principal components extraction and Varimax rotation to assess how well items measured concepts. Final factor analysis ($n = 223$) showed stability of 2 factors; 1 factor with 9 items and 1 factor with 3 items. The two factors were named Influencing Factors in Adoption (IFA) and Influencing Factors in Non-adoption (IFNA). The IFA measure contained 9 items and the IFNA contained 3 items. IFA items addressed the influence of cosmetics packaging, knowledge of cosmetics ingredients and terminology, perceived ability to read cosmetics labels, approval from self and others; IFNA items addressed the time it takes to read cosmetics labels, how confusing this behavior may be, and how others perceive cosmetics label reading behaviors. Reliability analyses were assessed and Cronbach’s alphas were computed to obtain estimates of reliability for the two scales. Cronbach’s alphas were .93 and .72 for IFA and IFNA, respectively. Additional factor loadings and Cronbach’s alphas from the final factor analyses are presented in Table 4.

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One-way analysis of variance (ANOVA) was conducted independently for both Decisional Balance measures of IFA and IFNA. The independent variable for the first ANOVA was the Stage of Change and included five levels (PC, C, PR, A, and M). The dependent variable was the Influencing Factors in Adoption of reading cosmetics labels. The ANOVA indicated that there were differences between the Stages of Change based on IFA, $F(4, 218) = 12.04, p < .001$, partial $\eta^2 = .18$. The strength of the relationship between Influencing Factors in Adoption and Stages of Change, as assessed by partial $\eta^2$, was small to medium, with an observed power of $.99$, indicating that Stages of Change accounted for 18% of the variance in the dependent variable. Tukey’s HSD post-hoc comparisons indicated that the M ($M = 21.30, SD = 6.45, 95\% CI [19.26, 23.34]$), PR ($M = 21.91, SD = 5.11, 95\% CI [19.96, 23.86]$), and C ($M = 20.18, SD = 7.37, 95\% CI [18.47, 21.89]$) stages scored significantly higher than PC ($M = 14.46, SD = 6.66, 95\% CI [12.89, 16.02]$). Comparisons between IFA and A was not statistically significant at $p < .05$.

For the second ANOVA, the independent variable was the Stage of Change and included five levels (PC, C, PR, A, and M). The dependent variable was the Decisional Balance measure of Influencing Factors in Non-Adoption. The ANOVA indicated that there were differences between Stages of Change and IFNA, $F(4, 224) = 4.33, p = .002$, partial $\eta^2 = .07$. The strength of the relationship between Influencing Factors in Non-Adoption and Stages of Change, as assessed by partial $\eta^2$, was small, with an observed power of $.93$, indicating that Stages of Change accounted for 7% of the variance in the dependent variable. Tukey’s HSD post-hoc comparisons indicated that the C ($M = 7.47, SD = 2.41, 95\% CI [6.82, 8.11]$) and PR ($M = 7.98, SD = 1.93, 95\% CI [7.24, 8.71]$) stages scored significantly higher than M ($M = 6.02, SD = 2.29, 95\% CI [5.27, 6.78]$). Comparisons between IFNA and the stages of PC and A were not statistically significant at $p < .05$.

**Validation Measures**

**Hedonic and Utilitarian Consumer Attitudes Scale.** The Hedonic and Utilitarian Consumer Attitudes (HUCA) Scale has published coefficient alphas of .80 and .75, for majority of items within the Hedonic and Utilitarian dimensions, respectively. This study found coefficient alphas of .92 ($M = 20.36, SD = 4.00$) and .88 ($M = 20.47, SD = 4.43$) for the Hedonic and Utilitarian scales, respectively. Hedonic scale items were related to IOUP ($r = .27, p < .001$), IOPP ($r = .25, p < .001$) and CSII Informational ($r = .24, p < .001$) scales. Utilitarian
scale items were related to IOUP \(r = .20, p < .01\), IOPP \(r = .18, p < .01\), CSII Informational \(r = .27, p < .001\), and HUCA Hedonic \(r = .79, p < .001\) scales (see Table 5 for the full correlational matrix).

**Consumer Susceptibility to Interpersonal Influence Scale.** The Consumer Susceptibility to Interpersonal Influence (CSII) Scale\(^4\) has published coefficient alpha estimates of .82 for Informational items and .88 for Normative items. This study found coefficient alpha estimates of .82 \((M = 13.40, SD = 3.32)\) and .93 \((M = 20.09, SD = 7.11)\) for Informational and Normative scales, respectively. Normative scale items were related to NIOUP \(r = .36, p < .001\), NIOPP \(r = .34, p < .001\), IFA \(r = .31, p < .001\), and IFNA \(r = .20, p < .01\) scales. Informational scale items were related to IOUP \(r = .20, p < .01\), NIOUP \(r = .17, p < .01\), IOPP \(r = .26, p < .001\), IFA \(r = .19, p < .01\), IFNA \(r = .17, p < .01\), and CSII Normative \(r = .52, p < .001\) scales (see Table 5 for the full correlational matrix).

**Discussion**

**Explaining Cosmetics Behaviors and Stage of Change Position**

Cosmetics use, a common practice among women, is a highly prevalent behavior that may have lasting effects on women’s health. As predicted, college women in this study reported regular use of cosmetics. Most women used traditional cosmetics (88.2%, \(n = 231\)) and relatively fewer college women used organic cosmetics (16.4%, \(n = 43\)). This study found that majority of participants used between 1 to 8 cosmetics daily, which is slightly lower than previous literature which estimates daily cosmetics use by women to be between 9 and 20 products.\(^1,5,11\) Since the evaluations of cosmetics were based upon participants’ definition of the types of products considered cosmetics, further evaluation of how individuals define the term “cosmetics” may be needed to obtain better representations of actual use.

Also, predicted was that college women would represent a variety of levels of readiness to adopt organic cosmetics behaviors, based upon the TTM’s Stages of Change. For use of cosmetics most participants (86.3%, \(n = 226\)) were in the Maintenance Stage of Change. This study evaluated stage position for use of cosmetics to determine if there were significant differences between stage position for cosmetics use and organic cosmetics use. In applying the Maintenance stage position for the use of cosmetics in the current study to related research, Ruggiero (2000) found that 69.4% of smokers with diabetes were also in Maintenance.\(^53\) Emphasis for successful smoking cessation was placed on identifying and tailoring interventions
to participants’ current stage position and these interventions were found to be helpful in facilitating progression across Stages of Change. Tailoring messages to Stages of Change through newsletters, stage based self-help materials, and in counseling approaches provided individuals contemplating smoking cessation essential communications regarding health-related behaviors. Tailored communications could also prove to be beneficial for those who have not thought about or are contemplating the adoption of organic cosmetics behaviors.

Furthermore, as hypothesized, Stage of Change positions varied for use and purchase of organic cosmetics and reading cosmetics labels. Majority of participants were in Precontemplation for use of organic cosmetics (48.9%, n = 128), purchase of organic cosmetics (49.2%, n = 129), and reading cosmetics labels (32.4%, n = 85). These stage distributions are similar to the Stage of Change position for smoking cessation. Yang et al. (2001) used the TTM to evaluate smoking cessation in China and found that nearly 72% of smokers were in Precontemplation for quitting smoking. Participants in Yang et al.’s (2001) study also did not acknowledge the hazards of smoking and attributed negligible risks or reported not being informed about the risks of smoking. Applying these concepts to study results for organic cosmetics behaviors, participants also reported either not perceiving risks with the use of cosmetics or were unsure of the risks. Similar to Yang et al.’s (2001) findings and health behaviors in general, it is important to mobilize Precontemplators to the Contemplation stage. Yang et al. (2001) suggests that mobilization can occur through the development of media campaigns and can be facilitated through educational programs that introduce the benefits of the target health behavior. Providing educational programs that highlight the benefits of organic products may be an effective method used to encourage the future adoption of organic cosmetics behaviors as a means to improve overall health.

**Relationships between Stages of Change and Decisional Balance Measures.**

It was expected that pros and cons for use and purchase of organic cosmetics and reading cosmetics labels existed, with pros and cons varying across Stages of Change as predicted by previous literature. Decisional Balance scale items for this study were best represented as important and non-important use and purchase perceptions and influencing and non-influencing factors in adoption of reading cosmetics labels, not in terms of pros and cons. The TTM’s Stage of Change and Decisional Balance for a Healthy Behavior also suggests that as an individual
progresses through the Stages of Change that the pros of changing a behavior increase and remain high throughout Preparation-Maintenance.

In this study, the results for Stage of Change position for use and purchase of organic cosmetics and reading cosmetics labels and Decisional Balance Inventory measures were highest at Preparation. For organic cosmetics behaviors, this suggests that an evaluation process begins after perceived benefits are considered and when value is placed on the product being organic. Such considerations for use behaviors include expectations of having to go through trial-and-error periods with new cosmetics; purchase behaviors include performing price comparisons between traditional and organic cosmetics and locating stores that have organic cosmetics; and label reading behaviors include knowledge of what to look for on a cosmetics label and ingredients panel. Expectations of performing these behaviors indicate that the pros may be higher in Preparation due to value placed on organic cosmetics but with cons also being higher due to the perceived arduous cosmetics evaluation processes that may begin as the use and purchase of organic cosmetics and reading labels behaviors are adopted.

**Significance of Organic Attitudes and Behaviors**

Evaluations between organic attitudes and organic food should be further explored to determine if positive experiences with organic products in general has the potential to influence other organic purchasing behaviors. Participants in this study reported that 25% of their food purchases were organic (43.5%, n = 114), but fewer participants reported purchase of organic cosmetics (11.5%, n = 30). Hall (2008) suggests that consumers introduction to organic products first begins with the purchase of organic food.\textsuperscript{12} Since majority of participants indicated that they currently purchase organic food items, it may be beneficial to simultaneously look organic food and organic cosmetics use and purchase behaviors.

Additionally, awareness of, experience with, and knowledge about organic products are viewed as important factors in the adoption of any organic behavior.\textsuperscript{12-13} Reasons most frequently cited in the purchase of organic food include perceived increases in health and environmental benefits,\textsuperscript{12-13} thereby reducing exposure to synthetic chemicals.\textsuperscript{13} Participants in this study also indicated that they perceived organic products to be healthier than traditional cosmetics and indicated that they were somewhat interested in the purchase of organic cosmetics in lieu of their current traditional cosmetics.
Limitations

This study consisted of a number of limitations. This study was cross-sectional and longitudinal data would provide the ability to assess progression across the Stages of Change. Additionally, there were fewer participants within the stages of Action and Maintenance for all three behaviors, suggesting that future studies may benefit from evaluating the reasons why organic cosmetics behaviors are behaviors not yet thought about or fully embraced, even though organic food behaviors are.

Future studies should also consider evaluations of non-college populations as the readiness, pros and cons, and attitudes towards organic cosmetics habits may vary significantly in comparison to college students. College students are often restricted to the resources and shopping locations set within the college campus radius and can be affected more by social comparisons than other groups of individuals. The availability and increased price of organic cosmetics are also the two most reported barriers to adoption of organic behaviors. Since fewer women in this study indicated that they were using organic cosmetics, being a college student with a limited budget and availability to shop at locations that house organic products may be common barriers in the adoption of organic products.

Also, participants in this study were limited to female college students, as women identify that they use cosmetics more readily than men. Extending the research to incorporate males may also prove to be beneficial in the identification of patterns in organic attitudes and behaviors.

Conclusion

This is one of the first studies to use the TTM’s Stages of Change and Decisional Balance Inventory constructs to evaluate cosmetics behaviors of college women. The current study assessed the readiness to use and purchase organic cosmetics and to read cosmetics labels. For use of cosmetics participants were in Maintenance, suggesting that cosmetics use among college women is a widely-adopted behavior. Participants were in Precontemplation for use and purchase of organic cosmetics and reading cosmetics labels, which suggests that organic cosmetics behaviors have not yet been thought about or adopted. This finding is important as participants reported that they perceived organic products to be healthier than non-organic products. Furthermore, participants indicated that they considered cosmetics to be mostly makeup-type products, did not question the safety of their cosmetics, and were split on whether
the FDA thoroughly safety tested cosmetics. These findings indicate that knowledge of cosmetics definitions and regulations may not be fully recognized or understood.

