Environmental Indicators of Primary Care Waiting Areas:

Perceptions of Young Adults

by

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ABSTRACT

A growing body of research shows that characteristics of the built environment in healthcare facilities impact patients' well-being. Research findings suggest that patients form judgments of perceived quality care based on environmental characteristics. Patient outcomes and ratings of quality of care are linked to the environments' ability to reduce patient stress as well as influence perceptions of quality of care.

Historically, this research has been focused in the hospital environment. The United States healthcare system heavily relies on hospitals to treat (rather than prevent) illness, leading to a high per capita healthcare expenditure. Currently, this healthcare system is shifting to rely heavily on ambulatory care settings and primary care providers to detect, prevent, and manage expensive medical conditions.

The highest rates of preventable disease and the lowest rates of primary care usage are found in the young adult population (ages 18 to 24). More than any other patient population, this segment rates their satisfaction with healthcare significantly low. For this population education, early detection, and monitoring will be key for a primary care focused model to have the greatest impact on care and long-term savings. Strong patient-physician connections ensure the success of a primary care focused model.

The physical environment has the opportunity to provide a message consistent with a physician's practice values and goals. Environmental cues in the waiting area have the potential to relay these messages to the patient prior to physician contact. Through an understanding and optimization of these cues patient perception of quality of care may be increased, thus

improving the patient-physician relationship. This study provides insight on how to optimize environmental impact on the healthcare experience.

This descriptive exploratory study utilized a non-verbal self-report instrument to collect demographic information and measure participant's responses to two panoramic photos of primary care provider waiting areas. Respondents were asked to identify physical elements in the photos that contributed to their perceptions of the quality of care to be expected.

The sample population consisted of 33, 18 to 24 year-olds leaving a total of 234 emotional markers and comments. Qualitative and quantitative revealed three key themes of appeal, comfort, and regard. Physical elements, in the photos, related to the themes include: General areas that were important to the respondents were the seating and reception areas, as well as the overall appearance of the waiting area.

Key elements identified to be significant characteristics influencing perceptions of quality of care are presented in this study.

DEDICATION

Life gets in the way of your expectations, so I would like to thank the people who put their expectations aside to help me through this process. Thank you to Joe and my Parents for your love and support through all of my educational endeavors. Thank you to Lincoln for showing me what life is all about. This work is dedicated to all of you.

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Chapter 1

INTRODUCTION

1.1 Introduction

This study examines the relationship between young adults and their perceptions of primary care waiting area photos. This research acknowledges that healthcare consumers are informed about the care they will receive based on perceptions of the physical environment they encounter during the care process. Historically, the young adult population rates their satisfaction with healthcare poorly, so understanding what elements they see as indicators of expected quality of care of in primary care waiting areas may result in environments better that address young adult concerns.

1.2 Statement of the Problem

Quality is an important issue for consumers of healthcare today. In 2001 the Institute of Medicine (IOM) conducted a review of the overall quality of the U.S. healthcare system. Their report "Crossing the Quality Chasm: A New Health System for the 21st Century." described six elements essential to deliver high-quality healthcare. One of the six elements offered was the concept of patient-centered care – the idea that a positive healthcare experience must take into consideration what is meaningful and valuable to each individual patient, in order to deliver the best outcomes.

Research shows that patient-centeredness – concern and attention to the care experience – can improve a patient's overall health status by positively influencing the relationship between care providers and patients (Drain, 2001). Attention to patient values and preferences can be measured through what is known as perceived quality of care. Arenil and Devlin (2002)

characterize perceived quality of care by the amount of empathy, warmth, and friendliness a patient experiences during their medical care. Providing an environment that addresses patient values and preferences is important when delivering high-quality healthcare which results in the best possible outcomes.

It is widely accepted that the built environment of healthcare facilities has an impact on patient perceptions of quality of care (Ulrich & Zimring, 2004). The majority of research in this area has focused on geriatric and or pediatric patient populations in hospital and in-patient environments (Arneil & Devlin, 2002; Becker & Douglass, 2008; Devlin, 2008; Fottler, Ford, Roberts, Ford, & Spears, 2000; Leddy, Kaldenberg, & Becker, 2003; Rice, Ingram, & Mizan, 2008).

One understudied population, to which high-quality healthcare and patient-provider relationships are very important, is that of young adults and ambulatory care. Young adults (ages 18-24) have the highest rates of preventable diseases and yet they have lowest rates of ambulatory care utilization (Fortuna, Robbins, & Halterman, 2009). Research suggests that young adults – a group for whom primary care services like prevention and health promotion are particularly important – rarely use ambulatory care services, and when they do their satisfaction of care is low (Campbell, Ramsay & Green, 2001; Drain, 2001; Rahmqvist, 2001; Tsai, Wang, Liao, Lu, Sun & Lin, 2007).

Primary care providers (PCPs) offer ambulatory care services that include: advising on preventative care measures, urging patients to comply with behavioral recommendations, and treatment regimens that help prevent and control diseases and their consequences (Bernstein, Hing, Moss, Allen, Siller & Tiggle, 2003). To date, there is a lack of research examining how the

built environment may affect young adult perceptions of ambulatory care services.

An unavoidable part of most PCP care experiences is that of waiting. Although the waiting area may seem like a transitory environment, this is typically where the most time is spent during a patient's visit (Leddy et al., 2003). The waiting area is also the first experience a patient has with the values of a healthcare provider. According to Goffman's (1959) interactionist theory, individuals use visual cues to form expectations and predict or assume certain behavior from its inhabitants. Those that own and inhabit a built environment "select and craft physical environments that reflect and reinforce who they are" (Gosling, Ko, Mannarelli, & Morris, 2002, p.379). Since humans infer personal characteristics of others based on what they see in an environment, the waiting area is an important space one looks to for messages about an approaching care experience.

Understanding what may affect young adult patients' perceptions about the quality of care they receive, based on their experience in the waiting area, is an important part of developing, sustaining, and improving a patient-provider relationship as well as enhancing overall patient-centeredness for this population.

1.3 Purpose of the Study

An extensive review of research reveals that there have been no studies identifying how physical elements in physician waiting areas influence how young adults rate perceptions of quality of care. The focus of this research is to understand what physical elements in primary care provider waiting areas may be associated with perceptions of quality of care among young adults.

Understanding what physical elements might influence perceptions of quality of care for young adults may help provide environments that are more effective in promoting a message of health promotion and continuity of care to the young adult population and others.

1.4 Research Questions

The overall aim of the study is to discover which physical elements in primary care waiting areas are associated with perceptions of quality of care for young adult respondents. The following research questions guide this research:

1. Which physical elements in primary care waiting areas are seen as indicators of expected quality of care for young adults?

2. Among the physical elements of primary care waiting areas that are seen as indicators of expected quality of care for young adults, what are the reasons for perceiving them this way?

3. Is there a relationship between demographic characteristics of gender, age, and ethnicity, and the elements respondents see as indicators of expected quality of care of in primary care waiting areas?

1.5 Definition of Terms

Terms defined in this section are those included in the research questions and significance of the study.

Ambulatory care: All types of health services that are provided on an outpatient basis, in contrast to services provided in the home or to persons who are inpatients. Although many inpatients may be ambulatory, the term "ambulatory care" usually implies that the patient must travel to a location to

receive services that do not require an overnight stay (Bernstein et al., 2003).

Built Environment: "Everything humanly made, arranged or maintained; to fulfill human purposes (needs, wants, and values); to mediate the overall environment; with results that affect the environmental context" (McClure & Bartuska, 2006, p. 5)

Healthscapes: "The emotional, affective, cognitive, and physiological influence on patient consumer and staff – provider behaviors and outcomes caused by elements of the service encounter" (Hutton & Richardson, 1995, p. 53).

Continuity of care: when a patient "has a regular source of care and sees the same provider" (Health Services Research Group, 1992, p. 1728).

Patient centered-care: Outlined by the IOM, it is based on respect for patients as unique living beings, with an obligation to care for them on their own terms, not the terms of the provider; patients should be known in context of their own social worlds, listened to, informed, and respected as such (Epstein & Street, 2011).

Perceived quality of care: The studies on perceived quality of care suggest that patient-perceived quality of care is heavily defined by the amount of empathy, warmth, and friendliness that the patient experiences (Arneil & Devlin, 2002).

Preventative care: is a pattern of medical care that focuses on disease prevention and health maintenance. It includes early diagnosis of disease, discovery and identification of people at risk of development of specific problems, counseling, and other necessary intervention to prevent future health problems. Screening tests, health education, and immunization

programs are some examples of preventive care (Mosby's Medical Dictionary, 2009).

Physical elements: Physical environmental stimuli that are part of the environment and can be classified as ambient, architectural or interior design features that are stimulus objects and not interactional, which "influence patients through mediation by psychological processes" (Dijkstra, Pieterse, Pruyn, 2006, p. 168).

Primary care providers: According to the Institute of Medicine, primary care is defined as "the provision of integrated, accessible, health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of the family and the community" (Institute of Medicine, 1996).

Servicescape: The physical environment, including the ambiance and physical environment that creates an image of a service setting and influences behaviors. (Bitner, 1992).

Service Environment: refers to the physical facility in which services take place (Wall & Berry, 2007).

Services marketing: A large body of research in services marketing has focused on customers' perceptions of service quality and their resulting satisfaction with the primary services rendered (for example, whether a bank transaction was handled properly, whether a package was delivered on time, etc.) (Wakefield & Blodgett, 1994).

Waiting area: is the physical location where part of a healthcare service is delivered, perceived, and where staff and patients interact (Bitner, 1992).

Young adults: are defined as people between 18 and 24 years of age. This specific age grouping (18 to 24) is a common age range used by many researchers including the National Center for Health Statistics (MacKay & Duran, 2007).

1.6 Research Methodology

This is a descriptive exploratory study utilizing a self-report instrument to measure participant's responses to 2 panoramic photos of PCP waiting areas. Findings are qualitatively and quantitatively evaluated to determine which elements young adult respondents identified to be important characteristics influencing perceptions of quality of care.

1.7 Significance of Study

Perceptions of the quality of healthcare services may have serious and long-lasting implications on a patient's health outcomes. Perceptions of a high quality of care experience have been shown to result in patients being more likely to show physician loyalty, keep appointments, comply with treatment, and refer other patients to their physician (as cited by Becker, Sweeney, & Parsons, 2008; Drain, 2001; Health Services Research Group, 1992; Marberry, 2006; & Oermann, 2003). A patient's experience with their (PCP) may be one of the most important patient-provider relationships, because PCPs are responsible for providing disease prevention information, treatment, diagnosis, and chronic care management throughout a patient's life.

1.8 Conclusion

Future healthcare legislation and evolving healthcare models provide a need to understand how patients' perceptions of primary care environments inform their perceptions of quality of care. For the young adult population, PCP waiting areas are just one factor in their care experience; however this

environment has the ability to inform their satisfaction and perceptions of quality of care overall. An understating of the relationship between young adults and PCP waiting areas may provide clues as to why this population rates their care experiences so low, as well as provide ideas as to how the waiting environment might be used to strengthen provider-patient relationship in the future.

Chapter 2

REVIEW OF LITERATURE

2.1 Introduction

The purpose of this study is to understand what physical elements in primary care waiting areas are seen as indicators of perceived quality of care for young adults. An extensive review of literature has generated a look into several areas of research examining the connection between how humans understand the built environment and how this relates to perceived quality of healthcare services. The following sections will present related literature and studies and include a description of the target population; the importance of healthcare to the young adult population; the importance of primary care to young adults, how perceptions of quality care inform care experiences, and how the environment affects perceptions of quality. A review of existing theoretical concepts, rooted in various disciplines, will first provide a conceptual orientation for this study.

2.2.1 Theoretical Perspectives

Research has shown that the physical environment can affect the perceptions of those who occupy them (Arneil & Devlin, 2002; Devlin, 2008; Gosling et al., 2002). The waiting area has the potential to serve as a mode of symbolic communication, influencing patients' perceptions of quality of care. Previous research and the resulting theories, help us to understand impression management and processing, as well as how environmental features can be controlled to direct certain impressions. The following is a review of the theoretical concepts guiding this research. The current research draws concepts from Goffman's Dramaturgical Approach and from Services

Marketing to further understand how humans form impressions of care based on their evaluation of environmental features.

2.2.2 Goffman's Dramaturgical Approach

Goffman investigated face-to-face interaction from the sociological perspective in The Presentation of Self in Everyday Life (1959). He explored how people construct, through their performances and impression management, the effect they want to have on others. He explained human social interaction in terms of a theatrical performance. This "dramaturgical view" includes a "stage, a setting, props and cues" (Rapoport, 1990, p.62). When an individual interacts with others, the individual will attempt to control the impression that others have of him/her. This is done by changing or fixing his/her setting, appearance or manner; Goffman saw this as acting. While the "actor" is acting, the observer or audience is collecting and processing information about the actor and forming impressions (Goffman, 1959, p. 2).

The term *front stage* is used to describe the setting in which actors perform for an audience. *Backstage*, is where the actors do not feel the need to perform; it is a private space where one may remove their mask or costume. Expanding on these terms, for the purposes of the current study, any areas that have the capacity to be occupied by the patient and staff at the same time, is considered front stage. Backstage areas include private offices and any private staff rooms, for example a break room.

Applying Goffman's theoretical concepts to this study, the waiting area is considered to be the front stage of a primary care office: an environment that serves as the setting or the stage in which patients and staff interact. The waiting area can be considered as the location for the opening act, where

the setting, props, and cues are managed by staff, and where patients form their first impressions about a practice and the people within it.

The environment has the potential to reinforce a desired message about a medical practice. According to Gosing et al. (2002):

> In addition to reinforcing their own self-views, occupants can display symbols that have shared meanings to make statements to others about how they would like to be regarded (Baumeister, 1982; Goffman, 1959; Swann, 1987; Swann, Rentfrow, & Guinn, 2003). By displaying certain symbols occupants may be intentionally communicating their attitudes and values to others. These statements might be sincere and intended to convey truthful message about what the individual is really like, but they may also be strategic, even deceptive statements intended to portray the individual in a certain light. (p. 380-381)

Environmental features in the waiting area have the potential to serve as a form of symbolic communication for the patient; communicating the attitudes and values of a practice, and setting the stage for future interactions.

2.2.3 Brunswik's Lens Model

Gosling et al. (2002) refer to Brunswik's (1956) lens model to extend Goffman's (1956) theory to the role of physical characteristics in impression management. Gosling et al. (2002) looked at "the extent to which observers use physical characteristics of a room to make inferences about occupants' personalities," as well as "the extent to which the physical characteristics of the rooms were related to what occupants are really like" (p. 386). Gosling et al. (2002) explain that environmental features and spatial elements serve as lenses through which observers perceive characteristics and make inferences

about the inhabitants of the space. Their findings suggest that "an observer who has briefly examined an individual's living or working environment will form impressions that are remarkably consistent with other observers' impressions" (Gosling et al. 2002, p. 393). Furthermore, their findings suggest that the observers' impressions are repeatedly consistent.

Brunswik's lens model was also used by Verhoeven, Van Rompay and Pruyn (2007) to examine how patients make inferences about the likeability and skill of their doctors. According to their study, patients infer the likeability and skills of their doctors based on the physical objects in their doctor's office to assume underlying constructs such as the doctor's interests, personality, and values. According to Brunswik's framework, spatial elements serve as lenses for patients, providing them the ability to make (conscious and unconscious) inferences about those that occupy the setting. The environment allows patients to create preconceived ideas about the service that will be provided to them.

Verhoeven et al.'s 2007 findings were similar to those from a study done by Arneil and Devlin (2002) on perceived quality of care and the influence of the waiting room. Their research looked at the impact of the physical environment on patients' perceived quality of care prior to any interaction with staff. According to their research, the environment plays an important role in conveying empathy, warmth, and friendliness before there is any interaction with staff. They explained that when patients perceive that a provider has put time, thought, and care into the waiting area, it might be assumed that the provider will put the same amount of effort into care experience. Their article points out that various populations in the waiting area will have different needs, which must be taken in to account and further

examined. The current research is informed by Arneil and Devlin's suggestion, and examines perceived quality of care among the young adult population.

The current study assumes that patients' perceptions of care affect their satisfaction and decisions to return to a primary care provider (Drain, 2002), which has a long-term impact on health outcomes. For young adults, primary care is, and will continue to be, particularly important (for reasons to be discussed in Section 2.3). Before describing the target population of this study, a discussion of *Services Marketing* research is in order to aid in a better understanding of how humans process environmental cues and features into perceptions of quality and care.

2.2.4 Healthcare and Services Marketing

It may seem that Services Marketing has little to do with healthcare; however, several studies argue that the healthcare system is in fact a service industry (Berry & Bendapudi, 2002, 2007; Bitner, 1992; Drain, 2001; Hutton & Richardson, 1995; Woodside, Frey, & Daly, 1989). When one considers a provider-patient relationship as that of a business and customer, service marketing theories can be applied to the healthcare realm. Strategies that encourage long-term customer loyalty are comparative to strategies in creating long-term provider-patient relationships. In the same way it is possible for a business to set the stage and encourage a repeat customer; it is possible for a provider to set the stage to encourage patients to return to their care.

Services Marketing has a long history of exploring how humans process environmental cues and features, and consumer perceptions, in what is known as the "service environment" (Compeau, Grewal, & Monroe, 1998; Grewal, Monroe, & Krishnan, 1998; Zeithaml, 1988) as cited by Verhoeven

(2009). The term *service environment* refers to the physical facility in which services take place (Wall & Berry, 2007). Services Marketing research has much in common with the work of Goffman and Brunswik, in particular that the built environment affects the behavior of inhabitants. The Services Marketing research presented in this literature review expands on Goffman and Brunswik's work, and applies marketing terms to these ideas. The presentation of this work will assist in further understanding the patient as a consumer, as well as how perceptions of the waiting area may influence perceptions of quality of care.

2.2.5 Atmospherics, Servicescapes, and Healthscapes

Philip Kotler's theory of "atmospherics" (1974) suggested that atmospheric factors impact internal behaviors that in turn shape customer decisions. Bitner's (1990) research on "Servicescapes" explored the ability of the physical environment to facilitate the achievement of organization and marketing goals. Hutton and Richardson (1995) applied both Kotler's and Bitner's ideas to the field of healthcare and produced the "healthscapes" framework. The healthscapes framework was intended to be applied to research on the built environment and its effects on patient and staff satisfaction. To further understand the theories behind healthscapes, an understanding of atmospherics and Servicescapes, and how they relate to this study, is in order.

Atmospherics refer to how the physical and controllable components of an environment affect a buyer's "purchasing propensity" (Kotler, 1974). Kotler defined atmospherics as "the conscious designing of space to create certain effects in buyers" (Kotler, 1974, p. 50). Atmospherics involve and encompass the cognitive, emotional, and physiological influences on

customers (Hutton & Richardson, 1995). Marketing research points out that the use of atmospherics can lead to customer satisfaction and patronage (Bitner, 1992). Kotler's concept makes it clear that the environment can lead to "customer, satisfaction, patronage and advertising via word of-mouth" (Tsai et al., 2007, p. 2).

Bitner expanded upon Kotler's ideas in her research examining how the built environment influences Services Marketing. Bitner coined the term Servicescapes as "the ability of the physical environment to influence behaviors and to create an image" (Bitner, 1992, p. 57). Bitner's work also maintained that the physical environment influences customer responses. Her framework explained how the environment affects consumer behaviors and creates an image of the service provider.

Using the theories and reasoning of Kotler and Bitner (1992), Hutton and Richardson (1995) concur that the environment and consumer perception and satisfaction are linked. They define healthscapes as "the emotional, affective, cognitive, and physiological influence on patient – consumer and staff – provider behaviors and outcomes caused by elements of the physical health care environment, including the facility and tangible elements of the service encounter," and they argue that marketing "should play a key role in the design and management of the (physical) tangible healthcare environment" (p. 53).

Hutton and Richardson's (1995) work identified eleven propositions for healthscapes that are explained using the context of marketing. The following five propositions were found to be relevant to the current research, and are utilized as conceptual guides:

P1: Healthscapes, which is controllable, influences and affects human behavior, therefore, purchaser behavior.

P2: If a patient perceives the healthscapes of a health care facility more favorably, then he or she is more likely to be satisfied (make an assessment of "quality") with the encounter, or better healthscapes leads to improved customer satisfaction/quality assessment in the health care service encounter.

P3: Patients who are "dissatisfied" with a facility are more likely to show behavioral intentions to switch than patients who are "satisfied" with a facility.

P4: Patients who are satisfied with the healthscapes of a facility are more likely to patronize the facility than a facility with less pleasing healthscapes.

P10: Health care facilities designed in line with the environmental dispositions of the target customer/patient group are more likely to produce satisfaction and positive assessments of quality than otherwise. (p. 54-57)

Hutton and Richardson (1995) use the term "*preattitude*" to explain service expectations (p. 56). Preattitude influences perceptions and expectations of quality of care. The purpose of the current study is to get a glimpse of environmental dispositions among the young adult population, in relation to the waiting room environment.

For the current research, it is important to understand that the environment of a provider's waiting area can have an effect on a patient's cognitive, emotional, and physiological state, which may impact physical and social interactions within the environment. A patient's actions are based on

their perceived quality of care, by the image they form of their provider, and by their own personal dispositions. These interactions contribute to patient satisfaction, adherence to care recommendations, and decisions to return to that provider for future care all of which affects health outcomes (Swann et al., 2006).

2.2.6 Environmental Dimensions

To further examine how consumers interact with the space, Bitner (1992) provides a breakdown of environmental dimensions in the Servicescape. They include: ambient conditions; spatial layout and functionality; and signs, symbols and artifacts. Ambient conditions impact hearing, sight, and smell, as well as ergonomic factors such as temperature, humidity, air quality, sounds, physical comfort, and light (Ford & Heaton, 2000, p. 91). Spatial layout and functionality pertain to equipment, furnishings, and interior space planning. Signs, symbols and artifacts can be either explicit or implicit. Signs serve as labels for directional purposes; they communicate rules of behavior, and/or may also communicate the image of a business (Bitner, 1992).

Every organization will have its own unique service environment that symbolically communicates their values. Patient perceived environmental dimensions give rise to a holistic image that shapes the experiences one has within the entire care experience as well as future interactions with the healthcare system. Bitner suggested that "relevant dimensions of the servicescape can be isolated and general patterns can be explored" (Bitner, 1992, p. 65). The current study is concerned with symbols and artifacts found in the waiting areas of primary care providers. It explores the symbolic meaning and aesthetic impressions of the young adult population, and how

this population's dispositions contribute to their environmental inferences and inform their perceptions of expected quality of care. Bitner describes symbols and artifacts as follows:

> Other environmental objects may communicate less directly than signs, giving implicit cues to users about the meaning of the place and norms and expectations for behavior in the place. Quality of materials used in construction, artwork, presence of certificates and photographs on walls, floor coverings, and personal objects displayed in the environment can all communicate symbolic meaning and create an overall aesthetic impression. (p.66)

"Each customer's reaction to the perceived servicescape is affected or "moderated" by the customer's mood, personality, expectations and demographic characteristics" (Fottler et al., 2000, p. 97).

2.3.1 The Young Adult Population and Healthcare

Between the ages of 18 to 24 years, a complex shift from childhood to adulthood takes place. Humans transition from the constant care and guidance of parental figures to having the freedom to take care of themselves. By the age of 18, if not sooner, young adults have also typically stopped seeing their childhood pediatrician. Unfortunately, many young adults do not immediately find another primary care provider. This is a matter for concern because many physical, cognitive, and emotional changes occur during this age, thus it is a time when many health problems first emerge. This period is also where many life-long patterns develop that may have long-term effects on health and overall quality of life (MacKay & Duran, 2007).

