COLOR AWARENESS, COLOR PREFERENCE AND COLOR USE IN CLOTHING FOR A SELECTED GROUP OF ELDERLY WOMEN

A Thesis
Presented in Partial Fulfillment of the Requirements for the Degree Master of Science in Home Economics

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>ACKNOWLEDGMENTS</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF TABLES</td>
<td>v1</td>
</tr>
</tbody>
</table>

## Chapter

1. **INTRODUCTION** .......................... 1
   - Objectives ............................. 2
   - Definitions ............................ 3

2. **REVIEW OF LITERATURE** ............... 4
   - Studies Concerning Color Preferences in General ................... 4
   - Studies Related to Color Preferences and the Elderly .......... 9
   - Studies Related to Clothing Color Preferences and the Elderly ... 10
   - Summary .................................. 15

3. **METHODOLOGY** .......................... 16
   - Selection and Development of Instruments ......................... 16
   - Color Awareness ................................ 16
   - Color Preference .................................. 18
   - Descriptive Information .................................. 21
   - Selection of Subjects .................................. 21
   - Method of Data Collection .................................. 23
   - Color Awareness .................................. 23
   - Color Preference .................................. 24
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis of Data</td>
<td>25</td>
</tr>
<tr>
<td>Color Awareness</td>
<td>25</td>
</tr>
<tr>
<td>Color Preference in Clothing</td>
<td>26</td>
</tr>
<tr>
<td>Hue Preference</td>
<td>26</td>
</tr>
<tr>
<td>Value/Chroma Preference</td>
<td>28</td>
</tr>
<tr>
<td>Other Color Measures</td>
<td>29</td>
</tr>
<tr>
<td>4. PRESENTATION AND INTERPRETATION OF RESULTS</td>
<td>30</td>
</tr>
<tr>
<td>Background Information for the Participants</td>
<td>30</td>
</tr>
<tr>
<td>Demographic Data</td>
<td>30</td>
</tr>
<tr>
<td>Descriptive Data</td>
<td>33</td>
</tr>
<tr>
<td>Distribution of Scores for Each Measure</td>
<td>35</td>
</tr>
<tr>
<td>Color Awareness</td>
<td>35</td>
</tr>
<tr>
<td>Color Preference in Clothing</td>
<td>38</td>
</tr>
<tr>
<td>Additional Clothing Color Measures</td>
<td>43</td>
</tr>
<tr>
<td>Analysis in Terms of the Research Objectives</td>
<td>44</td>
</tr>
<tr>
<td>Summary</td>
<td>49</td>
</tr>
<tr>
<td>5. SUMMARY, IMPLICATIONS AND RECOMMENDATIONS</td>
<td>51</td>
</tr>
<tr>
<td>Summary</td>
<td>51</td>
</tr>
<tr>
<td>Implications</td>
<td>55</td>
</tr>
<tr>
<td>Recommendations for Future Research</td>
<td>56</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>58</td>
</tr>
<tr>
<td>APPENDIXES</td>
<td>62</td>
</tr>
</tbody>
</table>
APPENDIXES

APPENDIX A ........................................ 63
APPENDIX B ........................................ 69
LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Background Information of the Sample: Demographic Data</td>
<td>32</td>
</tr>
<tr>
<td>II. Background Information of the Sample: Descriptive Data</td>
<td>34</td>
</tr>
<tr>
<td>III. Color Awareness: Distribution of Respondents According to the Percentage of Color Responses to Total Responses</td>
<td>36</td>
</tr>
<tr>
<td>IV. Rank Order of Clothing Characteristics Noticed by Participants When Shopping</td>
<td>37</td>
</tr>
<tr>
<td>V. Distribution of Responses for Color Preference</td>
<td>38</td>
</tr>
<tr>
<td>VI. Distribution of Responses for Value/Chroma Preference</td>
<td>39</td>
</tr>
<tr>
<td>VII. Responses to Questions Relating to Stated Value/Chroma Preference</td>
<td>40</td>
</tr>
<tr>
<td>VIII. Responses to Questions Relating to Color Preference</td>
<td>42</td>
</tr>
<tr>
<td>IX. Responses to Questions Relating to the Availability of Suitable Colors in the Apparel Retail Market</td>
<td>43</td>
</tr>
</tbody>
</table>
Chapter I

INTRODUCTION

Longevity of life has led to an increasing proportion of the total population to be persons sixty-five and over, and the majority of this group are women (Wolgamot, 1971). Another effect of the longer life span has been an increased awareness by people of the elderly and a concern for their welfare. Thus, in recent years research in gerontology has expanded. Initially many of the studies focusing on the problems of the elderly were on the deteriorating, negative aspects of aging such as the pervasive financial and health problems. The focus has broadened and now includes other aspects of the concerns of the elderly, that is, their desires, interests and potential (Montgomery, 1971).

Clothing preferences and requirements of the elderly have received limited attention and research is sparse regarding color preferences in clothing. As brought out by Hoffman (1970), clothing is of special significance for the elderly woman, especially in regard to social relationships, self-image, and ego support. Feelings of loneliness and uselessness are increased due to the loss of status with retirement and the loss of friends and family members. Therefore, the need for affection, for social contacts and
personal dignity becomes very important. Effective use of clothing to produce an attractive appearance could contribute much in meeting the social and personal needs of the elderly.

The choice of suitable clothing for the elderly woman involves three major problem areas: finances, proper fit, and suitable and attractive design (Hoffman, 1970). One important aspect of design in clothing is color. Color can provide stimulation and may evoke aesthetic response to the immediate environment which could contribute to the maintenance of a positive attitude and involvement in life by the elderly. Therefore color should be considered an important aspect in garment selection of the elderly. In view of the limited knowledge regarding clothing color choices the present study was undertaken to determine the importance of, preference for, and the use of color in clothing for a selected group of elderly women.

Objectives

I. To determine the elderly woman's general awareness of color and awareness of color in clothing.

II. To determine the elderly woman's color preferences for specified garments.

III. To determine the factors affecting and influencing the elderly woman's choice of colors for clothing.

IV. To determine the elderly woman's perception of
the availability of preferred colors in the retail apparel market.

**Definitions**

**Hue** - the actual name of a color (red, blue, yellow).

**Value** - the degree of lightness or darkness of a color (Munsell, 1961).

**Chroma** - the degree of brightness or dullness of a color (Munsell, 1961).

**Color Awareness** - an individual's verbalization of words indicating color in descriptive responses about selected situations (Buchanan, 1964).

**Clothing Color Preference** - an individual's choice of hue, value and chroma for selected categories of apparel.
Chapter II

REVIEW OF LITERATURE

A review of literature concerning scientific and theoretical studies in relation to color is presented in three sections: (1) studies concerning color preferences in general, (2) studies concerning color preferences and the elderly and (3) studies regarding clothing color preferences and the elderly.

Studies Concerning Color Preferences in General

Color preferences have been a subject of interest in psychology literature since the pioneer study by Cohn in 1904 (in Eysenck, 1941). Cohn sought to determine the perceived pleasantness or unpleasantness of individual colors and color pairs with regard to hue, value and saturation. Based on his findings Cohn denied the existence of any order of color preference for colors of similar saturation. Between 1904 and 1925 Van Allsche (in Eysenck, 1941) conducted numerous studies to determine an order of color preferences. He observed that many factors, such as, lighting, mood, present and past associations, and presence of other colors, must be considered in addition to color itself in determining why a color is generally pleasing or displeasing to an individual.
In contrast to the findings of Cohn and Von Allesch, a number of studies have been conducted by other researchers which have provided evidence to support the existence of an order of color preference. In a study by Washburn (1911), 35 women participants were asked to record numerically the degree of pleasantness or unpleasantness of 90 colors with two tints and two shades of each color. Washburn found that although color preferences could be identified for some hues, no one hue was found to be the most pleasing for all saturations and values. However, the affective value (degree of pleasantness) of tints was rated higher than it was for shades.

In a study conducted by Luckiesh (1916), 15 subjects were asked to rank in order of preference color squares that had been randomly positioned on a white background. Each subject was instructed to choose the colors in the order of preference for 'color's sake' alone. Luckiesh concluded from his results that the hues near the ends of the spectrum, which had a relatively low intensity and were highly saturated were found to rank high in the order of preferences. Deep blue was ranked the highest; deep red and red-violet were second in order of preference.