With the organic industry growing steadily and with an increase in health benefits associated with use of organic products due to decreased exposure to synthetic ingredients, organic cosmetics behaviors are in need of assessment, now more than ever. Providing information about health risks associated with a behavior is identified as a method that can facilitate stage progression from Precontemplation to Contemplation, which suggests that educational programs and media campaigns could be an effective way to inform about the benefits of organic cosmetics behaviors. Furthermore, identifying effective messages used in the promotion of organic food and tailoring these towards organic cosmetics behaviors could also be an effective approach to mobilize Precontemplators towards reaching the Contemplation stage. This study provides initial evaluations of the readiness of college women to adopt organic cosmetics behaviors. The TTM’s health behavior change framework was used as cosmetics behaviors have increasingly become situated within the context of health.
References


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<table>
<thead>
<tr>
<th></th>
<th>PC</th>
<th>C</th>
<th>PR</th>
<th>A</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Use Cosmetics (n = 253)</strong></td>
<td>5</td>
<td>1.9</td>
<td>1.5</td>
<td>1.9</td>
<td>86.3</td>
</tr>
<tr>
<td><strong>Use Organic Cosmetics (n = 250)</strong></td>
<td>48.9</td>
<td>27.1</td>
<td>7.6</td>
<td>2.7</td>
<td>9.2</td>
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<tr>
<td><strong>Purchase Organic Cosmetics (n = 251)</strong></td>
<td>49.2</td>
<td>30.5</td>
<td>6.9</td>
<td>3.8</td>
<td>5.3</td>
</tr>
<tr>
<td><strong>Read Cosmetics Labels (n = 253)</strong></td>
<td>32.4</td>
<td>23.7</td>
<td>17.9</td>
<td>6.1</td>
<td>16.4</td>
</tr>
</tbody>
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Note: PC = Precontemplation; C = Contemplation; PR = Preparation; A = Action; M = Maintenance
Table 2. Factor Loadings and Cronbach’s Alphas for Organic Cosmetics Use

<table>
<thead>
<tr>
<th>Item</th>
<th>IOUP (α = .74)</th>
<th>NIOUP (α = .74)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using organic cosmetics is beneficial to my health.</td>
<td>.78</td>
<td>-.06</td>
</tr>
<tr>
<td>Using organic cosmetics means my cosmetics are safer than traditional cosmetics.</td>
<td>.80</td>
<td>.18</td>
</tr>
<tr>
<td>Using organic cosmetics is expensive due to cost.</td>
<td>.74</td>
<td>.02</td>
</tr>
<tr>
<td>I may have to go through trial and error to find the best organic cosmetics.</td>
<td>.63</td>
<td>.27</td>
</tr>
<tr>
<td>People I know do not think using organic cosmetics has any health benefits.</td>
<td>.17</td>
<td>.70</td>
</tr>
<tr>
<td>I feel guilty when not using organic cosmetics.</td>
<td>.13</td>
<td>.81</td>
</tr>
<tr>
<td>People I know feel that my use of organic cosmetics is just a trend.</td>
<td>-.05</td>
<td>.90</td>
</tr>
</tbody>
</table>

Note: Boldface reflects the highest loading; IOUP = Important Organic Use Perceptions; NIOUP = Non-Important Organic Use Perceptions
<table>
<thead>
<tr>
<th>Item</th>
<th>IOPP (α = .82)</th>
<th>NIOPP (α = .92)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchasing organic cosmetics may cost more money but is better for my health.</td>
<td>.78</td>
<td>.19</td>
</tr>
<tr>
<td>I can find many organic cosmetics for purchase at the local store.</td>
<td>.85</td>
<td>.21</td>
</tr>
<tr>
<td>Purchasing organic cosmetics is too expensive.</td>
<td>.78</td>
<td>-.05</td>
</tr>
<tr>
<td>Locations that organic cosmetics are available are too far away.</td>
<td>.75</td>
<td>.27</td>
</tr>
<tr>
<td>People I know approve of my purchase of organic cosmetics.</td>
<td>.23</td>
<td>.78</td>
</tr>
<tr>
<td>People I know think that purchasing organic cosmetics is too expensive.</td>
<td>.37</td>
<td>.58</td>
</tr>
<tr>
<td>I feel discouraged when I do not purchase organic cosmetics.</td>
<td>.18</td>
<td>.84</td>
</tr>
<tr>
<td>People I know find organic cosmetics to offer little health benefits.</td>
<td>.29</td>
<td>.67</td>
</tr>
<tr>
<td>I feel ashamed that I choose to purchase organic cosmetics.</td>
<td>.07</td>
<td>.91</td>
</tr>
<tr>
<td>People I know are embarrassed that I purchase organic cosmetics.</td>
<td>.07</td>
<td>.91</td>
</tr>
<tr>
<td>People I know disapprove of my purchase of organic cosmetics.</td>
<td>.06</td>
<td>.92</td>
</tr>
</tbody>
</table>

Note: Boldface reflects the highest loading; IOPP = Important Organic Purchase Perceptions; NIOPP = Non-Important Organic Purchase Perceptions.
<table>
<thead>
<tr>
<th>Item</th>
<th>Item</th>
<th>IFA</th>
<th>IFNA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading cosmetics labels/packaging keeps me up on the latest terminology.</td>
<td>Knowing what ingredients are in my cosmetics is important to me.</td>
<td>.77</td>
<td>.08</td>
</tr>
<tr>
<td>People I know choose to read cosmetics labels/packaging.</td>
<td>I feel confident in my ability to read cosmetics labels.</td>
<td>.82</td>
<td>.27</td>
</tr>
<tr>
<td>People I know find reading cosmetics labels/packaging is not important.</td>
<td>People I know approve of my reading of cosmetics labels/packaging.</td>
<td>.80</td>
<td>.33</td>
</tr>
<tr>
<td>People I know find cosmetics labels/package reading a waste of time.</td>
<td>Reading cosmetics labels/packaging requires too much effort.</td>
<td>.04</td>
<td>.87</td>
</tr>
<tr>
<td>Reading cosmetics labels/packaging is confusing.</td>
<td></td>
<td>.33</td>
<td>.70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.13</td>
<td>.77</td>
</tr>
</tbody>
</table>

Note: Boldface reflects the highest loading; IFA = Influential Factors in Adoption; IFNA = Influential Factors in Non-Adoption
Table 5. Correlation Matrix for Validation Scales

<table>
<thead>
<tr>
<th></th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
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<th>7.</th>
<th>8.</th>
<th>9.</th>
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<tbody>
<tr>
<td>DCBL-IOUP</td>
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<td></td>
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<td>DCBL-NIOUP</td>
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<td>-</td>
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<td></td>
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<td>DCBL-IOPP</td>
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<td>.58***</td>
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<td>.56***</td>
<td>-</td>
<td></td>
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<td>DCBL-IFNA</td>
<td>.21**</td>
<td>.34***</td>
<td>.33***</td>
<td>.39***</td>
<td>.41***</td>
<td>-</td>
<td></td>
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<tr>
<td>CSII-Normative Scale</td>
<td>-.01</td>
<td>.36***</td>
<td>.12</td>
<td>.34***</td>
<td>.31***</td>
<td>.20**</td>
<td>-</td>
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<td>CSII-Informational Scale</td>
<td>.20**</td>
<td>.17**</td>
<td>.26***</td>
<td>.12</td>
<td>.19**</td>
<td>.17*</td>
<td>.52***</td>
<td>-</td>
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<td>HUCA-Hedonic Scale</td>
<td>.27***</td>
<td>-.01</td>
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<td>-.06</td>
<td>.11</td>
<td>.08</td>
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<td>.24***</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>HUCA-Utilitarian Scale</td>
<td>.20**</td>
<td>-.01</td>
<td>.18**</td>
<td>-.08</td>
<td>.08</td>
<td>.00</td>
<td>.00</td>
<td>.27***</td>
<td>.79***</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: DCBL-IOUP = Important Organic Use Perceptions Decisional Balance Scale; DCBL-NIOUP = Non-Important Organic Use Perceptions Decisional Balance Scale; DCBL-IOPP = Important Organic Purchase Perceptions Decisional Balance Scale; DCBL-NIOPP = Non-Important Organic Purchase Perceptions Decisional Balance Scale; DCBL-IFA = Influential Factors in Adoption; DCBL-IFNA = Influential Factors in Non-Adoption; CSII = Consumer Susceptibility to Interpersonal Influence Scale; HUCA = Hedonic and Utilitarian Consumer Attitudes Scale.

*p < .05; **p < .01; ***p < .001
A QUALITATIVE INQUIRY: ORGANIC COSMETICS ATTITUDES AND BEHAVIORS OF COLLEGE WOMEN

Manuscript Type: Original Research

Keywords: Organic Cosmetics; Organic Attitudes; Organic Purchasing Behaviors; Transtheoretical Model; Stages of Change

Abstract Word Count: 195

Manuscript Word Count: 10,266
ABSTRACT

Objective: The current study used a mixed-methods case study approach to explore college women’s experiences with and beliefs about cosmetics, the readiness to adopt organic cosmetics behaviors, and to determine individual cosmetics use patterns. Method: Two college women participated in three, semi-structured interviews and tracked cosmetics use for two weeks. Results: Participants reported daily cosmetics use; however, expressed little definitional knowledge of products considered to be cosmetics and commonly used cosmetics descriptors of organic, natural, and traditional. Prior to the study, participants revealed having not thought about the adoption of organic cosmetics behaviors; upon study completion, they reported that adoption of organic cosmetics behaviors was likely. Discussion: Cosmetics are used by women on a daily basis, but the definition of cosmetics is not widely understood. To determine the actual number of cosmetics regularly used it is important to fully understand the definition of what a cosmetic is. To assist in increasing awareness of cosmetics and organic cosmetics behaviors, the development of stage-matched interventions through health campaigns, television commercials, and magazine ads may be useful outlets. Women frequent these forms of media and report that media ads and images influence their attitudes and beliefs about cosmetics.
**Introduction**

Cosmetics are used for various reasons. The products offered in today’s cosmetics market cleanse, deodorize, beautify, and offer protection from the sun.\(^2\) Cosmetics can be used to improve appearance, boost self-esteem and confidence, and to improve the quality of life.\(^1\) Cosmetics use can also increase perceived situational acceptance, femininity, sexiness, facial symmetry, health, and earning potential.\(^1,4,5,7\) Moreover, consumers use cosmetics and in many cases use them daily.\(^8\)-\(^9\) Malkan (2007) reports that cosmetics are used daily with the average female using 12 or more, with the average male using six;\(^8\) Nigam (2009) reports that the average adult uses nine products and that 25% of women users apply 15 or more.\(^9\) O’Connor & Spunt (2009) find that women’s daily use of cosmetics could be closer to 20 products.\(^10\)

Cosmetics are frequently purchased and used by both sexes, but more by women.\(^8\)-\(^9\) The variance in the number of products used daily by women is not surprising as cosmetics are often marketed towards females as a means to improve their appearance.\(^12\) The more cosmetics that are used may increase the exposure to synthetic ingredients such as preservatives (i.e., parabens), phthalates, and fragrances, as these are common ingredients used in traditional cosmetics;\(^11\) however, organic cosmetics alternatives can lower the exposure to synthetic ingredients.\(^13\)-\(^14\)

Use of organic cosmetics has become more acceptable in recent years and consumers that purchase organic products report that they perceive organic products to be better for health, the environment, and that organic products are of better quality than traditional products.\(^13\) The use of organic products is seen as a health-conscious behavior that reduces exposure to synthetic ingredients.\(^13\)-\(^14\) Organic cosmetics also provide the consumer with a sense of security in knowing that the ingredients within the organic products that they are using are regulated by an organic certification agency.\(^13\)

Organic product behaviors are on the rise,\(^15\) but there is a current gap in the literature that evaluates the influences, attitudes, beliefs, and patterns of use of organic cosmetics. Therefore, the purpose of this study is to understand the influencing factors in the adoption of cosmetics use, purchase, and label reading behaviors, by looking at two female college students through a series of interviews and cosmetics tracking logs. This study also assesses the readiness to adopt organic cosmetics behaviors using the Transtheoretical Model (TTM)’s Stages of Change construct. The TTM assesses the readiness to change an unhealthy behavior into a healthy behavior.\(^16\) Since it is important to understand previously studied factors in the use of cosmetics,
Cosmetics Behaviors and Affect

Cosmetics are used by women on a daily basis, and can be purchased at the supermarket, online, and over the phone, with these avenues providing the ability to obtain desired products, including those considered organic. Research supports that women use cosmetics to improve appearance, boost self-esteem, and for the ability to manipulate their image. Cosmetics can be used to compliment or enhance positive facial features and offer reported benefits to the consumer through increases in positive self-image, self-esteem, and confidence.

In looking at college women, Rudd and Lennon (2000) identified social-comparison behaviors as the second most prevalent factor in adoption of appearance-management behaviors. This suggests that college women engage in behaviors (i.e., cosmetics use) that help to close the gap between actual and ideal attractiveness through various appearance-management manipulations of the self. The ideas of what women should look like are often dispersed through media and advertising campaigns and can be reinforced by the social environment. These concepts are further discussed below.

Media Messaging. Frequent exposure to images in the media that depict a certain idealized body may have negative implications for women that compare their image to that of the atypical ideal. Thompson, Van den Berg, Roehrig, Guarda, and Heinberg (2003) find that the location in which college women retrieve health messages has the ability to alter inward views of appearance and body image, and that media messages in fashion and fitness magazines are the most accessed forms of health messaging.

Furthermore, Brooks (2008) identifies cosmetics advertising as one of the two largest categories found in women’s magazines; cosmetics ads are often marketed to a specific audience and often promote youth as a necessity. Since many women’s magazines feature women (i.e., celebrities) promoting cosmetics, these ads imply that with use of the item being promoted that increases in beauty can be effortlessly achieved. According to Field (2000), women who frequently read magazines are three times more likely to report that the images influence their perceptions of the ideal body type. Women that frequently read magazines have a higher tendency to compare their body, weight, and attractiveness against beauty ideals, than
women who access magazines less frequently. The beauty ideals can be negative for some and can increase motivations to seek out appearance-management behaviors as methods to decrease the gap between actual and accepted beauty ideals.

Social Aspects. Use of cosmetics also has many social implications. Observers perceive women who wear cosmetics to have higher levels of attractiveness, feminine traits, sex appeal, facial symmetry, social acceptance, confidence, earning potential, and health status. It is suggested that women who do not wear cosmetics are perceived by others to have lower levels of attractiveness, earning potential, social class, health status, and confidence. Women who choose to wear cosmetics are perceived in a more positive light than those who choose to not wear cosmetics and reflects that increased levels of social acceptance can be achieved in social settings if cosmetics are worn.