Many between the ages of 18 and 24 are at a lesser risk of illness than the very young or the very old. However, a rapidly increasing percentage of

this population is overweight;exposing them to a premature risk of chronic health conditions (Morrell & Burke, 2007). Fortuna, et al. (2009) note that young adults have a mortality rate that is twice that of adolescents. They also report that young adults face similar healthcare challenges to adolescents, but, historically, young adults have fewer resources available to them (2009).

Access to care is an important issue for young adults. Currently there are over 7.5 million uninsured young adults between the ages of 18-26, and it is reported that 25% of this population does not visit a doctor due to a lack of health insurance (Collins, Garber, & Robertson, 2011). The Affordable Care Act will change this by mandating that all Americans have access to quality, affordable healthcare. By 2014, when the central provisions of the law are scheduled to go into effect, most of the young adult population will gain insurance coverage (Collins et al., 2011).

The current study does not focus on access; however, access to care does add to the relevance of this research. As new healthcare legislation is put in place, providers will see a surge of young adults entering into their practices. Strategies that appeal to this generation will need to be explored and implemented to get this population in the door and keep them coming back. "[Physicians] will have to pay attention to patient experience more than ever because it will become a market differentiator" (Cash, 2011).

2.3.2 The Importance of Primary Care

The Affordable Care Act places an emphasis on preventative care. The theory behind preventative care is to control disease through prevention and to keep people healthier longer, thus decreasing the need for costly more acute care measures in long-term care settings. With this initiative, the care journey is intended to begin with a PCP.

To further explain this reform, one approach worth discussing is known as the patient-centered medical home (PCMH). The PCMH combines core primary care principles, relationship-centered patient care, and a chronic care model (Nutting, Miller, Crabtree, Jaen, Steward, & Stange, 2009). The National Committee for Quality Assurance defines the PCMH as a model of care in which each patient has an ongoing relationship with a personal physician. This physician leads a team responsible for meeting many of the patients' healthcare needs, and arranges appropriate care through a range of referrals and services from other physicians and providers as necessary (Kuzel & Skoch, 2009; National Committee for Quality Assurance, 2008; Rosenthal, 2008).

The value for patients and community health is demonstrated in Rosenthal's article, which identifies more than 200 references, reports, and books evaluating the medical home and patient-centered primary care. His review demonstrated that a strong primary care system is directly related to superior health outcomes in other nations, and that the improvement of primary care in the U.S. would produce both health and economic benefits (Rosenthal, 2008). Rosenthal states that a successful PCMH model of care would increase healthcare value by improving efficiency through the delivery of the right level of care in the proper setting, through care management and optimum resource utilization. His literature review found that when patients identify with a PCMH they were reported to have improved outcomes and satisfaction, improved quality, reduced errors, and increased satisfaction (2008).

The healthcare system is moving toward a model in which primary care providers will play a leading role. (Gulley, Rasch & Chan, 2011;

Rosenthal, 2008). Primary care providers will become what are known as care-coordinators or gatekeepers, and they will become the primary source for preventive, wellness, and chronic care services. The increase in the number of young adult patients and their receptiveness for preventative care makes it important to understand how this population will fit into this model.

2.3.3 Patient-Centered Care and Young Adults

The Institute of Medicine's (IOM) recent assessment of the safety and effectiveness of the healthcare delivery system recommends six areas in need of innovation and improvement. One of the six areas is patient-centered care (Institute of Medicine, 2001). Epstein and Street (2011) describe the philosophy behind patient-centered care as "an approach to care and perceived as the right thing to do. Taking this view, behaviors associated with patient centered care, such as respecting patients' preferences, should be justified on moral grounds alone, independent of their relationship to health outcomes" (p.101). Donald M. Berwick outlines patient-centered care in his article "A User's Manual for the IOM's 'Quality Chasm' Report" (2002), as follows:

> Patient-centered care respects the individuality, values, ethnicity, social endowments, and information needs of each patient. The primary design idea is to put each patient in control of his or her own care. The aim is customization of care, according to individual needs, desires, and circumstances. (p. 84)

Patient-centered care is based on respect for patients as unique living beings, with an obligation to care for them on their own terms, not the terms of the provider; patients should be known in context of their own "social worlds," listened to, informed and respected as such (Epstein & Street, 2011).

The population of young adults has unique characteristics specifically related to health, different from those of any other age group. Studies examining patient satisfaction with healthcare have found that this population rates their satisfaction the lowest out of any other age group (Campbell et al., 2001; DiMatteo & Hays, 1980; Drain, 2001; Gray, 1980; Rahmqvist, 2001; Tsai et al., 2007). This can be taken to mean that the young adult populations' unique needs and expectations are likely not being addressed in existing healthcare experiences. To develop a primary care system that is patient-centered, it is a requirement that any inequalities in care must be addressed across all patient populations including that of young adults.

2.3.4 Continuity of Care for Young Adults

A key element of this new care model is a continuous relationship between a patient and the same PCP, to provide ongoing support as the needs of a patient changes over time (Charon, 2001; Halpern, 2001). The longer a patient knows their care provider, the more the care provider knows about that patient and his/her medical history. The more a provider knows about the patient, the more trust the patient shows, and, the more trust one has for their provider, the more likely preventative services are to be successful. A patient who trusts their provider is more likely to seek care, to comply with treatment recommendations, and return for follow-up care (Kao, Green, Davis, Koplan, & Cleary, 1998; Parchman & Burge, 2004).

The National Center for Healthcare Statistics (2006), reports that many young adults do not have a consistent source of care. In our current healthcare system, when young adults seek medical care, they do not go to the same care provider each time. According to a 2011 study done by PricewaterhouseCoopers's Health Research Institute, 42% of consumers age

18-24 prefer to use an independent company or a pharmacy owned provider, such as a MinuteClinic or EmergeaCare, for healthcare needs as cited by Cash (2011). Emergency departments (EDs) are also a common resource for care among young adults, for issues that should be treated by PCPs. Upper respiratory conditions, colds, and ear infections were the most common cause of ED visits among this population between 2002 and 2004, as reported by the Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Ambulatory Medical Care Survey (Schappert & Rechtsteiner, 2007).

One of the repercussions for not having the above-mentioned conditions treated by the same PCP is a lack in continuity of care. Continuity of care is when a patient "has a regular source of care and sees the same provider" (Health Services Research Group, 1992, p. 1728). Repeat visits to different providers for something such as an upper respiratory infection may mean that a more serious issue is present. A patient that visits a different provider each time may miss being diagnosed with chronic condition. A patient that sees the same PCP each time is more likely to have a comprehensive diagnosis and treatment that includes follow-up and preventative counseling.

2.3.5 The Importance of Routine Healthcare for Young Adults

The most costly and prevalent issues among young adults include unintended pregnancy, sexually-transmitted infections, violence, suicide, unintended injuries, and the use of alcohol, tobacco and other drugs – all issues that are potentially preventable (Park, MacDonald, Ozer, Burg, Millstein, & Brindis, 2001). Routine and consistent care is an important factor

to improving health outcomes for young adults, especially when it comes to preventative measures.

Routine healthcare includes physical exams, preventative interventions and education, observations, screening and care when one is sick. Fortuna et al. (2009) cite several studies supporting that regular ambulatory care visits provide an important opportunity for physicians to counsel about risky behaviors, provide appropriate risk-specific preventive care, as well as promote healthy lifestyles. Counseling has been shown to improve tobacco cessation rates, modify high-risk sexual behaviors, and decrease drug abuse (Johnston et al., 2002; Klein et al., 2001; Stein et al., 2000; Ozer et al., 2001 as cited by Fortuna, et al., 2009).

2.4.1 Perceptions of Quality of Care

Quality of care consists of quality in both fact and perception (Omachonu, 1992). Quality of care is a significant determinant of a patient's decision to continue to seek care from the same provider. Dissatisfied patients are less likely to return to a care provider where they have had an unsatisfactory experience, and also less likely to seek medical care from another provider (Bendall & Powers, 1995). Patients generally assume they will receive quality care from a provider; most patients, however, do not know what quality treatment looks like (Berry & Bendapudi, 2007). Leavey, Wilkin & Metcalf (1989) suggest that patients "may not possess the necessary competence to judge the quality of care provided" (p. 738).

Actual quality of care, as defined by organizations such as the American Nurses' Association and the Joint Commission of Accreditation of Healthcare Organizations, is an increase in desirable patient outcomes and the reduction of undesirable outcomes (Omachonu, 1990). This definition has

to do with the actual diagnostic and technical abilities of providers. In actuality, healthcare consumers use "nontechnical" characteristics (like waiting time or amount of pain) to evaluate the quality of care and service that they receive (Peyrot, Cooper, & Schnapf,1993).

Patients rely on elements that they are familiar with, including customer service, staff interactions, and the physical environment to rate their care experience (Becker et al., 2008; Berry & Bendapudi, 2003; Campbell et al., 2001; Peyrot et al., 1993; Powers & Bendall-Lyon, 2003; Woodside et al., 1989). Arneill and Devlin (2002) explain that patient perceptions of quality of care are based on the amount of empathy, warmth, and friendliness that a patient experiences as they interact with staff (Mayer, Cates, Mastorovich, & Royalty, 1998). The current study focuses on perceptions of the physical environment of the waiting room as it relates to expected quality of care.

When examining perceptions of care one may relate the term *satisfaction* to *perceptions*. According to the Joint Commission on Accreditation of Healthcare Organizations (1999), satisfaction has been replaced with the term perception of care in an effort to "better measure the performance of organizations on how well they meet the needs, expectations and concerns of individuals" (Drain, 2001, p.137). *Patient satisfaction* is a broad term that closely relates to perceptions of care; from the patients' perspective and for the purposes of this literature review, the two terms will be considered synonymous.

Patient perceptions of quality care are important for positive clinical outcomes. They have been shown to result in patients being more likely to show, physician loyalty, keep appointments, comply with medical treatments,

and refer other patients to their physician (as cited by Becker, Sweeney, & Parsons, 2008; Drain, 2001; Health Services Research Group, 1992; Marberry, 2006). Patient perceptions of quality of care are based on a holistic experience; a provider that is able to create a high-quality care experience, will leave a patient more inclined to return to that provider for future healthcare needs, thus establishing continuity of care between a patient and a single provider.

Patients' expectations to receive quality medical treatment and to have an excellent care experience are related to Hutton and Richardson's (1995) idea of a *preattitude*. As the Affordable Care Act is put into place, and the number of young adults' accessing healthcare increases, Cash (2011) affirms that patients will demand experiences that exceed expectations and surprise them. Healthcare practices will need to pay more attention to the patient experience because of this.

Over the past few decades, healthcare providers have recognized that patients compare healthcare services to other service oriented industries outside of healthcare (Fottler et al., 2000). An increasingly competitive healthcare market has helped to increase patient satisfaction, better meet patient needs and elevate the overall healthcare experience towards service excellence (Becker et al., 2008; Fottler, Ford, Roberts, Ford & Spears, 2000; Rice, Ingram & Mizan, 2008). Vinn (2000) confirms this by stating that healthcare has entered an age of "accountable consumerism," meaning that patients are, have been, and will continue to demand an increasing level of service quality. Customer expectations will continue to evolve and providers should continuously make an effort to understand and address the individual needs of their patients.

2.4.2 Patient Characteristics and Perceived Quality of Care

Not all patients are alike in what they expect and what they perceive to be a quality care experience. Previous studies have examined how patient characteristics impact patient perceived quality of care. Campbell et al.'s 2001 work reports that age and ethnicity are significant in predicting how one assesses primary care; men and women showed no significant differences in their assessments; and differences in socioeconomic status had a small impact on patient assessments of care. The mixed results from previous research aid in justifying additional research, examining the relationship between patient characteristics and perceptions of quality of care.

> The need to understand the individual customer holistically—and to customize the service accordingly—is pronounced in health care. Health care services need to be customized to fit not only a patient's medical condition but also the patient's age, mental condition, personal traits, preferences, family circumstances, and financial capacity (Berry & Bendipudi, 2007, p. 115).

The current study examines young adult characteristics associated with age, gender and ethnicity; the following will present the findings of previous studies, related to primary care assessments, and the three characteristics described above.

Age has been linked to perceptions of quality of care. When it comes to perceptions of quality of care, young adults are less satisfied and more demanding than any other age group. Campbell, et al. (2001) and Rahmqvist (2001) found that older patients were more satisfied than young and middle-aged patients. In contrast, young adults rate their satisfaction with healthcare services lower than any other age group (Campbell et al., 2001; DiMatteo &

Hays, 1980; Drain, 2001; Gray, 1980; Rahmqvist, 2001; Tsai, Wang, Liao, Lu, Sun & Lin, 2007).

Campbell et al. (2001) found no significant difference between gender groups with respect to their assessments of primary care. Arneil and Devlin (2002) suggest that gender has "no bearing on perceptions of physicians' quality of care" (p. 346). However, both studies suggest that further investigation into perception of care and gender should be done.

Omachonu (1992), states that "The patient perceives quality in the context of his or her own experience" (p. 45). When considering the unique needs and characteristics of the young adult population, and why they might rate their perceptions of care lower than other age groups, it is important to understand how much previous experience a young adult may have had with healthcare. Campbell et al. (2001) speculated that older patients may rate their perceptions of care higher because they have had more experience and contact with primary care providers. More experience provides more opportunities for positive care experiences and a familiarity of the care process and environment. "Familiarity with an artificial environment is naturally desired, fear of the unknown and unfamiliar is natural but can be unhealthy," (Hutton & Richardson, 1995, p. 57). When patients know what to expect uncertainty and stress are reduced, and confidence in care is increased.

Patient expectations and perceptions of care are influenced by the environmental features or cues an individual patient finds meaning in. When an environment is familiar or similar to a place one already knows, one has a relatively easy time of processing the stimuli; environments that are not familiar or similar to previous experiences, require more effort to interpret

(Sirgy, Grewal, & Mangleburg, 2000). For the young adult population, healthcare service experiences and environments may be unfamiliar because they do not utilize these services as much as other generations. Healthcare service experiences may be unlike other service environments the young adult population has been exposed to and has familiarity with. If cues are difficult to interpret or markedly different than what a patient expects, one's perception of care maybe influenced before they have an encounter with a provider, and this may influence the future patient-staff interactions (Devlin, 2008).

2.5 The Care Environment

2.5.1 Contributions of Evidence-Based Design

In an increasingly patient-centered healthcare system, management of patient expectations is linked to the design and planning of healthcare environments. Facility design has the potential to communicate meaning and influence experience for patients, families, and staff; influencing both the quality and delivery of care. EBD is the process that examines how humans experience healthcare environments, and many EBD theories mirror the patient-centered care objectives. EBD has helped to shift healthcare environments from being purely functional, focusing on efficiency and safety, to environments that address the holistic needs of patients, family, and staff as well as functional environments.

The body of knowledge that the current study is associated with is the area of healthcare design and EBD. The practice of EBD in the healthcare environment is rooted in, and has drawn from, several long-standing sciences (The Center for Health Design, 2008, p. 22). The Center for Health Design writes in their Evidence-Based Design Accreditation and Certification (EDAC)

program study guide, that EBD is partially structured on the theories of an evidence-based movement in medical research. This movement, which began in the 1970s, uses medical evidence to form the best practices related to patient care and clinical encounters. Similar to the theoretical concepts in Services Marketing, already presented, EBD also consistently shows a causal relationship between environment and human behavior (Cama, 2006).

According to Debra J. Levin, the Center for Healthcare Design president and CEO (2008), EBD is a process of basing decisions about the built environment on credible research to achieve the best possible outcomes. EBD puts patient-centered care into action by making an effort to improve healthcare experiences through the built environment of healthcare facilities. The goal of EBD in healthcare environments is not only to achieve positive patient-centered outcomes, but also to serve as a scientific response to understanding how the built environment affects patient, staff, and resource outcomes (Malone, Mann-Dooks, & Strauss, 2007, p. 5).

The Affordable Care Act emphasizes primary care, and primary care is most frequently administered in outpatient settings. The increased patient volumes will lead to a demand for new PCP and outpatient settings for them to practice. The Act will also offer incentives to providers to improve the quality of care for patients. EBD principles will most likely be used when building new settings for primary care as well as making changes to existing environments to accommodate higher patient volumes and create more patient-centered settings.

2.5.2 Outpatient and Ambulatory Care Environments

There is a wealth of EBD that exists and the field is steadily growing. In a 2004 report to the Center for Health Design, more than 600 rigorous

studies were found linking environmental design to patient safety, patient stress, medical outcomes, staff stress and fatigue, and overall healthcare quality (Ulrich, Zimiring, Quan, Joseph, & Choudhary, 2004). In 2008 that number doubled to 1200 (Stroupe, 2011). However, a large portion of EBD research has been set in hospital and inpatient environments; very few ambulatory care or outpatient settings have been examined (Ingham & Spencer, 1997; Ulrich et al., 2004; Becker & Douglass, 2008; Rice, Ingram, & Mizan, 2008). There are clear differences between inpatient care and outpatient care, and much of the research done in the inpatient setting does not apply in the outpatient setting.

Environmental and service industry research can be related to the healthcare environment. One of the key experiences in an observer's assessment of perceived quality of care has to do with first impressions. The following will examine how first impressions inform users, and how the environment plays a role in informing care.

2.5.3 Processing First Impressions of the Environment

Yanow (1998), as cited by Faessen (2008), declares that space is both medium and message – both stage and actor: "built spaces are at once storytellers and part of the story being told" (p.215). A well-established concept among consumer researchers, environmental psychologists, and marketers, is that occupants "select and craft physical environments that reflect and reinforce who they are" (Gosling et al., 2002). People surround themselves with possessions that express and reinforce their personal identity (Belk, 1988). "As active agents, people strive to create environments, in their own mind and the real world, that support, validate and direct desirable identity images" (Schlenker, 1985, p. 89).

Rapoport (1982) states that environmental cues "communicate identity, status, and the like and through this they establish a context and define a situation. The subjects read the cues, identify the situation and the context, and act accordingly" (p. 56). People do not only use objects as a means for conveying information about oneself, but observers use and interpret this information to infer what the occupants of environments are like (Gosling et al., 2002). Visual cues allow viewers to form expectations and predict or assume certain behavior from its inhabitants (Goffman. 1959). This is a process of encoding and decoding non-verbal cues through the use of signs, symbols and artifacts that communicate service concepts and provide customers with clues to understand the service that is about to be consumed, according to Bitner (1992).

When one enters an environment for the first time, a quick assessment is done based on environmental features and cues found relevant to the viewer. "People react to environments globally and affectively before they analyze them and evaluate them in more specific terms. . .The initial affective and global response governs the direction that subsequent interactions with the environment will take" (Rapoport, 1982, p. 14). Physical cues, environmental features, interaction with other occupants, observance of how others are acting and previous experiences in similar environments, inform users about how they are to conduct themselves in their particular environment.

To further clarify this idea, in an early study by Maslow and Mintz (1956), participants were placed in a "beautiful," "average," or "ugly" room and asked to rate the energy and well-being of individuals based on the same 10 photographs. Participants in the "beautiful" room rated the energy level of

the people in the photographs higher than did the participants in the "ugly" rooms. It was found that human reactions and performance change in response to the characteristics of the room in which the ratings were performed. Applying this to healthcare, it is reasonable to state that patient and staff interaction are influenced by impressions of the environment.

2.5.4 First Impressions of the Primary Care Waiting Environment

The Maslow and Mintz's (1956) study aids in supporting the idea that one's care experience can be influenced by environmental characteristics found within a healthcare setting. A patient's first impression has the potential to influence how he/she interacts within the environment and with others; it may influence how one perceives the quality of care that is to be expected and provided, as well as influence how one might evaluate a healthcare organization as a whole (Arneil & Devlin, 2002; Bitner, 1992; Becker & Sweeney, 2008; Fottler, et al., 2000; Goffman, 1959; Leather, Beale, Santos, Watts & Lee, 2003; Rice, Ingram, Mizan, 2007). The following section will discuss the waiting area as an important environment for forming first impressions, and how this environment may influence perceptions of care.

Fottler et al. (2000) place a high importance on healthcare environments and the messages they send: "The environment provides a first impression of the healthcare experience and influences the customer's expectations even before the service is experienced" (p. 93). The environment sets and maintains a customer's mood, becomes part of the service experience, and aids in attracting and retaining customers (Fottler et al., 2000).

An unavoidable part of most healthcare experiences is that of waiting, and most of a patient's time is spent as such (Leddy et al., 2003). On

average, a patient may spend 55 minutes waiting before they are seen by a provider (Dansky & Miles, 1997). The waiting area provides the first, and most prolonged glimpse, a patient has into the organizational values of a healthcare provider (Becker & Douglass, 2008). Remember, it is the front stage where the opening act takes place. Since humans infer the personal characteristics of others based on what is seen in their environment (Gosling et al., 2002; Goffman, 1959), the waiting area has the potential to communicate a message about the impending care experience, information about the type and quality of care they can expect, as well as information about their provider's character and values.

First impressions, along with supporting environmental components, will mutually reinforce the objectives of the provider (Fottler et al., 2000); these could be negative or positive for patients. A waiting room is where anxiety and worry about the consultation and possible treatment regimens are likely to build, according to Ingham and Spencer (1997). The waiting environment has the potential to create "an impression of calm, cleanliness, tidiness and comfort, with features that help to alleviate anxiety, encourages patients to have confidence in the professionalism of the practice and to be satisfied with the care they receive (Rice et al., 2007). A poorly designed waiting area, on the other hand, may send the wrong message to patients and serve as a negative prelude to social interactions among staff and one's PCP, affecting the overall care experience and perception of care quality in a negative manner. Arneil and Devlin (2002) found that 18-24-year-olds differ from older adults in what kind of waiting room environments they felt comfortable in. However, their study did not investigate or identify what may have led this age group to feel this way.

2.5.5 Environmental Dispositions and Young Adults

Hutton and Richardson's (1992) tenth proposition states: "Health care facilities designed in line with the environmental dispositions of the target customer/patient group are more likely to produce satisfaction and positive assessments of quality than otherwise" (1995, p.57). How one responds to an environment, weather positive or negative, influences how they behave in that environment and how they interact with others within that environment (Bitner, 1992). It is important to remember that not all patients will respond similarly to the same environmental stimuli. The way in which one receives, perceives, and deciphers environmental stimuli, as well as what one infers, may vary considerably from one person to the next (Goodsell, 1988, as cited by Faessen, 2008).

Cultural values, individual beliefs and characteristics, moods, personality, personal traits, and past experiences are all factors moderating how one interprets and perceives their experiences any given time. As The Affordable Care Act opens access up to young adults, a need to understand their unique personality characteristics and environmental dispositions will emerge, in order to ensure all patients are provided with patient-centered care experiences.

In the course of this literature review, I did not locate any information addressing young adults and their environmental dispositions for any type of service environments. In fact, it was discovered that little research about this age group exists. Franck and Noble (2006), claim that much is unknown about this group's motivations for consumption and patronage, even among the services marketing literature.

What is known about the general population is that the service experience is paramount for customer satisfaction (Fottler et al., 2000). "The more familiar the organization can make the experience, the less confusion, frustration, and unhappiness a customer will experience." (Fottler et al., 2000, p. 98). Healthcare consumers rely on familiar characteristics of the physical environment to rate their care experience (Berry & Bendapudi, 2003; Designing for Quality, 2003; Mayer et al., 1998; Powers & Bendall-Lyon, 2003). For young adults, their low ratings of perceived quality of care may be related to their unfamiliarity with healthcare experiences and/or high expectations (based on other service experiences) not being met.

The lack of experience many young adults have within healthcare environments may leave them struggling to find personal meaning and associations in this unfamiliar environment. Rapoport (1982) states that it appears that people react to environments in terms of the meanings the environments have for them. Consumers achieve satisfaction through comparing service with prior service experience, according to Bitner (1992). If young adults are lacking prior experience with a PCP, they may utilize other service experiences to evaluate their healthcare experience.