Katz and Breed (1922) conducted a study designed to determine pleasing colors and whether age, intellect, social status and sex affected color preference. Two thousand five hundred (2,500) students ranging from kindergarten to college
age were asked to rank colors from the six spectral color groups of Milton and Bradley papers to indicate the color they most liked to the color they least liked. In general, as the children advanced in age there was a definite increase in preferences for colors of shorter wavelength (green, blue, and violet) and a decrease in preferences for colors of longer wavelength (red, orange and yellow). Blue was chosen as the favorite color by 47 percent of the total sample.

With out regard to value and chroma St. George (1938) studied preferences for particular hues. Five hundred college students were asked to rank 6 colored disks of Milton and Bradley papers in their order of preference. The general order of preference was blue, green, red, yellow, orange, violet, and white; the recessive hues were more preferred than advancing hues.

In 1933 an extensive study was undertaken by Walton, Guilford and Guilford involving 1279 college students who participated over a period of 14 years. Eighteen spectral hues of medium value and chroma Milton and Bradley papers were judged on their affective value (degree that the particular hues were liked or disliked). In general, the findings showed that the affective values of hues vary with sex, social conditioning, biological factors and over a period of time.

In 1934 Guilford continued the study by investigating
the relationship between affective value and three major components of color, namely, hue, value, and chroma. Guilford found that the highly saturated colors were preferred and the affective value of tints was higher than that for shades.

A critical review of color preference research was conducted by Eysenck (1941). It was Eysenck's intent to combine and analyze data of previous color preference research studies on the most fundamental points, namely, the relative value of saturated and unsaturated colors, and variations in color preferences between the sexes. Eysenck reported convincing evidence for a definite color preference by people from widely different backgrounds and in test situations under a variety of conditions.

A study was reported by Guilford and Smith (1959) concerning the possibility of a 'system' of color preferences. Three hundred sixteen different color designations from The Munsell Book of Color were used. The results were consistent from day to day on the same subjects, between one set of subjects to another for the same sex, and between subjects of opposite sex. Affective value for colors was positively related to brightness and saturation.

Granger (1959) conducted a study involving 50 subjects using 60 sets of colors from the Munsell color system. Each color set represented the entire sphere with respect to the color characteristics of hue, value and chroma. The results
were interpreted to indicate that there was a general order of preference for each characteristic of color at all levels of the color sphere.

Birren's writings are primarily theoretical rather than empirical. However, in a book concerning the use of color in selling, Birren (1956) listed some general color preferences among both young and old consumers. He stated that light colors are preferred over dark colors, pure colors over grayish colors, and primary hues over intermediate hues. Birren has also related color preferences to personality traits.

Choungourian (1967, 1972) conducted studies challenging Birren's theories on color preferences and introversion-extroversion. Each subject was shown 8 colored cards varying only in hue (brightness and saturation remained constant) using the Ostwald color notation. Choungourian found that nearly all personality groups preferred receding colors which was at variance with Birren's theory that introverts preferred receding colors and extroverts preferred advancing colors. In 1968, Choungourian conducted a study with 160 university students from four different cultural backgrounds. Using the same color measure as in the earlier studies, he found that there were definite cultural and some sex differences in color preferences. In a cross-cultural and cross-sectional study undertaken by Choungourian in 1969 involving 306 American and Lebanese subjects
at various age and educational levels it was found that
color preferences vary with age and cultural background.

In summary, the researchers found no definite order
of color preferences. However, various demographic factors
such as sex, age and cultural background (Katz and Breed,
1922; Walton, Guilford and Guilford, 1933; Chungourian,
1968, 1969) appear to affect an individual’s preference
for specific hues, values and chromas.

Studies Related to Color Preferences and the Elderly

Few studies have been conducted involving color pref-
erences and the elderly person. Most of the studies which
have been conducted were confined to individuals in state
institutions and involved determining psychological needs
as well as color preference. Such a representative study
was conducted by Mather, Stare and Breljin in 1971. The
purpose for their research was to obtain a systematic body
of knowledge about preferences along many sensory dimensions
which would be helpful in making decisions concerning new or
renovated environmental facilities. One fascinating result
of the study was evidence of the popularity of red over
green with increased age, particularly in the male group,
which was the reversal of the general theory that popularity
cf red decreases with age. A possible interpretation of the
increase in the popularity of red was given that popularity
of more striking colors increases with age because of the
overall decline in sensitivity to color in the aged. A
number of changes occur in the aging eye, such as yellowing of the lens, which could change the perception of color and as a result change the color preferences of the elderly person.

The theory of the yellowing of the lens and of other senile variations in color vision as affecting an individual's perception of color was also discussed by Weale (1963). The older the eye, the yellower the lens becomes; as a result the individual had difficulty in seeing colors of a shorter wave length, such as purple, blue, and green. Weale also noted that senile lenticular yellowing may reduce the visual brightness of a color. The reduction in perceiving color brightness with increasing age may result in a preferential increase for more vivid, intense colors.

Sharpe (1974) conducted a color preference study with 90 elderly people 65 to 85 years of age. In agreement with Weale (1963) and Wather, Stare and Breinin (1971), Sharpe found that elderly people preferred bright primary, secondary, and tertiary colors, rather than pale pastels. Sharpe hypothesized that the preference for the brighter colors was due to changes taking place in the aging eye, such as yellowing of the lens, which resulted in colors being perceived less intensely.

**Studies Related to Clothing Color Preference and the Elderly**

If studies in general on color preference involving the elderly person have been limited, studies focusing on clothing
color preferences are practically nonexistent. Some studies of clothing needs and preferences of the elderly women have included information regarding color preference in clothing. In 1961 Eberling and Rosencrans conducted a study relating the psychological aspects of clothing with its influence on an individual's social relationships. The sample consisted of 180 women 60 years of age and over. Results of the study that pertained to color revealed that the women preferred fabrics with small designs in subdued colors. Design and fit of a garment were listed as more important than price or ease of care. Women with a yearly income over $2,000 often purchase clothing for a psychological "lift." In general, interest in clothing tended to decrease with age.

At an American Home Economics Association Workshop ("Textiles and Clothing for Older People," 1962) desirable characteristics of textiles and clothing for older persons were investigated. In reference to aesthetic and social factors, soft and attractive colors were suggested to enhance skin and hair tone; whereas nondescript colors and prints were to be avoided.

Bartley (1962) interviewed 47 women 65 years of age and over to determine their clothing preferences and problems in selecting clothing. Each woman was administered a questionnaire which contained questions regarding her color preference. Results indicated that blue was the most preferred color. Color preferences for housedresses were based
on becomingness and ease of care. When purchasing a dressy dress, color, ease of care and garment design were found important considerations. More than 60 percent of the women stated preferred colors in their sizes were available in the retail market.

Shipley and Rosencran (1962) undertook a study to compare the older woman's clothing preferences with apparel selection available in the retail market. Questionnaires were given to 148 women 55 years of age and over and to 24 buyers in selected retail stores. In general, buyers held a more conservative view of older women than did the women themselves. Specific clothing color preferences of the elderly woman were solid colors, small prints and subdued colors. The younger age group (55-69 years of age) preferred a variety of colors, whereas the older group (70 years of age and older) preferred the color navy.

Decker's research (1962) involving clothing color preferences of 24 elderly women focused on the aspect of color choices as related to Goffman's concept of "front" and "back" regions. The concept of "front" was used to indicate a social situation, and "back" referred to the confines of one's home; color choices were considered for the two situations. All color analysis was based on the Munsell System of Color Notation. Results revealed a discrepancy between the subjects' verbal color preference and actual color preference. In general, subjects said they
preferred lighter values and brighter chromas, but actually wore darker values and duller chromas. Favorite hue was purple-blue (5.0). Clothing color preferences for the social situation and the at-home situation differed in that there was a tendency to "let down" somewhat at home.

Pieper (1968) studied the clothing needs of women age 65 and over. Information was obtained from 46 women through a personal interview. Questions pertaining to color preferences indicated that the women preferred less intense colors (medium blues and greens) for clothing.

A study conducted by Grey (1968) was focused on characteristics of outer garments "most liked" and "least liked" by men and women 65 years of age and over. Grey found the characteristic color to be one of the most frequent reasons given by women for liking a garment. Other characteristics mentioned for liking a garment were style, comfort, fit and appearance. Color was not mentioned by men as one of the most frequent reasons for liking a garment; however, it was listed as one of the most important reasons for disliking a garment.

A study conducted by Sales (1968) was undertaken to determine whether general color preferences differ from color preferences for apparel and textile home furnishings for two age groups of women (19-38 years of age and 48-67 years of age). Also considered in the study was whether fashionable colors influenced these preferences. The Munsell Color System was used to study the components of color, namely, hue,
value and intensity. Results indicated that the five principal colors of the System were chosen over intermediate colors as general color preferences. Darker values/moderate intensity colors were preferred for textile home furnishings. The younger women more often chose fashionable colors for apparel than did women in the older age group.