Cosmetics literature also finds that use of cosmetics increases self-esteem and facial attractiveness and can alter the way others perceive the cosmetics wearer. College women report that the use of cosmetics offers the ability to improve appearance, which then improves their social acceptance among peers. Research on opposite sex perceptions also tend to favor the use of cosmetics among women. Male peers perceive women without makeup to be less attractive than they are with makeup; female peers state that makeup use has little improvement on level of attractiveness. Use of cosmetics within the bar setting also increase women’s solicitations from men, in comparison to when no cosmetics are worn. These studies highlight that women can use cosmetics to enhance facial attractiveness, to increase acceptance among peers in social situations, and to encourage encounters from the opposite sex. Use of cosmetics may have many positive benefits for wearers but cosmetics use also increases exposure to cosmetics ingredients. The next section discusses cosmetics safety concerns and provides the definitional context for cosmetics.

Cosmetics and Safety Concerns

Cosmetics are regulated through the U.S. Food and Drug Administration (FDA) through the Federal Food, Drug, and Cosmetic Act (FD&C Act). The FDA defines cosmetics by “their intended use, as articles intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body...for cleansing, beautifying, promoting attractiveness, or altering the appearance.” Cosmetics companies often use ingredients such as parabens, phthalates, and fragrances in their product formulations. The cause for concern among
some individuals is that traces of parabens have been found in human breast cancer tumors, suggesting that accumulation of parabens in body tissues is likely—and in need of further evaluation as being a probable cause of cancer in humans.\textsuperscript{30} Other cosmetics ingredients such as phthalates and fragrances have been found to have the potential to disrupt the hormonal, endocrine, and reproductive systems.\textsuperscript{11}

Use of organic cosmetics can lower the exposure to synthetic ingredients, such as preservatives, as they are often developed using essential oils rather than synthetic preservatives.\textsuperscript{31} Since cosmetics can be developed without the use of synthetic ingredients while maintaining efficacy of the product, the public and advocate groups have asked the FDA and other governmental agencies to adopt more stringent guidelines that require cosmetics companies to use fewer and safer ingredients.\textsuperscript{8,32-33} Since a growing number of consumers perceive organic products to be better for their health and the environment,\textsuperscript{14} it is necessary to discuss growing organic trends and federal organic regulations.

**Trending Towards Organic Products**

Consumers are purchasing organic products in more abundance than in previous years.\textsuperscript{15,18} Organic cosmetics are now being purchased on an occasional basis by nearly 75% of the U.S. population.\textsuperscript{34} Users of organic products report that they tend to be health conscious with an interest in their personal well-being.\textsuperscript{14,35} Organic product users also consider organic products to be more genuine, safe, and natural,\textsuperscript{35} and view them as a healthier choice over traditional products.\textsuperscript{14} Health and environment are mentioned as the most important factors influencing the price consumers are willing to pay for organic products,\textsuperscript{35} with health remaining the most influential factor. Additionally, the ingredients used in organic products are created without the use of synthetic chemicals, fertilizers, hormones, and are not subject to bioengineering.\textsuperscript{14}

Growing trends towards organic products has also begun to influence traditional cosmetics advertising and marketing campaigns. Cosmetics are now labeled with images and descriptors that depict nature, or explicitly use the words “natural,” “pure,” and/or “free from,” some media-highlighted or controversial ingredient.\textsuperscript{8,10} Cosmetics are also promoted as healthy and nutritious through use of fruit ingredients.\textsuperscript{5} The use of words and images suggesting nature and health may influence consumers to believe that their traditional cosmetics are healthier and better for the environment, even when they may still contain other synthetic ingredients.\textsuperscript{10} Moreover, not all consumers know about organic products and thus may not be aware of what
the term “organic,” means.\textsuperscript{13} With consumers not being fully aware of what an organic product consists of and how it is defined, it is important to discuss the term “organic,” from a regulatory standpoint. The next section discusses the regulation of organic ingredients and details the four classifications of organic products.

**Organic Product Regulations**

Products labeled “organic,” including cosmetics, are regulated by groups such as the National Organic Program (NOP) through the U.S. Department of Agriculture (USDA), ECOCERT, Quality Assurance International (QAI), the Organic Trade Association (OTA), among others, that work to establish and refine the organic food and non-foods industry.\textsuperscript{36-39} Moreover, organic cosmetics ingredients are regulated in the same manner as organic foods.\textsuperscript{40-41}

To receive the certified organic designation from the USDA and to use the word “organic,” on the main label, a product must contain at least 70% organically derived ingredients.\textsuperscript{40} The USDA’s four organic categories include: 1) “100% Organic,” where all ingredients are produced organically, 2) “Organic,” where at least 95% of ingredients are produced organically, 3) “Made with Organic Ingredients,” where at least 70% of the ingredients are organically produced, and 4) “Less than 70% Organic Ingredients,” where organic ingredients can be displayed within the ingredients list.\textsuperscript{40,42-43} Since use of words or images that indicate that a product is “organic” are regulated by the USDA through the NOP, unauthorized use of the term is prohibited and punishable by law under the Organic Foods Production Act (OFPA).\textsuperscript{42}

**Conceptual Context and Theoretical Orientation**

This study is informed by both literature on cosmetics use and theory related to health behavior change. Women that use cosmetics report benefits such as improved appearance and boosted self-esteem and confidence.\textsuperscript{1,4,19} Rudd & Lennon (2000) find that among college women, comparisons between the self and others are a prevalent factor in the adoption of appearance-management behaviors, including cosmetics use, dieting, and dress.\textsuperscript{19} Media messages in fashion and fitness magazines have also been recognized as the most accessed forms of health messaging among college women;\textsuperscript{22} additionally, Field (2000) reports that women that frequently read magazines are three times more likely to state that media images influence their personal views of the ideal body type.\textsuperscript{24} This suggests that frequent exposure to images in the
media that depict a certain idealized body have negative implications for women who compare their image to an unobtainable beauty ideal\textsuperscript{19-21}

Furthermore, this study is informed by the Stage of Change construct from the Transtheoretical Model (TTM). The TTM is a behavior change model frequently used to determine the readiness of an individual to change a harmful health behavior into a healthy behavior\textsuperscript{16-17}. The TTM suggests that behavior change occurs through a series of qualitatively different stages. Velicer & Prochaska (2008) define the five Stages of Change as Precontemplation (PC; i.e., those who do not intend to change a behavior), Contemplation (C; i.e., those who have thought about changing a behavior and plan to do so within a period of six months), Preparation (PR; i.e., those who have thought about a behavior and have made advancements to get ready to make the behavior change within a period of 30 days), Action (A; i.e., those who have effectively changed and practiced the behavior for six months or less), and Maintenance (M; i.e., those who have effectively changed the behavior for a period of time longer than six months)\textsuperscript{16-17}.

While cosmetics use and its influences on psychological and physical well-being has been studied, how well women understand the definition of the term “cosmetics,” and the types of products included in this definition, is unknown. It is assumed that the definition of cosmetics is explicit, and its descriptors are widely understood. Also, it is believed that cosmetics definitions are situated within the social environment, cultural context, and individual experiences. If cosmetics is in fact a term that is and can be described in different ways, it suggests that subjectivity and varying social and cultural influences play a role in the definitions formulated by participants. Cosmetics use also varies from user-to-user\textsuperscript{44-46} and to get a clearer look into individual cosmetics use patterns, cosmetics tracking logs were incorporated into the current study. Inclusion of this aspect enabled the researcher to determine if individual cosmetics patterns existed.

Because women ages 18-34 have been found to use cosmetics more frequently than other age groups\textsuperscript{8,44-46} and with the college setting being an environment where individual attitudes and behaviors towards appearance are developed\textsuperscript{19}, college women were the focus of this study. The purpose of the current study is therefore to extend the literature by 1) defining the types of products considered to be cosmetics and assessing knowledge of cosmetics terminology, 2) exploring organic attitudes and beliefs, 3) examining the influences of cosmetics marketing, 4)
determining the number of cosmetics used regularly, and 5) assessing readiness to adopt organic cosmetics behaviors.

**Research Questions**

The central question guiding this study was, “How do college women perceive and explain their use of and experiences with cosmetics and their willingness (or not) to change their cosmetics habits?” There were several sub questions designed to explore influencing factors in cosmetics use and also how participants define terms related to cosmetics. Secondary questions consisted of: 1) How do participants perceive their experiences with cosmetics? 2) What influences cosmetics use? 3) How does the media, magazines, and beauty ideals influence (or not influence) cosmetics use? 4) How are cosmetics defined and what products are included and/or excluded? 5) How are use, regular use, and reading cosmetics labels, defined? 6) What are the important factors in use and purchase of cosmetics and label reading behaviors? 7) How are the terms natural, organic, and traditional, defined in terms of cosmetics? 8) What contexts do the participants indicate that cosmetics are worn/not worn? And what increases/decreases cosmetics use within these settings? 9) How ready are the participants to change their cosmetics habits to those considered organic? 10) How do the participants perceive and define cosmetics and organic cosmetics before and after participation the current study?

**Research Procedures**

**Study Overview and Design**

This study borrowed from the case study approach and consisted of two college women. The case study approach provided the opportunity to gain insight into the meaning of cosmetics experiences, attitudes, beliefs, influences, and behaviors of each participant. The objective of this study was to illuminate, describe, and interpret meaning from the standpoint of the participant about cosmetics and organic cosmetics, knowledge of cosmetics definitions, and finally, individual cosmetics behaviors. Because this research was exploratory, definitional aspects of cosmetics were also considered (i.e., definition of cosmetics, and types such as natural, organic, and traditional). It was important to understand the level of knowledge about cosmetics terminology and how much participants felt they knew about the topic of cosmetics.

The mixed-methods case study approach enabled the researcher to gain a better understanding of participant beliefs and behaviors surrounding cosmetics. The qualitative case study aspect consisted of three, semi-structured interview sessions, with this format providing the
researcher the ability to explore participants’ perceived lived experiences that have shaped their current cosmetics behaviors. To complement the information gained in the interviews, quantitative assessments were utilized to obtain detailed information on individual cosmetics habits. The results were obtained through use of Cosmetics Tracking Logs and participation in an online survey which helped to determine the average number of cosmetics used and the average number of ingredients per cosmetic, within participants’ personal cosmetics collections.

Furthermore, the TTM framework was used to evaluate the readiness to buy and use organic cosmetics and to read cosmetics labels. Stage of Change position was determined through online survey responses and interview questions. Quantitative assessments were used to draw conclusions from patterns of cosmetics use based upon comparisons of Week 1 and Week 2 cosmetics use tracking data. The definition of cosmetics was also broadened throughout the course of the study as a strategic plan of action to determine what types of products were considered to be cosmetics to participants both before and after exposure to additional cosmetics definitions and types.

**Researcher Perspective and Aims**

The aims of this study were descriptive, interpretive, and emancipatory with the objective being to gain understanding into the complexity of the cosmetics experiences of each participant. Participants described their cosmetics experiences, provided details of their cosmetics use patterns, and discussed influential factors in their cosmetics use. Independent and combined review of cases allowed for the creation of new meaning based upon case similarities and contrasting factors. Emancipatory aims explored initial participant perceptions and knowledge of cosmetics with participants being introduced to new definitions and types of cosmetics and made aware of organic cosmetics. Participants’ descriptions and beliefs were reevaluated at the end of the study to determine whether changes in their perceptions of cosmetics and organic cosmetics varied across the course of the study.

The interpretive and descriptive lenses were used by the primary researcher during interview sessions and also in the analysis of data. Content analysis was used to present findings from a contextual standpoint of the researcher’s questions to highlight similar and/or different perceptions in the meanings of terms frequently used in the realm of cosmetics.
Participant Recruitment

The primary researcher recruited the study participants through personal contacts. The selection criteria were that the participants be female, age 18 or older, a current student at the Midwestern University, and to be available to: 1) complete an online survey, 2) present physically all cosmetics used regularly for primary investigator review, 3) track use of cosmetics for two, one-week time periods that consisted of identifying the types of cosmetics used and the number of applications per day, 4) be willing to talk with primary investigators in three, 15-20 minute interviews (digitally recorded), 5) be available to participate in each aspect of the case study. In consideration of time and travel, each participant received a $50.00 gift card to a location of their choice. Prior to study commencement, University Institutional Review Board approval was granted.

Case Study Participants

Participants identified as White (Caucasian), non-Hispanic, 20-year old, female undergraduate junior students, at a mid-sized, Midwestern university. Both participants reported that they did not live on campus and that their marital status was single. Participants agreed to participate in a study on the cosmetics habits of college women and completed the study’s consent form at the start of Interview 1.

Procedure for Interviews

Interview 1. Prior to Interview 1, both participants were instructed through email communications to bring their cosmetics to the first interview to be photographed for identification purposes. Participants were not instructed, at this time, what items were considered cosmetics. During Interview 1, which was digitally recorded, the participants signed the case study consent form and then selected pseudonyms to ensure confidentiality. Additionally, during Interview 1, the participants’ cosmetics were photographed and they were asked general questions about their cosmetics use. Upon completion of Interview 1, the participants received a personalized Week 1 Cosmetics Tracking Log, in which the cosmetics presented in the initial meeting were detailed, in addition to spaces for tracking days of use and the number applications per day. The principal investigator instructed the participants to track their cosmetics use for a 7-day period of time and to complete the log prior to Interview 2.