Young adults are exposed to a range of high-quality service experiences which include "stimulating electronic displays (e.g. bigscreen TVs; signs; lights) and otherwise attractive exterior and interior décor" (Wakefield & Blodgett, 1994). They may also be influenced by what they see on television, the Internet, or marketing campaigns that promote outstanding service. Exposure to high-quality or more interesting service experiences could possibly create high expatiations, explaining why young adults rate their satisfaction with healthcare poorly.

When young adults experience a healthcare environment for the first time, they may have high expectations based on what they have previously seen or experienced in other service settings. If expectation exceeds performance, dissatisfaction will result and customers may seek an alternative provider; if expectations are met or exceeded, satisfaction will result (Voss & Zomerdijk, 2007).

2.6 Conclusion

This literature review brings light to the fact that young adults are less satisfied with healthcare than any other age group. A gap in research exists when it comes to this population, and no research was found addressing the environmental dispositions of this population in healthcare environments. The patient centered-care movement helps give credit to this issue by mandating respect for every patient, by understanding and providing what is meaningful and valuable to them when it comes to healthcare experiences.

I posit that the waiting areas of healthcare environments are front stage – they serves as symbolic communication for patients, sending messages about the provider and influencing their perceptions of quality care. Through this literature review, it has become clear that the unique needs of this population have not been studied and may not currently be addressed by most healthcare providers. With current legislation stressing the importance of preventative care this will be an important population to reach out to. The intention of the study as a whole is to understand what physical elements in primary care waiting areas are seen as indicators of perceived quality of care for young adults. Understanding the environmental needs and expectations of this age group may influence how the patient interacts with a PCP, and their decisions to adhere to treatment, as well as decisions to return to the same

provider for continued care and receive the best possible long-term healthcare outcomes.

Chapter 3

METHODOLOGY

3.1 Introduction

The methodology for the current research was informed by two studies. First by Arneil and Devlin's 2002 study that investigated the effect of the physical environment of the waiting room on perceptions of the quality of care of the physician, and second by Devlin's 2008 study that examined the relationship between the appearance of medical building exteriors and judgments of the perceived care that would be delivered in those facilities. The current study examines the relationship between the appearance of PCP waiting areas and young adult judgments of the perceived care they believe would be delivered in those facilities. This chapter describes the research design, sample, data collection tools, protocol and analysis plan for the current study. The study used a mixed-method (qualitative and quantitative) design.

3.2 Research Design

This study utilized a descriptive exploratory approach to better understand the relationship between young adults and the primary care waiting room environment, as there have been no studies or methods discovered that specifically address this population, their subjective opinions, and their perceptions of quality of care. The researcher used an online questionnaire to gather demographic and background information. A web-browser based application was used to gather participant ratings and qualitative comments about expectations of quality care in response to panoramic photos of two primary care waiting areas. Data analysis included qualitative and quantitative methods, to reveal typical or frequent reactions to

physical elements, in an effort to uncover a structure or patterns among the data collected.

3.3 Sample

The population for the study consisted of young adults between the ages of 18 and 24. This age group was chosen because this age group rates their satisfaction with healthcare significantly lower than any other segment of the population (Campbell et al., 2001; Rahmqvist, 2001; Tsai, et al., 2007), and they have the highest rates of preventable disease and lowest rates of ambulatory care utilization (Fortuna et al., 2009). This specific age grouping (18 to 24) is a common age range used by many researchers including the National Center for Health Statistics (MacKay & Duran, 2007).

3.4 Data Collection Tools

3.4.1 Demographic Questionnaire

The questionnaire was designed by the researcher to collect participant demographic and background information. The questions were written to identify age, gender, and the number of times each participant had been to a doctor's office in the last 12 months (either for issues related to their own health or the health of a friend or relative). It also asked where participants usually go when they are sick or need advice about their health. Devlin's 2008 study gathered information on sex, age, class year, ethnicity, annual income bracket of parents, and two personality tests. Respondents in Devlin's study were also asked "to check off whether they had been in the following five types of offices: (1) modern medical office within a hospital, (2) modern freestanding medical office building, (3) medical office within a renovated house, (4) medical office within a building that has a variety of different kinds of professional offices, and (5) other (please specify)" (Devlin, 2008, p. 6).

The three variables in the current study were chosen based upon the conclusions and recommendations of Devlin (2007) and the applicability to the current study. As noted in Chapter 2, these variables have been found to be related to patient ratings of perceived quality of care. The last variable, inquiring where participants usually go when they are sick or need advice about their health, was added by the researcher to understand where young adults in this study seek care and advice about their health and if there is any link to this location and how environments are rated.

3.4.2 Visual Rating Tool

The visual rating tool was chosen based on the results presented by Arneill & Devlin (2002). They showed that people will make judgments about the quality of care that they think will be delivered in a physician's office by looking at pictures of waiting rooms and evaluating environmental characteristics. Similar research methods were used in Devlin's 2008 study, which utilized visual analogue scales and brief written comments to gather participant ratings of perceived quality of care based on viewing medical building exteriors. The two former studies defined quality of care as the "quality of care you think would be delivered in this medical setting."

Similar to the Arneill & Devlin (2002) and Devlin's (2008) studies, the current study combined a questionnaire and a visual rating tool. The questionnaire design follows the two previous studies' suggestions for future research; however, the visual assessment tool varies from what was utilized in the previous studies. In the two previous studies, participants viewed slides and rated their perceived quality of care and provided written comments for each slide. The visual assessment for the current study was administered through the use of the PanorEmo tool, which will be explained further.

PanorEmo, as described by its developers, is a tool used to measure emotional responses towards environments (Desmet, Güiza Caicedo, & Van Hout, 2009). They further explain this tool as a computer-based application with interface that allows users to view, rate, and comment on 360-degree panoramic images. Emotional markers allow users to pin-point elements in a photo that induce an emotional reaction. Each marker represents one of four positive or four negative character expressions. Each pin-point placed allows for users to provide a supporting comment, of up to 160 characters, to be added explaining why the pin-point was placed. Users are not limited to the number of points, or the comments they are able to make (see Figure 1).

Figure 1. Example of emotional tool interface

The collective comments, left by respondents, are viewable to researchers via the web interface. Researchers are able to identify environmental features that elicit emotional responses from multiple respondents and visually identify them by locating clusters of responses. Additional information is gained by filtering positive and negative pin-points and through analysis of supporting comments (SusaGroup, n.d.).

The PanorEmo tool is an iteration of other tools developed and owned by SusaGroup, a Dutch based research consulting group. As stated on their website, SusaGroup is a company that combines "scientific competence with market insights" to assist companies in developing meaningful experiences (SusaGroup, n.d.). The company develops and administers, what they describe as "valid and relevant tools to measure the emotional impact of products, services, environments, retail settings, websites, interfaces and advertisements" (SusaGroup, n.d.).

The SusaGroup focuses on tools that measure product emotion in a non-verbal manner. The PanorEmo tool was first conceptualized after a case study on hotel experiences performed by David Güiza Caicedo, for his Design for Interaction MSc. graduation project at Delft University of Technology, The Netherlands. Through collaboration with the SusaGroup, Güiza Caicedo's concept was furthered by utilizing previous research that the SusaGroup had conducted in developing emotional design tools (Güiza Caicedo, 2009).

A predecessor to the PanorEmo tool, as explained by Güiza Caicedo, was SusaGroup's LEMTool. This tool allows one to pin-point emotion eliciting characteristics of graphical layouts of websites utilizing cartoon characters (Güiza Caicedo, August, 18th, 2009). The LEMTool was validated in a study examining theories on the expression of emotions through facial expression and body language. Multiple emotions were chosen and assessed as part of a validation study; eight emotional terms were selected and determined to be most relevant to digital media (Huisman & Van Hout, 2008). Research cited by Huisman and VanHout, (2008) highlights that humans are able to recognize emotional expression through facial and bodily cues independent of

culture. Their research cites several other instruments that measure emotions through use of caricature drawings that have been cross-culturally validated.

The validity of the PanorEmo tool is based on research collected through validity testing of other similar SusaGroup tools and the work of Güiza Caicedo. In developing the PanorEmo tool, a pilot test was conducted using a cafeteria as a test environment. Güiza Caicedo designed an exploratory study to identify relevant emotions related to the physical environment of a hotel. This study resulted in 348 cases of hotel service emotions. The results of this study led to the initial concept for the PanorEmo instrument. Early prototyping was done to perform usability testing and identify emotions relevant to the physical environment. As a result of this work, the final version of PanorEmo, used in the present study, was developed (Guiza Caicedo, 2009). There was no quantitative data found on the reliability of this tool in measuring emotions.

3.4.3 Pilot Survey

A pilot test of the questionnaire and the visual rating tool was performed before launching the actual study. This was done by designing a survey in SurveyGizmo, an online survey tool. Participants were required to answer all of the questions and copy a randomly generated 8-digit code for subsequent steps. A link to further instructions was provided at the end of the survey. The site that hosted the instructions was developed through Google Sites™. Respondents were instructed to read all of the instructions and then follow two links to the PanorEmo collection tools. To link respondents' demographic information to their responses in PanorEmo, respondents were directed to paste or type in the 8-digit code into the PanorEmo tool before proceeding.

The pilot test was administered to several persons in various age groups, with varying technical skills, as well as varying experience in design and the built environment. Those participating in the pilot test were asked to provide feedback related to the complexity, understanding, time it took to complete the survey, and anything in the interface that seemed to be lacking. Comments received regarding the pilot test included limiting the number of clicks the respondent had to perform, simplifying instructions, and being consistent with the verbiage used.

3.4.4 Data Collection Protocol

This study utilized a convenience sample of 32 individuals, 18-24-year-olds. Participants were recruited through online social networks (e.g., Facebook, Twitter, LinkedIn). The researcher's personal contacts were also solicited to send this invitation to 18-24-year-olds in their own social networks. Respondents within the targeted sample age received an e-mail invitation that provided an introduction letter with a general overview, instructions for the PanorEmo web interface, informed consent information, and a link to the demographic questionnaire (Appendix A & B).

The first step of the survey collected demographic information about the respondents, and assigned a random respondent identification number to each of them. This number was used to link questionnaire responses to the responses given in PanorEmo. The number has no relation to identifying the participant beyond this study. Respondents were then guided to instructions on how to use the PanorEmo tool via a web link (Appendix C). The second step of the survey administered the PanorEmo tool (Appendix D).

3.4.5 Site Selection

The selection of primary care waiting areas was based on inclusion and exclusion criteria. The term *primary care* includes many types of care in various types of settings. For the purpose of this study, the researcher focused on outpatient ambulatory care private physicians' offices. Sites were chosen that did not vary significantly in appearance from one another. This is not a study based on the comparison of waiting area features; it is a quest to identify key physical features that influence the perception of care for the young adult population sampled. Features such as size, age of facility, furnishing type, and condition of the waiting area were all factors considered to be important when comparing waiting area options. Outpatient clinics located in public-, county- or state-hospitals; community healthcare centers; urgent care; and retail care clinics were excluded.

To facilitate meeting the inclusion criteria, primary care offices in geographical proximity to one area were contacted. The researcher called offices in this area and requested that their waiting room be photographed for the study. Information including a recruitment letter and the abstract of this study (Appendix E) were delivered to the office, and a confirmation phone call was requested by the researcher. Four offices were solicited and two offices, a family practice and an internal medicine provider, agreed to participate.

3.4.6 Site Photograph Procedure

After obtaining ethical approval from The Office of Research Integrity and Assurance (Appendix F) and receiving permission from the physician's offices, panoramic photos were taken using a Canon EOS Rebel T1i Digital SLR Camera with a panoramic optic lens, with a 360-degree horizontal field of view. Panoramic photos of the interior of the waiting room were taken while

the waiting areas were unoccupied. The photos were uploaded to the researcher's laptop and converted into .JPG images using 0-360 UnWrapper™.

An academic license for PanorEmo was provided by the SusaGroup free of charge. An online application was submitted by the researcher for access and support for the tool. Once the photographs were taken, they were sent to SusaGroup and loaded into the web interface. SusaGroup provided four links, two for gathering data on each photo, and two for collecting responses for each photo.

3.5.1 Analysis

The primary goal of the study is to explore what physical elements in the waiting area might inform perceptions of quality of care for young adults. Data collection for this study focused on capturing a contextual overview about which environmental cues conveyed perceptions of quality of care to the young adult respondents. Data was analyzed to understand how respondents interpreted the environmental cues to signify quality of care, or lack thereof, in the two waiting area photographs. Demographic data was used to explore any trends among ratings and the demographic characteristics of the respondent set. This approach helped to shed light on the environmental and physical elements in waiting areas that raise interest for young adult respondents and their perceptions of quality of care.

The following research questions were analyzed:

Research Question 1: Which physical elements in primary care waiting areas are seen as indicators of expected quality of care for young adults?

Qualitative analysis for research Question 1 included a visual assessment of where aggregate participant responses were clustered and

comment analysis. Markers were filtered with regard to whether they were positive or negative, and areas were identified where respondents commonly placed markers related to expected quality of care. These clusters are considered "hotspots," and are noted areas of importance related to Research Question 1.

A visual analysis provided a quick over view of where individual comments and clusters of comment sere placed. However, with the analysis of each comment, it was discovered that some of the comments did not relate to where the marker was placed. For instance, in Figure 2 there is a negative emotional marker placed on the carpet in front of chairs. Visually analyzing this marker, without reading the associated comment it seems that this marker is associated with negative emotions about the carpet. In actuality, the comment associated with this emotional marker is related to the seating options. It read as follows, "Secluded area and the couch, no one wants to sit that close to a stranger." Thus, a visual analysis and a comment analysis were necessary to get a better idea of what respondents intentions were when placing markers.

Quantitative data was gathered by hand counting, the number of positive and negative emotional markers left by respondents in relation to different physical characteristics of two primary care waiting area photos. Comments associated with each marker provided the qualitative data used to understand what feature the marker was referencing. To accurately count the emotional markers and identify the correct physical feature being referenced, each comment was viewed, and then recorded in Excel with and associated with a feature name. This resulted in identifying the rank order of the top

positive and negative environmental characteristics for Photo A Photo B. This process is further explained, and the results are presented, in Chapter 4. Research Question 2: Among the physical elements of primary care waiting areas that are seen as indicators of expected quality of care for young adults, what are the reasons for perceiving them this way?

Thematic analysis was used to analyze the qualitative comments gathered from PanorEmo. Braun and Clarke (2006) provided theory and methodology for conducting this analysis. They outlined a step-by-step practice that provided clarity for the application of this method.

All of the comments were collected, by hand, from PanorEmo and transcribed into an Excel spreadsheet; this was the first step in familiarizing the researcher with the data. Each comment was reviewed in relation to the second research question, and how it relates to quality of expected care. Comments were categorized into positive and negative words and phrases. The emotional marker (fascination, joy, satisfaction, desire, boredom, sad, dissatisfaction, or disgust) that was associated with each comment became an important part of this analysis due to the fact that some comments could be taken in a positive manner or a negative manner. For instance, a comment that read, "the room is really big" could be something the respondent liked or disliked. Since there was a negative marker associated with this particular comment it was understood that this respondent did not like the fact that the waiting area was so "big."

Codes were developed and assigned. This process resulted in dominant themes and sub-themes (presented in Chapter 4). Throughout this process, I also shared these themes with my thesis chair in order to informally test the reliability of what had been developed.

4. Research Question 3**:** Is there a relationship between demographic characteristics of gender, age, and ethnicity, and the elements respondents see as indicators of expected quality of care of in primary care waiting areas?

Demographic data was analyzed to provide information about the sample of study participants. This analysis was done in Excel and utilized in determining if there were any connections between physical elements in the two waiting room photos and the sample of this study. The number of comments, the amount of positive and negative comments, the emotional markers used, categorization of themes, and the most commented-on design features were all compared to each demographic. Specific demographic comparisons and the results of this analysis are presented in Chapter 4.

3.5.2 Rigor and Reliability

In evaluating the worth of qualitative research, the trustworthiness of a research study needs to be evaluated. According to Lincoln and Guba (1985) four factors need to be shown, including credibility, transferability, dependability, and confirmability.

Credibility is the level of confidence in the *truth* of findings or how believable the findings are (Lincoln & Guba, 1985). Lincoln and Guba (1985) provide several techniques to increase credibility. For this study, the researcher exercised member checking, meaning that the interpretations and conclusions drawn from the data were tested through informal discussions with members of the young adult age group, and findings were discussed with the thesis chair.

Showing that the findings of this study have applicability in other context is called transferability (Lincoln & Guba, 1985). In this study, a *thick*

description, a term used by Lincoln and Guba, is employed to describe in sufficient detail how the methodology was conducted. This allows for evaluation of the way the study was conducted and possible inferences, as well as applicability to other times, settings, situations and populations (Lincoln & Guba, 1985).

Dependability shows that findings are consistent and can be repeated (Lincoln & Guba, 1985). Dependability includes having a researcher outside of the research process examine the process and product of the study. An external audit was conducted by the researcher's committee chair examining the accuracy and interpretations through co-analysis of the data.

Confirmability is a degree of neutrality in the data. It shows that findings of the study are shaped by study participants and not the researcher's bias, motivation, or personal interests (Lincoln & Guba, 1985). In this study, the researcher established confirmability through keeping a record of the research process as well as having data co-coded and analyzed with the assistance of the committee chair.

3.6 Summary

The main goal of this study is to identify elements in primary care provider waiting areas that inform young adult expectations of quality of care. The secondary objective was to understand if there is a relationship between subject characteristics and overall positive or negative ratings of expected quality of care. The data collected through this study will provide a better understanding of young adult perceptions of characteristics in the built environment associated with quality of care. It may also provide notable areas of improvement in primary care waiting area design.

Chapter 4

RESULTS

4.1 Introduction

This chapter presents the results of the study including a description of the sample and quantitative and qualitative findings related to each of the research questions. The research questions were:

(1) Which physical elements in primary care waiting areas are seen as indicators of expected quality of care for young adults?

(2) Among the physical elements of primary care waiting areas that are seen as indicators of expected quality of care for young adults, what are the reasons for perceiving them this way?

(3) Is there a relationship between demographic characteristics of gender, age, and ethnicity, and the elements respondents see as indicators of expected quality of care of in primary care waiting areas?

4.2 Demographic data

Forty-four (44) participants began this study by completing the demographic questionnaire. Thirty-two (72.7%) of those respondents went on to provide their emotional responses for at least one of the environmental photos presented. Data are provided in Table 1 for participants who completed the demographic survey and rated at least one of the two photographs. One respondent (3.1%) rated Photo A only, 9 (28.1%)

respondents rated Photo B only, and 22 (68.8%) respondents rated both photos A and B.

4.2.1 Age of Respondents

Respondents ranged in age from 18 to 24 years old, with the average age of respondents being 21 years old. Twenty-four-year-olds made up the largest group of respondents (25%). Individuals who were 20, 21 and 24 years old made up almost two-thirds of the total sample

Table 1

Age of Participants

Age	Number of Participants	%
18	5	15.6%
19	2	6.3%
20	6	18.8%
21	6	18.8%
22	2	6.3%
23	3	9.4%
24	8	25.0%
Total	32	100.0%

4.2.2 Gender of Respondents

Of the 32 respondents, nineteen (59.4%), were female and thirteen (40.6%) were male.

4.2.3 Ethnicity of Respondents

The ethnic makeup of the respondents is shown, in Table 2. Most of the respondents were White (62.5%), followed by 15.6% Hispanic and 9.4%

Asian. None of the respondents reported that they considered themselves to be American Indian or an Alaska Native.

Table 2

Ethnicity of Participants

Ethnicity	Number of Participants	%
White	20	62.5%
Hispanic or Latino	5	15.6%
Asian	3	9.4%
Native Hawaiian or Other Pacific Islander	2	6.3%
African American	2	6.3%
American Indian or Alaska Native	0	0%
Total	32	100.0%

4.3 Research Questions

The following sections present the results for each of the research questions posed in this study. PanorEmo collected quantitative and qualitative information about respondents' positive and negative emotions and their expected quality of care, related to physical features of two photos of primary care waiting areas. Quantitative data was gathered by counting the number of positive and negative emotional markers left by respondents about specific physical features. Comments associated with each marker provided the qualitative information necessary to understand respondent perceptions guiding their placement of markers. Data used to answer the research questions included:

1. Research Question 1 (Which physical elements in primary care waiting areas are seen as indicators of expected quality of care for young adults?) Consisted of an analysis of each emotional marker, including where it was placed and the associated comments. This provided the rank order of most commented on physical features.
2. Research Question 2 (5. Among the physical elements of primary care waiting areas that are seen as indicators of expected quality of care for young adults, what are the reasons for perceiving them this way?) consisted of a thematic analysis of all comments. This concentrated on developing major themes based on analysis of each comment.
3. Research Question 3 (Is there a relationship between demographic characteristics of gender, age, and ethnicity, and the elements respondents see as indicators of expected quality of care of in primary care waiting areas?) Consisted of a quantitative and qualitative responses to each photograph were organized by demographic variables to identify patterns of relationships.

4.4 Research Question One

Visual analysis, comment analysis and a count of emotional markers was used to answer Research Question 1. The following section focuses on the physical features with the most markers in each photograph.

4.4.1 Analysis

The placement of multiple emotional markers in PanorEmo serves to identify physical features which respondents found to be indicators of expected quality of care. A visual assessment of where respondents left markers reveals obvious hotspots in each waiting area. Analysis of each

marker's comments as well as if a positive or a negative emotional marker was associated with it provided a comprehensive picture of what physical features respondents felt were indicators of quality care.

The following analysis provides a visual illustration of hotspots and frequencies for positive and negative comments on each feature. Analysis was conducted using visual examination and counting of the frequency of positive and negative markers. In most cases, the placement of a marker was consistent with comments. In some cases, respondents placed a marker on a feature but their comment referred to a different feature; or provided a general comment about the overall space. In these cases, the text comment aided in understanding what the respondent was referring to, and the emotional marker was categorized according to the context of the comment instead of the physical location of the marker.

One of the photos, Photo B, had 6 markers without comments or with comments that could not be interpreted. Three of these markers were determined to be duplicates and were deleted. Two other markers were without text and it was unclear as to what the markers were referencing based on where they were placed. These markers were also deleted. The sixth marker had no comment, but it was left on a magazine rack. This marker was counted as a negative marker for magazines, and an entry of "no comment" was recorded for text. Photo A did not have any markers without comments.

Some comments were grouped into a "general" category. These comments did not refer to any single physical feature; instead they referred to the waiting areas as a whole. General comments discussed how

respondents thought they might feel in this space, the quality of care they might expect, and related to the general layout of each waiting area.

Clusters of emotional markers for each photo are shown in Figure 2 and 3. It is important to note that these photos include markers left by individuals who were eventually excluded from the study. Markers left by respondents who did not fulfill all of the requirements of the study were excluded from the final data set and subsequent analysis. All markers are shown here because PanorEmo does not allow for markers to be deleted or excluded from the aggregate view.

In Photo A, hotspots can be seen at the phone, the reception counter, the magazines, in the seating areas, and at the water cooler. Other markers have been sparsely placed around the photo.

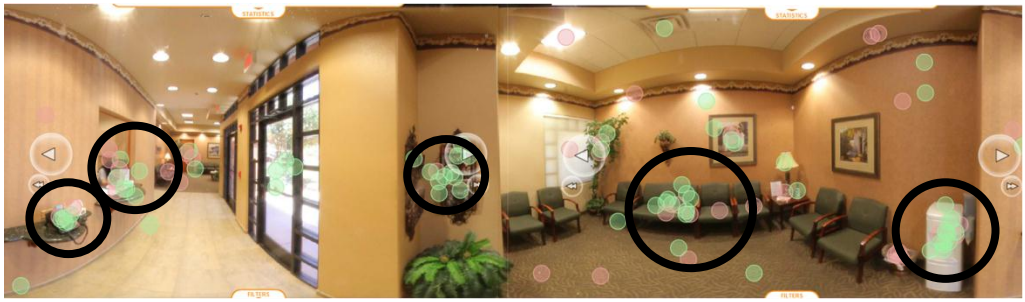

Figure 2. Location of all emotion markers in Photo A.