Martin (1971) conducted a survey which revealed that the elderly consumer does differ from other age groups in their buying behavior patterns. In reference to clothing color preferences it was noted that only 41.8 percent of the elderly women had a specific color preference for a garment in mind prior to shopping; however, 80.5 percent had certain colors they would not purchase.

In 1972 Story investigated elements of clothing interest, usage and preference of 100 women 60 years of age and over. Data pertaining to color were obtained through a questionnaire entitled "Attitude Toward Clothing and Color". Analysis of the data revealed most women preferred cool colors of a darker value for street dresses and persons most interested in clothing preferred warm colors for street wear.

A recent clothing color preference study was undertaken by Baer (1975). Over 100 men and women 70 years of age and over were asked to state their color preference for various fabric samples. The receding colors (blue and green) were preferred by the subjects; Baer believed the two colors
harmonized with the personal coloring of the aged. Red, an advancing color, was a third choice by the subjects. Baer suggested red was chosen because it was easily discernable by the elderly with impaired eyesight.

Summary

Specific features in relation to color preferences have been reviewed. Little agreement exists among researchers relating to a specific hue preference or a general order of preference. Some research and analysis has been conducted relating color preferences in general with various demographic data. However, very little research has been done regarding the elderly woman's color preference in clothing and her use of color in clothing.
Chapter III

METHODOLOGY

The procedure of the study is presented in the following sections: selection and development of instruments; selection of subjects; method of data collection; and analysis of data.

Selection and Development of Instruments

Instruments were selected and developed to measure color awareness and color preference. After the measures were developed a pretest was administered and analyzed. The final questionnaire is shown in Appendix A.

Color Awareness

An instrument to elicit the subject's spontaneous response to color stimuli was sought to determine color awareness. From a review of the literature a color awareness measure (Cave, 1965) was identified in which subjects were shown a colored picture of a social situation and were asked to describe what was observed after returning the picture to the interviewer. Scores for awareness of color for each individual were obtained on the basis of the ratio of the number of color responses to the number of total responses given by each individual.
The method developed by Cave was tested. Five pictures of social situations which included a variety of colors were selected from magazines. The pictures were shown to ten fashion merchandising students and their responses were recorded. An analysis of the responses showed that the pictures were too detailed and included too many objects. Scenic pictures were then sought which met the following criteria: (1) color contrast, (2) a clear focal point, (3) simple rather than complex subject matter for the picture. The five pictures were shown to ten elderly women; their responses were recorded and scored. The scores were tabulated to determine which pictures had elicited a wide dispersion of scores. Two pictures met the criterion of a wide dispersion of scores and were used for one part of the color awareness measure.

Another section of Cave's color awareness measure included a self rating on color awareness in general and a rank ordering of clothing characteristics which were noticed when shopping. The self rating scale was adapted for the present study by drawing the five-level scale on a card which ranged from 1, low awareness of color, to 5, high awareness of color. The subject was asked to point to the level that she would rate herself on color awareness in general.

The rank ordering of the clothing characteristics was pretested by means of an open end question which was stated as follows: "When shopping for a garment what would you notice first? second?" The three items most often mentioned
were style, color and price. For the final instrument the three items were listed for subjects to indicate the order in which they would be noticed first when shopping for a garment.

**Color Preference**

The instrument used to measure color preferences for clothing was a modification of one devised by Cave (1965). Cave used all of the dimensions of color as the criteria for her study: simple versus complex hues, lightness versus darkness (value), brightness versus dullness (chroma), and coolness versus warmth (temperature). Forty hue samples from the Nickerson Color Fan (Munsell Color Company) were placed in a spectrum sequence on gray illustration board to form a color wheel. Given a pen sketch of five classes of clothing (sports-wear, casual wear, night wear, evening dresses, and dressy dresses) Cave asked each subject to select from the color wheel the hue in which she preferred the garment for herself. After the subject had selected the hue, she was presented with a chart containing the various Munsell chromas and values for that hue and was asked to select from the chart the color sample she preferred for that particular garment. The hue, value, and chroma of the selected sample was recorded for each garment sketch. It was explained to the participant that she could choose the same color any number of times.
Another color device had to be selected for the present study since the Nickerson Color Pan was no longer available from the Munsell Color Company. It was decided that a color device in the Munsell System of Color Notation would be most appropriate since this system was the most widely used method of measurement in the studies reviewed. In addition, the system had been assigned numerical values for the hue, value, and chroma, thus permitting a relatively objective comparison of the three components of color. The instrument chosen for the present study was Munsell's 11-chart hue, value-chroma educational set. Matt color chips representing the ten major hues were arranged in a spectrum sequenced color wheel on gray illustration board. The hues represented were the middle colors (number 5), equal in chroma and equal in value, so that they differed only in hue (Appendix B). The following principal and intermediate colors were used:

<table>
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<tr>
<th>Principal hues</th>
<th>Intermediate hues</th>
</tr>
</thead>
<tbody>
<tr>
<td>5R (Red)</td>
<td>5YR (Yellow-red)</td>
</tr>
<tr>
<td>5Y (Yellow)</td>
<td>5GY (Green-Yellow)</td>
</tr>
<tr>
<td>5G (Green)</td>
<td>5BG (Blue-green)</td>
</tr>
<tr>
<td>5B (Blue)</td>
<td>5PB (Purple-blue)</td>
</tr>
<tr>
<td>5P (Purple)</td>
<td>5RP (Red-purple)</td>
</tr>
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</table>

In addition, four value-chroma color chips were chosen for each of the hues representing the following combinations: light value/dull chroma, light value/bright chroma, dark value/bright chroma, and dark value/dull chroma. Separate gray illustration boards were used as the background for each of the value/chroma color families. The four value/chroma
combinations were arranged in a linear form on each board (Appendix B).

To obtain a measure of each individual's color preference in clothing, two types of garments were included: casual dresses and dressy dresses. Five styles were selected for each type of garment which the researcher deemed suitable for an older woman. Ten sketches were made of the ten dresses and were shown to ten women over 65 years of age. Each woman was asked to state the style of dress she preferred for herself for each of the two categories, casual and dressy dresses. Preferences were recorded for each sketch. The three garment sketches from each category that were most often preferred were used in the final pretest for color preference.

For the final pretest ten subjects were shown three styles for each of the two categories of dresses (casual and dressy). The subjects were asked to select one style of dress preferred for each of the two categories of dresses, and to select a color from the color wheel in which she preferred the dress for herself. Cave's (1965) basic criterion was used to determine the two garments (one dressy and one casual) for the final interview, that is, the garment most often preferred with the widest dispersion of colors selected on the part of the pretest group as a whole (Appendix B).

Additional measures from Cave's color preference measure were included in the final interview.
1. The subject was asked to state her favorite color for clothing for herself.

2. The subject was asked if, in general, she preferred (1) light or dark colors, (2) bright or dull colors.

3. The subject was asked the predominate color in her spring/summer wardrobe and the color which would predominate if she could begin it over again. The subject was also asked the predominate color in her fall/winter wardrobe. In Cave's study the subjects were asked the predominant colors in their wardrobe without regard to seasons.

Descriptive Information

To describe the sample the following information was obtained: age, dress size, education, previous occupation, personal coloring (skin color, eye color, present and former hair color), and main interests or hobbies (Appendix A).

To gain further insight into the subjects' color preference and use of color the subjects were asked to discuss their perception of the following:

1. The reason(s) for her choice of color for clothing.

2. The availability of suitable colors for clothing in the retail apparel market.

The remarks were recorded by the interviewer.

Selection of Subjects

It was the intent of the researcher to obtain a sample
population of "normal" aging females. Little information has been available regarding the 80 to 85 percent of the older population who still function independently in their community with few serious health problems (Montgomery, 1973). Much of the data relating to the aged has been obtained from studies of residents in mental institutions and homes for the aged in which the deficits rather than the assets of aging were the norm (Donohue, 1956). Therefore, the study was conducted with an accessible population of elderly women who resided at an apartment complex designed for the elderly. Residents of the apartment complex maintain their own residency based on a percentage of their income and participate in social activities regularly, such as church, clubs, organizations, and craft classes. In consultation with a statistician a sample size of fifty was recommended.