Interview 2. During Interview 2, the Week 1 Cosmetics Tracking Log was discussed and the participants were asked definitional questions about use, purchase, and label reading, in
addition to the cosmetics types of organic, natural, and traditional, among others. Upon completion of Interview 2, the participants were then asked to complete the Cosmetics Habits Survey and to notify the primary researcher when this task was completed. Upon receipt of notification, a revised Week 2 Cosmetics Tracking Log was presented, which now included cosmetics categories per the FDA’s definition of cosmetics that included items such as makeup, face, body and hair products. Participants were then instructed to continue their next 7-day tracking of cosmetics to record days of use, the number applications per day, and to write in any additional cosmetics used with identifiers (i.e., brand, scent, and type) that fell into the new cosmetics categories, that were not presented during Interview 1.

**Interview 3.** During Interview 3, the Week 2 Cosmetics Tracking Log was discussed. In addition, the participants were asked questions about the college setting and how their attitudes and beliefs concerning cosmetics and organic cosmetics may have changed from Interview 1 to Interview 3. Participants were also asked about what they felt should be or should not be included in a future study on the cosmetics habits of college women. Upon completion of the study, participants were thanked for their time and were presented with their gift card incentive.

**Data Analysis**

Upon completion of the series of three interview sessions, the principal investigator transcribed each participant’s digitally-recorded interview sessions. The primary researcher analyzed the data using content analysis and the process included close reading, coding, displaying, reducing, and interpreting data to establish content and contextual similarities and differences among participants’ data.

To ensure reliability and validity, researcher triangulation was employed as a checking mechanism to ensure that the primary researcher’s personal views, attitudes, and perceptions did not overly influence content production. The triangulation process included three researchers (the primary researchers and two graduate researchers with qualitative research experience). The researcher triangulation sessions involved reading, interpreting, and the development of content and contextual meaning units. The researchers met in two sessions to discuss content from the interviews and to formulate agreements on the similarities and differences between the participants’ interview sessions. Content areas were identified, compared, and negotiated. The final content categories generated from the researcher triangulation sessions were analyzed by a second primary researcher to ensure validity of content.
Findings

The important findings from content analysis were compared between the participants’ answers and are presented below in the format of the researcher’s question and the participants’ individual responses. Each research question begins with the researcher’s interpreted meaning and understanding of the participants’ responses. In addition, there are details if and how the responses were similar and/or differed. This section concludes with the results of participants’ Cosmetics Tracking Logs and a discussion behind the meaningfulness of this addition to the current study.

Factors and Influences in Cosmetics Use

Participants reported that the benefits from use of cosmetics were improved appearance, to look more awake or to decrease the look of being tired, and to conceal blemishes. Participants also indicated that they were more comfortable wearing cosmetics and less comfortable without the cosmetics applied. They reported that when wearing cosmetics that their confidence levels increased. In addition, there is evidence that the college environment influences how much cosmetics are worn as the participants reported increased use of cosmetics when “going out” in comparison to “staying home,” or “going to class.” The evidence supporting the findings for factors and influences in cosmetics use began with the question, “Can you tell me about your overall experience with cosmetics, some of the reasons why you use it, or how it makes you feel, and if it is positive, negative, or neutral?”

Participant 1 responded that her experience with cosmetics was “positive” and that, “I don’t break out that often so I don’t have to get a certain brand so, I just like find things that work and then just play around with them…its vastly improved the way that I look.” When asked by the researcher if cosmetics use was then “more for enhancing the way that you look…?” Participant 1 responded with, “more for I guess the way that I look, and that affects the way I feel, so if I’m not wearing makeup it’s probably because I’m really tired.”

Participant 2 responded to the initial question of her experience with cosmetics being “positive” and that, “My main reason for using it is I think that without it I maybe look tired, like if I do not have eye makeup on or something and also I don’t have like that good of or that great of skin so, I feel like I need it to make my skin look better, but I also don’t want to seem superficial so I try to use as
little as possible. I don’t really notice it on other people. When I meet people, I’m not like ‘oh, their wearing a lot of makeup, or they don’t,’ unless it’s like an excessive amount or something. But I don’t necessarily think that it’s like vital for me to be wearing it but it does make me feel better, like more confident.”

To explore the reasons that cosmetics were used, the researcher asked, “What is your most influential factor in your personal use of cosmetics?”

Participant 1 responded, “I like the way that I look with them… it makes me look more awake or just better in general than if I weren’t to wear them.” Participant 2 responded, “The reason I use cosmetics is because I feel like my skin is not great and I feel like by using it, it makes my skin more even and more, I guess the way it’s supposed to look but like more natural.”

To determine if participants felt use of cosmetics was required, the researcher asked, “Do you feel like you have to wear cosmetics?”

Participant 1 responded with, “Um, not that I have to, but I am uncomfortable if I don’t.” Participant 2 responded, “Depending upon who I am around. I definitely feel more comfortable when I wear them. I don’t ever feel like I have to but I prefer to when I am around people, especially people that I don’t know. I feel it makes me look, like I would make a better impression on people when I have them on.”

To explore contexts in which cosmetics are worn and the influence of the college setting, the researcher asked, “Is there anything within the college setting that you feel has influenced your experiences or shaped your behaviors with regard to use, purchase, and label reading habits?”

Participant 1 responded, “I have less money now so I probably buy more things based on price now, and I don’t read labels that much.” Participant 2 responded, “Probably not one specific thing but since I am like on my own now, I’m paying for everything myself so I guess price has probably influenced what I purchase but not really my use or my label reading.”
The researcher followed with the question, “Do you feel that the college setting has increased or decreased your use of cosmetics?”

*Participant 1* responded, “I’d say the first year, I probably used more because I was on my own and I was just like, ‘I can try new things, and like get what I want,’ and we could buy things with our meal plans freshman year and I was like ‘oh, it’s my meal plan I’ll just try this’ but then as college has gone on, it probably tapered off a little bit and like realized I’m not going to have the money to buy all these things, and kind of figured out like what I need and what I use and I just repeat buying those.”  *Participant 2* responded, “I think it depends on what I am doing. I think that the college life definitely makes you feel like you should wear cosmetics when you go out and like you have to look nicer than you do during the day when you go out at night, but if it is something as simple as going to class then, maybe that would, it’s not as important I guess.”

**Conflicting Thoughts and Actions about Media’s Influence**

Magazines were also the most accessed medium for beauty tips with media images and ads having value for both participants. The participants reported that ads depict how one should look; however, they reported that the images did not affect their personal use of cosmetics. These responses suggest that participants internalize beauty ideals set forth by the media, but also that the participants do not recognize that this process conflicts with their actual thoughts and actions in their beauty practices. Furthermore, both participants expressed that they always use cosmetics citing their average use to be 7-days a week. The high level of use indicates that there is value placed upon the positive attributes achieved through use of cosmetics. The evidence supporting the findings for conflicting thoughts and actions about media’s influence began with the question, “Do you read magazines or search online for information on cosmetics?”

*Participant 1* responded, “Yeah, more I guess in magazines or if I am like ‘I want to do a smoky eye, I don’t know how to do that, but I think I have the things’ then I would maybe Google a smoky eye and get directions. I remember in high school and getting *Seventeen Magazine* and taking like the makeup tips, and it’s probably where I get my basic everyday makeup…like concealer helps make you
look more awake like you are not tired, and like bronzer in the winter. So, I guess my basic style I guess comes from magazines.” Participant 2 responded, “Magazines, yeah, I don’t actually subscribe to any but my roommates do so I always look through them and I like notice the ads and stuff and notice ads on TV but I don’t necessarily think it influences my, like how I use them, but if I see something that looks cool or like maybe I want to try, I would be open to looking into buying it but I’m not drastically influenced by it I wouldn’t think.”

To understand how media made the participant feel, the researcher asked, “Can you tell me about how cosmetics commercials and ads in magazines make you feel?” Participant 1 responded, “Usually, they have perfect skin and their makeup is perfect, so I want to look like them, I guess.” Participant 2 responded, “I guess they put the idea of what you are supposed to look like out there so, it could make you feel like you need to look like that. I guess me in particular, I’m not like, I don’t think I’m really influenced by them but I would see ‘oh, she has really good skin or she has really pretty eyes, or whatever’ so then it would make me feel like I need to try and maybe look like that.”

Participants were also asked, “How much do you feel that media representations of female beauty and associated icons influence your use or non-use of cosmetics?” Participant 1 responded that it “probably influences it a little bit. If no one wore makeup and no one looked that way, I probably wouldn’t necessarily, but it doesn’t like make me want to do it more, or less. It might have been like the initial, I’m going to wear makeup, but I’m not super influenced by it I don’t think.” Participant 2 responded, “I would like to think that it doesn’t really influence my use but I think that it probably does with society’s idea of like what’s beautiful and what we are supposed to look like. I feel like that definitely plays a role in my use of cosmetics.”

Definitions of Cosmetics and Use

The initial belief about what a cosmetic was consisted of makeup products. Upon the conclusion of the study both participants reported that they felt that their view of cosmetics was
broadened to include additional products such as face, body, and hair cosmetics; they expressed that they use more products than they previously thought they did (prior to the study). Both participants defined use as “applying it,” or “applying it to the face,” with regular use being “7-days a week.” Participant 1 reported that participation in the study broadened her definition of cosmetics and Participant 2 stated that she learned a little about cosmetics and expressed interest in organic cosmetics and label reading in the future. The evidence supporting the findings for definitions of cosmetics and use began with the question, “Can you tell me what your definition of a cosmetic is?”

**Participant 1** responded during Interview 1, “It is anything that is used to enhance your looks, particularly on the face, and by enhance I mean like anything to like cover up anything that you do not want people to see or to like bring more attention to maybe your eyes or your lips or like a certain feature you have…and when I think of cosmetics I automatically just think of makeup, so anything that is used to cover up or enhance features on your face, I guess.” **Participant 2** responded during Interview 1, “I feel it is any product that you use on your face, like any enhancing product.”

To determine how each participant defined use of cosmetics, the researcher asked, “How do you define the word ‘use’?”

**Participant 1** responded, “Like putting them on, applying them to your face.”

**Participant 2** defined use as, “Applying it, like how many times I use it.”

To determine how each participant defined regular use of cosmetics, the researcher asked, “How do you define the term ‘regular use’?”

**Participant 1** responded, “Probably every day.”

**Participant 2** responded, “I guess on a day-by-day basis, on average 7-days a week.”

To evaluate how participants’ beliefs about cosmetics may have changed from the beginning of the study to the end, participants were asked during the final interview to refer to their understanding of cosmetics prior to participation in the study and to compare this definition
to what they perceived the definition to be after participation in the study, taking the online survey, and in reference to their Week 2 Cosmetics Tracking Log that categorized cosmetics as Makeup, Face, Body, and Hair cosmetics. The evidence supporting the findings for definitions of cosmetics and use began with the question, “Can you tell me about your experiences with the online survey and Week 2 of the cosmetics use tracking log?”

*Participant 1* responded during Interview 3, “I guess it broadened my view of what cosmetics are, and its more than just makeup, and there’s like lotion and shampoo, and like everything else that I use and I realize that I use a lot more than I thought I did.” *Participant 2* responded during Interview 3, “Well, the survey made me more aware of what is considered cosmetics use. I never thought like brushing my teeth, or stuff like that is considered cosmetics, I never really thought about that like aspect of it and so I guess the tracking this week was just more in depth, more of like my entire routine of getting ready instead of just focusing on my face.”

Participants’ Cosmetics Tracking Logs were reviewed and in response to Week 1 and Week 2 cosmetic product types being different, participants were asked, “Your Week 2 tracking log is different than your first week of cosmetics tracking. Could you tell me about the differences and why you think things may have changed?”

*Participant 1* responded, “Maybe the new categories and broadening of what a cosmetic is and like lotions and hairspray and I didn’t really think of those before.” *Participant 2* responded, “I guess I probably just didn’t consider them to be cosmetics before but then after taking the survey I realized the broadness of the term and it was also prompted on the side too [of the Cosmetics Tracking Log], so if I used it, I filled it in.”

To determine how much knowledge was gained from participation in this study, *Participant 1* was asked, “Would you say that this [referring to her response above about broadening of the cosmetics definition] is something that you learned from this study?”

*Participant 1* responded, “Yeah, I guess I learned more, I guess what cosmetics were, specifically, and I guess how much I use them and almost rely on them
(laughs) to feel comfortable, like out of the shower to moisturize, so my skin is not dry, or like to do my hair, or to take my makeup off.”

When Participant 2 was asked, “Do you feel that by being in this study that you know more than before?”

Participant 2 responded, “A little. I think more of the idea of what organic cosmetics are and the idea of cosmetics in general, but not like a significant amount. I am definitely more interested in like reading labels now though and looking into using organic cosmetics.”

Definitions of Natural, Organic, and Traditional Cosmetics

Both participants had similar descriptions for the definitions of natural and organic. Natural was defined as “like organic,” or “associate[d] with organic,” with organic defined as “without chemicals and from the earth,” and “without outside chemicals or preservatives.” Traditional was defined by Participant 1 in terms of the types of ingredients stating “I assume that it’s just like artificial, chemical,” differing from Participant 2 who described it in terms of the types of products, “stuff like foundation, lipstick.” The evidence supporting the findings for the definitions of natural, organic, and traditional cosmetics began with the question, “How do you define the terms ‘natural,’ ‘organic,’ and ‘traditional’ in reference to cosmetics?”