In Photo B, hotspots can be seen at the couch, the entry door, in the seating areas, the reception counter, the toy box, and on the large window. Other markers have been sparsely placed around the photo.

Figure 3. Location of all emotion markers in Photo B.

Beyond a visual analysis, each confirmed respondent's markers were viewed separately in PanorEmo, so that they were the only markers in view. Each comment was read and counted to rank the physical features. The number of markers left by each respondent, if the marker was positive or negative, and the associated comments were recorded in an Excel spreadsheet.

Research Question 1: Which physical elements in primary care waiting areas are seen as indicators of expected quality of care for young adults?

Photo A (Figure 2) received 99 comments (Table 3). The most commented on physical features in Photo A were the: water cooler (16.2%), seating (14.1%), general comments (11.1%), magazines (11.1%), and reception (11.1%). The first 5 categories, in Table 3, make up 69.7% (n=63) of all comments left for Photo A.

Table 3

Rank order of all features in Photo A.

Rank Order	Feature	Number of comments	%
1	Water Cooler	16	16.2%
2	Seating	14	14.1%
3	General Comments	11	11.1%
4	Magazines	11	11.1%
5	Reception	11	11.1%
6	Phone	6	6.1%
7	Artwork	5	5.1%
8	Plant	4	4.0%
9	Lighting	4	4.0%
10	Entry Door	3	3.0%
11	Trash Can	3	3.0%
12	Flooring	2	2.0%
13	Natural Light	2	2.0%
14	Tissue & Hand Sanitizer	2	2.0%
15	Wall Covering	2	2.0%
16	Air Vent	1	1.0%
17	Garbage on floor	1	1.0%
18	Window	1	1.0%
		Total: 99	

The actual count of markers (Table 3) compared to the visual assessment in Figure 2 is similar. Clusters are seen at the water cooler, reception, magazines, phone, and in the seating area; the high numbers of

comments that pertain to these areas corroborates that these are areas of significance.

Photo B received 134 total comments (Table 4). The most commented on physical features for Photo B are as follows: seating (16.4%), reception (14.2%), couch (10.5%), and natural lighting (9.0%). Two features shared 11 comments each: general comments (8.2%) and décor (8.2%). The first 5 categories, in Table 4 make up 58.2% % (n=78) of all comments left for Photo B.

Table 4

Rank order of all features in Photo B.

Rank Order	Feature	Number of comments	%
1	Seating	22	16.4%
2	Reception	19	14.2%
3	Couch	14	10.5%
4	Natural Lighting	12	9.0%
5	General Comments	11	8.2%
6	Décor	11	8.2%
7	Toy Box	9	6.7%
8	Wall Color	8	6.0%
9	Magazines	6	4.5%
10	Fan	4	3.0%
11	Area Rug	3	2.2%
12	Plant	3	2.2%
13	Artwork	2	1.5%

14	Door to Exam	2	1.5%
15	Flooring	2	1.5%
16	Radio	2	1.5%
17	Trash Can	2	1.5%
18	Window	1	0.7%
19	Stool	1	0.7%
		Total:134	

The actual count of markers (Table 4) compared to those visually identified in Figure 3 differs. Clusters can be seen at the couch, entry door, seating areas, reception, toy box, and large window; the high numbers of comments that pertain to these areas corroborates that seating, reception, and the couch are areas of high significance, with the toy box showing to be of less significance. The comment analysis resulted in a high number of comments related to natural light, general comments and décor; the importance of these items is not clear while viewing only the markers.

4.4.2 Positive and Negative Features

To gain greater understanding about how respondents viewed the physical features, positive and negative emotional markers were isolated and displayed separately (Figures 4-8), as well as filtered and presented in Tables 5-9. Figure 4 shows all of the positive markers placed by respondents in Photo A. Clusters of positive markers can be seen at the reception counter, on the magazines, in the seating area, and at the water cooler.

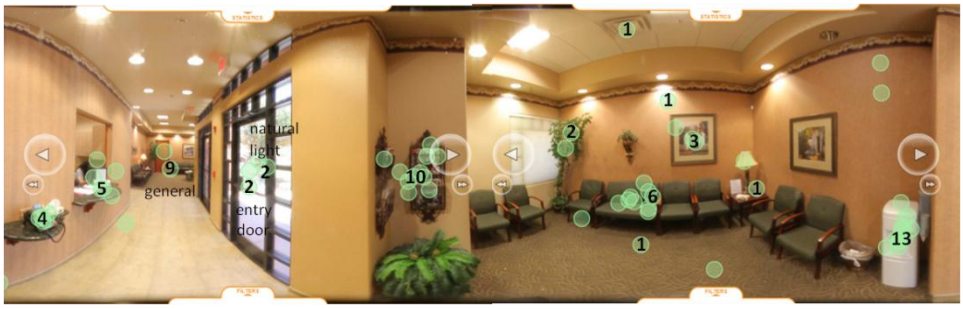

Figure 5. Location of positive emotion markers in Photo A.

Of the 99 total comments in Photo A, 60 (60.6%) were positive (Table 7). The physical features with the most positive comments in Photo A were as follows: water cooler (21.7%), magazines (16.7%), general comments 15.0%, followed by seating (10.0%) and reception (8.3%). More than half of the positive comments in Photo A were for the first three features.

Table 5

Rank order of all positive features in Photo A.

Rank Order	Feature	Number of positive comments	%
1	Water Cooler	13	13.1%
2	Magazines	10	10.1%
3	General Comments	9	9.1%
4	Seating	6	6.1%
5	Reception	5	5.1%
6	Phone	4	4.0%
7	Artwork	3	3.0%
8	Entry Door	2	2.0%
9	Fake Plant	2	2.0%
10	Natural Light / Entry Door	2	2.0%
11	Lighting	1	1.0%
12	Flooring	1	1.0%
13	Tissue & Hand Sanitizer	1	1.0%
14	Air Vent	1	1.0%
		Total: 60	

Figure 5 shows all of the positive markers placed by respondents in Photo B. Clusters of markers are located on the reception counter, on the front door , on the couch, on the toy box, and in the seating area.

Figure 5. Location of positive emotion markers in Photo B.

There were 80 positive comments for Photo B. Positive comments made up 59.7% of the 134 total comments left for Photo B. The physical features with the most positive comments in Photo B were as follows: reception (21.3%), natural lighting (15.0%), couch (13.8%), toy box (7.5%), and wall color (7.5%). Of the positive comments, two-thirds of them were for the first five features listed. Other features, with negative comments, can be seen in Table 8.

Table 6

Rank order of all positive features in Photo B.

Rank Order	Feature	Number of positive comments	%
1	Reception	17	21.3%
2	Natural Lighting	12	15%
3	Couch	11	13.8%
4	Toy Box	6	7.5%
5	Wall Color	6	7.5%
6	General Comments	5	6.3%
7	Décor	4	5.0%
8	Seating	3	3.8%
9	Magazines	3	3.8%
10	Fan	3	3.8%
11	Plant	3	3.8%
12	Area Rug	2	2.5%
13	Artwork	2	2.5%
14	Window	1	1.3%
15	Door to Exam	1	1.3%
16	Flooring	1	1.3%
		Total: 80	

Figure 6 shows all of the negative markers placed by respondents on Photo A. Clusters of markers can be seen in at the reception counter and in the seating areas.

Figure 6. Location of negative emotion markers in Photo A

There were 39 negative comments left in Photo A, making up 39.4% of the overall comments in this picture. The physical features with the most negative comments in Photo A were as follows: seating (20.5%), reception (15.4%), water cooler (7.7%), lighting (7.7%), and the trash can (7.7%). Over half of all the negative comments (59.0 %) were for the first five physical features listed in Table 7.

Table 7

Rank order of all negative features in Photo A.

Rank Order	Feature	Number of negative comments	%
1	Seating	8	20.5%
2	Reception	6	15.4%
3	Water Cooler	3	7.7%
4	Lighting	3	7.7%
5	Trash Can	3	7.7%
6	General Comments	2	5.1%
7	Phone	2	5.1%
8	Artwork	2	5.1%
9	Plant	2	5.1%
10	Wall Covering	2	5.1%
11	Magazines	1	2.6%
12	Entry Door	1	2.6%
13	Flooring	1	2.6%
14	Tissue & Hand Sanitizer	1	2.6%
15	Garbage on the floor	1	2.6%
16	Window	1	2.6%
		Total: 39	

Figure 7 shows all of the negative markers placed by respondents on Photo B. Clusters of markers can be seen on the couch and on seating at both ends of the room.

Figure 7. Location of negative emotion markers in Photo B.

There were 54 Negative comments for Photo B, 40.3% of the overall comments for this picture. The physical features with the most negative comments in Photo B were as follows: seating (35.2%), general comments (11.1%), and décor (11.1%). Four features shared 3 comments each: couch (5.6%), toy box (5.6%), wall color (5.6%), and magazines (5.6%). The first 3 categories, in Table 8, make up 57.4% of all the negative comments left for Photo B.

Table 8

Rank order of all negative features in Photo B.

Rank Order	Feature	Number of negative comments	%
1	Seating	19	35.2%
2	General Comments	6	11.1%
3	Décor	6	11.1%
4	Couch	3	5.6%
5	Toy Box	3	5.6%
6	Wall Color	3	5.6%
7	Magazines	3	5.6%
8	Reception	2	3.7%
9	Radio	2	3.7%
10	Trash Can	2	3.7%
11	Fan	1	1.9%
12	Area Rug	1	1.9%
13	Door to Exam	1	1.9%
14	Flooring	1	1.9%
15	Stool	1	1.9%
		Total: 54	

4.4.3 Commonalities and Differences between the Two Waiting Areas

Each waiting area had its own unique physical features, yet there were common features seen as indicators of quality care. In both photos, the most

commented-on features include the seating areas and the reception areas. Of the 233 total comments for both Photo A and B, a little more than one-quarter (28.3%) of the total comments corresponded to these two features. Both photos received many general comments, these comments made up 9.4% of the total comments.

Many of the most commented-on features had to with amenities and physical traits; this is where Photo A and B differed. Photo A's most commented-on features were amenities, including the water cooler and the magazines. Photo B's most commented-on features were the natural light and décor.

Of the total comments left for both photo A and B, 60.1% were positive and 39.9% were negative. This pattern of mostly positive comments was similar for both photos (Table 9).

Table 9

Percentage of positive and negative comments for Photo A and B.

	Total comments		Photo A comments		Photo B comments	
	#	%	#	%	#	%
Positive	140	60.1	60	60.6	80	59.7
Negative	93	39.9	39	39.4	54	40.3

The physical features with the most positive comments, in both photos, were the reception area, seating (couch), and general comments. The reception areas received 15.7%, seating received 14.3%, and general comments made up 10.0% of all positive comments left for both photos. The

feature with the most negative comments for both of the two photos was seating 29.0%.

The most commented-on items exclusive to Photo A, were the water cooler (n=13) and phone (n=4). The most commented-on items unique to Photo B were the couch (n=11) and toy box (n=6). While both photos depicted features such as magazines, décor, wall color and natural lighting, they did not share the same amount of emotional markers. The magazines were most commented-on in Photo A; while décor, wall color and natural lighting were among the most commented-on physical features of Photo B.

Seating was the physical feature with the most negative comments in both photos. Photo B by far had the most negative comments on seating (n=19), making up 35.2% of all the negative comments left for Photo B. Photo A received 8 negative comments regarding seating, making up 14.7% of the total negative comments left for this photo.

4.5 Research Question Two

The emphasis of this study is to understand young adult perceptions about the physical features associated with quality of care, rather than which features elicited the most positive and negative responses. What can be seen by simply viewing and counting the emotional markers doesn't explain why markers were left, or how perceptions of quality care were informed in this study. Thus, each marker's comments were reviewed and thematically analyzed to answer Research Question 2.

The second research question intends to gain an understanding of why respondents felt the physical features they marked were indicators of quality of care. Respondents were instructed to rate the individual physical features

of the two waiting areas, based on the quality of care they might imagine to be delivered by the doctor that owns these waiting areas.

4.5.1 Thematic Analysis

Comments were analyzed using the thematic analysis procedure described by Braun and Clarke (2006). Data were analyzed separately for photo B then A. Comments for both photos were then combined and reviewed again, to examine further commonalities and differences between photos. Codes were developed then compared and contrasted through each analysis. Coded data were used to develop a mind map and analyzed for common themes. Dominant themes and their related information are presented in the following sections.

Analysis of Photo A and B was conducted to identify a limited number of themes that reflect the textual comments. Photo B was analyzed first because it contained more comments (n=133) than Photo A (n=99). Initial codes were generated for Photo B, these codes were then applied to Photo A comments. Not all Photo B codes were applicable to Photo A, so new codes were developed as necessary. Once codes from Photo A and B were combined and reviewed, sub-themes were developed for Photo B. The review and comparison process done with the codes was done with the sub-themes. Following this, themes were developed for Photo B and then applied to and refined for Photo A. This work is presented at the end of this section.

4.5.2 Photo B Analysis

Analysis of Photo B comments resulted in 14 different codes (Table 10). There were a total of 131 coded comments for Photo B (codes for 2 comments could not be interpreted). From these 14 codes, three preliminary overarching themes emerged; *Appeal, Regard, and Comfort*. Sub-themes

were present within the themes of regard and comfort. There were no sub-themes developed for the theme of appeal. Table 13 presents the categorization of codes and sub-themes within each theme, along with the frequency of each.

Table 10

Key Themes within Photo B Comments.

Theme and Sub-theme	Code	Frequency	%
Appeal		Total: 52	39.1%
	Inviting	34	
	Uninviting	11	
	Quality	3	
	Boring	3	
	Open	1	
Comfort		Total: 49	36.8%
Physical	Comfort	18	
	Discomfort	10	
Consistency	Awkward	14	
	Balanced	4	
	Arbitrary	3	
Regard		Total: 32	24.1%
Consideration	Care factors	14	
	Layout	3	
	Clean	2	
Inattention	Uncaring	8	
	Outdated	3	
	Dirty	2	
		Total: 133	

The following discussion presents how each of the three themes developed for Photo B, as well as the design elements that stood out within each theme. Sub-themes within the comfort and regard themes are also described.

4.5.2.1 Appeal Features

The predominant theme in Photo B was appeal (n=52; 39.1%). This theme contains comments about qualities or features that relate to visual interest, the approachability of features, and the presence of things to do while one waits. The codes included in this theme were: inviting, uninviting, quality, open, and boring. In general, these comments relate to the environment's representation of elements that reflect an attractive or inviting appearance, or offer a level of experience, as well as features that relay a high or low standard of expected quality.

4.5.2.2 Design elements

The design elements in Photo B that were most associated with the theme of appeal are the reception area, natural light, the chairs, and the wall color. The reception area and natural lighting were both unanimously perceived as positive. The chairs were by and large viewed as unappealing, and the wall color was 3 to 1 viewed as positive. Other design features associated with the theme of appeal were artwork, couch, décor, dried flowers, flooring, general comments, lighting, plants, and the toy box. See Table 11 for examples of these.

Comments regarding the reception area demonstrate that respondents were attracted to the general appearance of this area as well as specific design elements in it. Eight of the 15 total comments about this area related to its general appeal. Some of these comments include:

"This area makes a good area for the entrance because it makes the customer or patient feel welcomed in to the environment" (inviting)

"I like the interesting use of shapes. . ." (inviting)

"I love this reception area because it's so nicely done that it makes me really- want- to approach the desk area. . ." (inviting)

Seven of the 15 (46.7%) comments regarded the stonework at the reception counter. Five respondents stated that they "like" the material used there. One comment read, "For some reason I love this brick work. It makes me feel like I'm having a bbq in the back yard" (inviting).

The natural light coming in from the door and large window in this waiting area was another design element receiving a high number of positive comments (n=8). The light from the large window received 4 comments, some of these comments are as follows:

"I love all of this open window area. All the sunlight is wonderful and makes the room look much more open and inviting." (inviting)

"lots of natural light, a great thing! I hate feeling like I've walked into a dungeon when there aren't any windows." (inviting)

Comments specifically about the natural light from the entry door (n=4) include:

"… I would definitely feel less gloomy and more confident here" (inviting)

"Nice open doors with sunlight. I like this because it makes me happier when I'm entering." (inviting)

For the most part, respondents did not find the chairs or seating in Photo B to be appealing. Seven comments related to the appeal of the seating

in Photo B (5 negative and 2 positive). Many of the respondents leaving negative comments conveyed that the chairs looked "ugly." One respondent wrote, "I like the availability of seating, but the chairs aren't pretty . . . I also don't like the way they are lined up" (uninviting). Relating to the layout of the chairs, one of the positive responses towards the chairs read, "I like that none of the chairs in the room are facing one another, it feels much more open and spacious" (inviting). The other positive comment read, "chair fabric looks classy" (quality).

Wall color received 4 positive comments and 1 negative comment. One respondent felt that, "It's [wall color] bright and happy and kind of wakes me up from the exhausting environment surrounding it" (inviting). Two of the comments were about the contrast of colors used within the area. The negative comment about the wall color read, "Faux textures are so last decade, and the color green is very over done in Healthcare settings" (uninviting). Other design features within the appeal theme can be seen in Table 11.

Table 11

Frequency of appealing or unappealing design elements in Photo B.

Design element	Positive	Negative	Codes used	Sample comment
Reception	8	0	Inviting	See section 4.5.2.2
Stonework	8	0	Inviting	See section 4.5.2.2
Natural Light	8	0	Inviting	See section 4.5.2.2
Chairs	2	3	Uninviting, inviting, quality	See section 4.5.2.2
Wall Color	3	1	Inviting, uninviting, open	See section 4.5.2.2
Artwork	1	0	Inviting	"Pictures"
Couch	0	1	Uninviting	"sofa looks gross"
Décor	2	1	Inviting, uninviting	"Good to see some décor…but fresh flowers, like I said earlier, would be better and more cheerful to the patients and their families."
Dried Flowers	0	2	Uninviting	"Ugly, yuck"
Flooring	1	1	Inviting, uninviting	"the flooring makes the place seem cold...
General	0	3	Boring, uninviting	"this area of the room is very boring and does not have much to keep the patient interested as they wait it is also dark and gloomy in the corner."
Lighting	2	0	Inviting	"Good lighting."
Plant	2	0	Quality, Inviting	"This plant looks nice and real"
Toy Box	1	1	Inviting, uninviting	"Kids are loud and annoying"

4.5.2.3 Comfort Features

The second most predominant theme in photo B, is that of comfort (n=49; 36.8%). This theme contains comments about qualities or features that provide a sense of physical or mental comfort for those that are waiting. This includes features that may put those waiting at ease, by providing support or assurance that the wait will be free of pain or distress. This theme has two major-subthemes: comfort through consistency of features and physical comfort.

Codes included in the sub-theme of consistency are: balance, arbitrary, and awkward. *Consistency* relates to a harmony of the features and how they relate to the environment or expectations of the environment as a whole. Comments in this sub-theme relate to comfort, in that if an element seemed to fit-in or be out-of-place with the environment, respondents expressed either satisfaction or dissatisfaction.

The sub-theme of physical comfort included the codes comfort and discomfort. Comments in this sub-theme related to things that might provide physical or mental comfort. *Physical comfor*t relates to the physical elements in this waiting area. Comments in this sub-theme relay feelings of relief, well-being or uneasiness, in that if an element seemed to give the sense it was comfortable or uncomfortable it was grouped in this sub-theme.

4.5.2.4 Design Elements

The design elements most associated with the theme of comfort and its subthemes were the couch, the chairs, general comments, and the fan. The couch received the highest number of comments in this theme (n=10). All of these comments were positive, and the majority of them conveyed that the couch would be a comfortable place to sit and wait, especially if one

happened to be sick. Two respondents felt that while the couch would be a comfortable place to sit, it would be inviting for others which may create an uncomfortable situation. One satisfied respondent wrote, "The couch fits perfectly here and matches the rest of the room" (balance).

Compared to the couch, the chairs had the second highest number of comments related to comfort (n=10). However, only one respondent felt that the available chairs looked comfortable, remarking that, "none of these chairs are facing one another, makes waiting less awkward and time go by faster when you can comfortably stare straight ahead" (awkward). Five comments about the chairs all conveyed that they looked uncomfortable or cramped, while two comments relayed that the amount and placement of seating was "arbitrary" and "strange."

There were 5 general comments left in Photo B coded as *comfort* or *discomfort*. Three of the comments were negative while 2 were positive. The negative comments noted that the space felt, "secluded," "odd," and that "It makes me feel tired and worn out." Both of the respondents leaving positive comments felt that, in general, the waiting area seemed like a comfortable place to wait.

Three respondents felt that the fan made the waiting area in Photo B feel more comfortable and homey. One respondent said, "I get cold easily so I think the fan would just make me feel even colder, but at least a fan rather than lots of AC. So I can avoid most" (discomfort).

Other design features associated with the theme of comfort were the area rug, décor, light, magazines, natural light, radio, reception, trash can, wall color and the toy box. See Table 12 for examples of theses.

Table 12

Frequency of comfortable or uncomfortable design elements in Photo B.

Design element	Positive	Negative	Codes used	Sample comment
Couch	10	0	Comfort, balance	See section 4.5.2.4
Chairs	1	9	Awkward, discomfort, arbitrary	See section 4.5.2.4
General Comments	2	3	Comfort, discomfort, awkward	See section 4.5.2.4
Fan	3	1	Comfort, discomfort	See section 4.5.2.4
Area Rug	0	1	Balance	"The rug is a nice thought, BUT it's too small for the space."
Decor	0	1	Awkward	"Wall color is good, but not much art. Leaves the room Too open and makes me more anxious."
Magazines	1	1	Awkward	". . .it's awfully close to the door which would create an awkward moment for one perusing"
Natural Light	3	0	Balance, comfort	"The bright, natural light that is being let in would make me feel less anxious about being in a doctor's office"
Radio	0	2	Awkward	"The radio here makes me feel a little uneasy. I like having my own music, but If there's music in the office playing from a box…I might miss something said."
Reception	0	2	Awkward, discomfort	"Awkward use of space."
Trash Can	0	1	Arbitrary	"do I stick my feet in this?

				What is it there for? I mean in the last photo there was a trash for the paper Dixie cups, but if its for general trash why HERE?"
Wall Color	2	2	Comfort, discomfort, balance	"The colors of the two different rooms gives the feeling that it does not practice in the medical field;" "If someone was in this waiting area with the stomach flu, and sat there looking at the green walls, I think it would make me more stomach sick."
Toy Box	0	2	Awkward	"it looks like items are here for children but the room looks so grown up"

4.5.2.5 Regard Features

The third theme in Photo B is that of regard (n=32, 24.1%). This theme contains comments about qualities or features that relate to attention and concern for those who are waiting. This theme has two major sub-themes: consideration and inattention. These two sub-themes refer to consideration and inattention of the environment, as well as for those that might be waiting. This theme differs from comfort and appeal in that these comments reflect the environment's representation of elements that address respect for patient needs, health, hygiene and protection, as well as a show a level of thoughtfulness and respect.

Codes included in the sub-theme of consideration are: care factors, layout, and clean. *Consideration* relates to the perception that elements in the photograph portray either a sense of thoughtfulness or disregard for either the patient or the environment. Comments in this sub-theme relate to regard

in that physical elements seem to articulate a sense of respect or concern for the patient or environment.