The site chosen for the study was an apartment complex for the elderly in Columbus, Ohio. Permission to interview the women who volunteered to participate was obtained through the President of the Council of the apartment complex at the monthly council meeting.

Fourteen women attending the council meeting volunteered to participate. An additional forty women volunteered to participate when the researcher met them during their lunch hour in the various dining halls and discussed with them the intent of the study. At this time only names and telephone numbers were obtained in order to set up appointments for
individual interviews at a later date. When it was time to set up the interviews fourteen of the volunteers were not available. Fifteen more names were obtained through the apartment office and these women were contacted and asked if they would like to participate. The total sample was forty-seven.

Method of Data Collection

Each of the participants was interviewed personally within her own apartment by the researcher in May, 1975. The time required for the interview to collect all the data was approximately thirty minutes. The following measures were administered during each interview.

Color Awareness

Each participant was presented with two colored scenic pictures, one at a time. She was asked to observe the picture for a few seconds and then return it to the interviewer. At this time the interviewer recorded the responses for each picture. The participant was also asked to rate herself on color awareness on a five level scale drawn on a card ranging from 1, low awareness of color, to 5, high awareness of color. An additional measure of color awareness specifically related to clothing involved the rank ordering of three clothing characteristics (style, color, and price) as to which the subject would notice first, second, and third when shopping for a garment. Three cards were
designed which had the items listed in different orders. The
cards were then rotated throughout the interviews to avoid a
bias in ranking of the items. The subject was also asked if
there was anything else she would notice when shopping for a
garment and its importance in relation to the items listed.

Color Preference

Each participant was given a pen sketch of a casual and
a dressy dress and was asked to select from the color wheel
the hue in which she preferred the garment for herself.
After she had selected the hue, she was presented a chart
containing various Munsell chromas and values for that hue
and was asked to select from the chart the color sample she
preferred for that particular garment. The hue, value, and
chroma of the selected sample were recorded for each garment
sketch.

Additional measures for color preference included the
following:

1. The subject was asked to state her favorite color
   for clothing for herself.

2. The subject was asked if in general she preferred
   (1) light or dark colors, (2) bright or dull colors.

3. The subject was asked the predominate color in her
   spring/summer wardrobe and the color that would pre-
   dominate in her spring/summer wardrobe if she could
   begin it again. She was also asked the predominate
   color in her fall/winter wardrobe.
Analysis of Data

Responses to the measure were tabulated and scored and the data were analyzed. Descriptive statistics included frequency distribution, percent, mean scores; statistical analysis included chi square and Pearson Product Moment Correlation.

Color Awareness

A color awareness score for response to the two scenic pictures viewed by the participants was determined. To obtain a score for the extent of color response which would eliminate bias from verbalization by the participant, a percentage score was obtained by the following formula:

\[
\text{Percent Color Response} = \frac{\text{Color response for Picture (1)} \times \text{Color response for Picture (2)}}{\text{Non-color response for Picture 1} + \text{Non-color response for Picture 2}}
\]

The calculated percent color responses were treated as scores and were arranged in rank order for statistical analysis. The associations between the color response scores and the demographic data (age, education and previous occupation) were tested by chi square. Chi square was used to obtain a distribution of scores; since the chi square tables contained a large number of cells, many of which were empty, levels of significance were not applicable.

A confidence interval was obtained to determine the true percentage of color responses for the total sample.
The mean for the samples' color response scores and the standard error were calculated. The resultant confidence interval was the true percentage of color responses for the total sample. The Pearson Product Moment Correlation was used to determine the association between the strength of Picture 1 and Picture 2 as stimuli for color awareness. The calculation was based on the average of the color response scores of Picture 1 and Picture 2.

A self-rating score on color awareness was also obtained. The question concerning how the participants would rate themselves in terms of awareness of color (Appendix A Question 4). Scores ranged from one, low awareness of color, to five, high awareness of color. The responses to the question concerning the three clothing characteristics (price, color, style) that the individual would notice on a garment when shopping were recorded according to the rank order assigned (Appendix A Question 3). The chi square test was used to test the associations of responses to price, color and style with background information (age, education, previous occupation and dress size).

Color Preference in Clothing

Hue Preference. To determine hue preference in clothing the participants were asked to select a preferred hue on the Munsell color wheel for two garment sketches, a casual dress and a dressy dress (Appendix A Question 2). A hue preference was obtained for each garment sketch and the following
associations were tested by chi square:

1. Casual hue preference with dressy hue preference
2. Casual hue preference with background information (age, education, previous occupation, dress size and personal coloring (facial, present hair, former hair and eye coloring)).
3. Dressy hue preference with background information listed in number two.

Additional measures of hue preference concerned the participant's (1) favorite color for clothing for themselves, (2) predominant color in their present spring/summer wardrobe, and (3) predominant wardrobe color desired if wardrobe could be started over again (Appendix A Question 5, 8 and 11, respectively). The following relations were tested by chi square:

1. Hue preferences for casual dress with favorite color.
2. Hue preferences for dressy dress with favorite color.
3. Hue preferences for casual dress with predominant color in spring/summer wardrobe.
4. Hue preference for dressy dress with predominant color in spring/summer wardrobe.
5. Hue preference for casual dress with predominant color desired if started again.
6. Hue preference for dressy dress with predominant
wardrobe color desired if started again.

7. Predominate color in spring/summer wardrobe with predominant wardrobe color desired if started again.

Value/Chroma Preference

After each participant had selected from the color wheel the hue she would like for each garment sketch, she was presented with a chart containing four value/chroma color chips representing the specific hue that she had chosen. The participant selected from the chart the particular value/chroma chip judged by her as the one preferred for that garment sketch (Appendix A Question 2). The value/chroma combinations represented were light value/dull chroma, light value/bright chroma, dark value/bright chroma, dark value/dull chroma. The following relations were tested by the chi square:

1. Casual dress value/chroma preference with dressy dress value/chroma preference.

2. Casual dress value/chroma preference with background information (age, education, previous occupation, dress size) and personal coloring (facial coloring, present hair color, former hair color and eye color).

3. Dressy dress value/chroma preference with background information as listed above in number two.

As an additional measure of value/chroma preference the participants were asked if, in general, they preferred light
or dark colors, and bright or dull colors (Appendix A Questions 6 and 7). The following relations were tested by chi square:

1. Stated light/dark preference with casual dress value/chroma preference for clothing.
2. Stated light/dark preference with dressy dress value/chroma preference for clothing.
3. Stated bright/dull preference with casual dress value/chroma preference for clothing.
4. Stated bright/dull preference with dressy dress value/chroma preference for clothing.

Other Color Measures

Each participant was asked why a particular color(s) was/were predominant in her wardrobe and if she could find suitable colors in clothing in the retail apparel market (Appendix A Questions 9 and 12). The relations between the availability of suitable colors with dress size were tested by chi square.
Chapter IV

PRESENTATION AND INTERPRETATION OF RESULTS

The data for the study consisted of responses to questions related to general color awareness and to color awareness in clothing, clothing color preferences, and the use of color in clothing for a selected group of elderly women. The results from the study are presented in four sections: (1) background information for the participants, (2) distribution of scores for each measure, (3) analysis in terms of the research objectives, and (4) summary.

Background Information for the Participants

Participants included 47 women residing in a retirement apartment complex. Information was obtained concerning the participants' personal background to describe the sample. The information is presented in two sections: (1) demographic data, including age, education, and previous occupation, and (2) descriptive data, including dress size, facial coloring, present and former hair color, and eye color.

Demographic Data

The distribution of participants' responses were examined for background information regarding age, education, and previous occupation. Three age categories were identified:
65-69 years of age, 70-74 years of age, and 75-80 years of age. The distribution of subjects in the age groups was fairly even (13, 16, and 18 respectively) with a slight proportional increase in the number within a group as the age range increased (Table I).

A second demographic distribution was obtained with the attained educational levels. The six educational levels had been used in a study conducted by Sales (1968). Of the educational levels listed in Table I over two-thirds of the participants had attended school 7 to 11 years (38.3 percent) or were high school graduates (34.0 percent).