Participant 1 responded, “Organic would be that they didn’t use any like outside chemicals, or like preservatives in it, and natural makeup is probably on the organic side, but they probably have some preservatives or some artificial ingredients…I’ve never really heard of traditional but I assume that it’s just like artificial, chemical.” Participant 2 responded, “I would say that organic and natural I kind of view the same, organic is more like without chemicals…I guess it is like the main thing I would think of—like from the earth and not really modified that much. Natural I guess, like I said I associate it with organic but it could mean like just a natural looking thing like skin tones or just like a very neutral color, and traditional I view as like what I think that everybody uses, like what I use is traditional when you think of makeup or cosmetics, I think of like traditional stuff like foundation, lipstick, and stuff like that.” When asked by the
researcher to clarify what “natural” meant, Participant 2 also defined natural as, “Skin tones and the same colors that I have, not like changing anything drastically, how I feel I would want to look like in a perfect world, without any makeup, like naturally, beautiful.”

Organic Beliefs and Influences

Both participants reported purchasing organic food when possible, that their initial experience with organic food was through their mothers, that the experiences with their mothers’ shaped their current attitudes toward organic food, and that their experiences with organic products lead to more positive organic attitudes. Participant 1 and 2 had differing ways of viewing organic food. Participant 1 expressed that it was more wholesome than non-organic food and Participant 2 expressed that it was healthier and better for the environment. Both participants also indicated that they were interested in the use and purchase of organic cosmetics but that they may or may not stop their use of non-organic cosmetics. The evidence supporting the findings for organic beliefs and influences began with the question, “How do you feel about organic food and do you place value on it and/or purchase it?”

Participant 1 responded, “Yeah, not all my food is organic, but I try and buy what I can. It’s expensive but I try and buy what I can.” When asked by the researcher about the reason why she purchases organic food, Participant 1 responded, “My mom’s a vegetarian so I grew up with more like, probably like, a more wholesome diet I guess, and so she would buy some and kind of got me interested in it.” The researcher then asked, “Would you say that organic cosmetics would also be classified as more wholesome?” Participant 1 responded, “Yeah, probably.”

Participant 2 responded, “Yeah, when I’m at my house, like with my family, we, my mom buys pretty much all organic food and I definitely think that it is better than non-organic food and when I’m here [at school] I’ll try to buy it if it’s not too expensive, so I definitely place value on it.” When asked by the researcher to clarify what value meant, Participant 2 responded with “I feel like it’s healthier just because it is not altered by chemicals. I don’t know, I just think
organically grown things are better for the environment and better for you and healthier.” When asked by the researcher “Would you say that organic cosmetics would also fall into the category of being better for you?”

Participant 2 responded, “Probably. I don’t really know that much about them but just going off of organic I would say yes.”

To understand if participants placed value on organic food and if this value related to organic cosmetics, the researcher asked participants, “Do you think that it is important to make the connection between organic food and organic cosmetics?”

Participant 1 responded, “I think that once you start using organic anything whether it’s like clothing, or food, or cosmetics, then you start opening up to the world of organic things and you see the benefits…should I buy organic here and not here, and you start to do it then and you start to like it more.” Participant 2 responded, “I feel like yeah because, well I don’t know about other people, but for me like I said, I had never really even considered organic cosmetics. I know that they have like the section but I just never really thought about it in the same way but I think food is something that like when you think about health and stuff you think about the types of food that you eat and it kind of hits close to home and then making that comparison kind of says that it’s probably similar, like I’m sure that organic cosmetics are safer and maybe better for your skin and stuff like that.”

To determine the readiness to use organic cosmetics, participants were asked by the researcher, “How do you feel about organic cosmetics now [at the end of the study]?”

Participant 1 responded, “I’m interested in them and I am like open to them, but I’m not like, I haven’t written of non-organic or traditional cosmetics.”

Participant 2 responded, “I feel like after taking the survey they like compared to it to organic food and I feel like organic food is better and healthier, so I feel that it would be the same with organic cosmetics. So, I would, like I said earlier, be interested in looking into them and seeing how they work and how I like them.”
Future Cosmetics Behaviors

At the start of the study, both participants indicated that they had not thought about the use and purchase of organic cosmetics or reading cosmetics labels. At the close of the study, both participants stated that they would be interested in the use of organic cosmetics within the next 30 days (Preparation) to 6 months (Contemplation), which was dependent on the time in which their current traditional cosmetics were used up, or based upon need. For purchase of organic cosmetics, participants were thinking about purchasing organic cosmetics or at least looking at the selection of organic cosmetics within the next 30 days (Preparation) to 6 months (Contemplation). Both Participants also reported not frequently reading labels of cosmetics unless it was a new product. Participants also indicated that they may or may not read cosmetics labels in their future cosmetics purchases, positioning both participants in Precontemplation. The evidence supporting the findings for future cosmetics behaviors began with the question, “How often would you say that you read the labels of cosmetics?”

Participant 1 responded, “Not often.” Participant 2 responded, “Not very often (laughs). I read like the titles obviously, but when I think of the label I think like of turning it over and reading the back and reading the directions and ingredients and I usually don’t really pay attention to that unless it is a new product and I don’t know how to use it, then I would read the directions.”

To determine how frequently cosmetics were purchased, the researcher asked participants, “How often do you purchase cosmetics?”

Participant 1 responded, “As needed. I feel that I just get mascara when I need it, when I run out.” Participant 2 responded, “I purchase them whenever they run out and I don’t think that I go through them very fast.”

To understand the selection and location criteria for cosmetics purchases the researcher asked participants, “Where do you purchase the majority of your cosmetics and what are the reasons you have selected those location(s)?”

Participant 1 responded with “Where ever I am closest to. I feel that [the stores I choose] have a similar inventory,” with the locations being selected because of “convenience.” Participant 2 responded, “Drugstores probably is like my main
place,” with these locations being selected because they were “convenient and cheap.”

To determine Stage of Change position for organic cosmetics use, the researcher asked the participants, “Do you think that you are ready to regularly use organic cosmetics? If so, what period of time would you specify?”

Participant 1 responded, “Probably the next 6 months.” Participant 2 responded that both use and purchase of organic cosmetics would occur, “Probably just whenever I like run out of what I have and end up getting new stuff. So, probably between 30 days or a couple of months.”

To determine Stage of Change position for the purchase of organic cosmetics, the researcher asked the participants, “How ready are you to purchase organic cosmetics?”

As a follow up to the question of using organic cosmetics, the researcher asked Participant 2 “Would your purchase of organic cosmetics also be in the next 6 months?” Participant 1 responded, “Yeah.” Participant 2 responded the initial question with, “Whenever I would buy more.”

To determine Stage of Change position for reading cosmetics labels, the researcher asked the participants, “How ready are you to read cosmetics labels?”

Participant 1 responded, “Probably in the next 6 months, or I may not read cosmetics labels.” Participant 2 responded, “I’m like more open now to like reading labels and seeing like what’s in the different aspects of the… like ingredients and directions and stuff like that but I don’t know, I feel like I am pretty set in my ways in like how I do things so I do not know like how much change will happen.”

To determine general future cosmetics behaviors, the researcher asked participants, “How might you go about your next cosmetics purchase in terms of specific behaviors?”

Participant 1 responded, “I would probably just compare them, and look at the selection of organic cosmetics and see if there is anything I want.” Participant 2 responded, “I’m like more open to reading labels and seeing what’s in the
different aspects of the ingredients and directions and stuff like that but I don’t know, I feel like I am pretty set in my ways in like how I do things so I do not know like how much change will happen. I will probably look in the organic section. I know there’s like one aisle usually that has organic stuff so, I might look in to that and try it out and if it works, then I would probably continue using it but if it doesn’t, I would just go back to what I am using now.”

**Cosmetics Use Tracking Logs**

The participants tracked their cosmetics use through self-reported Cosmetics Tracking Logs for two, one-week periods of time in which the number of uses per day of any cosmetic used was logged. Week 1 cosmetics tracking only involved tracking items believed by the participant to be cosmetics. A consciousness-raising event (“Consciousness Raising” is defined as a process that occurs when an individual receives information that increases their awareness about a behavior) occurred prior to Week 2 cosmetics tracking and consisted of two elements. The participants were introduced to new cosmetics categories on their Week 2 Cosmetics Tracking Logs and through participation in an online survey. The addition of new cosmetics categories broadened the definition of cosmetics to include makeup, face, body, and hair cosmetics. At this point, participants then began their second, 7-day period of cosmetics use tracking.

It is important to note that cosmetics and ingredient totals within this study included cosmetics that were also considered over-the-counter drugs according to the FDA, such as antiperspirant, fluoride toothpaste, acne treatments, and chemical sunscreens. To determine if participant cosmetics were also drugs, the primary researcher looked for the “Drug Facts Panel” on the back of participants’ cosmetics. If this panel was present, these cosmetics were included in averaged cosmetics and ingredient totals. According to the FDA, these products may be considered cosmetics, but regulated as drugs.

**Participant 1.** The Week 1 Cosmetics Tracking Log for Participant 1 indicated that an average of 6 cosmetics ($n = 42$) were used at least once per 7-day period (Monday through Sunday). The Week 1 cosmetics collection for Participant 1 averaged 27 ingredients, per cosmetic. This calculation was found by adding individual ingredient counts for each cosmetic used ($n = 214$) and was divided by the total number of cosmetics in the collection for Week 1 ($n$
After the consciousness raising event, the Week 2 Cosmetics Tracking Log for Participant 1 indicated that an average of 14 cosmetics were used at least once per 7-day period (Thursday through Wednesday) \((n = 98)\). The Week 2 cosmetics collection for Participant 1 averaged 23 ingredients, per cosmetic. This calculation was found by adding individual ingredient counts for each cosmetic used \((n = 545)\) and was divided by the total number of cosmetics in the collection for Week 2 \((n = 24)\). Participant 1 used many cosmetics more than once a day, such as chapstick, toothpaste, and antiperspirant, however, the above average daily cosmetics use totals only reflect if the cosmetic was used at least once, and does not include reapplications for each cosmetic used.

**Participant 2.** The Week 1 Cosmetics Tracking Log for Participant 2 indicated that an average of 8 cosmetics were used at least once per 7-day period (Monday through Sunday) \((n = 55)\). The Week 1 cosmetics collection for Participant 2 averaged 23 ingredients, per cosmetic. This calculation was found by adding individual ingredient counts for each cosmetic used \((n = 277)\) and was divided by the total number of cosmetics in the collection for Week 1 \((n = 12)\). After the consciousness raising event, the Week 2 Cosmetics Tracking Log for Participant 2 indicated that an average of 16 cosmetics were used at least once per 7-day period (Thursday through Wednesday) \((n = 111)\). The Week 2 cosmetics collection for Participant 2 averaged 24 ingredients, per cosmetic. This calculation was found by adding individual ingredient counts for each cosmetic used \((n = 484)\) and was divided by the total number of cosmetics in the collection for Week 2 \((n = 20)\). Participant 2 used many cosmetics more than once a day, such as chapstick, toothpaste, acne treatments, and antiperspirant, however, the above average daily cosmetics use totals only reflect if the cosmetic was used at least once, and does not include reapplications for each cosmetic used.

**Cosmetics Totals.** Both Participant 1 and 2 indicated increased average numbers of cosmetics used between Week 1 and Week 2. The increases in average cosmetics use totals are not indications that fewer cosmetics were used by participants in Week 1 and that more cosmetics were used in Week 2. Rather, the difference in cosmetics use totals are an indication that participants’ knowledge of the definitional form of cosmetics initially consisted primarily of makeup cosmetics, and excluded other forms. This finding was significant as it reflected that participants were unaware at the start of the study that other products used regularly were also considered cosmetics.
Significance and Implications

The current study assessed participants’ reasons for cosmetics use, their understanding of the definition of cosmetics, and calculated the number of regularly used cosmetics. In addition, this study used the TTM’s Stages of Change construct, as defined by Velicer & Prochaska (2008), to determine how ready participants were to use and purchase organic cosmetics and to read cosmetics labels. For Stage of Change position at the beginning of the study, participants indicated through interviews that they had not previously thought about organic cosmetics positioning them in Precontemplation. At the end of the study, participants were between Preparation and Contemplation for use and purchase of organic cosmetics and in Precontemplation for reading cosmetics labels. Future studies should attempt to assess the factors that influence progression from Precontemplation to Maintenance for these behaviors.

This study finds that both participants used cosmetics 7-days a week. The reasons cited for cosmetics use was to enhance natural features, to mask blemishes, to achieve an even complexion, and to increase perceived confidence, especially in social situations. This data is consistent with literature that suggests that cosmetics offer the ability to improve appearance, to boost self-esteem and confidence, to improve quality of life, and to increase situational acceptance. Both participants also reported that they used more cosmetics when they were meeting new people or going out and used fewer cosmetics if they were staying home or going to class. While the participants did not mention direct reasons for increased or decreased usage, it is important to recognize that their cosmetics use varied based upon their situational and social environments.