Codes included in the sub-theme of inattention are: uncaring, outdated, and dirty. *Inattention* relates to the perception that there is a lack of attention to a certain element in the photo. Comments in this sub-theme relate to regard in that elements related to inattention show a lack of notice or neglect.

4.5.2.6 Design Elements

The design elements most associated with the theme of regard were seating, the toy box, the reception desk area, and general comments. Comments about the seating area (n=8), included the physical appearance of the chairs and their layout. All of these comments were negative, and the majority of them conveyed that the seating had an impersonal quality. Some of these comments include:

"Chairs appear too 'mass produced' with a dated print to appear 'caring'" (uncaring)

"Chairs in a row facing same direction. Too much like a cattle call line up" (layout)

Another respondent wrote, "These chairs seem to be stuffed in the corner unnecessarily and I don't want my care to reflect this!" (uncaring). Respondents also relayed that the chairs didn't match the environment, and were out of date (uncaring).

The toy box in Photo B received 5 positive comments. Overall respondents reported that the presence of the toy box was a good thing, and that it showed the provider liked children and wanted to provide a positive experience for adults and children (consideration). One comment read, "This

looks like a box of toys that would be welcoming of parents and children, the wait to see the Dr. would be a little more eased" (consideration).

The reception desk area received 4 positive comments in relation to the theme of regard. Three comments express that the design elements in this area reflect better overall care and shorter wait times. One comment states that it, "Makes office look high-end, therefore the care received probably is too" (consideration). Another comment remarks on the open design of this area, "The front desk here is definitely more accessible and open to patients. . . Better access and visibility" (care).

There were 4 general comments left relating to regard in Photo B. Three of them were positive and 1 was negative. The positive comments relate to patient needs and expectations of a care environment, and include:

"atmosphere is clean" (clean)

"Nice an open so there is room to walk around just in case there are children around" (layout)

"I would expect great care in this space" (caring)

The negative comment seems to relate to the lack of personnel in the area, "Where's my helpful receptionist?" (uncaring).

Other design features associated with the theme of regard were area rug, artwork, couch, lighting, magazine, trash can, and wall color. See Table 13 for examples of theses.

Table 13

Frequency of design elements relating to regard in Photo B.

Design element	Positive	Negative	Codes used	Sample comment
Seating	0	8	Inattention	See section 4.5.2.6
Toy Box	5	0	Consideration	See section 4.5.2.6
Reception Desk	4	0	Care	See section 4.5.2.6
General Comments	3	1	Care, clean, uncaring, layout	See section 4.5.2.6
Area rug	2	0	Layout, clean	"I like how the rug leads you to the next place you need to be. Reception, then seating, then door. Makes it an easy experience"
Artwork	1	0	Care	"Pictures on the wall don't look very expensive or like they are trying to look very expensive."
Couch	0	1	Outdated, dirty	"The outdated couch doesn't look inviting, Dark fabrics such as this one shows stains, too."
Lighting	0	1	Outdated	"Outdated floor lamp looks cheap. Old and cheap aren't two things Drs don't want associated with their practice."
Magazines	2	2	Outdated, uncaring	"something to do;" "messy"
Trash Can	0	1	Dirty	"Trash next to seat and kids toys?"
Wall Color	0	1	Uncaring	"The color is depressing. Why don't doctors choose better colors? Something that would not add to the nervous state."

Data from Photo A were subsequently analyzed using the information discovered in the Photo B analysis, and following the analysis process described by Braun and Clarke (2006). Data were coded and categorized; the themes are the same but the coding varied slightly. This analysis is presented in the following section.

4.5.3 Photo A Analysis

Analysis of Photo A comments resulted in 23 different codes. These codes, sub-themes and major themes are presented in Table 15. There were a total of 96 coded and 3 indecipherable comments for Photo A. In some cases codes used in Photo B were applicable in Photo A. Ten new codes were utilized for Photo A. These include: accommodating, annoyed, distraction, easy, exposed, good service, organized, refreshing, unnatural, and unorganized. All of the codes were sorted into themes and subthemes, utilizing the work done for Photo B. There were no new subthemes or themes developed for Photo A. Table 14 presents the categorization of codes within each theme, along with the frequency of each code and how it was categorized. The following discussion presents how each of the three themes is defined for Photo A, and a discussion of the design elements that stood out within each theme.

Table 14

Key Themes within Photo A.

Theme and Sub-theme	Code	Frequency	%
Regard		Total: 39	40.6%
Consideration	Accommodating	13	
	Distraction	4	
	Layout	4	
	Clean	3	
	Care Factors	2	
	Good Service	2	
	Easy Experience	1	
Inattention	Dirty	7	
	Uncaring	2	
	Outdated	1	
Appeal		Total: 31	32.3%
	Inviting	15	
	Boring	6	
	Open	5	
	Uninviting	4	
	Quality	4	
Comfort		Total: 26	27.0%
Physical	Comfort	11	
	Discomfort	7	
Consistency	Organized	3	
	Awkward	2 2	

Unorganized	
Arbitrary	1
	Total: 96

4.5.3.1 Regard Features

The predominant theme in Photo A is that of regard (n=39; 40.6%). As in Photo B, the theme of regard contains comments about qualities or features that relate to attention and concern for those who might be waiting. The sub-themes of regard (consideration and inattention) found in Photo B were consistent with the sub-themes identified in Photo A; however the codes varied. The new codes identified within the theme of regard were: accommodating, distraction, good service and easy experience.

Codes from Photo B that were included in analysis of Photo A are: clean, care factors, dirty, uncaring and outdated. New codes for Photo A include: accommodating, distraction, good service and easy experience. The sub-themes of consideration and inattention identified within the theme of regard in Photo B also existed in Photo A.

Codes included in the sub-theme of consideration are: accommodating, distraction, layout, clean, care factors, good service, and easy experience. As in Photo B, consideration relates to the perception that elements in the photograph portray a sense of thoughtfulness or disregard for either the patient or the environments. Codes included in the sub-theme of inattention are: dirty, uncaring, and outdated. As in Photo B, inattention relates to the perception that there is a lick of attention to a certain element in the photo.

4.5.3.2 Design Elements

The design elements most associated with the theme of regard were about the water cooler, reception area, magazines and the phone. Comments about the water cooler (n=11) included how nice it is to have a drink while one waits. The majority of the comments about the water cooler (n=8) were positive.

> "Providing water to waiting patients lets me know they care a lot and are trying to please them as much as possible and keep them comfortable" (accommodating).
>
> "This makes me feel happy because they have drinking water in case I get thirsty" (accommodating).

Two comments mentioned that having water close to the floor and a garbage bin is unhygienic:

> "Water is too close to where people put their feet. Unclean!" (dirty).
>
> "Water cooler and trash bin together…again, isn't that unhygienic? That too at a doctor's office!!!" (dirty).

The reception area in Photo A received 3 positive and 3 negative comments. Respondents that felt positively about the reception area commented that it looked easy to navigate. Two of the positive commenters noted:

> "May get a bit packed in this area if there is a line" (layout).
>
> "Good that it is right in front but if there is a big line it will become hard to enter the building"(layout).

Two of the negative comments were about the inaccessibility of the reception desk and one commented on the paperwork:

"Can't see patients. I wonder if that's going to take the pressure off them to be faster?" (layout).

"All these papers must be out so the lady sitting there doesn't have to talk to me right?" (uncaring).

The magazines in Photo A received 5 positive comments. Overall, respondents felt like the magazines provided something to do while waiting, writing that:

"I like having things to do while waiting and these are neatly kept" (distraction).

"Make yourself at home, grab a water, a magazine, stare at the pictures, we don't care! - - it gives people things to do when they wait" (distraction).

The phone received 4 positive comments and 1 negative comment in relation to regard. One responder wrote, "Is this the bad news Kleenex box next to the bad news telephone? Or is it just a nice way for people to get their boogers on the phone?" (dirty). The positive comments reflected that the phone is nice to have in case one needs to call their insurance company or for a ride. One commenter wrote, "My family member is in a wheelchair and I like that this office is accommodating her" (accommodating).

Other design features associated with the theme of regard were: artwork, general comments, natural light, seating, trashcan, air vent, flooring, garbage on floor, lighting, and tissue, and hand sanitizer. See Table 15 for examples of these.

Table 15

Frequency of design elements relating to regard in Photo A.

Design element	Positive	Negative	Codes used	Sample comment
Water cooler	9	2	Accommodating, care, dirty	See section 4.5.3.2
Reception area	3	3	Layout, easy, uncaring	See section 4.5.3.2
Magazines	5	0	Distraction	See section 4.5.3.2
Phone	4	1	Accommodating	See section 4.5.3.2
Artwork	1	1	Out of date	"Out of date, most likely 90's paintings that the facility is too cheap to replace."
General Comments	2	0	Accommodating	"Overall I would expect good service from this place"
Natural Light	2	0	Clean	"I like open doors like this with the light coming into the building, it makes it feel cleaner and less intimidating."
Seating	1	1	Good service	"The limited number of seating makes me feel as though they get through the patients quickly an there is no need to provide more chairs if they are not being used."
Trash Can	0	2	Dirty	"The trash bin so near to seating areas!! Not cool. They should keep trash at some distance…shows their standards for hygiene."
Air vent	1	0	Clean	"Fresh air"
Flooring	0	1	Dirty	". . .these types of rugs make it hard to notice

				stains and dirt”
Garbage on floor	0	1	Dirty	“Stuff laying on carpet”
Lighting	0	1	Uncaring	“Is this light broken?”
Tissue and hand sanitizer	1	0	Clean	“if that's hand sanitizer, it just makes it seem like the office is really clean”

4.5.3.3 Appeal Features

Thirty-one (32.3%) comments were within the theme of appeal. As in Photo B, this theme contains comments that relate to visual interest, the approachability of features, and the presence of things to do while one waits. The codes from Photo B included in the analysis of Photo A were: inviting, uninviting, quality, open, and boring. The code of refreshing was added for this analysis. These codes reflect comments that expressed the environment’s attractive or inviting appearance, and experience of quality, including its ability to relay pleasure or boredom.

4.5.3.4 Design Features

The design elements most associated with the theme of appeal were general comments, water cooler, seating, artwork, and reception area. The general comments were all positive and conveyed that respondents felt the office in Photo A was an open and inviting area. Some of the comments that reflect this are as follows:

“Open but yet in closed and out of the way and nicely decorated” (open).

“This is a fine area” (inviting).

The seating in Photo A was not rated to be appealing. Three of the negative comments conveyed that the chairs were “boring”, and a “let down”. One of the respondents felt that the seating was, “Secluded and the couch, no

one wants to sit that close to a stranger" (uninviting). The single positive comment reflected joy in the presence of a Love seat, "Love seat ba-baby" (inviting).

The water cooler received 5 total comments, 4 positive and 1 negative. Positive comments about the water cooler represent care, friendliness, and quality service. One commenter stated, "Water for patients shows that they care about them. I expect to receive higher quality service …" (quality). The negative comment about the water cooler stated, "I'm not too excited over seeing such a plastic looking fountain, though I understand it's sanitary, but it looks lifeless. I'd prefer something a little happy" (uninviting).

Three comments were related to the appeal of Photo A's artwork. Two comments convey the artwork to be unappealing, "No pictures on the wall? Or artwork at all?" (boring); "Boring, like the wall paper," (boring). One commenter felt the artwork was "nice" (inviting).

The reception area also received three comments related to appeal. One respondent felt the reception had a "friendly entrance" (inviting). The negative comments are as follows:

> "Greeting is nicely located but not as friendly looking" (uninviting) and "I like the welcome counter at the very front, but it doesn't seem very welcoming" (uninviting).

Other design features associated with the theme of appeal were: entry door, magazines, wall covering, lighting, tissue and hand sanitizer, and the window. See Table 16 for examples of these.

Table 16

Frequency of design elements relating to appeal in Photo A.

Design element	Positive	Negative	Codes used	Sample comment
General	6	0	Inviting, open	See section 4.5.3.4
Seating	1	4	Boring, inviting, uninviting	See section 4.5.3.4
Water Cooler	4	1	Inviting, uninviting, quality, refreshing	See section 4.5.3.4
Artwork	1	2	Boring, inviting	See section 4.5.3.4
Reception Area	1	2	Inviting, uninviting	"I like the welcome counter at the very front, but it doesn't seem very welcoming."
Entry Door	2	0	Open	"Open and inviting . . .doesn't make you feel closed in like a lot of Drs offices do."
Magazines	2	0	Quality, inviting	"I like that the magazines racks are also decorative. More inviting than standard shelves or thrown on a table."
Wall Covering	0	2	Boring	"would not want to stare at this wallpaper for 10 or more minutes."
Tissue and Hand Sanitizer	0	1	Uninviting	"I always feel sicker when I see these things out. Tissues, hand sanitizer. I understand it's convenient, but it just gets me worrying about diseases.."
Lighting	0	1	Uninviting	"Something about these fluorescent lighting and the small window make me feel sick."
Window	0	1	Uninviting	"closed window its less inviting"

4.5.3.5 Comfort Features

The theme of comfort represents 27.0% (n=26) of the coded comments in Photo A. As in Photo B, this data contains comments about qualities or features that provide a sense of physical or mental comfort for those that might be waiting, including features that may provide support or assurance that the wait will be free of pain or distress. As in the Photo B analysis, this theme has two sub-themes: consistency and physical comfort.

Codes included within the sub-theme of consistency are: arbitrary, awkward, organized, and unorganized. The code of balanced did not apply to any of the comments in Photo A, as it did in Photo B. Organized and unorganized were two codes added to the sub-theme of consistency for Photo A. Consistency relates to the harmony of features and how they relate to the environment or expectations of the environment as a whole. Comments in this sub-theme relate to comfort, in that if an element seemed to be out of place with the environment or placed without purpose, respondents felt uncomfortable.

Codes included in the sub-theme of physical comfort for Photo A are: comfort and discomfort. Comments in this sub-theme related to elements that provide physical or mental comfort. As in Photo B this sub-theme relays feelings of relief, well-being, or uneasiness.

4.5.3.6 Design Elements

The design elements most associated with the theme of comfort and its sub-themes were: seating, magazines, plants, and general comments. Seating received the highest number of comments in this theme (n=7). There were 4 positive comments and 3 negative comments associated with seating

and comfort. The positive comments conveyed that the seating looked comfortable in its appearance, its location and the amount of seating available. The following are two sample comments within this category:

"Seating looks comfortable and open. Not right in front of door" (comfort).

"The chairs seem decently comfortable and inviting. Plenty of seating for visitors" (comfort).

Three positive comments and 1 negative comment were left for the magazines in Photo A. The comments reflected a sense of comfort through the consistency of organization. One respondent wrote, "This is great to have magazines on the side like this. It's rather frustrating to have stacks upon stacks next to the seating area on the table" (organized). Another respondent wrote, "tough access but clean looking display," (organized); this respondent associated a positive emotional marker with the comment. The one negative response to the magazines was also related to the location of the magazines "The magazine racks could be a little closer to the chairs. I feel anxious and nervous if I have to walk a little for them." (discomfort).

The plants in Photo A received 2 positive and 2 negative comments. The respondents leaving negative comments both stated that the plants in Photo A looked "fake" (awkward). One commenter said, "Fake plants don't mesh well with the unnatural lighting in the room" (awkward). The two positive comments about plants suggested that they provided a sense of comfort. These two comments read:

"Good to see potted plants here. Better if they placed flowers too. Gives a personal touch and again, makes you feel they care for your comfort" (comfort).

"Gives the illusion of home and comfort" (comfort).

Three general comments were left. One person responded positively, stating, "Seems like a comfortable waiting area" (comfort). Two others relayed a sense of discomfort and stated:

"Having to walk all this way from this side of the room to the door" (discomfort).

"Nothing special about the reception room. Really open and a little uncomfortable" (discomfort).

Other design features associated with the theme of comfort were: artwork, flooring, lighting, phone, reception area, and the trash can. See Table 17 for examples of these.

Table 17

Frequency of comfort design elements in Photo A.

Design element	Positive	Negative	Codes used	Sample comment
Seating	4	3	Comfort, discomfort	See section 4.5.3.6
Magazines	3	1	Discomfort, organized	See section 4.5.3.6
Plants	2	2	Awkward, comfort	See section 4.5.3.6
General Comments	1	2	Comfort, discomfort	See section 4.5.3.6
Lighting	1	1	Comfort, discomfort	"The dim, yet adequately provided lighting allows me to feel relaxed in a safe environment."
Reception Area	1	1	Comfort, unorganized	"The front desk is far away from the waiting area which makes me feel more comfortable about coming in for whatever reason it

				may be.”
Artwork	1	1	Comfort	“Pictures give the feeling of home or comfortability. Same with the plants.”
Flooring	1	1	Comfort	“Carpet is so much warmer than tile in a waiting room.”
Phone	0	1	Arbitrary	“Don’t like this phone here or the type of phone, it looks too standard. I feel annoyed and it's not even my job to answer it if it rings”
Trash Can	0	1	Unorganized	“I don't like seeing the trash can liner”

To conclude, this thematic analysis aided in understanding the perceptions of the young adults that participated in this particular study. Through analysis of each comment, three broad themes were developed: appeal, comfort, and regard. These three themes help in providing insight into how the physical environment informed the participants’ perceptions of quality of care and why the physical features were rated as they were for each waiting area photo.

4.6 Research Question Three

Research question three asks, what is the relationship between demographic characteristics (gender, age, and ethnicity)? To answer this, the total number of comments, number of positive and negative comments, emotional markers used, themes, and the most commented on design features, were compared by gender (male/female), age groupings (18-19, 20-22, 23-24), and ethnic groups (Hispanic and White).

4.6.1 Gender

4.6.1.1 Total Number of Comments and Gender

Each photo received comments from both females and males. There were a total of 155 (66.2%) comments left by females and 79 (33.8%) comments left by males for both photos. On average, females left more comments for both Photo A and B than did the males in this study (see Table 18 and 19).

On average, female respondents left 4.7 comments for both photos, with an average of 4.5 comments for Photo A and 4.8 comments for Photo B (Table 18).

Table 18

Total number of female respondents and comments for Photo A and B.

	# of female respondents	Total # of comments	Mean # of responses
Photo A	14	63	4.5
Photo B	19	92	4.8

Male respondents left an average of 3.8 comments for both photos, with an average of 3.6 comments for Photo A and 4.0 comments for Photo B (Table 19).

Table 19

Total number of male respondents and comments for Photo A and B.

	# of male respondents	Total # of comments	Mean # of responses
Photo A	9	36	3.6
Photo B	12	43	4.0

4.6.1.2 Positive Comments and Gender

All respondents had the opportunity to leave one of 4 positive or 4 negative emotional markers. Females left more positive comments for both photos than males. This information can be viewed in Tables 20 and 21.

Females left an average of 3.2 positive comments for both photos with more positive comments for Photo B than Photo A (Table 20).

Table 20

Total number of positive comments left by females for Photo A and B.

	# of female respondents	Total # of comments	Mean # of responses
Photo A	12	37	2.6
Photo B	19	61	3.2

Males left the same average number of positive comments for both photos.

Table 21

Total number of positive comments left by males for Photo A and B.

	# of male respondents	Total # of comments	Mean # of responses
Photo A	6	13	2.2
Photo B	9	20	2.2

4.6.1.3 Negative Comments and Gender

The average number of negative comments left for Photo B by females and males was similar at 1.9 and 1.8 comments, respectively. This information can be viewed in Tables 22 and 23.

More negative comments were left for Photo A than for Photo B by females. This information can be viewed in Table 22.

Table 22

Total number of negative comments left by females for Photo A and B.

	# of female respondents	Total # of comments	Mean # of responses
Photo A	10	37	2.6
Photo B	18	34	1.9

Males left slightly more negative comments for Photo A than Photo B. This information can be viewed in Table 23.

Table 23

Total number of negative comments left by males for Photo A and B.

	# of male respondents	Total # of comments	Mean # of responses
Photo A	6	13	2.2
Photo B	11	20	1.8

4.6.1.4 Emotional Markers and Gender

Both genders had the opportunity to associate the following positive and negative emotional markers with their comments: satisfaction, joy, desire and fascination, boredom, sad, dissatisfied, and disgust. The following shows the frequency at which males and females used each emotional marker. Among all the emotional markers used for both photos, satisfaction and joy were used the most; desire and dissatisfaction were used the least by the respondents in this study.

4.6.4.1.1 Photo A

Of all the emotional markers left by both genders for Photo A, satisfaction (24.4%) and joy (21.2%) were used the most. The emotional marker used the least by both genders in Photo A was dissatisfaction (6.1%).

Out of all the emotional markers used by females in Photo A (n=63), joy (23.8%) was used the most followed by satisfaction (19.0%). Desire (6.3%) and dissatisfaction (6.3%) were used the least. Of all the positive markers used by females in Photo A joy was used the most. Of the negative markers used they used sad, bored, and disgust almost equally. Table 24 and

25 show the frequency and percentage of positive and negative markers left by females for Photo A.

Table 24

Total number of each positive emotional marker left by females for Photo A.

	Satisfaction	Joy	Desire	Fascination	Total
Frequency	12	15	4	6	37
%	32.4%	40.1%	10.8%	16.2%	100.0%

Table 25

Total number of each negative emotional marker left by females for Photo A.

	Sad	Bored	Disgust	Dissatisfied	Total
Frequency	8	7	7	4	26
% of all Photo A comments	12.7%	11.1%	11.1%	6.3%	41.3%

Out of all the emotional markers used by males in Photo A (n=36), satisfaction (25.0%) was used the most followed by joy (15.9%). Desire (4.5%) was used the least. Of all the positive markers used,used satisfaction over 50% of the time. Males rarely used disgust and dissatisfied for Photo A. Table 26 and 27 show the frequency and percentage of positive and negative markers left by males for Photo A.

Table 26

Total number of each positive emotional marker left by males for Photo A.

	Satisfaction	Joy	Desire	Fascination	Total
Frequency	12	6	2	3	23
%	52.2%	26.1%	8.7%	13.0%	100.0%

Table 27

Total number of each negative emotional marker left by males for Photo A.

	Sad	Bored	Disgust	Dissatisfied	Total
Frequency	5	5	1	2	13
%	38.5%	38.5%	7.7%	15.4%	100.0%

4.6.4.1.2 Photo B

Of all the emotional markers left by both genders for Photo B, satisfaction (23.7%) was used the most. The emotional marker used the least by both genders in Photo B was desire (5.9%).

Out of all the emotional markers used by females in Photo B (n=92), satisfaction (23.9%) was used the most. Desire (6.5%) and sad (5.4%) were used the least. Of all the positive markers used satisfaction and joy were used over 50.0% of the time. Table 28 and 29 show the frequency and percentage of positive and negative markers left by females for Photo B.

Table 28

Total number of each positive emotional marker left by females for Photo B.

	Satisfaction	Joy	Desire	Fascination	Total
Frequency	22	14	6	16	58
%	37.9%	24.1%	10.3%	27.6%	100.0%

Table 29

Total number of each negative emotional marker left by females for Photo B.

	Sad	Bored	Disgust	Dissatisfied	Total
Frequency	5	9	10	10	34
%	14.7%	26.5%	29.4%	29.4%	100.0%

Out of all the emotional markers used by males in Photo B (n=43), satisfaction (23.3%) was used the most followed by joy (16.3%). Desire (4.7%) was used the least. Of all the positive comments left by males, satisfaction was used the most. Of all the negative markers, sad and bored were used 60% of the time. Table 30 and 31 show the frequency and percentage of positive and negative markers left by males for Photo B.

Table 30

Total number of each positive emotional marker left by males for Photo B.

	Satisfaction	Joy	Desire	Fascination	Total
Frequency	10	7	2	4	23
%	43.4%	30.4%	8.7%	17.4%	100.0%

Table 31

Total number of each negative emotional marker left by males for Photo B.