The categories of previous occupations of the participants are also presented in Table I. Hollingshead's (1965) Two Factor Index of Social Position was used to categorize the participant's previous occupations. The occupational category most often represented was that for semi-skilled employees (25.5 percent). Many of the participants who had held occupations within the semi-skilled category stated that it had been necessary for them to go to work during World War II and the types of jobs available were semi-skilled. Other frequently mentioned responses were administrative personnel (17.0 percent), clerical and sales workers (19.2 percent) and subjects with no previous occupations (19.2 percent).
<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65-69 years</td>
<td>13</td>
<td>27.7</td>
</tr>
<tr>
<td>70-74 years</td>
<td>16</td>
<td>34.0</td>
</tr>
<tr>
<td>75-80 years</td>
<td>18</td>
<td>38.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>47</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than seven years</td>
<td>2</td>
<td>4.3</td>
</tr>
<tr>
<td>Seven to eleven years</td>
<td>18</td>
<td>38.3</td>
</tr>
<tr>
<td>High school graduates</td>
<td>26</td>
<td>54.0</td>
</tr>
<tr>
<td>Some college (or business, trade or technical)</td>
<td>6</td>
<td>12.8</td>
</tr>
<tr>
<td>College graduate</td>
<td>4</td>
<td>8.5</td>
</tr>
<tr>
<td>Graduate or professional degree</td>
<td>1</td>
<td>2.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>47</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Previous Occupation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional</td>
<td>4</td>
<td>8.5</td>
</tr>
<tr>
<td>Administrative personnel</td>
<td>8</td>
<td>17.0</td>
</tr>
<tr>
<td>Small business owners</td>
<td>1</td>
<td>2.1</td>
</tr>
<tr>
<td>Clerical and sales workers</td>
<td>9</td>
<td>19.2</td>
</tr>
<tr>
<td>Semi-skilled</td>
<td>12</td>
<td>25.5</td>
</tr>
<tr>
<td>Unskilled</td>
<td>4</td>
<td>8.5</td>
</tr>
<tr>
<td>No Previous occupation</td>
<td>9</td>
<td>19.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>47</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Descriptive Data

The descriptive data included dress size and personal coloring. As presented in Table II, over one-half of the participants wore half-size dresses (55.3 percent) and almost one-third of the participants wore a woman's size (27.7 percent). The half-size and the woman's size dresses are designed for a fully developed figure type. However, the woman's dress size is designed for a well-proportioned figure, whereas, the half-size dress is designed for a figure with a shorter waist length, narrower shoulders, and larger hips and waist in proportion to the bust.

Personal coloring data were divided into four categories: facial coloring, present hair color, previous hair color and eye color. As recorded by the interviewer, approximately two-thirds of the participants had undertones of blue in their complexion (66.0 percent), whereas approximately one-third of the participants (34.0 percent) had undertones of yellow (Table II).

The present hair color for over one-half of the participants was gray (53.2 percent) and approximately one-fourth of the participants had white hair (23.4 percent). Brown was the most common former hair color comprising 57.4 percent of the participants (Table II).

Also presented in Table II are the four categories of eye color for the participants as recorded by the interviewer. The majority of the participants had either blue eyes (48.9 percent) or brown eyes (40.4 percent).
### Table II

**Background Information of the Sample: Descriptive Data**

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dress Size</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Half size</td>
<td>26</td>
<td>55.3</td>
</tr>
<tr>
<td>Woman's</td>
<td>13</td>
<td>27.7</td>
</tr>
<tr>
<td>Misses</td>
<td>7</td>
<td>14.9</td>
</tr>
<tr>
<td>Junior</td>
<td>1</td>
<td>2.1</td>
</tr>
<tr>
<td>Petticoat</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Personal Coloring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facial Coloring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undertone of blue</td>
<td>31</td>
<td>66.0</td>
</tr>
<tr>
<td>Undertone of yellow</td>
<td>16</td>
<td>34.0</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Present Hair Color</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blonde</td>
<td>2</td>
<td>4.3</td>
</tr>
<tr>
<td>Brown</td>
<td>4</td>
<td>8.5</td>
</tr>
<tr>
<td>Red</td>
<td>6</td>
<td>0.0</td>
</tr>
<tr>
<td>Black</td>
<td>1</td>
<td>2.1</td>
</tr>
<tr>
<td>White</td>
<td>11</td>
<td>23.4</td>
</tr>
<tr>
<td>Gray</td>
<td>25</td>
<td>53.2</td>
</tr>
<tr>
<td>Salt and Pepper</td>
<td>4</td>
<td>8.5</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Former Hair Color</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blonde</td>
<td>7</td>
<td>14.9</td>
</tr>
<tr>
<td>Brown</td>
<td>27</td>
<td>57.4</td>
</tr>
<tr>
<td>Red</td>
<td>4</td>
<td>8.5</td>
</tr>
<tr>
<td>Black</td>
<td>2</td>
<td>12.2</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Eye Color</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brown</td>
<td>19</td>
<td>40.4</td>
</tr>
<tr>
<td>Green</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Blue</td>
<td>23</td>
<td>48.9</td>
</tr>
<tr>
<td>Gray</td>
<td>5</td>
<td>10.7</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Distribution of Scores for Each Measure

The responses to the measures were analyzed and are presented in three sections: (1) color awareness, (2) color preference in clothing, and (3) additional clothing color measures.

Color Awareness

Participants received a color awareness score from responses to two colored scenic pictures. The participant's color responses (number of words) were divided by the total responses to the picture (number of words). The percent color response was used as a score.

The distribution of scores is presented in Table III. Over one-half of the participants (53.2 percent) had a color response score between 11 and 29 (percent of their total responses). None of the participants had a color response score over 47 (percent of their total responses).

In Cave's study (1965) involving 50 female college students, one-half of the participants received color awareness scores between 12 and 29 (percent); none of Cave's participants received a score over 53 (percent). Since the participants received no suggestions that the researcher was interested in color responses, many other details were mentioned by the participants. However, under similar conditions, the elderly women's responses were comparable to the color responses of the college students. When participants in the present study were asked to rate themselves as to their awareness of
Table III
Color Awareness: Distribution of Respondents According to the Percentages of Color Responses to Total Responses

<table>
<thead>
<tr>
<th>Percentage of Color Responses to Total Responses</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>0 - 10</td>
<td>11</td>
</tr>
<tr>
<td>10 - 20</td>
<td>15</td>
</tr>
<tr>
<td>20 - 30</td>
<td>10</td>
</tr>
<tr>
<td>30 - 40</td>
<td>7</td>
</tr>
<tr>
<td>40 - 50</td>
<td>4</td>
</tr>
<tr>
<td>Over 50</td>
<td>0</td>
</tr>
</tbody>
</table>

True percent of color response for the sample:
Mean 18.4 percent ± 3.8 percent.
At the .05 confidence level, the mean was between 14.7 percent and 22.2 percent.
color on a five-level scale, all participants rated themselves at 5 which indicated high awareness of color.

In determining the true percent of color response for the sample, the mean for the percent color response scores were calculated at 18.4 percent ± 3.8 percent. The true percent of color response was between 14.6 percent and 22.2 percent at the .05 confidence level. A correlation between the strength of the two pictures was calculated by the Pearson Product Moment Correlation (r = .40, significant at the .004 level of significance). Thus, the two pictures were comparable stimuli for eliciting color response.

The participant's rank ordering of the importance of certain clothing characteristics when shopping revealed color awareness in clothing. As can be seen in Table IV, style was listed as the characteristic noticed first by 61.7 percent of the participants. Color was listed second by 48.9 percent, and price was listed third by 46.8 percent of the participants.

Table IV
Rank Order of Clothing Characteristic Noticed by Participants When Shopping

<table>
<thead>
<tr>
<th>Clothing Characteristic</th>
<th>Rank Order</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Price</td>
<td>8</td>
<td>17.0</td>
<td>17</td>
<td>36.2</td>
<td>22</td>
</tr>
<tr>
<td>Color</td>
<td>10</td>
<td>21.3</td>
<td>23</td>
<td>48.9</td>
<td>14</td>
</tr>
<tr>
<td>Style</td>
<td>29</td>
<td>61.7</td>
<td>7</td>
<td>14.9</td>
<td>11</td>
</tr>
</tbody>
</table>
When asked if they would notice anything else about the garment 25 percent of the participants said "yes"; items mentioned were quality, fit, comfort, and ease of care.

**Color Preference in Clothing**

The distribution of hues chosen for the two garment sketches is seen in Table V. Although the choice of one hue was not outstanding, in its choice over another, some indications of color preferences are suggested.