Internal evaluations of beauty were also evident as participants claimed that media images and ads in magazines set the standards for how women should look. However, both participants indicated that media ads and images did not significantly influence their personal cosmetics behaviors, but reported that they tried to resist by not allowing media images and beauty ideals influence their use. The women in this study also indicated that they accessed magazines for cosmetics tips and trends. These findings were again consistent with literature on cosmetics use and exposure to magazines. Furthermore, both participants actively sought out cosmetics that enhanced certain features on the face and/or concealed others that were less favorable. The participants’ active engagement in use of cosmetics and their desire to enhance or
conceal can be viewed as behaviors used in an attempt to narrow the gap between their actual and desired state of beauty.\textsuperscript{19-20,22,24}

**Organic Attitudes and Behaviors**

The participants’ attitudes were favorable towards organic products and perceived them to be “wholesome,” and “better for the environment,” which is consistent with consumer research on organic products.\textsuperscript{13-14,35} Participant attitudes might have evolved due to exposure to organic foods through their family unit. Both participants also reported purchasing organic food and this supports literature that suggests that individuals in the U.S. purchase organic food at least occasionally.\textsuperscript{34} Initially, both participants reported that they had not thought about and did not currently purchase organic cosmetics, but at the close of the study were open to idea of shopping for and using organic cosmetics. Also, the more value that a consumer places on their food being organic is cited as the most influential factor in whether or not organic purchasing behaviors are adopted.\textsuperscript{13} Evaluations between organic attitudes and organic food should then be further explored to determine if positive experiences with organic foods have the potential to influence the use and purchase of organic cosmetics.

**Cosmetics Definitions and Use Patterns**

Participants in this study reported that they initially perceived makeup products to be the only cosmetics used. However, after Week 2 of cosmetics tracking, both participants mentioned that the definition of cosmetics was broadened from just makeup products to include products also used on the face, body, and hair. With the participants indicating that they were previously unaware of the types of products considered cosmetics, further evaluation into how individuals define the term “cosmetics” should be considered; participants in this study perceived the definition of cosmetics to be different than how it is defined by the FDA. This suggests that the definition of cosmetics may be socially constructed and that clarification of the definition of cosmetics may be needed to broaden the understanding. Also, in order to obtain complete cosmetics use data, individuals need to fully understand what a cosmetic is in its broadest definitional form.

Participant cosmetics use totals for both Week 1 and Week 2 were similar to the averages set forth by previous studies.\textsuperscript{8-10} Furthermore, Malkan (2007) estimates that the average cosmetic contains 14 ingredients;\textsuperscript{8} both participants’ collections of cosmetics averages were higher than this average. This finding is important as it suggests women may be exposed to
more than the average of 14 cosmetics ingredients depending upon the cosmetics choices they make.

**Limitations**

This study consisted of two college women from a mid-sized, Midwestern university; the demographics, college culture, and beauty practices may be different from other populations. Moreover, the study was conducted between the season transition from winter to spring, and use of products such as sunscreen may not have been included in the participants’ cosmetics tracking log totals. Future studies should also attempt to evaluate the use, purchase, and label reading behaviors of the non-college population as the readiness and attitudes towards organic cosmetics habits may vary significantly in comparison to college students. Participants in this study were also limited to female college students as women identify that they use cosmetics more readily than men. Extending the research to incorporate males may prove to be beneficial in the identification of patterns in organic attitudes and behaviors.

Since this study was an adjunct to a larger quantitative study (see Annis, 2011^{49}) on the cosmetics habits of college women, the sample size of two participants was appropriate for the descriptive and interpretive scope of the current study; however, a larger sample size would generate greater amounts of data from which thematic analysis could be used. It may also be beneficial to study other populations and demographics to explore if cultural factors confirm or disconfirm similar attitudes and beliefs about cosmetics and if definitions of cosmetics vary across groups. Due to this study being exploratory in nature, future studies may want to narrow the scope to either look at cosmetics behaviors or at organic cosmetics behaviors, instead of both, to simplify and explore each category independently. Interview data collected from participants were also viewed by the researcher through descriptive and interpretive lenses and future studies may benefit from using other perspectives, such as the critical lens. Cosmetics Tracking Log data was also self-reported.

**Conclusion**

This case study gained insight into two participants’ cosmetics attitudes and behaviors. Individual cosmetics knowledge was explored as was the meaning behind influential experiences, attitudes, beliefs, and influences associated with their current cosmetics behaviors. There were several important findings. Participants indicated through their cosmetics tracking logs and interview sessions that they were not aware of the array of products considered
cosmetics, as defined by the FDA. This finding should not be overlooked and highlights that participants may develop their beliefs about cosmetics through their social environment and exposure to media through ads and magazines. Furthermore, participants also stated that they were influenced by beauty ads and ideals presented in the media, but also perceived that the ads and images did not affect their personal cosmetics behaviors. Both participants used cosmetics 7-days a week and reported that cosmetics use was to improve skin tone, to cover blemishes, and to enhance features. Cosmetics use also increased or decreased based upon situational factors.

This study also evaluated the participants’ perceptions of organic products and how ready they were to buy and use organic cosmetics and to read cosmetics labels. Participants indicated that while they purchased organic food, they had not thought about the use or purchase of organic cosmetics. At the start of the study, both participants were in Precontemplation for all three behaviors. However, at the closing of the study participants were between Precontemplation and Preparation for the behaviors. The Stage of Change position was determined using definitions based upon TTM. This study will add to literature on use of cosmetics, organic cosmetics, and how ready women are to change their cosmetics behaviors.
References


APPENDIX A: Full Operational Definitions (See Table 2 for Abbreviated Definitions)

Operational Definitions

Cosmetics

To evaluate the perceived definition of cosmetics and to differentiate between commonly used terminologies associated with cosmetics, it is necessary to have a clear definition of what cosmetics are according to the U.S. Food and Drug Administration (FDA). The FDA defines cosmetics “as articles intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body...for cleansing, beautifying, promoting attractiveness, or altering the appearance” (“Federal Food, Drug,” 2010). Cosmetics are often referred to as personal care products (PCP); however, this term not currently recognized or defined by the FDA. Therefore, PCP are classified as cosmetics by the FDA and regulated according to the FD&C Act (“Personal Care Products,” 2009). Based upon the FDA’s interpretation of cosmetics and PCP’s, this study defines cosmetics as “any makeup, face, body, or hair products used to color, cleanse, hydrate, or exfoliate.”

Cosmetics Types

To differentiate between cosmetics types and frequently used cosmetics terminologies it is necessary to define “organic,” “traditional,” and “natural,” cosmetics types. There is a legal distinction between cosmetics that are “natural,” and those that are “organic.” Cosmetics labeled with the term “natural,” among other related words, are not regulated by any governmental or organic certification agency (“Cosmetics, Body Care,” 2008; “Natural Products,” 2007).

Organic. Cosmetics that either through words or images imply that the product is “organic,” are regulated by the USDA under the Organic Foods Production Act (OFPA), through the National Organic Program (NOP). There are four categories defining organic products and these categories include: 1) “100% Organic,” where all ingredients are produced organically, 2) “Organic,” where at least 95% of ingredients are produced organically, 3) “Made with Organic Ingredients,” where at least 70% of the ingredients are organically produced, and 4) “Less than 70% Organic Ingredients,” where organic ingredients can be listed within the ingredients panel (“National Organic Standards,” 2009; “Organic Foods Production,” 2005; “Organic Labeling,” 2010). Since use of words or images that indicate that a product is “organic” is regulated by the USDA through NOP, unauthorized use of the term is prohibited and punishable by law under OFPA (“National Organic Standards,” 2009). Based upon the recommendations from the
USDA’s NOP, this study defines organic cosmetics as “cosmetics indicating with words or images that the product is organic.”

**Traditional.** This study also defines “traditional” and “natural” cosmetics types. Traditional cosmetics in this study are defined as “cosmetics that do not indicate with words or images that the product is organic.” The natural category is also emerging as a new cosmetics sector, especially with the introduction of products that are promoted as “natural” and beneficial to health through use of nature-like words and images; however, use of the term “natural” is not currently defined by law ("Cosmetics, Body Care," 2008; “Natural Products,” 2007). For the purpose of this study, products that are considered “natural” will be placed into the “traditional” category.
APPENDIX B: Recruitment Materials

Facebook Event Message

**Cosmetics Habits of College Women Survey:** Researchers are recruiting female college students, ages 18 or older, to participate in an online survey on cosmetics habits. You will be entered into a drawing for one of 20, $10.00 gift cards for consideration of your time. To complete the online survey please go to:

https://survey.muohio.edu/Checkbox/CosmeticsHabits.survey

*Or contact the primary investigators: Carmen Annis,annisck@muohio.edu or Rose Marie Ward, PhD, wardrml@muohio.edu*
APPENDIX B: Recruitment Materials

Recruitment Flyer 1

Cosmetics Habits of College Women Survey

We are recruiting female students to participate in an online survey on cosmetics habits. *You will be entered into a drawing for one of 20, $10.00 gift cards for consideration of your time.*

To complete the 30-40 minute online survey please go to:
https://survey.muohio.edu/Checkbox/CosmeticsHabits.survey
APPENDIX B: Recruitment Materials

Recruitment Flyer 2

We Need Your Help!
Cosmetics Habits of College Women Survey

If you are:

- A Female College Student
- Age 18 or older

We need your help!

We are recruiting female students to participate in an online survey on cosmetics habits. You will be entered into a drawing for one of 20, $10.00 gift cards for consideration of your time.

If you are interested in participating, please go to:
https://survey.muohio.edu/Checkbox/CosmeticsHabits.survey

*Or contact: Dr. Rose Marie Ward, wardrm1@muohio.edu or Carmen Annis at annisco@muohio.edu
APPENDIX C: Consent Form – Online Survey

Cosmetics Habits of College Women Online Survey Consent Form

Dear Participant:
You have been asked to take part in the research project described below. The researcher will explain the project to you in detail. If you have any questions, please feel free to call Dr. Rose Marie Ward or Carmen Annis, the persons mainly responsible for the study.

The purpose of the study is to gather information from college women about their cosmetics habits. Responses to these items will be completely anonymous. At no time will your name be tied to your responses. Only project personnel will have access to the survey responses.

1. **YOU MUST BE AT LEAST** 18 YEARS OLD to be in this research project.

2. If you decide to take part in this study, your participation will involve filling out a survey that will ask questions about your cosmetics habits; how frequently you use cosmetics, read labels of cosmetics, and/or purchase traditional and organic cosmetics. Definitions of the above concepts (i.e., cosmetics, use and purchase, reading, organic, and traditional) will be provided prior to the start of the survey. The survey should take approximately 1 hour to complete.

3. The possible risks or discomforts of the study are minimal, although you may feel some embarrassment answering some of the questions about private matters.

4. Although there are no direct benefits of the study, your answers will help increase the knowledge regarding the status of problems in psychology.

5. Your part in the study is confidential. That means your answers to all questions are private. No one else can find out what your answers are. Scientific reports will be based on group data and will not identify you or any individual as being in this project. You will be assigned a participant number for tracking purposes only.

6. The decision to participate in this research is up to you. You do not have to participate and you can refuse to answer any question.

7. Participation in this study is not expected to be harmful or injurious to you. However, if this study causes you any injury, you should write or call Dr. Rose Marie Ward at (513) 529-9355.

If you have questions about the study, you can contact the investigators, Dr. Rose Marie Ward, 513-529-9355 or wardrm1@muohio.edu; Carmen K. Annis at annisck@muohio.edu.

If you have any questions or concerns about your rights as a subject, you may contact Miami University's Office for the Advancement of Research and Scholarship, (513) 529-3600 or humansubjects@muohio.edu.
You are at least 18 years old. You have read the consent form and your questions have been answered to your satisfaction. Your filling out the survey implies your consent to participate in this study. If these questions are upsetting and you want to talk, please use the phone numbers below:

- Miami University Student Counseling Service 529-4634
- Psychology Clinic Benton Hall 529-2423
- Community Counseling and Crisis Center 523-4146

Thank you,

Rose Marie Ward, PhD & Carmen K. Annis
Principal Investigators

Dr. Rose Marie Ward
Wardrm1@muohio.edu
Primary Investigator
513.529.9355
Miami University
Kinesiology & Health
Phillips Hall, 202P
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and

Carmen K. Annis
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Primary Investigator
Miami University
Kinesiology & Health
Phillips Hall, 205A
Oxford, OH 45056
APPENDIX C: Consent Form – Case Study

Cosmetics Habits of College Women Case Study Consent Form

Dear Participant:
You have been asked to take part in the research project described below. The researcher will explain the project to you in detail. If you have any questions, please feel free to contact Dr. Rose Marie Ward or Carmen Annis, the persons mainly responsible for the study, using the contact information detailed below.

1. **YOU MUST BE AT LEAST 18 YEARS OLD** to be in this research project.
2. If you decide to take part in the case study, your participation will involve several parts that assess your individual cosmetics habits such as how frequently you use cosmetics, read labels of cosmetics, and/or purchase traditional and organic cosmetics. Definitions of the above concepts (i.e., cosmetics, use, and purchase, reading, organic, and traditional) will be provided prior to the start of the survey. In addition, your informed consent for digital recordings of three interview sessions is required. The digital recordings will be held confidential and will only be accessed by the primary investigators. Furthermore, the interviews will be permanently deleted from digital recorder within 60 days after the completion of the study.
3. **Participation in the case study will require you to:**
   a) Complete an online survey that will take approximately 1 hour to complete
   b) Present physically all cosmetics used regularly for primary investigator review
   c) Track your use of cosmetics for two consecutive weeks, which will consist of identifying the cosmetics used, number of applications per day, etc.
   d) Be willing to talk with primary investigators in three 15 to 20 minute sessions (digitally recorded) to obtain an in-depth analysis of information surrounding cosmetics use, purchase, and label reading, in order to determine personal beliefs and attitudes of cosmetics, and organic cosmetics.
   e) Be available to participate in each aspect of the case study (i.e., online survey, presentation of cosmetics, available for three 15-20 minute sessions over the course of 4 weeks, and to keep a two-week log of cosmetics use). Additionally, the information provided in the online survey, cosmetics tracking, and interviews with primary investigators, will be kept confidential and will only be accessed and reviewed by the primary investigators.
4. **The possible risks or discomforts of the study are minimal,** although you may feel some embarrassment answering some of the questions about private matters.
5. **Although there are no direct benefits** of the study, your answers will help increase the knowledge regarding the status of problems in psychology. This case study also entitles you to a $50 gift card to a location of your choice for compensation of your time and travel.
6. **Your part in the study is confidential.** That means your answers to all questions are private. No one other than the primary investigators will be able to identify what your answers are. Scientific reports will be based on group data and will not identify you or any individual as being in this project. You will be assigned a participant number for tracking purposes only.
7. **The decision to participate in this research is up to you.** You do not have to participate and you can refuse to answer any question, and can do so without penalty.