	Sad	Bored	Disgust	Dissatisfied	Total
Frequency	6	6	4	4	20
%	30.0%	30.0%	20.0%	20.0%	100.0%

4.6.1.5 Themes and Gender

Using the thematic analysis from section 4.5 a comparison of gender to frequency of theme was conducted. Among both genders' comments, appeal (35.7%) was found to be the most frequent theme in Photo A and B, followed by comfort (31.9%) and regard (30.2%) (Table 32).

Table 32

Total number of comments per each theme for Photo A and B.

	Appeal	Comfort	Regard	Unknown	Total
Female	57	46	48	4	155
Male	26	29	23	1	79
Total	83	75	71	5	234

The most frequent theme found among comments from females for Photo A was regard (39.7%). The most frequent theme for males was also regard (38.9%), followed by appeal (36.1%), as indicated in Table 33.

Table 33

Total number of comments per each theme among females and males for Photo A.

	Appeal	Comfort	Regard	Unknown	Total
Female	18	17	25	3	63
Male	13	9	14	0	36
Total	31	26	39	3	99

The most frequent theme found among comments from females for Photo B was appeal (42.4%). The most frequent theme for males was comfort (46.5%) see Table 34.

Table 34

Total number of comments per each theme among females and males for Photo B.

	Appeal	Comfort	Regard	Unknown	Total
Female	39	29	23	1	92
Male	13	20	9	1	43
Total	52	49	32	2	135

4.6.1.6 Features and Gender

A comparison of gender to the number of comments for each feature was conducted for both Photo A and B separately. In Photo A, of the comments left by females, the most comments were for seating (17.5%)

followed by the water cooler (15.9%). In Photo A, of the comments left by males, the most comments were general comments (17.4%) followed by the water cooler (13.0%). Both genders rated the water cooler positively.

Each feature was examined for positive and negative responses and compared to gender for Photo A and B. In Photo A, of the comments left by females, the most positive comments were for magazines (11.1%) and the water cooler (11.1%). Of all the comments left by males, the features with the most positive comments were general comments (16.7%) and the water cooler (16.7%). The feature with the most negative comments from females in Photo A was seating (9.5%). The feature with the most negative comments from males in Photo A was the reception area (8.3%) (see Table 35).

Table 35

Frequency of positive and negative ratings for features in Photo A.

	Female		Male	
Feature	Positive	Negative	Positive	Negative
Air Vent	-	-	1	-
Artwork	3	1	1	2
Entry Door	1	-	1	-
Flooring	-	1	-	-
Garbage on Floor	-	-	-	1
General	3	-	6	2
Lighting	1	2	-	1
Magazine	7	1	3	-
Natural Light	2	-	-	-

Phone	2	1	2	1
Plant	2	2	-	-
Reception	3	3	2	3
Seating	5	6	1	2
Tissue & Hand Sanitizer	1	1	-	-
Trash Can	-	3	-	-
Wall Covering	-	1	-	1
Water cooler	7	3	6	-
Window	-	1	-	-
Total	37	26	23	13

In Photo B, of the comments left by females, the most comments were for seating (15.2%) followed by natural light (13.0%). In Photo B, of the comments left by males, the most comments were for the reception area (16.3%) followed by seating (16.3%). Of all the comments left by females, the features with the most positive comments in Photo B were natural light (13.0%) and the reception area (7.6%). Of all the comments left by males, the features with the most positive comments in Photo B were general comments (11.6%) and the reception area (11.6%). The feature with the most negative comments from females in Photo B was seating (12.0%). The feature with the most negative comments from males in Photo B was seating (16.2%) (see Table 36).

Table 36

Frequency of positive and negative ratings for features in Photo B.

	Female		Male	
Feature	Positive	Negative	Positive	Negative
Area Rug	2	1	-	-
Artwork	2	-	-	-
Chairs	-	1	-	-
Couch	6	2	4	1
Décor	2	2	-	-
Dried Flowers	-	-	-	2
Door to Exam	-	1	1	-
Fan	2	1	1	-
Flooring	-	1	1	-
General	-	5	5	1
Lighting	1	1	2	-
Magazines	2	1	1	2
Natural Light	12	-	-	-
Plant	3	-	-	-
Radio	-	2	-	-
Reception	7	-	5	2
Seating	3	11	-	7
Stone	6	-	1	-
Stool	-	-	-	1
Toy Box	5	1	1	2
Trash Can	-	1	-	1

Wall Color	4	3	1	1
Window	1	-	-	-
Total	58	34	23	20

4.7 Age

4.7.1 Total Number of Comments per Age Group

Each photo received comments from respondents ranging in ages from 18 to 24. For this analysis the respondents have been grouped into 3 age groups (18-19, 20-22, 23-24). This was done in a 2-3-2 grouping because of there were very few 22-year-old respondents. The average number of comments left by each age group along with the overall average number of comments for Photo A and B can be seen in Table 37. The most comments were left by the 18 to 19 year-old age group for both Photos A and B. Twenty-two-year-olds, on average, left the fewest number of comments.

Table 37

Total number of comments left by each age for Photo A and B.

Age Group	Photo A Comments	Photo A Average # of Comments	Photo B Comments	Photo B Average # of Comments	Overall Average # of Comments
18-19	18	6.0	35	5.0	5.3
20-22	41	3.7	51	3.6	3.8
23	40	4.4	49	4.9	4.7

Each photo received comments from all age groups. There were a total of 53 (22.6%) comments left by 18 to 19-year-olds, 92 (39.3%) comments for 20 to 22 year olds, and 89 (38.0%) comments for 23 to 24-year-olds for both photos.

Across all of the age groups, the youngest age group left the greatest average number of comments for both photos. This was followed by 23 and 24-year-olds that left an average of 4.9 comments for Photo B. The total number of comments left by each age group for Photo A and B can be viewed in Tables 38-39.

Table 38

Total number of 18-19-year-old respondents and comments for Photo A and B.

	# of respondents	Total # of comments	Mean # of responses
Photo A	3	18	6
Photo B	7	35	5

Table 39

Total number of 20-22-year-old respondents and comments for Photo A and B.

	# of respondents	Total # of comments	Mean # of responses
Photo A	11	41	3.7
Photo B	14	51	3.6

Table 40

Total number of 23-24-year- old respondents and comments for Photo A and B.

	# of respondents	Total # of comments	Mean # of responses
Photo A	9	40	4.4
Photo B	10	49	4.9

4.7.2 Positive Comments and Age

All respondents had the opportunity to leave one of 4 positive or 4 negative emotional markers. On average, the youngest group left the fewest positive comments for Photo A, and the 23 to 24-year-olds left the most positive comments. For Photo B, the 18 to 19-year-olds, on average, left the most number of positive comments, and the 20 to 22-year-olds left the fewest. This information can be viewed in Tables 41-43.

Table 41

Total number of positive comments left by 18-19-year-olds for Photo A and B.

	# of respondents	Total # of comments	Mean # of responses
Photo A	3	4	1.3
Photo B	7	26	3.7

Table 42

Total number of positive comments left by 20-22-year-olds for Photo A and B.

	# of respondents	Total # of comments	Mean # of responses
Photo A	11	28	2.5
Photo B	14	30	2.1

Table 43

Total number of positive comments left by 23-24-year-olds for Photo A and B.

	# of respondents	Total # of comments	Mean # of responses
Photo A	9	26	2.8
Photo B	10	26	2.6

4.7.3 Negative Comments and age

On average, 18 to 19-year-olds left the greatest number of negative comments and 20 to 22-year-olds left the fewest for both photos. For Photo A, 18 to 19-year-olds on average left the most number of negative comments. However, only 3 respondents left comments in this age group, one respondent left 11 negative comments, skewing the average up. For Photo B, 23 to 24-year-olds left on average, the most number of negative comments. This information can be in Tables 44-46.

Table 44

Total number of negative comments left by 18-19-year-olds for Photo A and B.

	# of respondents	Total # of comments	Mean # of responses
Photo A	3	14	4.6
Photo B	7	9	1.2

Table 45

Total number of negative comments left by 20-22-year-olds for Photo A and B.

	# of respondents	Total # of comments	Mean # of responses
Photo A	11	13	1.2
Photo B	14	21	1.5

Table 46

Total number of negative comments left by 23-24-year-olds for Photo A and B.

	# of respondents	Total # of comments	Mean # of responses
Photo A	9	14	1.5
Photo B	10	23	2.3

4.7.4 Emotional markers and age

All age groups had the opportunity to associate the same 8 emotional markers with their comments. The following shows the frequency at which

each age group used each of the positive and negative emotional markers for each photo.

4.7.4.1 Photo A

Out of all of the emotional markers used by 18 to 19-year-olds in Photo A (n=18), disgust (33.3%) was used the most followed by bored (16.7%) and sad (16.7%). Desire and fascination were not used by this age group for Photo A. Tables 47 and 48 show the frequency and percentage of positive and negative markers left by 18 to 19-year-olds for Photo A.

Table 47

Total number of each positive emotional marker left by 18-19-year-olds for Photo A.

	Satisfaction	Joy	Desire	Fascination	Total
Frequency	2	2	0	0	4
%	50.0%	50.0%	0%	0%	100.0%

Table 48

Total number of each negative emotional marker left by 18-19-year-olds for Photo A.

	Sad	Bored	Disgust	Dissatisfied	Total
Frequency	3	3	6	2	14
%	21.4%	21.4%	42.9%	14.3%	100.0%

Out of all of the emotional markers used by 20 to 22-year-olds in Photo A (n=41), satisfaction (36.6%) was used the most followed by joy

(14.6%), fascination (14.6%) and sad (14.6%). Disgust was not used by this age group for Photo A. Tables 49 and 50 show the frequency and percentage of positive and negative markers left by 20 to 22-year-olds for Photo A.

Table 49

Total number of each positive emotional marker left by 20-22-year-olds for Photo A.

	Satisfaction	Joy	Desire	Fascination	Total
Frequency	15	6	4	6	31
%	48.4%	19.4%	12.9%	19.4%	100.0%

Table 50

Total number of each negative emotional marker left by 20-22 year olds for Photo A.

	Sad	Bored	Disgust	Dissatisfied	Total
Frequency	6	3	0	1	10
%	60.0%	30.0%	0%	10.0%	100.0%

Out of all of the emotional markers used by 23 to 24-year-olds in Photo A (n=40), joy (32.5%) was used the most followed by satisfaction (17.5%), and bored (15.0%). Disgust (5.0%) and fascination (5.0%) were used the least by this age group for Photo A. Tables 54 and 55 show the frequency and percentage of positive and negative markers left by 23 to 24-year-olds for Photo A.

Table 51

Total number of each positive emotional marker left by 23-24-year-olds for Photo A.

	Satisfaction	Joy	Desire	Fascination	Total
Frequency	7	13	3	2	25
%	28.0%	52.0%	12.0%	8.0%	100.0%

Table 52

Total number of each negative emotional marker left by 23-24-year-olds for Photo A.

	Sad	Bored	Disgust	Dissatisfied	Total
Frequency	4	6	2	3	15
%	26.7%	40.0%	13.3%	20.0%	100.0%

4.7.4.2 Photo B

Out of all of the emotional markers used by 18 to 19-year-olds in Photo B (n=35), satisfaction (28.6%) was used the most followed by joy (14.3%). Disgust (2.9%) was used the least by this age group for Photo B. Tables 53 and 54 show the frequency and percentage of positive and negative markers left by 18 to 19-year-olds for Photo B.

Table 53

Total number of each positive emotional marker left by 18-19-year-olds for Photo A.

	Satisfaction	Joy	Desire	Fascination	Total
Frequency	10	6	5	5	26
%	38.5%	23.1%	19.2%	19.2%	100.0%

Table 54

Total number of each negative emotional marker left by 18-19-year-olds for Photo A.

	Sad	Bored	Disgust	Dissatisfied	Total
Frequency	2	4	1	2	9
%	22.2%	44.4%	11.1%	22.2%	100.0%

Of the emotional markers used by 20 to 22-year-olds in Photo B (n=51), satisfaction (29.4%) was used the most followed by fascination (13.7%), joy (11.8%), bored (11.8%), and dissatisfied (11.8%). Desire (3.9%) was used the least by this age group for Photo B. Tables 55 and 56 show the frequency and percentage of positive and negative markers left by 20 to 22-year-olds for Photo B.

Table 55

Total number of each positive emotional marker left by 20-22-year-olds for Photo A.

	Satisfaction	Joy	Desire	Fascination	Total
Frequency	15	6	2	7	30
%	50.0%	20.0%	6.7%	23.3%	100.0%

Table 56

Total number of each negative emotional marker left by 20-22-year-olds for Photo A.

	Sad	Bored	Disgust	Dissatisfied	Total
Frequency	4	6	5	6	21
%	19.0%	28.6%	23.8%	28.6%	100.0%

Of the emotional markers used by 23 to 24-year-olds in Photo B (n=49), joy (18.4%) was used the most followed by fascination (16.3%), and disgust (16.3%). Desire (2.0%) was used the least by this age group for Photo B. Tables 57 and 58 show the frequency and percentage of positive and negative markers left by 23 to 24-year-olds for Photo B.

Table 57

Total number of each positive emotional marker left by 23-24-year-olds for Photo A.

	Satisfaction	Joy	Desire	Fascination	Total
Frequency	7	9	1	8	25
%	28.0%	52.0%	12.0%	8.0%	100.0%

Table 58

Total number of each negative emotional marker left by 23-24-year-olds for Photo A.

	Sad	Bored	Disgust	Dissatisfied	Total
Frequency	5	5	8	6	24
%	26.7%	40.0%	13.3%	20.0%	100.0%

4.7.5 Themes and Age

Using the thematic analysis from Section 4.5, a comparison of age group to frequency of theme was conducted (see Table 59).

Table 59

Total number of comments per each theme for Photo A and B.

Age Group	Appeal	Comfort	Regard	Unknown	Total
18-19	20	15	18	0	53
20-22	28	32	28	4	92
23-24	35	28	25	1	89
Total %	35.5%	32.1%	30.3%	2.1%	100%

The most frequent theme found among comments from 18 to 19 year olds in Photo A was regard (44.0%). Regard was also the most frequent theme for 20 to 22 (36.6%). For the oldest respondents, regard (40.0%) and appeal (37.5%) were the most popular themes (see Table 60).

Table 60

Total number of comments per theme among each age group for Photo A.

Age Group	Appeal	Comfort	Regard	Unknown	Total
18-19	6	4	8	0	18
20-22	10	13	15	3	41
23-24	15	9	16	0	40
Total	31	26	39	3	99

The most frequent theme found among all the comments from 18 to 19 year olds in Photo B was appeal (40.0%). Comfort (37.3%) and appeal (35.3%) were the most common themes for respondents 20 to 22-year-olds. For the oldest respondents, appeal (40.0%) and comfort (38.8%) were the most popular themes (see Table 61).

Table 61

Total number of comments per theme among each age group for Photo B.

Age Group	Appeal	Comfort	Regard	Unknown	Total
18-19	14	11	10	0	35
20-22	18	19	13	1	51
23-24	20	19	9	1	49
Total	52	49	32	2	135

4.7.6 Features and Age

A comparison of age to the number of comments for each feature was conducted for both Photo A and B separately. In Photo A, of the comments left by 18 to 19-year - the most comments were for seating (16.7%) and the water cooler (16.7%). In Photo A, of the comments left by 20 to 22-year-olds, the most comments were for the water cooler (17.1%) followed by general comments (14.6%) and magazines (14.6%). In Photo A, of the comments left by 23 to 24-year-olds, the most comments were for the reception area (17.5%) followed by the water cooler (15.0%).

Each feature was examined for positive and negative responses and compared to each age range for Photo A and B. In Photo A, 4 features received 1 positive comment each from the 18 to 19-year-old age group. These include a general comment (5.6%), magazines (5.6%), natural light (5.6%), and the water cooler (5.6%). This age group gave the most negative responses to seating (16.7%). The feature with the most positive comments from the 20 to 22-year-old age group was the water cooler (17.1%) followed by magazines (12.2%); seating (7.3%) received the most negative comments

from this age group. The feature that received the most positive comments from the 23 to 24-year-olds was the water cooler (12.5%) followed by general comments (10.0%) and magazines (10.0%). The feature that received the most negative comments from this age group was the reception area (12.5%) (see Table 62).

Table 62

Frequency of positive and negative ratings for features in Photo A.

	18 - 19		20 – 22		23 - 24	
Feature	Positive	Negative	Positive	Negative	Positive	Negative
Air vent	-	-	-	-	1	-
Artwork	-	1	2	-	1	2
Entry Door	-	-	1	-	1	-
Flooring	-	1	-	-	1	-
Garbage on floor	-	-	-	1	-	-
General	1	-	4	2	4	-
Lighting	-	2	1	-	-	1
Magazines	1	-	5	1	4	-
Natural Light	1	-	-	-	1	-
Phone	-	1	2	-	2	1
Plant	-	1	1	1	1	-
Reception	-	1	3	-	2	5
Seating	-	3	4	3	2	2
Tissue & Hand	-	1	1	-	-	-

Sanitizer						
Trash Can	-	1	-	-	-	2
Wall cover	-	-	-	1	-	1
Water cooler	1	2	7	-	5	1
Window	-	-	-	1	-	-
Total	4	14	31	10	25	15

In Photo B, of the comments left by 18 to19-year-olds, the most comments were for seating (20.0%). In Photo B, of the comments left by 20 to 22-year-olds, the most comments were also for seating (17.6%), followed by general comments (11.8%) and the couch (11.8%). In Photo B, of the comments left by 23 to 24-year-olds, the most comments were for the reception area (17.5%) followed by the water cooler (15.0%).

For 18 to 22-year-olds, seating had the most number of negative comments. Natural light (11.4%) and the reception area (11.4%) had the most number of positive among the 18 to 19-year-olds age group in Photo B. The features with the most positive comments from the 20 to 22-year-old age group were the couch (7.8%), general comments (7.8%), and the stone work (7.8%). The features that received the most positive comments from the 23 to 24-year-olds were natural light (12.2%) and the reception area (10.2%) (see Table 63).

Table 63

Frequency of positive and negative ratings for features in Photo B.

	18 - 19		20 – 22		23 - 24	
Feature	Positive	Negative	Positive	Negative	Positive	Negative
Area Rug	1	-	-	-	1	1
Artwork	1	-	1	-	-	-
Chairs	-	-	-	-	-	1
Couch	2	-	4	2	4	1
Décor	-	1	1	1	1	-
Dried Flowers	-	-	-	-	-	2
Door to Exam	-	-	-	-	1	1
Fan	1	1	1	-	1	-
Flooring	-	-	1	-	-	1
General	-	2	4	2	1	2
Lighting	1	-	1	-	1	1
Magazines	-	-	2	2	1	1
Natural Light	4	-	2	-	6	-
Plant	2	-	1	-	-	-
Radio	-	1	-	1	-	-
Reception	4	-	3	1	5	1
Seating	3	4	-	9	-	5
Stone	2	-	4	-	1	-
Stool	-	-	-	-	-	1
Toy Box	3	-	2	1	1	2
Trash Can	-	-	-	1	-	1
Wall Color	2	-	3	1	-	3
Window	-	-	-	-	1	-
Total	26	9	30	21	25	24

4.8 Ethnicity

4.8.1 Total Number of Comments Per Ethnicity

Each photo received comments from respondents varying in reported ethnicity. Two ethnicities, Hispanic or Latino (n=5) and White (n=20), are compared in this section. The other ethnicities reported (African American, Asian, and Native Hawaiian or other Pacific Islander) all had less than 5 respondents, too few for meaningful analysis.

There were a total of 151 comments left by the White respondents and 36 comments left by the Hispanics or Latino respondents for both photos. On average, Hispanic and Latino respondents left 4.5 comments for both photos and White respondents left 4.6 comments for both photos. The Hispanic and Latino respondents left, on average, the most comments for Photo A and the fewest for Photo B. These results can be viewed in Tables 64 and 65.

Table 64

Total number of White respondents and comments for Photo A and B.

	# of White respondents	Total # of comments	Mean # of responses
Photo A	14	62	4.4
Photo B	19	89	4.7

Table 65

Total number of Hispanic or Latino respondents and comments for Photo A and B.

	# of Hispanic or Latino respondents	Total # of comments	Mean # of responses
Photo A	3	16	5.3
Photo B	5	20	4.0

4.8.2 Positive Comments and Ethnicity

All respondents had the opportunity to leave one of 4 positive or 4 negative emotional markers. This information can be viewed in Table 66.

Table 66

Total number of positive comments left by White respondents for Photo A and B.

	# of White respondents	Total # of comments	Mean # of responses
Photo A	14	43	3.1
Photo B	19	47	2.5

More positive comments were left for Photo B by Hispanic or Latino respondents. This information can be viewed in Table 67.

Table 67

Total number of positive comments left by Hispanic or Latino respondents for Photo A and B.

	# of Hispanic or Latino respondents	Total # of comments	Mean # of responses
Photo A	3	4	1.3
Photo B	5	16	3.2

4.8.3 Negative Comments and Ethnicity

More negative comments were left for Photo B than Photo A by White respondents. This information can be viewed in Table 68.

Table 68

Total number of negative comments left by White respondents for Photo A and B.

	# of White respondents	Total # of comments	Mean # of responses
Photo A	14	19	1.4
Photo B	19	42	2.2

On average, 3.2 more negative comments were left for Photo A than Photo B by Hispanic or Latino respondents. This information can be viewed in Table 69.

Table 69

Total number of negative comments left by Hispanic or Latino respondents for Photo A and B.

	# of Hispanic or Latino respondents	Total # of comments	Mean # of responses
Photo A	3	12	4.0
Photo B	5	4	0.8

4.8.4 Emotional Markers and Ethnicity

Both ethnicities had the opportunity to associate the following positive and negative emotional markers with their comments: satisfaction, joy, desire and fascination, boredom, sad, dissatisfied, and disgust. The following shows the frequency at which White and Hispanic or Latino respondents used each emotional marker.

4.8.4.1 Photo A

Of all the emotional markers left by both White and Hispanic or Latino respondents for Photo A, satisfaction (18.7%) and joy (18.7%) were used the most. The emotional markers used the least by both ethnicities in Photo A were desire (6.5%) and dissatisfaction (7.5%).

Out of all the emotional markers used by White respondents in Photo A (n=151), joy (21.9%) was used the most followed by satisfaction (17.9%); desire (5.3%) was used the least. Table 70 and 71 show the frequency and percentage of positive and negative markers left by White respondents for Photo A.

Table 70

Total number of each positive emotional marker left by White respondents for Photo A.

	Satisfaction	Joy	Desire	Fascination	Total
Frequency	18	19	3	3	43
%	41.9%	44.2%	7.0%	7.0%	100.0%

Table 71

Total number of each negative emotional marker left by White respondents for Photo A.

	Sad	Bored	Disgust	Dissatisfied	Total
Frequency	8	7	2	2	19
% of all Photo A comments	42.1%	36.8%	10.5%	10.5%	100.0%

Out of all the emotional markers used by Hispanic or Latino respondents in Photo A (n=16), disgust (37.5%) was used the most. Desire (6.3%) and fascination (6.3%) were used the least. Table 72 and 73 show the frequency and percentage of positive and negative markers left by Hispanic and Latino respondents for Photo A.

Table 74

Total number of each positive emotional marker left by Hispanic or Latino respondents for Photo A.

	Satisfaction	Joy	Desire	Fascination	Total
Frequency	2	0	1	1	4
%	50.0%	-	25.0%	25.0%	100.0%

Table 73

Total number of each negative emotional marker left by Hispanic or Latino respondents for Photo A.