**Table V**

<table>
<thead>
<tr>
<th>Hue Preferred</th>
<th>Casual Dress</th>
<th>Dressy Dress</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Blue</td>
<td>10</td>
<td>21.4</td>
</tr>
<tr>
<td>Blue/purple</td>
<td>5</td>
<td>10.6</td>
</tr>
<tr>
<td>Purple</td>
<td>5</td>
<td>10.6</td>
</tr>
<tr>
<td>Purple/red</td>
<td>3</td>
<td>6.4</td>
</tr>
<tr>
<td>Red</td>
<td>8</td>
<td>17.0</td>
</tr>
<tr>
<td>Red/yellow</td>
<td>3</td>
<td>6.4</td>
</tr>
<tr>
<td>Yellow</td>
<td>8</td>
<td>17.0</td>
</tr>
<tr>
<td>Yellow/green</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Green</td>
<td>4</td>
<td>8.5</td>
</tr>
<tr>
<td>Green/blue</td>
<td>1</td>
<td>2.1</td>
</tr>
</tbody>
</table>

The hue preference for the casual dress was blue which was chosen by 21.4 percent of the participants. Red and yellow were the second most preferred hues, each chosen by 17.0 percent of the participants. It is interesting to note that the three most preferred colors were the primary colors. Primary
colors were suggested by Sharpe (1974) for use in institutions for the elderly as a source of stimuli, along with pastel colors. The most preferred hue for the dressy dress was red chosen by 19.0 percent of the participants; however, when responses to hues which contain blue (green/blue, blue, blue/purple) are combined they account for 34.1 percent of the participant responses.

The distribution of value/chroma scores chosen for the two garment sketches is seen in Table VI.

<table>
<thead>
<tr>
<th>Value/Chroma Combinations Preferred</th>
<th>Casual Dress</th>
<th>Dressy Dress</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Light/dull</td>
<td>7</td>
<td>14.9</td>
</tr>
<tr>
<td>Light/bright</td>
<td>26</td>
<td>55.3</td>
</tr>
<tr>
<td>Dark/bright</td>
<td>14</td>
<td>29.8</td>
</tr>
<tr>
<td>Dark/dull</td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

For both the casual and dressy dress sketches a light/bright value/chroma combination was chosen by over one-half of the participants; 55.3 percent chose the light/bright combination for the casual dress and 61.7 percent chose the light/bright combination for the dressy dress. The results are in contrast with previous clothing color preference studies conducted with the elderly (Shipley, Rosenzweig, 1962; Decker,
1962; Pieper, 1968; Sales, 1968; Story, 1972) from which the researcher found the preferred value/chroma combinations were dark/dull. However, the results of the present study were in agreement with the findings of studies conducted with the elderly for a general color preference (Neal, 1963; Mather, Stare and Brenin, 1971; Sharpe, 1974) which indicated a preference for bright primary pastel colors. When participants were asked their value/chroma preference without regard to specific garments, their responses indicated a preference for light and bright colors, 80.9 percent and 63.8 percent respectively (Table VII).

Table VII

<table>
<thead>
<tr>
<th>Stated Value/Chroma Preference</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>Light Colors</td>
<td>38</td>
</tr>
<tr>
<td>Dark Colors</td>
<td>9</td>
</tr>
<tr>
<td>Bright Colors</td>
<td>30</td>
</tr>
<tr>
<td>Dull Colors</td>
<td>17</td>
</tr>
</tbody>
</table>

"Questions relating to stated value/chroma preference were as follows: in general do you prefer light or dark colors (Appendix A Question 6), and in general do you prefer bright or dull colors (Appendix A Question 7)?"
When asked their favorite color over one-third of the participants chose blue (36.2 percent). Red was the second most often chosen hue as a favorite color, 19.0 percent of the participants (Table VIII).

The predominant color as stated by the participants in their spring/summer wardrobe was blue, chosen by 25.6 percent of the participants; however, 59.6 percent of the participants stated no one color predominated in their wardrobe, instead, they had a variety of colors (Table VIII). The high percentage of scores for a variety of colors may be an indication that the participants were interested and aware of colors in clothing or that more colors are available in the retail apparel market.

The distribution of scores for predominant color if the wardrobe was started over was similar to the responses regarding present predominant color(s) in the wardrobe. Over half (53.2 percent) of the participants chose to retain a variety of colors. Blue was the single most stated hue comprising 25.6 percent of the participants' response (Table VIII).

The predominant color in the subjects' fall/winter wardrobe was the same as their spring/summer wardrobe for 76.6 percent of the participants. Of the eleven participants who stated the predominant color in their fall/winter wardrobe differed from their spring/summer wardrobe 45.4 percent indicated that brown was the predominant color in the fall/winter wardrobe.
Table VIII
Responses to Questions Relating To Color Preference

<table>
<thead>
<tr>
<th>Hue</th>
<th>Predominant Color in Spring/summer Wardrobe</th>
<th>Predominant Color for New Wardrobe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Favorite Color For Clothing</td>
<td>Number</td>
</tr>
<tr>
<td>Blue</td>
<td>17</td>
<td>36.3</td>
</tr>
<tr>
<td>Blue/purple</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Purple</td>
<td>2</td>
<td>4.3</td>
</tr>
<tr>
<td>Purple/red</td>
<td>2</td>
<td>4.3</td>
</tr>
<tr>
<td>Red</td>
<td>9</td>
<td>19.0</td>
</tr>
<tr>
<td>Red/yellow</td>
<td>2</td>
<td>4.3</td>
</tr>
<tr>
<td>Yellow</td>
<td>3</td>
<td>6.4</td>
</tr>
<tr>
<td>Yellow/green</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Green</td>
<td>1</td>
<td>2.1</td>
</tr>
<tr>
<td>Green/blue</td>
<td>6</td>
<td>12.8</td>
</tr>
<tr>
<td>White</td>
<td>1</td>
<td>2.1</td>
</tr>
<tr>
<td>Black</td>
<td>1</td>
<td>2.1</td>
</tr>
<tr>
<td>Brown</td>
<td>3</td>
<td>6.4</td>
</tr>
<tr>
<td>Gray</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Variety</td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>
Additional Clothing Color Measures

Participants were asked the reasons for their choice of colors in their present wardrobe. (Appendix A Question 9). All the women who had a variety of colors in their wardrobe gave the reason that they just liked a variety of colors. For those participants who had a predominate color in their wardrobe the reason for its use was becomingness or personal coloring.

The distribution of responses pertaining to the number of participants who were able to find clothing in colors they liked in the retail apparel market is shown in Table IX.

Table IX
Responses to Questions Relating to Availability of Suitable Colors In the Apparel Retail Market

<table>
<thead>
<tr>
<th>Response to Availability Of Suitable Colors</th>
<th>Participants Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>32</td>
<td>68.1</td>
</tr>
<tr>
<td>No</td>
<td>15</td>
<td>31.9</td>
</tr>
</tbody>
</table>

Over two-thirds of the participants (68.1 percent) stated they could find clothing in suitable colors which is in agreement with Baer's study (1975). Shipley and Rosen-cranz (1962) had indicated in an earlier study that retailers viewed older women more conservatively than did the women
themselves. Martin (1971) reported that the elderly woman has been ignored in the retail apparel market. He emphasized that it was important for retailers to understand the needs and wants of the elderly woman and to provide suitable apparel for this very viable segment of consumers. Although color is only one aspect of consideration when shopping for a garment, the availability of suitable colors in the retail market may be an indication that manufacturers and retailers are becoming increasingly aware of the clothing wants and needs of the elderly woman.

Analysis in Terms of the Research Objectives

The data were analyzed in terms of the objectives developed for the study. The analysis is presented for each objective; in addition, support from the literature or contrast in results is presented.

Objective 1: To determine the elderly woman's general awareness of color and awareness of color in clothing.

The measures used to analyze the elderly woman's awareness of color were (1) percent color responses to total responses for two colored scenic pictures (percentage score) and a (2) self-rating on a 1 to 5 level scale representing the low to high awareness of color. Subject's responses to the pictures indicated that they were aware of color in general. Cave (1965) used a similar color awareness measure in which social situations were portrayed rather than colored scenic pictures; therefore, results can be compared only on
a relative basis. The result for color awareness of subjects for both the present study and Cave's study are similar, that is, the elderly woman's color awareness scores were similar to the college students' scores. Over one-half of the elderly woman (53.2 percent) and one-half of the college students (50.0 percent) had color response scores ranging from 11 to 29 percent and 12 to 29 percent respectively. In the present study there was a decrease in color awareness with an increase in age. The age group 75 to 80 included 38.3 percent of the subjects; nearly all of the group (29.3 percent of the total subjects) had a color response less than 20 percent.

The self-rating measure of color awareness was administered to determine whether a participant's perception of her awareness of color was in agreement with her actual percent color response score. The results may be interpreted that the women varied in their actual percent of color response (0 percent to 47 percent); however, all the women perceived themselves as being highly aware of color (M=5.0).