7. **Participation in this study is not expected to be harmful or injurious to you.** However, if this study causes you any injury, you should contact Dr. Rose Marie Ward at (513) 529-9355 or wardrm1@muohio.edu.

8. If you have questions about the study, you can contact the investigators, Dr. Rose Marie Ward, 513-529-9355 or wardrm1@muohio.edu; Carmen K. Annis at annisck@muohio.edu.

If you have any questions or concerns about your rights as a subject, you may contact Miami University’s Office for the Advancement of Research and Scholarship, (513) 529-3600 or humansubjects@muohio.edu.

**You are at least 18 years old. You have read the consent form and your questions have been answered to your satisfaction. Your signing of this form implies your consent to participate in this study.**

Signature: ____________________________________
Print Name: ___________________________________
Date: ________________________________________

If these questions are upsetting and you want to talk, please use the phone numbers below:

- Miami University Student Counseling Service 529-4634
- Psychology Clinic Benton Hall 529-2423
- Community Counseling and Crisis Center 523-4146

Thank you,

Dr. Rose Marie Ward
Wardrm1@muohio.edu
Primary Investigator
513.529.9355
Miami University
Kinesiology & Health
Phillips Hall, 202P
Oxford, OH 45056

and

Carmen K. Annis
annisck@muohio.edu
Primary Investigator
Miami University
Kinesiology & Health
Phillips Hall, 205A
Oxford, OH 45056
Dear Participant:
Thank you for participating in our experiment. You have finished the study. The study in which you have just participated in was designed to examine the attitudes and beliefs about cosmetics. Each of you was asked the same series of questions.

Specifically, we will be examining the readiness of college women to use and purchase organic cosmetics and to read cosmetics labels to determine the pros and cons associated with these behaviors. We hope to use this data to add to the body of literature concerning the use of cosmetics. We are interested in seeing if the decision to use and purchase organic cosmetics and reading cosmetics labels occurs in a stage-like progression that is readily identifiable.

We appreciate your participation in this study.
If you would like more information concerning the theories used in this study, please read:


Participant Debrief Sheet – Case Study

Dear Participant:

Thank you for participating in the Cosmetics Habits of College Women Case Study. Your participation is complete and you have finished the study.

The study in which you have just participated in was designed to examine in depth the attitudes and beliefs about organic cosmetics. Each of you was asked the same series of questions.

Specifically, the study examined the readiness of college women to buy and use organic cosmetics and to read cosmetics labels. Your responses helped identify the pros and cons associated with these behaviors in terms of gains and losses for the self and others. Your responses also helped identify the frequency of use of cosmetics, the types of cosmetics used (i.e., traditional, natural, and/or organic types), and provided data that will fill a gap in the literature on readiness of college women to adopt organic cosmetics behaviors. Furthermore, your interviews will help provide a focused look in to the use of cosmetics and the associated pros and cons.

We hope to use this data to add to the body of literature concerning the use of cosmetics. We are interested in seeing if the decision to adopt organic cosmetics behaviors occurs in a stage-like progression. For example, if you actively think about and/or use organic cosmetics, we hypothesize that you perceive fewer cons with this behavior and that your stage of change position has progressed into the preparation-action stages within the Transtheoretical Model.

We appreciate your participation in this study.

If you would like more information concerning the theories used in this study, please read:


APPENDIX E: Transtheoretical Model Stages of Change

Cosmetics Habits of College Women Stages of Change

Regular Use of Cosmetics Stage of Change. Regular use of cosmetics is defined as “use of any cosmetics 4 or more days a week.” Participants will be asked:
Do you regularly use cosmetics?
A. Yes, and I have been for more than 6 months
B. Yes, and I have been for less than 6 months
C. No, but I am thinking about starting in the next 30 days
D. No, but I am thinking about starting in the next 6 months
E. No, and I do not intend to regularly use cosmetics

Regular Use of Organic Cosmetics Stage of Change. Regular use of organic cosmetics is defined as “use of any organic cosmetics 4 or more days a week.” Participants will be asked:
Do you regularly use organic cosmetics?
F. Yes, and I have been for more than 6 months
G. Yes, and I have been for less than 6 months
H. No, but I am thinking about starting in the next 30 days
I. No, but I am thinking about starting in the next 6 months
J. No, and I do not intend to regularly use organic cosmetics

Regular Purchase of Organic Cosmetics Stage of Change. Regular purchase of cosmetics in this study is defined as the “Purchase of replacements and/or refills of regularly used cosmetics.” Participants will be asked:
Do you regularly purchase organic cosmetics?
A. Yes, and I have been for more than 6 months
B. Yes, and I have been for less than 6 months
C. No, but I am thinking about starting in the next 30 days
D. No, but I am thinking about starting in the next 6 months
E. No, and I do not intend to regularly purchase organic cosmetics

Active Reading of Cosmetics Labels Stage of Change. Active reading of cosmetic labels in this study is defined as “Making an effort to read details listed on cosmetics labels.” Participants will be asked:
Do you regularly read cosmetics labels?
A. Yes, and I have been for more than 6 months
B. Yes, and I have been for less than 6 months
C. No, but I am thinking about starting in the next 30 days
D. No, but I am thinking about starting in the next 6 months
E. No, and I do not intend to regularly read cosmetics labels
APPENDIX F: Decisional Balance Inventory

Cosmetics Habits of College Women Decisional Balance Inventory Measures

Decisional Balance Inventory for Use of Organic Cosmetics

Please rate HOW IMPORTANT each statement is to you in deciding whether or not to Use Organic Cosmetics on the following 5 point scale (5 = Extremely Important and 1 = Not At All Important).

5 = Extremely Important
4 = Very Important
3 = Somewhat important
2 = Very Important
1 = Not At All Important

Pros of Using Organic Cosmetics

Instrumental Gains for Self
1. Using organic cosmetics is beneficial to my health
2. Use of organic cosmetics means my cosmetics contain naturally-derived ingredients

Instrumental Gains for Others
1. People around me think using organic cosmetics is healthy
2. People I know use organic cosmetics

Self-Approval
1. I am more confident when I use organic cosmetics
2. I feel like a leader when using organic cosmetics

Approval from Others
1. People I know like that I use organic cosmetics
2. People I know ask me about my use of organic cosmetics

Cons of Using Organic Cosmetics

Instrumental Losses for Self
1. Using organic cosmetics is expensive due to the individual cost (monetary)
2. I may not find the best organic cosmetic the first time I try a new organic cosmetic

Instrumental Losses for Others
1. People I know think that my use of organic cosmetics is wasteful
2. People I know do not think using organic cosmetics has any health benefits

Self-Disapproval
1. When I am not using organic cosmetics I feel guilty
2. When I am not using organic cosmetics I am less confident in myself

Disapproval from Others
1. People I know disapprove of my use of organic cosmetics
2. My friends think that I am just following a new trend
Decisional Balance Inventory for Purchase of Organic Cosmetics

Please rate HOW IMPORTANT each statement is to you in deciding whether or not to Purchase Organic Cosmetics on the following 5 point scale (5 = Extremely Important and 1 = Not At All Important).

5 = Extremely Important
4 = Very Important
3 = Somewhat important
2 = Very Important
1 = Not At All Important

Pros of Purchasing Organic Cosmetics

Instrumental Gains for Self
1. Purchasing organic cosmetics may cost more money but is better for my health
2. I can find many organic cosmetics for purchase at the local grocery

Instrumental Gains for Others
1. Others I know think that spending more to purchase organic cosmetics is appropriate
2. My friends think that purchasing organic cosmetics means you are getting a superior cosmetic.

Self-Approval
1. I feel happy because I get better quality from purchasing organic cosmetics
2. I am more confident in my purchase when I buy organic cosmetics

Approval from Others
1. My friends approve of purchasing organic cosmetics
2. My friends like to purchase organic cosmetics

Cons of Purchasing Organic Cosmetics

Instrumental Losses for Self
1. Purchasing organic cosmetics is too expensive
2. I have to go out of my way to find organic cosmetics

Instrumental Losses for Others
1. My friends think purchasing organic cosmetics is too expensive
2. My friends think purchasing organic cosmetics is not beneficial to health

Self-Disapproval
1. I feel discouraged when I do not purchase organic cosmetics
2. I feel ashamed that I purchase organic cosmetics

Disapproval from Others
1. My friends are embarrassed that I purchase organic cosmetics
2. My friends disapprove

Decisional Balance Inventory for Reading Cosmetics Labels

Please rate HOW IMPORTANT each statement is to you in deciding whether or not to Read Cosmetics Labels on the following 5 point scale (5 = Extremely Important and 1 = Not At All Important).
5 = Extremely Important
4 = Very Important
3 = Somewhat important
2 = Very Important
1 = Not At All Important

**Pros of Reading Cosmetics Labels**

**Instrumental Gains for Self**
1. Knowing the ingredients in my cosmetics is important to me
2. I know that reading labels keeps me up on latest terminology

**Instrumental Gains for Others**
1. Others I know find reading labels important
2. People I know are keen on reading cosmetics labels

**Self-Approval**
1. I feel confident in my ability to read cosmetic labels
2. I am satisfied when I read cosmetic labels

**Approval from Others**
1. My friends approve of my reading of cosmetic labels
2. My friends like to discuss the benefits of reading cosmetics labels

**Cons of Reading Cosmetics Labels**

**Instrumental Losses for Self**
1. Reading cosmetic labels requires too much extra effort
2. Reading cosmetics labels is sometimes confusing

**Instrumental Losses for Others**
1. My friends think label reading is a waste of time
2. My friends do not shop with me because I read cosmetic labels

**Self-Disapproval**
1. I feel embarrassed that I do not understand all items on a cosmetics label
2. I feel stress when I do not read ingredient labels prior to purchase

**Disapproval from Others**
1. My friends disapprove of my label reading behaviors
2. My friends do not like to discuss my reading of cosmetic labels
APPENDIX G: Cosmetics Habits Survey

Cosmetics Habits Survey (CHS) Items

Cosmetics are defined in this study as “any makeup, face, body, or hair product used to color, cleanse, hydrate, or exfoliate.” Organic is defined in this study as “cosmetics indicating with words or images that the product is organic.” Traditional is defined in this study as “cosmetics that do not indicate with words or images that the product is organic.” Regular use is defined in this study as “Use of any cosmetics 4 or more days a week.”

Participants will be asked to indicate their use of the following products using the below responses:

Yes, I regularly use this cosmetic – it is organic.
Yes, I regularly use this cosmetic – it is traditional
No, I do not regularly use this cosmetic.
I do not know about this cosmetic.

Face Cosmetics
- Face Soap/Cleanser
- Face Lotion/Moisturizer
- Face Toner
- Toothpaste
- Mouthwash
- Teeth Whitening Products
- Acne or Blemish Treatments
- Eye Cream
- Serums (e.g., Anti-Aging, Firming, Lightening)
- Masks, Scrubs, Peels, or Micro-Dermabrasion (not including brushes; e.g., Clarisonic)
- Lip Balm/Chapstick
- Lip Scrub/Exfoliant

Body Cosmetics
- Body Soap/Wash
- Body Scrub
- Body Moisturizer/Lotion
- Shaving Cream
- Perfume, Body Spray
- Hand Sanitizer
- Hand Lotion
- Foot Lotion
- Bubble Bath, Salts, Oils
- Nail Polish, Nail Polish Remover
- Sunscreen
- Tanning Products
- Self-Tanning Products
Hair Cosmetics
- Shampoo
- Conditioner
- Hair Gel, Pomade, Wax, Oil
- Hair Mask, Treatment
- Hair Spray
- Relaxer
- Hair Color

Makeup Cosmetics
- Foundation Primer
- Foundation, Liquid, Cream, Powder
- Concealer or Cover up
- Luminizer, Highlighter
- Bronzer (e.g. warmth)
- Blush
- Finishing, Setting powder (e.g., Mineral Veil)
- Eyebrow powder, pencil, wax, gel
- Eye shadow primer
- Eye shadow
- Eye liner
- Mascara primer
- Mascara
- Lip primer
- Lip liner
- Lipstick
- Lip gloss, Lip Plumper
APPENDIX H: Case Study Interview Guide

Case Study Interview Question Guide

Interview 1
1. Why did participation in this case study interest you?
2. What were the selection criteria for the cosmetics you have brought with you today?
3. How many cosmetics are you wearing today?
4. What has been your overall experience with cosmetics? Has it been positive, neutral, negative?
5. Did you access any outside resources (web, etc.) prior to this meeting to prepare?
6. Do you think you use about the same number of cosmetics as your peers? More, Less?
7. How open are you to changing your cosmetics habits?

Interview 2
Cosmetics
1. Can you define the term “cosmetics” for me?
2. What is the most influential factor in your use of cosmetics?
3. Have you ever been told that you should wear cosmetics? If so, can you tell me about that experience?
4. Do you feel like you have to wear cosmetics?
5. Can you tell me about how cosmetics commercials and ads in magazines make you feel?
6. How much do media representations of female beauty and icons influence your use, or non-use of cosmetics?