	Sad	Bored	Disgust	Dissatisfied	Total
Frequency	2	2	6	2	12
% of all Photo A comments	16.7%	16.7%	50.0%	16.7%	100.0%

4.8.4.2 Photo B

Of all the emotional markers left by both ethnicities for Photo B (n=109), satisfaction (22.9%) was used the most. The emotional marker used the least by both genders in Photo B was desire (7.3%).

Out of all the emotional markers used by White respondents in Photo B (n=89), satisfaction (21.3%) was used the most, and desire (5.6%) was used the least. Table 74 and 75 show the frequency and percentage of positive and negative markers left by White respondents for Photo B.

Table 74

Total number of each positive emotional marker left by White respondents for Photo B.

	Satisfaction	Joy	Desire	Fascination	Total
Frequency	19	14	5	9	47
%	40.4%	29.8%	10.6%	19.1%	100.0%

Table 75

Total number of each negative emotional marker left by White respondents for Photo B.

	Sad	Bored	Disgust	Dissatisfied	Total
Frequency	10	13	9	10	42
%	23.8%	31.0%	21.4%	23.8%	100.0%

Out of all the emotional markers used by Hispanic or Latino respondents in Photo B (n=20), satisfaction (30.0%) and fascination (25.0%) were used the most. Sad and bored were not used at all by this group in Photo B. Table 76 and 77 shows the frequency and percentage of positive and negative markers left by Hispanic and Latino respondents for Photo B.

Table 76

Total number of each positive emotional marker left by Hispanic and Latino respondents for Photo B.

	Satisfaction	Joy	Desire	Fascination	Total
Frequency	6	2	3	5	16
%	37.5%	12.5%	18.8%	31.3%	100.0%

Table 77

Total number of each negative emotional marker left by Hispanic and Latino respondents for Photo B.

	Sad	Bored	Disgust	Dissatisfied	Total
Frequency	0	0	2	2	4
%	-	-	50.0%	50.0%	100.0%

4.8.5 Themes and Ethnicity

Using the thematic analysis from Section 4.5, a comparison of ethnicity to frequency of theme was conducted. Among both ethnicities' comments, appeal (38.4%) was found to be the most frequent theme in Photo A and B, followed by comfort (33.9%) and regard (27.0%) see Table 78.

Table 78

Total number of comments per each theme for Photo A and B.

	Appeal	Comfort	Regard	Unknown	Total
White	57	50	43	1	151
Hispanic or Latino	11	10	15	0	36
Total %	36.4%	32.1%	31.0%	0.01%	100%

The most frequent theme found among comments from White respondents for Photo A was regard (46.2%) followed by appeal (44.2%). The most frequent theme for Hispanic or Latino respondents was regard (50.0%) see Table 79.

Table 79

Total number of comments per each theme among White and Hispanic or Latino respondents for Photo A

	Appeal	Comfort	Regard	Unknown	Total
White	23	15	24	0	62
Hispanic or Latino	4	4	8	0	16
Total %	34.6%	24.4%	41.0%	0.0%	100%

The most frequent theme found among comments from White respondents for Photo B was comfort (39.3%) followed by appeal (38.2%).

The most frequent theme for Hispanic or Latino respondents was appeal (35.0%) and regard (35.0%) see Table 80.

Table 80

Total number of comments per each theme among White and Hispanic or Latino respondents for Photo B.

	Appeal	Comfort	Regard	Unknown	Total
White	34	35	19	1	89
Hispanic or Latino	7	6	7	0	20
Total	37.6%	37.6%	23.9%	0.01%	109

4.8.6 Features and Ethnicity

A comparison of ethnicity to the number of comments for each feature was conducted for both Photo A and B separately. In Photo A, of the comments left by White respondents, the most comments were for the water cooler (16.1%) and the magazines (12.9%). In Photo A, of the comments left by Hispanic or Latino respondents, the most comments were for lighting (12.5%) followed by seating (12.5%).

Each feature was examined for positive and negative responses and compared to each ethnicity for Photo A and B separately. In Photo A, 4 features received 1 positive comment each from the Hispanic or Latino respondents. These include magazines (7.1%), phone (7.1%), seating (7.1%) and the water cooler (7.1%). This ethnicity gave the most negative responses to seating (14.2%) and lighting (14.2%). The feature with the most positive

comments from the White respondents was the water cooler (16.1%) followed by magazines (12.9%); reception (4.8%) and seating (4.8%) received the most negative comments from this ethnicity (see Table 81).

Table 81

Frequency of positive and negative ratings for features in Photo A.

	White respondents		Hispanic or Latino respondents	
Feature	Positive	Negative	Positive	Negative
Air vent	1	-	-	-
Artwork	2	2	-	1
Entry Door	2	-	-	-
Flooring	1	-	-	1
Garbage on floor	-	1	-	-
General	5	1	-	-
Lighting	-	1	-	2
Magazines	8	-	1	-
Natural Light	2	-	-	-
Phone	3	1	1	1
Plant	1	1	-	1
Reception	3	3	-	1
Seating	4	3	1	2
Tissue & Hand Sanitizer	1	1	-	-
Trash Can	-	1	-	1
Wall cover	-	1	-	1
Water cooler	10	0	1	1
Window	-	1	-	-
Total	43	19	4	12

In Photo B, of all the comments left by both ethnicities, the most comments were for seating (16.5%). For both ethnicities, seating had the most number of negative comments (16.6%). Of the features in Photo B, the reception area (8.3%) had the most number of positive comments followed by the couch (7.3%) and natural light (7.3%) from both ethnicities.

In Photo B, of all the comments left by White respondents, the most comments were also for seating (14.6%). The features with the most positive comments from White respondents were the reception area (9.0%), the couch (7.9%), and the natural light (6.7%). The feature with the most negative comments from this group was the seating area (14.6%).

In Photo B, of all the comments left by Hispanic or Latino respondents, the most comments were also for the seating (20.0%). The features with the most positive comments from this group were the plant (15.0%) and the seating (15.0%). The feature with the most negative comments from this group was also seating (20.0%) (see Table 82).

Table 82

Frequency of positive and negative ratings for features in Photo A.

	White respondents		Hispanic or Latino respondents	
Feature	Positive	Negative	Positive	Negative
Area Rug	1	1	-	-
Artwork	-	-	1	-
Chairs	-	-	-	-
Couch	7	2	1	-
Décor	1	2	-	-

Dried Flowers	-	2	-	-
Door to Exam	1	1	-	-
Fan	2	1	1	-
Flooring	1	1	-	-
General	3	4	-	-
Lighting	3	1	-	-
Magazines	2	2	-	1
Natural Light	6	-	2	-
Plant	-	-	3	-
Radio	-	2	-	-
Reception	8	2	1	-
Seating	-	13	3	2
Stone	4	-	2	-
Stool	-	1	-	-
Toy Box	4	3	1	-
Trash Can	-	2	-	-
Wall Color	4	2	-	1
Window	-	-	1	-
Total	47	42	16	4

4.0 Summary

The data were compared across gender, age and ethnicity. The key findings are as follows:

Gender

- Females left two-thirds of the comments in this study. They left a higher average number of comments for each photo than did

males. Females also left more positive and negative comments for both photos. Joy and satisfaction were the greatest used emotional markers by females, and desire and dissatisfaction were used the least. Among female comments, regard was the most frequent theme for Photo A and appeal was the most frequent theme for Photo B. The water cooler and seating were the two features that received the most comments in Photo A from this group. The water cooler was the most positively rated and seating received the most negative ratings. In Photo B, seating and natural light received the most number of comments. Natural light and the reception area were rated most positively and seating was rated most negatively.

- Males left one-third of the total comments in this study. They left almost the same number of positive comments for both Photo A and B. For males, regard was the most frequent theme for Photo A, and comfort was the most frequent theme for Photo B. The most number of comments that males left for Photo A were general comments. The most number of positive comments for this photo were general and related to the water cooler. The most negative comments were related to the reception area. In Photo B, the most comments were for the reception area and seating. The most positive comments in this photo were related to the reception area or were general comments. The most negative comments left were for seating.

- Both genders rated the water cooler in Photo A as one of the most positive features and the seating in Photo B as one of the most

negative features in each photo respectively. Regard was the most frequent theme found among both female and male comments about Photo A.

Age group

- 18 to 19 –year-olds left the most average number of comments for both photos. For Photo A this age group left the least number of positive comments and the most number of negative comments of all the age groups. Disgust was the most used emotional marker for Photo A and desire and fascination were not used at all by this age group. For Photo B, this age group used the *satisfaction* emotional marker most often, while disgust was used the least. The most frequent themes used for Photo A and B were regard and appeal, respectively. This age group provided the most comments about the seating and water cooler in Photo A. The most positive comments for this photo were directed at the magazines, natural light, water cooler and general comments. The most negative comments were for seating. In Photo B, the most comments were also for seating. The most positive comments for this photo were directed at the couch, the stonework and general comments. The most negative comments were directed towards seating.

- 20 to 22-year-olds left the fewest average number of comments for both photos. This age group left the greatest number of positive comments for the photos. Satisfaction was the most frequently used marker and disgust was not used at all by this group for Photo A. In Photo B, they also used satisfaction the most while

desire was used the least. The most frequent theme for Photo A was regard and for Photo B appeal and comfort were found to be close. In Photo A, the water cooler and general comments received the most number of comments among this age group. In Photo B, seating received the most comments. The most positive comments were directed towards natural light and the most negative comments were directed towards seating.

- 23 to 24-year-olds left the most number of negative comments for Photo B. For Photo A and B, joy was the most frequent emotional marker. For Photo A disgust was used the least, and for Photo B desire was used the least. Regard and appeal were the most frequent themes for Photo A, and comfort and appeal were the most frequent themes for Photo B. In Photo A, the reception area and the water cooler received the most number of comments. The most positive comments for this photo were for the water cooler and the most negative for this photo were for the reception area. In Photo B, the reception area received the most comments. The most positive comments were directed towards natural light and the reception area. The most negative comments were directed towards

- All age groups rated the seating in Photo B negatively. The 20 to 24-year-olds rated the water cooler as the most positive feature but the 18 to 19-year-olds rated it negatively. Appeal was the most frequently used theme for Photo B among all age groups and

regard was commonly most used among all age groups for Photo A.

Ethnicity

- White respondents, on average, left a similar amount of comments for both photos as did the Hispanic or Latino respondents. White respondents left more positive comments for Photo A and more negative comments for Photo B, compared to Hispanic or Latino respondents. Joy was the most frequent emotional marker in Photo A, and desire was reported the least. In Photo B, satisfaction was used the most and desire was used the least. The most frequent theme in Photo A was regard, for Photo B it was comfort. The features most commented on by this group in Photo A was the water cooler and the magazines; these also received the most number of positive comments in this photo. Seating received the most negative comments. For Photo B, seating received the most comments and the most negative comments. The most positive comments in this photo were directed at the reception area.

- Hispanic or Latino respondents left more average positive comments for Photo B, and more negative comments for Photo A than did the White respondents. In Photo A, disgust was the most frequently used emotional marker, and desire and fascination were used the least. For Photo B, satisfaction was the most frequent marker and sad and bored were not used at all. The most common theme, for this group in Photo A was regard and for Photo B regard and appeal were found equally. The features most commented on

in Photo A were lighting and seating. The most positive comments were directed at the magazines, the phone, seating and the water cooler. The most negative comments in Photo A were for seating and lighting. In Photo B, seating received the most number of comments. The most positive comments were also for seating and the plants. The most negative comments were also directed towards the seating.

- Both ethnicities left a similar average number of comments for both photos. Satisfaction was both the most popular emotional markers for both ethnicities in Photo B. Regard was the most prevalent theme found in Photo A for both genders.

Chapter 5

ANALYSIS

5.1 Introduction

The purpose of this study was to explore young adult perceptions of physical elements in primary care waiting areas seen as indicators of expected quality of care. The study also explored the relationship between physical elements identified as indicators of expected quality of care and gender, age, and ethnicity. The current chapter discusses key findings, and includes limitations of this study, research and design implications, and suggestions for future research.

5.2Research Question One

Which physical elements in primary care waiting areas are seen as indicators of expected quality of care for young adults?

Research question one examined the emotional markers of the young adult population sampled in this study. Respondents were asked to assess each of two photos in regard to expected quality of care. Analysis included assessment of where respondents placed emotional markers, whether it was a positive or negative marker, and the comments associated with each marker.

In terms of Goffman's theoretical concepts (1959), the waiting area can be viewed as the front stage of a primary care office; the environmental features within it might be seen as props, sending messages about the practice as a whole. Respondents left a total of 234 comments between the two photos presented in this study. This suggests that respondents were able

to use the visual cues from the photos to form expectations and predict or assume certain behavior from its inhabitants as Goffman's (1959) theory suggests. For this study, the features or areas receiving the most comments are believed to be the elements that sent the strongest messages to the participants as indicators of expected quality of care.

Features in Photo A that sent the strongest message, along with the most number of positive and negative markers, can be seen in Figure 8. The features rated with the most positive markers were the water cooler, general features of the waiting room such as magazines. The other features that sent strong messages were the phone, artwork, plants and lighting.

Figure 8. The most positive and negative features in Photo A.

Features in Photo B that sent the strongest message, along with the most number of positive and negative markers, can be seen in Figure 9. The features rated with the most positive markers were the reception area, the couch and natural lighting. Seating in this photo received a majority of negative comments. General comments and décor were strong indicators as well as the toy box, wall color, and magazines.

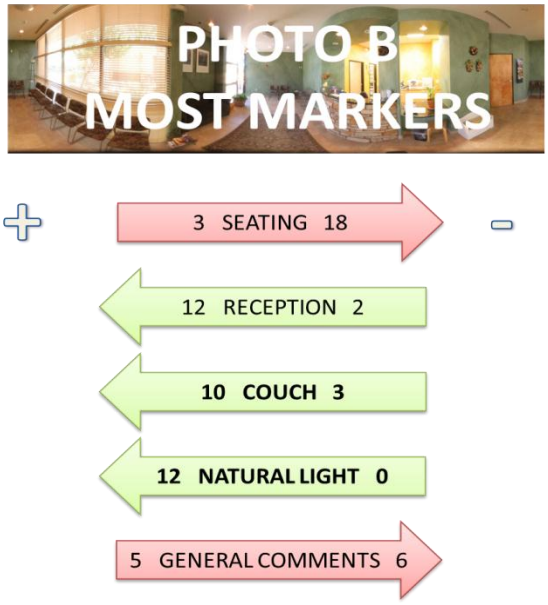

Figure 9. The most positive and negative features in Photo B.

Key features receiving the most comments between the two photos were the seating and reception areas; both photos also received many comments on general responses to the waiting area. Figure 10 shows the number of positive and negative markers left for these features in both photos. Seating in both photos received a majority of negative markers. The reception areas received a majority of positive markers. General comments for both photos received slightly more negative than positive comments.

Other common features between the two waiting areas include lighting, décor, magazines, wall color, artwork, trash cans, and flooring.

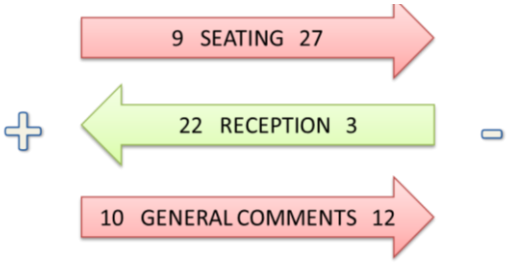

Figure 10. The most positive and negative features in Photo A and B.

Based on visual analysis and count of the positive and negative markers, clear hot spots appear in each photo. The results of this analysis show key features that repeatedly stood out to the respondents in this study as indicators of expected quality. *The seating area (15.4%) and reception area (10.7%) are two areas essential to the waiting experience; this is confirmed by the number of markers left for these areas in both photos*. Emotional markers related to general comments (9.4%) show that the overall appearance of the waiting area is also an indicator of quality. Other individual features –such as the water cooler, couch and magazines – offer distinct examples of props expressing quality of care. Since humans infer personal characteristics of others based on what they see in an environment, the waiting area is an important space one looks to for messages about an approaching care experience. According to the findings of this study, young adults are more likely to respond to seating, the appearance of the waiting area and reception as indicators of expected quality. Messages associated with each of these features are discussed in the discussion of the second research question guiding this study.

5.3 Research Question Two

Among the physical elements of primary care waiting areas that are seen as indicators of expected quality of care for young adults, what are the reasons for perceiving them this way?

The purpose of research question two was to understand the symbolic meaning of the physical elements and their relationship to perceptions of expected quality. Gosling et al. (2002) suggested that the physical characteristics of a room are used to make inferences about occupants' personalities. Based on the comments left, it is clear that respondents formed impressions about the care they might receive. It was also clear that the respondents were able to predict what their own behavior might be and express their satisfaction with the space if they were to experience these waiting areas in person.

A thematic analysis of all the comments resulted in the development of several codes, sub-themes, and three major themes. The major themes that evolved from the thematic review of comments were related to appeal, regard, and comfort. These themes begin to illuminate how young adults relate physical elements to their expectation of quality. Figure 11 shows the percentage of comments related to each theme in each photo.

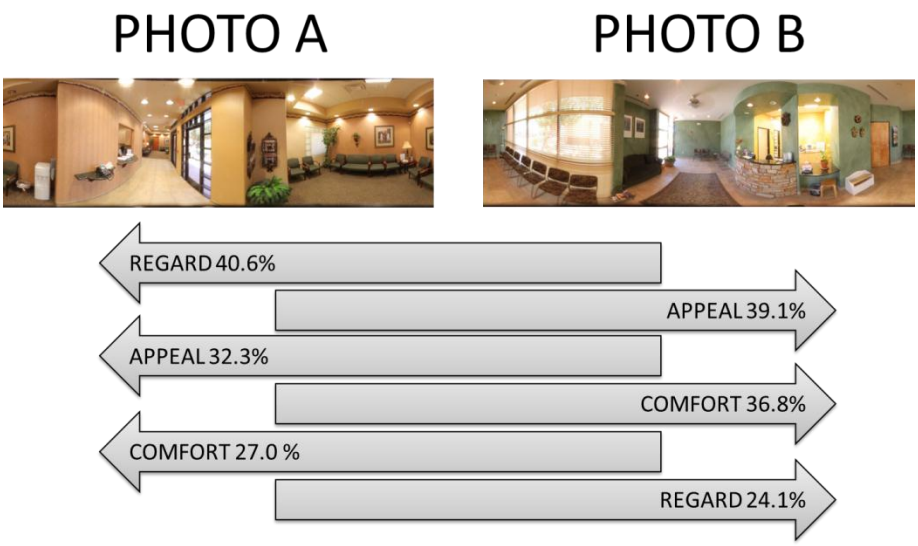

Figure 11. Thematic trends for Photo A and B.

5.3.1 Regard

Based on analysis of the comments, regard was defined in this study as: consideration or lack of consideration (inattention) of the environment for those that might be waiting. Comments related to regard reflect the environment's representation of elements that address: respect for patient needs, health, hygiene and protection, as well as show a level of thoughtfulness and respect. Features associated with this theme were either categorized as showing regard or disregard, and can be seen in Figures 12 and 13.

In Photo A and B, features showing mostly regard were the water cooler, magazines, the phone, the toy box, reception area, and general comments. In Photo B, seating was associated with disregard. General features in Photo A had the same number of comments associated with regard and disregard. Based on the comment analysis, features associated with regard were viewed as thoughtful caring gestures and attempts to anticipate and accommodate patient needs. The comments associated with

disregard were mostly related to inattention of the environment. Disregard was relayed through outdated décor, broken, unhygienic, messy, or thoughtless features. One commenter stated about one feature, "I don't want my care to reflect this."

Figure 12. Features showing regard or disregard in Photo A.

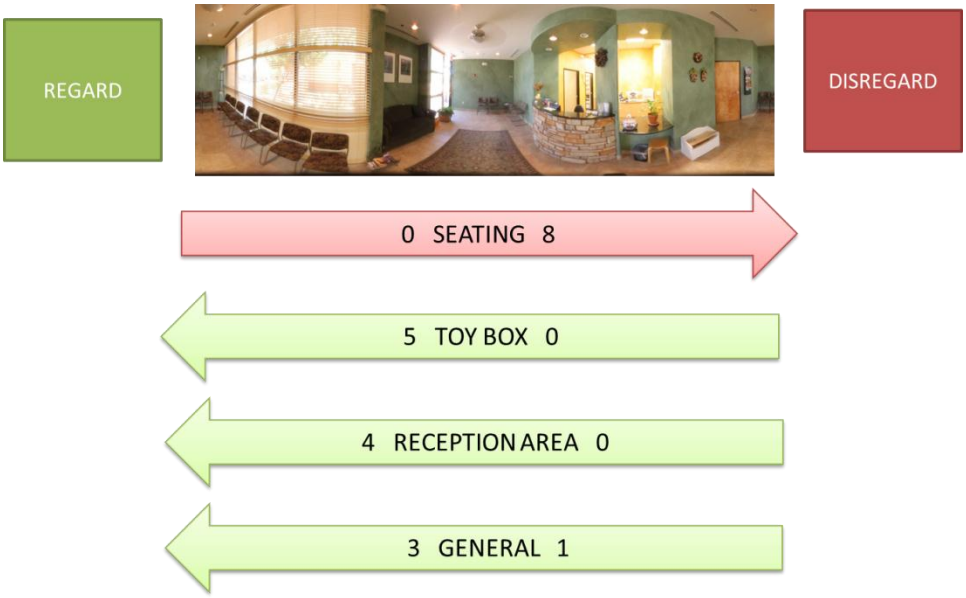

Figure 13. Features showing regard or disregard in Photo B.

5.3.2 Appeal

Based on analysis of the comments, appeal was defined in this study as: qualities or features that relate to visual interest, approachability of features, and the presence of things to do while one waits. Comments related to appeal reflect an environment's representation of elements that reflect an attractive or inviting appearance, or offer a level of experience, as well as features that relate to a high or low standard of quality. Features associated with this theme were either categorized as appealing or unappealing, and can be seen in Figures 14 and 15.

In Photo A the features rated the most appealing were the general appearance of the waiting area and the water cooler. In Photo B the reception area, natural light, stone work and wall color were rated most the most appealing. The most unappealing features in Photo A were artwork, seating area, and the reception area. In Photo B the most unappealing feature were the chairs. Based on the comment analysis, respondents used words such as "nice", "open", and "inviting" to describe appealing features. The appealing features were seen as friendly, caring, approachable, and of quality. Unappealing features were associated with words such as, "unwelcoming," "ugly," and "boring".

Figure 14. Appealing or unappealing features in Photo A.

Figure 15. Appealing or unappealing features in Photo B.

5.3.3 Comfort

Based on analysis of the comments, comfort was defined in this study as: qualities or features that provide a sense of physical or mental comfort for those that are waiting; including features that may put those waiting at ease, by providing support or assurance that the wait will be free of pain or distress. Features associated with this theme were either categorized as showing comfort or discomfort, and can be seen in Figures 16 and 17.

Photo A received few comments associated with the theme of comfort. Features that were in this theme include seating, magazines, plants and general comments. In Photo B, the couch had the most comments associated with comfort and the chairs in this photo had the most comments associated with discomfort. The fan and general comments were also slightly associated with this theme. Based on the comment analysis, features associated with comfort were viewed as either physically comforting or providing comfort through consistency. The physically comforting features such as the couch were described as comfortable, calming, and homey. The couch was also a feature that provided comfort through consistency. One respondent said that, "the couch fits perfectly here and matches the rest of the room." Comments associated with discomfort were mostly related to features that looked uncomfortable sit in, such as the chairs. Comments that were related to discomfort through inconsistency were described as "awkward," "inconsistent," and "unbalanced".

Figure 16. Comforting or uncomfortable features in Photo A.