Color awareness for clothing was measured by rank ordering three clothing characteristics (style, color, price) in the order which the participants stated they would be noticed when shopping for a garment. The clothing characteristics noticed first by the participants were as follows: style, noticed first by 61.7 percent of the participants, color by 21.3 percent of the participants, and price noticed by 17.0 percent of the participants. Color was noticed second by
48.9 percent of the participants and third by 29.8 percent of the participants. In Cave's study (1965) college students were asked to rank order five characteristics of clothing: quality, style, color, fabric, and texture. Cave found that 42 percent of the participants noticed color first and also 42 percent of the participants noticed color second. The rank order for the other clothing characteristics was not given. However, studies with elderly women conducted by Fieper (1968) and Grey (1968) indicated that style was the most important reason for choosing a garment. The emphasis placed upon style by the elderly woman may be related to the difficulties she has in finding styles that are appropriate for her age and that conform to her changing figure. The college age woman presumably has many styles from which to choose, therefore she can allow color to be a more important clothing characteristic than style.

Objective 2: To determine the elderly woman's color preferences for specified garments.

Color preferences for specified garments were obtained through the use of a color wheel containing ten principal and intermediate hues and a value/chroma chart for each hue containing four value/chroma combinations. When shown two pen sketches of garments, a casual dress and a dressy dress, subjects indicated the three most preferred hues for the casual dress were blue, chosen by 21.4 percent of the participants, and red and yellow, each chosen by 17.0 percent of
the participants. It is interesting to note that none of
the participants chose yellow/green as a preferred color for
the casual dress. The most preferred hues for the dressy
dress were red, chosen by 19.0 percent of the participants
and blue, blue/purple and purple, each chosen by 12.8 percent
of the participants. These results may be interpreted that
in general there was not one preferred hue. Responses to
other questions indicated that the women had a variety of
colors in their present wardrobe, and that they would prefer
a variety of colors if their wardrobe could be started again.
The elderly woman's preference for a variety of colors in
clothing may have resulted from a greater exposure to colors
in the fashion industry than women in previous studies,

The favorite color for over one-third of the participants
was blue (36.2 percent) which was the color chosen most often
for the casual dress. Red was chosen by 19.0 percent of the
participants as the second most favorite color. Red was the
color chosen most often for the dressy dress.

There was stronger agreement concerning value/chroma pref-
erence than there was for hue. Thus, color preference appears
to be affected by value/chroma aspects of color more so than
a particular hue. The most preferred value/chroma choice
was light/bright: 55.3 percent for the casual dress and 61.7
percent for the dressy dress. The second most preferred
value/chroma combination was a dark/bright combination
selected by 29.8 percent of the participants for both the casual dress and dressy dress.

In addition to the value/chroma measure of color preferences, participants were asked their preference for light/dark colors and bright/dull colors. The results reinforced the value/chroma measure in that light colors were mentioned by 80.9 percent and bright colors were mentioned by 63.8 percent of the participants. In previous color preference studies with the elderly (Sharpe, 1974; Mather, Shere, Brehin, 1971; Weale, 1963) it was suggested that a preference for bright colors was due to the yellowing of the lens within the aging eye which resulted in colors being perceived less intensely.

Objective 3: --To determine the factors affecting and influencing the elderly woman's choice of colors for clothing.

Participants were asked their reasons for their choice of color in clothing to determine factors that may affect and influence the elderly woman's choice of colors in wearing apparel. The participants' responses indicated that becomingness (enhancing complexion, eye and hair) and a desire to have a variety of colors were the reasons for the predominant color(s) in the participants' wardrobe.

Descriptive data were tested with the color preference measures to determine its effect upon the use of color in clothing. Results indicated that participants most often
prefer blue and red hues if they had blue undertones in their complexion, had blue eyes, were presently gray haired and formerly were brunettes.

Objective 4:--To determine the elderly woman's perception of the availability of preferred colors in the retail apparel market.

The availability of suitable colors in clothing in the retail market as related to size revealed that 68.1 percent of the participants could find colors they liked. Participants wearing half size and misses size garments had the most problems in finding suitable colors. Fifty-five percent of the participants (n=26) wore a half-size dress and one-third of the women (n=8) said they could not find suitable colors. Although only 14.9 percent of the participants (n=7) wore a misses size dress, over one-half (n=4) stated they could not find colors they liked.

Summary

The sample of elderly women participating in the study were aware of color, in general, and for clothing they stated that they preferred a variety of colors in their wardrobe, rather than one predominant hue. In the present study the elderly woman's awareness of color and preference for a variety of colors in clothing may have resulted from a greater exposure to colors than women in previous studies.

There was a stronger agreement among the women concerning value/chroma preference than there was for preferences for a
specific hue when subjects selected colors shown in a color chart. Many women preferred light/bright colors (55.3 percent). The finding is in contrast with some of the earlier studies (Pieper, 1968; Sales, 1965; Story, 1972; Baer, 1974).

When presented a color wheel and sketches of dresses, the most predominant hue chosen for a casual dress was blue (21.4 percent) and for a dressy dress was red (19.0 percent). Over two-thirds of the participants could find suitable colors in clothing in the retail market. Thus it appears that manufacturers and retailers in the apparel industry have begun to recognize and fulfill the needs and desires of the elderly woman.
Chapter V

SUMMARY, IMPLICATIONS AND RECOMMENDATIONS

The increasing number of older people in American Society has led to greater awareness of their needs and interests. Until recently clothing preferences and problems of the elderly have received little consideration. Psychologically, attractively designed clothing can stimulate involvement in activities by influencing one's social relationships with others and by enhancing one's self-image. Color, one important aspect of clothing design, can contribute to a good self-image and can provide some of the stimulation and aesthetic responses so needed by the elderly to maintain a positive attitude and interest in life.

Summary

The present study was conducted to determine the importance of, preference for, and use of color in clothing for a selected group of elderly women. The specific objectives of the study were as follows:

1) To determine the elderly woman's general awareness of color and awareness of color in clothing.
2) To determine the elderly woman's color preferences for specified garments.
3) To determine the factors affecting and influencing
the elderly woman's choice of colors for clothing.

4) To determine the elderly woman's perception of the availability of preferred colors in the retail market.

Data were collected from an accessible population of elderly women who resided at an apartment complex for the elderly in Columbus, Ohio. Forty-seven elderly women volunteered to participate. Requirements for participation were that individuals (1) were between 65 and 80 years of age, (2) maintained own residency, and (3) participated in social activities.

The literature was reviewed to determine appropriate measures. The selected measures were adapted and pretested to establish their effectiveness for data collection. Each participant was interviewed and administered the measure personally within her own apartment.

*Color Awareness Measures.* To determine the elderly woman's awareness of color in general, participants were shown two colored scenic pictures and were asked to describe what they observed. The measure was intended to elicit color responses. Participants were also asked to rate themselves on a five-level scale on their perception of their awareness of color.

To determine the elderly woman's awareness of color in clothing, each participant was asked to rank order three clothing characteristics (price, color, style) as to which she would notice first, second, and third when shopping for a garment.
Color Preference Measures. To determine the elderly woman’s color preference in clothing each participant was shown a pen sketch of a casual and a dressy dress and was asked to select the hue and value/chroma she would prefer for herself for each dress. Additional color preference measures included asking the subject (1) her favorite color for clothing for herself, (2) if in general she preferred light or dark colors and bright or dull colors, and (3) the color that predominated in her present wardrobe and the color that would predominate if she could begin again.

Other Measures. To obtain further information regarding the elderly woman’s color preference and use of color, the participant was asked (1) the reason(s) for her choice of color in clothing and (2) the availability of suitable colors for clothing in the retail apparel market.

Background information collected during the interview included the following: age, dress size, educational background, previous occupation, main interests or hobbies, and personal coloring (skin undertone, eye color, present and former hair color).

The methods used for analyzing the data included the following: (1) descriptive statistics, namely, frequency distributions, percent, and mean scores, and (2) statistical analysis, namely, chi square and Pearson Product Moment Correlation.

The data were analyzed in terms of the research objectives.
Interpretation of the results indicated the following:

1. The elderly women were aware of color. Color response scores for the two colored scenic pictures revealed that the sample of elderly women were similar in awareness of color with the female college student in Cave's study (1965).

2. Within the three age groups (65-69, 70-74, 75-80) there was a slight decrease in color awareness with an increase with age.

3. Elderly women perceived themselves as highly aware of color (M=5.0 on a five-level scale for color awareness).

4. Color ranked second as a clothing characteristic that would be noticed when shopping for a garment. Style was ranked first.