Use
7. When you think about the use of cosmetics, how do you define use? Regular use? Possibly in terms of days a week?
8. How many days a week do you wear cosmetics, on average?
9. When you think of the terms “organic,” “natural,” and “traditional,” can you tell me what each mean to you?
10. Do you feel that any of the cosmetics that you use fall into these categories?

Purchase and label reading
11. Do you purchase cosmetics? If so, how frequently? And/or do you receive cosmetics as gifts (e.g., birthday, winter holidays, etc.)?
12. Did your last cosmetic purchase involve a free gift with purchase?
13. Do you purchase cosmetics seasonally as in Spring, Summer, Fall, Winter, or by holiday?
14. Where do you purchase the majority of your cosmetics? Is there a reason you have selected that location?
15. How often would you say that you read the labels of cosmetics? Such as the packaging or ingredients panel?
16. How much do you feel cosmetics packaging influences your preferences?
17. What is your main deciding point when purchasing a cosmetic?

Organic
18. How interested would you be in the use of organic cosmetics as an alternative to your current cosmetics? Can you explain?
19. How about organic food, do you place value on and/or purchase organic food?
20. Do you feel that organic cosmetics are better option than traditional cosmetics?
21. How likely would you be to purchase organic cosmetics if your friends did?
22. How likely would you be to purchase organic cosmetics if it were seen on TV or in a magazine?
23. Do you ever question the safety of your personal care or cosmetic products?

**Interview 3**

1. Can you tell me if there is anything within the college setting has influenced your experiences and shaped your behaviors with regard to your use, purchase, and label reading habits?
2. Do you feel that being in the college setting has increased or decreased your use of cosmetics?
3. Prior to this study, how much do you felt you knew about cosmetics, and organic cosmetics? Do you feel that you know any more than you did before? What has changed (if anything)?

**Cosmetics Tracking Log**

4. Now that you have taken the Cosmetics Habits of College Women Online Survey, and completed week 2 of your cosmetics tracking, please tell me about your experience.
5. Can you tell me about the differences in your cosmetics use from week 1 to week 2 and why the numbers may (or may not) have changed?
6. Can you tell me how your views about cosmetics have changed, or not changed?
7. Do you feel that you learned something from this study? If so, can you explain?
8. Are there other products that you use regularly, that were not brought in during the first meeting that you now feel are considered to be cosmetics?
9. Your week 1 cosmetics tracking log was different than your week 2 log. What were the reasons for the differences?
10. How much would you say that being aware of other types and forms of cosmetics will influence your future behaviors (in terms of organic cosmetics, how much you use, purchase, and will you begin to read cosmetics labels)?
11. Can you tell me about how you might go about your next cosmetics purchase? What would you do/not do?
12. Do you feel that after tracking your cosmetics use that you will increase or decrease your use of cosmetics? If so, can you explain?

**Future Cosmetics Behaviors**

13. Please tell me how you feel about organic cosmetics and whether or not you feel you will consider looking into organic cosmetics as an alternative to your current cosmetics.
14. How ready do you think that you are to regularly use Organic Cosmetics? What are the pros/cons?
   a. I have been using organic cosmetics for more than 6 months
   b. I have been using organic cosmetics for less than 6 months
   c. I am thinking about starting to use organic cosmetics in the next 30 days
   d. I am thinking about starting to use organic cosmetics in the next 6 months
   e. I do not intend to regularly use organic cosmetics
15. How ready do you think that you are to Purchase Organic Cosmetics? What are the pros/cons?
a. I have been purchasing organic cosmetics for more than 6 months
b. I have been purchasing organic cosmetics for less than 6 months
c. I am thinking about starting to purchase organic cosmetics in the next 30 days
d. I am thinking about starting to purchase organic cosmetics in the next 6 months
e. I do not intend to regularly purchase organic cosmetics
16. How ready do you think that you are to Read Cosmetics Labels? What are the pros/cons?
   a. I have been reading cosmetics labels for more than 6 months
   b. I have been reading cosmetics labels for less than 6 months
   c. I am thinking about starting to reading cosmetics labels in the next 30 days
   d. I am thinking about starting to reading cosmetics labels in the next 6 months
   e. I do not intend to read cosmetics labels

Future Directions:
17. For a future study on cosmetics habits of college women, what do you feel should have been included in the study that was not?
18. What would you change?
19. What did you like?
APPENDIX I: Consumer Susceptibility to Interpersonal Influence Scale

Consumer Susceptibility to Interpersonal Influence Scale (Bearden, Netemeyer, & Teel, 1989)

Consumer Susceptibility to Interpersonal Influence is a 12-item scale developed by Bearden, Netemeyer, & Teel (1989) that determines the degree to which a person expresses the desire to conform to others’ expectations with regard to a purchase decision. The construct is fully defined as “the need to identify with or enhance one’s image in the opinion of significant others through the acquisition and use of products and brands, the willingness to conform to the expectations of others regarding purchase decisions and/or the tendency to learn about products and services by observing others or seeking information from others” (Bearden & Netemeyer, 1999, p. 104). Consumer susceptibility varies among individuals in terms of making purchases to enhance self-image and is related to the opinions of others thus forming normative and informational beliefs about a purchase decision (Bearden, Netemeyer, & Teel, 1989). The normative and informational items are based upon a 7-point scale (7 = Strongly Agree to Strongly Disagree = 1). This scale has shown reliability and validity across students and non-students with validity ranging from .75 to .82 and .75 to .88 for informational and normative items, respectively (Bearden, Netemeyer, & Teel, 1989; 1990).

**Consumer Susceptibility to Interpersonal Influence Scale**

<table>
<thead>
<tr>
<th>Normative Items</th>
<th>Item Number</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>5</td>
<td>I rarely purchase the latest fashion styles until I am sure my friends approve of them.</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>It is important that others like the products and brands I buy.</td>
</tr>
<tr>
<td>5</td>
<td>8</td>
<td>When buying products, I generally purchase those brands that I think others will approve of.</td>
</tr>
<tr>
<td>5</td>
<td>11</td>
<td>If other people can see me using a product, I often purchase the brand they expect me to buy.</td>
</tr>
<tr>
<td>5</td>
<td>9</td>
<td>I like to know what brands and products make good impressions on others.</td>
</tr>
<tr>
<td>5</td>
<td>12</td>
<td>I achieve a sense of belonging by purchasing the same products and brands that others purchase.</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>If I want to be like someone, I often try to buy the same brands that they buy.</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>I often identify with other people by purchasing the same products and brands they purchase.</td>
</tr>
</tbody>
</table>

135
<table>
<thead>
<tr>
<th>Informational Items</th>
<th>Item Number</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>To make sure I buy the right product or brand, I often observe what others are buying and using.</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>If I have little experience with a product, I often ask my friends about the product.</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>I often consult other people to help choose the best alternative available from a product class.</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>I frequently gather information from friends or family about a product before I buy.</td>
</tr>
</tbody>
</table>
APPENDIX J: Hedonic and Utilitarian Consumer Attitudes Scale

Hedonic and Utilitarian Consumer Attitudes (Batra & Ahtola, 1991)

The Hedonic and Utilitarian Consumer Attitudes scale is an 8-item scale developed by Batra and Ahtola (1991) to determine hedonic and utilitarian evaluations of consumer products. The utilitarian evaluation takes into account the perceived benefits and consequences of product usage; the hedonic evaluation looks at the perceived emotional aspects associated with product usage (Batra & Ahtola, 1991). The scale items are measured on a 7-point scale and can be summed within each evaluation category to achieve individual hedonic and utilitarian scores. The scales have been shown to have internal validity across several studies; achieving alphas of .75 to .85 to .80 to .85 for utilitarian and hedonic items, respectively, with supporting predictive validity evidence for attitudes in structural equation models (Batra & Ahtola, 1991; Crowley, Spangenberg, & Hughes, 1992).

Hedonic and Utilitarian Consumer Attitudes

<table>
<thead>
<tr>
<th>Hedonic Items</th>
<th>Utilitarian Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pleasant—Unpleasant</td>
<td>Useful—Useless</td>
</tr>
<tr>
<td>Nice—Awful</td>
<td>Valuable—Worthless</td>
</tr>
<tr>
<td>Agreeable—Disagreeable</td>
<td>Beneficial—Harmful</td>
</tr>
<tr>
<td>Happy—Sad</td>
<td>Wise—Foolish</td>
</tr>
</tbody>
</table>
Bibliography


Table 1: Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
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<tbody>
<tr>
<td>A</td>
<td>Action Stage of TTM</td>
</tr>
<tr>
<td>ACS</td>
<td>American Cancer Society</td>
</tr>
<tr>
<td>AMS</td>
<td>Agricultural Marketing Service</td>
</tr>
<tr>
<td>ATDSR</td>
<td>Agency for Toxic Substances and Disease Registry</td>
</tr>
<tr>
<td>C</td>
<td>Contemplation Stage of TTM</td>
</tr>
<tr>
<td>CCC</td>
<td>Consumer Commitment Code Program</td>
</tr>
<tr>
<td>CDC</td>
<td>The Centers for Disease Control and Prevention</td>
</tr>
<tr>
<td>CFSAN</td>
<td>The Center for Food Safety and Applied Nutrition</td>
</tr>
<tr>
<td>CHS</td>
<td>Cosmetics Habits of College Women Survey</td>
</tr>
<tr>
<td>CIR Panel</td>
<td>Cosmetic Ingredient Review Panel</td>
</tr>
<tr>
<td>CPIS</td>
<td>Cosmetic Product Ingredient Statement</td>
</tr>
<tr>
<td>ECHA</td>
<td>European Chemicals Agency</td>
</tr>
<tr>
<td>ECOCERT</td>
<td>ECOCERT Organic Certification Organization</td>
</tr>
<tr>
<td>EWG</td>
<td>The Environmental Working Group</td>
</tr>
<tr>
<td>FD&amp;C Act</td>
<td>Federal Food, Drug, and Cosmetic Act</td>
</tr>
<tr>
<td>FD&amp;C Act, 1906</td>
<td>The Pure Food and Drug Act, The Wiley, or The Heyburn Act</td>
</tr>
<tr>
<td>FD&amp;C Act, 1938</td>
<td>The Copeland Act</td>
</tr>
<tr>
<td>FDA</td>
<td>U.S. Food and Drug Administration</td>
</tr>
<tr>
<td>FPLA</td>
<td>The Fair Packaging and Labeling Act</td>
</tr>
<tr>
<td>GMP</td>
<td>Good Manufacturing Practice</td>
</tr>
<tr>
<td>INSA</td>
<td>In Vivo Skin Analysis</td>
</tr>
<tr>
<td>M</td>
<td>Maintenance Stage of TTM</td>
</tr>
<tr>
<td>NOP</td>
<td>National Organic Program</td>
</tr>
<tr>
<td>NOSB</td>
<td>National Organic Standards Board</td>
</tr>
<tr>
<td>OFPA</td>
<td>Organic Foods Protection Act</td>
</tr>
<tr>
<td>OTA</td>
<td>Organic Trade Association</td>
</tr>
<tr>
<td>OTC</td>
<td>Over the Counter</td>
</tr>
<tr>
<td>PR</td>
<td>Preparation Stage of TTM</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Meaning</td>
</tr>
<tr>
<td>--------------</td>
<td>---------</td>
</tr>
<tr>
<td>PC</td>
<td>Precontemplation Stage of TTM</td>
</tr>
<tr>
<td>PCP</td>
<td>Personal Care Product</td>
</tr>
<tr>
<td>PCPC</td>
<td>Personal Care Products Council</td>
</tr>
<tr>
<td>QAI</td>
<td>Quality Assurance International</td>
</tr>
<tr>
<td>REACH</td>
<td>Registration, Evaluation, Authorization and Restriction of Chemicals</td>
</tr>
<tr>
<td>SOC</td>
<td>Stages of Change</td>
</tr>
<tr>
<td>TTM</td>
<td>Transtheoretical Model</td>
</tr>
<tr>
<td>USDA</td>
<td>U.S. Department of Agriculture</td>
</tr>
<tr>
<td>USDHHS</td>
<td>U.S. Department of Health and Human Services</td>
</tr>
<tr>
<td>VCRP</td>
<td>Voluntary Cosmetic Registration Program</td>
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### Table 2: Abbreviated Operational Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition in current study</th>
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<tbody>
<tr>
<td>Cosmetics</td>
<td>Any makeup, face, body, or hair products used to color, cleanse, hydrate, or exfoliate</td>
</tr>
<tr>
<td>Organic</td>
<td>Cosmetics indicating with words or images that the product is organic</td>
</tr>
<tr>
<td>Traditional</td>
<td>Cosmetics that do not indicate with words or images that the product is organic</td>
</tr>
<tr>
<td><em>Natural</em></td>
<td>*refer to the definition of traditional cosmetics</td>
</tr>
<tr>
<td><strong>Term</strong></td>
<td><strong>Behavior Definition in current study</strong></td>
</tr>
<tr>
<td>Regular Use</td>
<td>Use of any cosmetics 4 or more days a week</td>
</tr>
<tr>
<td>Regular Purchase</td>
<td>Purchase of replacements and/or refills of regularly used cosmetics</td>
</tr>
<tr>
<td>Active Reading</td>
<td>Making an effort to read details listed on cosmetics labels</td>
</tr>
</tbody>
</table>