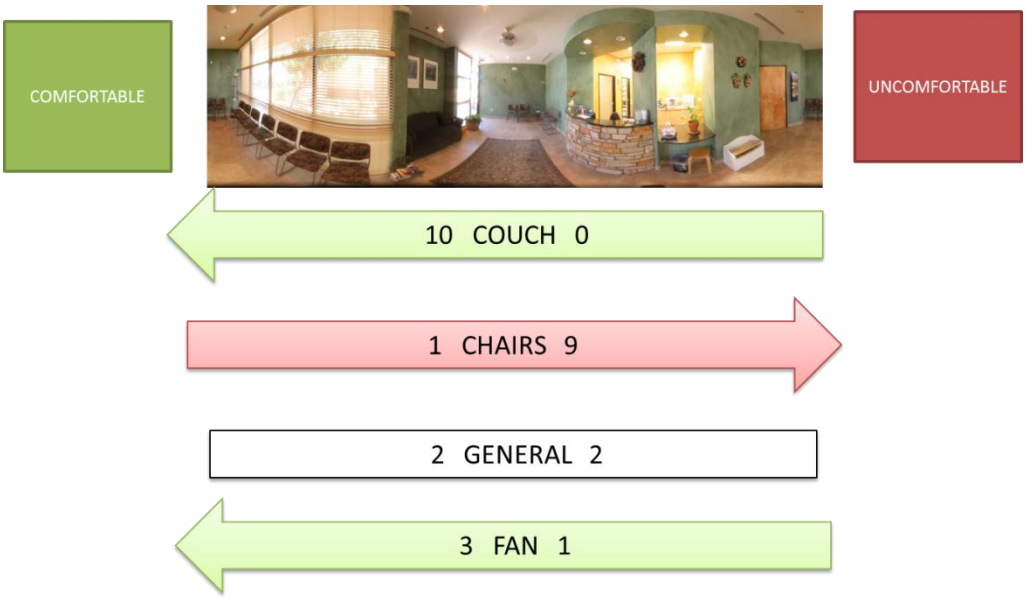

Figure 17. Comforting or uncomfortable features in Photo B.

Based on the comments, respondents showed that certain design features have the ability to convey quality of care. The results of the thematic analysis led to the three key themes presented above. These three themes,

their sub-themes and codes helped to refine the messages that the physical elements communicated to the respondents of this study.

5.3.4 Conclusion

Previous studies show that healthcare environments designed with the environmental dispositions of their target population are more likely to produce satisfaction and positive assessments of quality (Hutton and Richardson, 1992). It has been noted that older patients tend to be more satisfied with care as well as the physical environment of waiting areas (Tsai et al., 2007). This could be for various reasons, but there have been no studies discovered specifically related to age and perceptions of quality of care. This study is the first known, to look at a specific age group and its evaluations of physical elements related to perceptions of quality care. The findings of this analysis bring light to, and begin to address the unique needs and expectations of this population related to the themes of appeal, comfort, and regard.

Omachonu (1990) states that "The patient perceives quality in the context of his or her own experience" (p. 45). The emphasis of these young adults on comfort, appeal and regard may be grounded in their previous experiences of healthcare and more specifically in the features of pediatric care environments. Consumers do achieve satisfaction through comparing service with prior service experience, according to Bitner (1992).

Considering that many young adults' previous healthcare experiences have been in pediatric environments, many pediatric waiting areas have features that address appeal, comfort and regard for younger populations. Bright color pallets or the use of a child-centric-theme may be utilized to

appeal to the age groups being served. Children's books, toys, a television showing cartoons may keep the patient's attention. The presence of a familiar character, small-scale furniture, and of course the presence and safety of having a loved one near surely provides comfort. All of these features show regard for the pediatric patient and their family.

Patient-centered care calls for respect of patients and their unique preferences; patients should be known in context of their own "social worlds", listened to, informed and respected as such (Epstein & Street, 2011). This philosophy should not be exclusive to patient-physician interaction, but be carried throughout the whole healthcare experience, including in the waiting room. The three themes and their supporting sub-themes and codes should be echoed throughout every patient interaction, whether it be environmental or social.

Based on the data collected in this study, the ideal waiting area for this age group would contain features that reflect appeal, comfort and regard, similar to other quality service experiences that young adults are familiar with. However, it may be difficult to incorporate the preferences of all 18 to 24 year olds, for even within this age group there is surely an endless amount of variation in ideals. As young adults' experiences grow their attitudes, values develop and their ideals most assuredly change as well.

Research question three begins to explore the relationship between respondent demographics and how they rated each feature.

5.4 Research Question Three

Is there a relationship between demographic characteristics of gender, age, and ethnicity, and the elements respondents see as indicators of expected quality of care of in primary care waiting areas?

This research question compared demographic information (gender, age, and ethnicity) to the total number of comments, the number of positive and negative comments, the emotional markers, themes and features.

Although the sample was small, there were a number of differences in responses according to gender, age, and ethnicity. Women provided more comments than men overall and were more likely to use emotional markers of joy and satisfaction. More of their comments related to the theme of appeal than male respondents. Men were more likely to refer to comfort. Both genders identified seating as an important indicator of quality.

The most comments were left by younger participants, 18 to 19 year olds and they were more likely to leave negative emotional markers of disgust. Satisfaction and joy were the most used markers by 20 to 22 and 23 to 24 year-olds, respectively. The theme of appeal related mostly to 18 to 19 and 23 to 24 year-olds. Comfort was most associated with comments left by the 20 to 22 year-olds. All age groups rated the water cooler in Photo A positively. Seating received the most negative comments from all age groups in both photos.

The most notable differences between the two ethnicities examined were seen in emotional markers that were left. Joy and satisfaction were the most used emotional markers by White respondents, and appeal was the theme most associated with their comments. Disgust and satisfaction were the most used emotional markers by Hispanic or Latino respondents, and their comments were most associated with regard. The water cooler and magazines in Photo A were important features for both ethnicities.

The findings suggest that there may be demographic differences, including gender, age, and ethnicity, in young adult perceptions of physical elements in primary care waiting areas seen as indicators of expected quality of care. There is limited research in this area. The study findings related to gender differences are different than the results of Campell et al. (2001) and Arneil and Devlin (2001) who found no relationships between gender and assessment of primary care.

Age differences in perceptions of quality of care are particularly important for the current study because of their low rates of satisfaction with healthcare experiences (Campbell et al., 2001; DiMatteo & Hays, 1980; Drain, 2001; Gray, 1980; Rahmqvist, 2001; Tsai et al., 2007). Even though this study examined young adults the younger respondents in this study clearly perceived a lower quality of care from each photo. Eight-teen to 19 year-olds left the most negative comments of the age groups; their most used emotional marker was disgust. The two older age groups both had positive emotional markers as their most used marker.

The current study did not have enough representation from all of the ethnicities polled, however among the data from the two ethnicities examined (White and Hispanic or Latino) there were few notable differences in their comments or the features they commented on. This is consistent with previous research finding no patterns between ethnicities (Weiss, 1988).

5.5 Limitations of the Study

The findings of this study are exploratory, and are limited in their generalizability. The sample included 33 respondents looking at two general

practice waiting areas. The results reported in this study are limited to the waiting areas portrayed in the photos used.

Data for this study were collected from the researcher's social network which may have influenced the demographic profile of the participants. Respondents were sent a link either directly by the researcher, or via one of the researcher's personal contacts; consequently there is a possibility that the sample could be made up of respondents with similar professional backgrounds, ethnicity, and even age as the researcher. The researcher is White, older than 18 to 24 and has a background in environmental design. Many of the researcher's contacts also fit these demographics. This may have led to a lower number of young respondents, a population that is more sensitive to design –thus better able to process and provide more comprehensive comments on the physical features, and a fewer number of ethnically diverse and younger respondents.

The methodology also may have influenced the response rate and profile of respondents. There were 12 (27.8%) respondents who began the demographic questionnaire, but did not go on to rate at least one of the environmental photos. It is possible that the web interface in PanorEmo may have been confusing, or respondents felt that the level of time commitment was too much. Instructions were provided, but respondents may not have taken the time to read them, or they may not have been clear. Pilot testing of the methodology may not have been sufficient to identify the range of difficulties associated with the on-line format.

When defining the dimensions of a Servicescape, Bitner (1992) identified ambient conditions along with spatial layout, functionality and signs,

symbols, and artifacts, as influencing consumer perceptions. Other studies indicate that wait times and staff interactions have influence over patient satisfaction (Arneill & Devlin, 2003; Fornara et al., 2006). Respondents' comments were limited to features that could be seen in the photos. However, during a real waiting experience patients would be exposed to various elements including: ambient conditions (temperature, sound, and smell), wait times, and social interactions with staff and others that are waiting. Some of the comments left do reflect a few of these dimensions, but an actual physical experience in a space would provide a more holistic review, including any physiological response one may have to a space. These are factors that were not able to be fully measured due to the mythology utilized in this study. This is a suggestion for future studies, which will be discussed in the next section.

5.6 Research Implications and Recommendations for Future Research

This research focused on young adults– a group for whom primary care services like prevention and health promotion are particularly important – rarely use ambulatory care services, and when they do their satisfaction of care is low (Campbell et al., 2001; Drain, 2001; Rahmqvist, 2001; Tsai et al., 2007). Strategies that appeal to young adults will need to be understood and implemented, in order to facilitate these relationships and keep young adults returning for care.

The waiting area provides the first, and most prolonged glimpse, a patient has into the organizational values and character of a healthcare provider (Becker & Douglass, 2008); it has the potential to communicate a message about the impending care experience, and information about the

type and quality of care one can expect. Perceptions of a high quality of care experience have been shown to result in patients being more likely to show physician loyalty, keep appointments, and comply with treatment (as cited by Becker et al., 2008; Drain, 2001; Health Services Research Group, 1992; Marberry, 2006; & Oermann, 2003).

The focus of this research was to understand what physical elements in primary care provider waiting areas may be associated with perceptions of quality of care among young adults. An extensive review of research reveals that there have been no other studies examining what may affect young adult patients' perceptions about the quality of care they receive, based on their experience in the waiting area.

The current research developed a methodology that measured respondent reactions to photos of two provider waiting areas. Through this descriptive exploratory study utilizing a self-report instrument, participant responses were gathered to begin to understand the young adult assessments of quality of care in the primary care waiting environment. Analysis revealed typical and frequent reactions to physical elements, themes among the comments, as well as trends among the different demographics within the population sampled.

This study may be the first glimpse into this generation's preferences in waiting areas, however further research linking design to this age group is necessary. The results of the current study are only generalizable to the two waiting areas photographed. The concepts brought to light in the current study require further research. For instance, waiting is just one aspect of the care experience, and future studies could encompass the entire care process from initiation of the care experience. Studies exploring the entire care

process for this age group would provide better insight into specific areas that are most important for this population.

The care process also occurs in multiple environments, future studies may possibly look at other environments including assessments of exam or consulting rooms, interstitial spaces, check out areas and even possibly the entrance and parking. These explorations would provide better insight to areas that are most important for young adults in the care process.

The theoretical framework for this study included Goffman's Presentation of Self, and explained that environmental features in the waiting area have the potential to serve as a form of symbolic communication for the patient; communicating the attitudes and values of a physician, and setting the stage for future interactions. The present study utilized photos from two general practice waiting areas, in practices with multiple practitioners. Future studies should consider examining single-practitioner environments to understand how young adults relate to environments that truly reflect a provider's character.

Other areas for future research related to waiting area design might include a deeper look in to different demographics. Assessments from broader age ranges and different socioeconomic groups would be significant in relation to patient-centered care systems.

Understanding how much experience a respondent has in healthcare environments would be valuable as well. More experience with healthcare provides more opportunities for positive experiences and a familiarity of the

care process and environment. In this respect it would also be interesting to know what types of healthcare environments respondents are familiar with.

Upon reflection of the current study and methodology, an open ended question would have been included that asked respondents to provide general responses about how they perceive quality of care based on waiting areas. Giving respondents an opportunity to reflect on their own experiences with healthcare and express their expectations related to environmental qualities, would have provided valuable insight for this exploratory study.

5.7 Design Recommendations

This is the first study to explore young adults and their perceptions of design features related to the quality of primary care. The current research also resulted in the development of a methodology to examine physical elements perceptions of quality of care and demographic information. A result of the current research is a list of physical elements that affected young adult perceptions of quality in primary care. The following will discuss these contributions and recommendations for design sensitive to this population.

When considering the design implications of the present research, the most obvious and broad design applications could develop from the themes, sub-themes and codes revealed. Appeal, comfort, and regard should be considered when planning and designing standards for any healthcare environment, especially in relation to patient-centered care. Each practice should have an understanding of their patient population and design waiting areas that reflect their patients' ideals.

This study provides important insight into understanding how physical elements in waiting areas relate to care experiences for young adults. Results emphasized the importance of general areas including seating and reception and the overall appearance of the entire waiting area. This is understandable in relation to Rapoport's comments, "people react to environments globally and affectively before they analyze them and evaluate them in more specific terms" (1982, p. 14).

Upon viewing the waiting areas it is possible that the first assessments were of the most recognizable areas for respondents. It is safe to say that most people have had experience with some form of reception and seating areas. Thus those whom have had previous experience in a waiting area may look to assess these areas first. General areas may be noticed primarily, but upon further assessment other features emerge with more specific messages. Bitner (1992) discusses that implicit cues can be found within the quality of materials used, artwork, the presence of certificates, photographs, floor coverings, décor, etc. These items provide an overall aesthetic impression.

Based on the current research, special attention should be paid to the reception and seating areas, because they are most likely the first areas being compared to previous waiting experiences. It is important to make these areas recognizable and relatable for young adults.

Specific characteristics important to young adults would include a reception area that is welcoming and approachable; organized; provides access to staff for those waiting; and has some sort of visual interest. Seating areas should receive a fair amount of consideration, for they had the highest number of negative comments in this study. Comments reflect that seating areas should reflect a sense of caring. Recommendations would include

provisions for multiple seating options, including layouts and type of seating like the couch. It would also offer different levels of seclusion from other patients as well as from staff. The seating should also be comfortable, clean, and well organized. The overall general aesthetic of the waiting area, reflected through general comments, suggests a desire for amenities such as: the water cooler, magazines, courtesy phone or other items to help one pass the time. Up-to-date artwork and décor should be utilized to provide visual interest, along with real greenery. Natural light was very important and seemed to provide a sense of welcomed openness. Materials, furnishing and finishes should also reflect a level of quality that show consideration for the environment. Comments also indicated that features that seemed to be neglected, boring, without a clear purpose, or that seemed out of place were negative indicators of quality care.

Understanding which physical elements influence perceptions of quality of care for this population can support the design of a waiting environment that is more sensitive to this population. The theoretical framework for this study also suggests that features in the waiting area could be effective in developing, sustaining, and improving patient-provider relationships as well as enhancing overall patient-centeredness for this population.

5.8 Conclusion

Little research exists about the young adult population and their healthcare experiences. As the demand for patient-centered care grows it will become increasingly important to be sensitive to the unique needs of young adults. This research suggests that when designing waiting areas for young adults, one should design waiting areas and features within them that address appeal, comfort and regard relative to young adult expectations.

Waiting areas have the potential to serve as a mode of symbolic communication, influencing patients' perceptions of quality of care. Physical design features could improve utilization of primary care services by sending positive messages of care to those waiting. Further research is needed to understand what other specific features improve perceptions of quality care for young adults.

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APPENDIX A

INFORMED CONCENT LETTER

Introduction

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Hello and thank you.

posted Oct 13, 2010 6:40 PM by Kerri Badura **[updated Oct 19, 2011 10:27 AM]**

Hello,

I am a graduate student under the direction of Dr. Gerri Lamb, in the College of Design Innovation Master of Science in Design in the Healthcare and Healing Environments concentration at Arizona State University.

I am conducting a research study looking at how young adults rate waiting room environments based on the quality of care they expect to receive. I am inviting your participation, which will involve a short questionnaire and participation in rating physician's waiting areas based on the expected level of care you might expect to receive in each environment. This process should take no longer than 10 minutes total.

Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, there will be no penalty. You must be between the ages of 18-24 to participate.

The data collected through this study will provide a better understanding of young adult perceptions of characteristics of the built environment associated with quality of care, and may provide notable areas of improvement in primary care waiting areas. There are no foreseeable risks or discomforts to your participation.

Your responses will be anonymous. All responses will be grouped and reported in aggregated form only. The results of this study may be used in reports, presentations, or publications but your name will not be known.

If you have any questions concerning the research study, please contact the research team at: gerrri.lamb@ asu.edu or kerribadura@asu.edu. If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788.

There are **TWO STEPS** to this survey. Completion of all the steps will be considered your consent to participate.
Please click on the link below to respond and participate in the study.

Link to STEP 1

Sincerely,

Kerri Badura

(Edit post)

1-1 of 1

APPENDIX B

DEMOGRAPHIC QUESTIONNAIRE

STEP 1 - Tell Us About Yourself and Your Experience with Healthcare Environments

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Page One

1) Please indicate your age. (You must be between the ages of 18-24 to participate in this survey).*
[ ] 18

[ ] 19

[ ] 20

[ ] 21

[ ] 22

[ ] 23

[ ] 24

2) Please indicate your gender*
( ) Male

( ) Female

3) Please indicate your ethnicity.*
( ) American Indian or Alaska Native

( ) Asian

( ) African American

( ) Native Hawaiian or Other Pacific Islander

( ) Hispanic or Latino

( ) White

4) How many times have you been to a doctor's office in the last 12 months (either for issues related to your own health or the health of a friend or relative)?*
( ) none

( ) 1 time

( ) 2 times

( ) 3 times

( ) 4 times

( ) 5 or more times

5) Is there a place that you USUALLY go when you are sick and need advice about your health?*
( ) Student Health Center

( ) Urgent Care

( ) A Primary Care Physician

( ) Emergency Room

( ) Other

6) COPY the last <u>8-digits</u> of the following code [survey("response id")]
AND paste or type it into the box below. You will need this code for STEP 2.
***
_____

Thank You!

Thank you for completing STEP 1 of this survey.
Please make sure you have a COPY of the last <u>8-digits</u> of this code
(you may want to write it down)
[survey("response id")]
AND click <u>HERE to complete STEP 2</u>.

APPENDIX C

PANOREMO INSTRUCTIONS

hello again. thanks for your time. it means alot. :)

Please browse the following instructions

We would like to know how you *rate individual physical features of two waiting area photos based on the quality of care you would imagine to be delivered by the doctor that owns these waiting areas.*

At the bottom of this page you will follow two links. The following instructions show screen shots of what you will see and walk you through how to perform STEP 2.

- **PASTE** or **TYPE-IN** the 8-digit code you copied, from STEP 1 into the box that says "YOUR NAME". You will do this twice, once for each link.
- DO NOT TYPE YOUR NAME.

By entering the code, this will allow the researcher to link your responses from STEP 1 to STEP 2.

- To **MOVE,** identify the arrows on the right and left side of the photo. Use these to pan right or pan left to view the entire photo.

- **IDENTIFY**, elements or aspects in the photos that either **positively** or **negatively** influence the *quality of care you would imagine to be delivered by the doctor of these waiting areas.*

  Click for an EXAMPLE

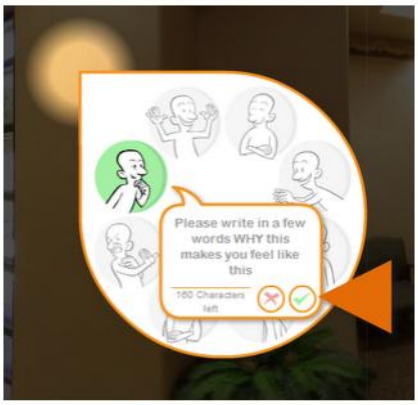
- To place a **PIN-POINT**, click and drag the character found at the top of the photo to the area of the photo that you would like to mark. *Refer to the Emotions Key for ratings.*

Note: *you are* ***NOT*** *limited to the number of characters you can place on each photo.*

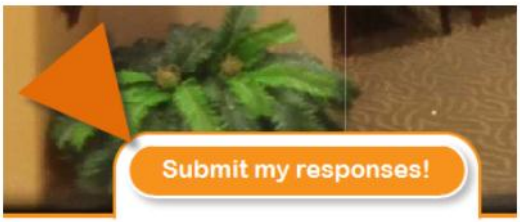
- To **RATE** elements, a circular interface display with eight caricatured emotions will pop up.
- Choose one emotion that best represents how you feel towards the area you have pin-pointed.

- **EXPLAIN:** please write, in a few words, *why this makes you feel the way you do about the quality of care you might receive in this environment*.

- Click the green check-mark to continue rating.



- **CONTINUE,** use as many pin-points as needed to evaluate the environment for PHOTO 1.
- Once you are done rating PHOTO 1, click the "Submit my responses!" button.
- **Navigate back to this page**, click to link to PHOTO 2, and repeat the above actions.
- When finished with PHOTO 2 click the "Submit my responses!" button again and you are FINISHED!



Click here to Proceed to STEP 2

APPENDIX D

LINK TO PANOREMO TOOL

STEP 2

Step 2

REMEMBER:

1. To rate elements in the waiting areas based on the quality of care you would imagine to be delivered by the doctor of these waiting rooms.

2. Check out the Emotions Key to understand your pin-point choices.

3. Paste your 8-digit code where it says, "Your Name:".

4. Place as many markers and comments as you like.

5. Return back to this page to rate Photo 2.

BEFORE YOU BEGIN: Don't forget to return to this page to rate PHOTO 2 **and click the "SUBMIT MY RESPONSES"! button each time.**

Please Click HERE to view Photo 1

Please Click HERE to view Photo 2

Return to Instructions

APPENDIX E

PHYSICIAN RECRUITMENT LETTER

(Environmental characteristics influencing young adult expectations of quality of care in primary care waiting areas)

Hello, I am a graduate student under the direction of Dr. Gerri Lamb, in the College of Design Innovation Master of Science in Design in the Healthcare and Healing Environments concentration at Arizona State University.

I am conducting a research study looking at how young adults rate waiting room environments based on the quality of care they expect to receive. I am inviting your participation, which will involve a short questionnaire and participation in rating physician's waiting areas based on the expected level of care you might expect to receive in each environment. *This process should take no longer than 25 minutes total.*

Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, there will be no penalty. You must be between the ages of 18-24 to participate.

The data collected through this study will provide a better understanding of young adult perceptions of characteristics of the built environment associated with quality of care, and may provide notable areas of improvement in primary care waiting areas. There are no foreseeable risks or discomforts to your participation.

Your responses will be anonymous. All responses will be grouped and reported in aggregated form only. The results of this study may be used in reports, presentations, or publications but your name will not be known.

If you have any questions concerning the research study, please contact the research team at: gerrri.lamb@ asu.edu or kerribadura@asu.edu. If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788.

There are TWO STEPS to this survey. Completion of all three steps will be considered your consent to participate. Please click on the link to respond and participate in the study. **Link to STEP 1**

Sincerely,

Kerri Badura

APPENDIX F

ETHICAL APPROVAL FROM THE OFFICE OF RESEARCH INTEGRITY AND ASSURANCE

ASU ARIZONA STATE UNIVERSITY
RESEARCH AND ECONOMIC AFFAIRS

Office of Research Integrity and Assurance

To:	Gerri Lamb
From:	Mark Roosa, Chair SM Soc Beh IRB
Date:	05/24/2010
Committee Action:	**Exemption Granted**
IRB Action Date:	05/24/2010
IRB Protocol #:	1005005181
Study Title:	Environmental characteristics influencing young adult expectations of quality of care in primary care

The above-referenced protocol is considered exempt after review by the Institutional Review Board pursuant to Federal regulations, 45 CFR Part 46.101(b)(2) .

This part of the federal regulations requires that the information be recorded by investigators in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. It is necessary that the information obtained not be such that if disclosed outside the research, it could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.

You should retain a copy of this letter for your records.