5. The most preferred hue for a specific casual dress was blue and the most preferred hue for a specific dressy dress was red.

6. Elderly women have a variety of colors in their wardrobe and if they could start a new wardrobe they would still choose to retain a variety of colors.

7. The stated favorite color for clothing in general was blue. Red was the second most often mentioned color.

8. Most elderly women preferred light/bright colors for both specific casual and dressy dresses. The second most preferred value/chroma combination was for dark/
bright colors.

9. The stated value/chroma preference most often preferred by the elderly women without regard to specific garments was for light/bright colors.

10. The major reasons for the elderly woman's choice of color in her wardrobe were (1) becomingness (enhancing complexion, eyes, hair and figure) and (2) a desire to have a variety of color for 'variety's sake alone.'

11. Elderly women with blue undertones in their complexion, blue eyes, gray hair and who were formerly brunettes most often preferred blue and red hues.

12. Over one-half of the elderly women stated they could find suitable colors in clothing in the retail apparel market.

Implications

It is recognized that the sample was a select group of elderly women and that results of the study cannot be generalized to all elderly women. However, the following implications are presented for consideration by marketing personnel, home economists, gerontologists, as well as others who work with the elderly and are interested in understanding and meeting their needs.

1. The sample of elderly women were interested and aware of color in general and for clothing; therefore, color is an important aspect of their environment. Colors for clothing
should be interesting and stimulating to the individual.

2. The elderly women preferred light/bright colors in a variety of hues. Past studies relating to clothing color preferences have indicated a preference for navy and similar dark/dull colors. The change to a variety of light/bright colors may imply that the elderly woman is becoming more aware of color than she has been in the past as a means of self-expression. She may feel less need to conform to the more rigid expectations for dress considered appropriate for the elderly in the past. Although the women in the present study preferred light/bright colors for clothing, the colors must still be aesthetically pleasing and in good taste.

3. Over two-thirds of the elderly women stated they could find clothing in suitable colors in the retail market which may imply that retailers are becoming increasingly aware of the clothing wants and needs of the elderly.

Recommendations for Future Research

The awareness of color of the elderly women and the limited research available seems to indicate a need for further research in this area. Color preference studies are needed for the elderly woman measuring other aspects of color, such as, warm and cool colors, tints and shades, neutral colors, and color combinations. Variations in age, geographical location, social background, sex, socio-economic strata, and personality traits are possibilities for background factors to be considered in relation to color awareness, preference, and use.
A similar research study could be conducted in which the clothing colors of the participants are observed at the time of the interview; a comparison could be made of the colors chosen for various garment sketches with the actual colors worn. Observing the immediate color surroundings of the subjects could give insight into their color awareness.

Further study needs to be conducted regarding color preferences for other specified garments, such as pants and pant-suits which many of the women in the present study had in their wardrobe. A similar study could be conducted using constructed garments, instead of garment sketches, holding fabric and style constant and varying hue, value and chroma. Dress manufacturers and retailers must recognize the clothing color preferences of the elderly woman in order to market effectively to this growing segment of the population.
BIBLIOGRAPHY
BIBLIOGRAPHY


59


"Munsell Eleven Chart Hue Value/Chroma Educational Set," Munsell Color Company, n.d.


Interview Schedule

Procedure for Interview

While doing graduate work at O.S.U. I have become interested in women's preferences in clothing. I would appreciate your assistance in the study by giving me your opinion on the following questions.

1. Before specifically discussing your clothing preferences, I would like you to observe some pictures. Please look at the first picture. After a few seconds I will ask for the picture and would like you to describe to me what you saw. I will record your responses. (The same procedure will be followed for picture 2).

<table>
<thead>
<tr>
<th>Picture 1</th>
<th>1.</th>
<th>6.</th>
<th>Color</th>
<th>(5-6)</th>
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<tr>
<td></td>
<td>2.</td>
<td>7.</td>
<td>Noncolor</td>
<td>(7-8)</td>
</tr>
<tr>
<td></td>
<td>3.</td>
<td>8.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.</td>
<td>9.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.</td>
<td>10.</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
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<th>Picture 2</th>
<th>1.</th>
<th>6.</th>
<th>Color</th>
<th>(9-10)</th>
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<tr>
<td></td>
<td>2.</td>
<td>7.</td>
<td>Noncolor</td>
<td>(11-12)</td>
</tr>
<tr>
<td></td>
<td>3.</td>
<td>8.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.</td>
<td>9.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.</td>
<td>10.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Next I am going to show you two garment sketches. The first one is a casual dress. Using the color wheel select a color for the garment in which you would like it for yourself. After you have selected the color, I will show you a chart with some variations of the color. From this chart, will you please select the color sample in which you would desire the garment. (The same procedure will be followed for the second garment sketch, a dressy dress).

   1) Select a color from the color wheel that you prefer.
   2) Select the variation of the color that you prefer.

| Casual Dress | Hue # | 1 2 3 4 5 6 7 8 9 10 | (15-16) |
|             | Value-Chroma # | 1 2 3 4 | (17)   |
Subject no.____ 65

Dressy Dress
Hue # 1 2 3 4 5 6 7 8 9 10 (18-19)
Value-Chroma # 1 2 3 4 (20)

3. When shopping for a garment which of the following items would you notice 1st? 2nd? 3rd?
   Price__________ (23)
   Color__________ (24)
   Style__________ (25)

Are there other things that you would notice?
   Yes_ No_ (if yes) What are they? (26)

How important (are these)(is this) in relation to the three items just mentioned?

4. Will you please rate yourself on the following scale on awareness of color, that is, how aware are you of color?

Low Awareness of Color 1 2 3 4 5 High Awareness of Color (27)

5. What is your favorite color for clothing for yourself?

____________________ (30-31)

6. In general do you prefer light or dark colors?
   Light___ Dark___ (32)

7. In general do you prefer bright or dull colors?
   Bright___ Dull___ (33)

8. What is the most predominant color in your spring/summer wardrobe?

____________________ (37-38)
9. Why is ________ the predominant color in your wardrobe? (39)

10. Is ________ the predominant color for your fall/winter wardrobe?
   Yes____ No____
   (If no) What is the predominant color for your fall/winter wardrobe? (41-42)

11. If you could begin your spring/summer wardrobe over again, what would you plan as the predominate color? (43-44)

12. When you shop for clothing, can you find clothing in the colors you like?
   Yes____ No____
   (If no) What problems do you have in finding clothes in the colors you like? (45)

13. In which of the following age groups do you belong?
   65-69____  70-74____  75-80____ (48)

14. What is your dress size?
   Half size _____  Women's _____  Misses _____  Junior _____  Petite _____ (49-50)
15. How far did you go in school?

- Less than 7 years
- 7-11 years
- High school graduate
- Some college (or business, trade or technical school)
- College graduate
- Graduate or professional degree

(51)

16. Are you presently employed?

- Yes
- No

(if yes) What is your occupation?

(52)

17. What was your previous occupation before retirement?

(54)

18. What are your main interests or hobbies

(55)

19. Personal coloring

Facial coloring

- Undertones of blue
- Undertones of yellow

(58)

Hair Color

- Blonde
- Brown
- Red
- Black
- White
- Gray
- Salt & Pepper

(59)

Former hair color

- Blonde
- Brown
- Red
- Black

(60)
<table>
<thead>
<tr>
<th>Eye color</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown</td>
<td></td>
</tr>
<tr>
<td>Green</td>
<td></td>
</tr>
<tr>
<td>Blue</td>
<td></td>
</tr>
<tr>
<td>Gray</td>
<td></td>
</tr>
</tbody>
</table>
Color Wheel

1. Red
2. Red/yellow
3. Yellow
4. Yellow/green
5. Green
6. Green/blue
7. Blue
8. Blue/purple
9. Purple
10. Purple/red

*Representation of the color wheel which was used to determine the individual's hue preference for a specified garment. The color chips were obtained from Munsell's Eleven Chart Hue Value/Chroma Educational Set.*
Value/Chroma Chart\textsuperscript{a}

1. Light/Dull
2. Light/Bright
3. Dark/Bright
4. Dark/Dull

\textsuperscript{a}Representation of one of the ten value/chroma charts which were used to determine the individual's value/chroma preference for a specified garment after a hue preference had been selected. The selected value/chroma combinations were obtained from Munsell's Eleven Chart Hue Value/Chroma Educational Set.
CASUAL DRESS
Polyester/Cotton
DRESSY DRESS

Polyester Knit