

5-2016

# “Evaluation of Hearing Aid Wearers’ Appearance by Individuals Who Do Not Wear Hearing Aid Devices”

Lauren M. Lott

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The University of Southern Mississippi

“Evaluation of Hearing Aid Wearers’ Appearance by Individuals Who Do Not Wear  
Hearing Aid Devices”

by

Lauren M. Lott

A Thesis  
Submitted to the Honors College of  
The University of Southern Mississippi  
in Partial Fulfillment  
of the Requirements for the Degree of  
Bachelor of Arts  
in the Department of Speech-Language Pathology

May 2016

Approved by

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## **Abstract**

This study focuses on the perception of individuals who do not wear hearing aids and their perception of their hearing aid wearing peers. This thesis considers the opinions of students at The University of Southern Mississippi through the use of a paper survey evaluating the participant's perception of the following attributes: attractiveness, confidence, motivation, trustworthiness, education, friendliness, intelligence, disability, and body image. Data is collected from 150 students from ages 18-30. This study hopes to determine whether or not there will be a significant change in perception of an individual once they are viewed with a hearing aid.

Key terms: hearing aids, peer perception, disability, body image, attractiveness

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## **Chapter 1: Introduction**

Hearing loss affects approximately thirty-five million children and adults in the United States. However, even with such a high prevalence of people affected by hearing impairment, only about twenty-five percent of individuals who need hearing aids actually seek aural rehabilitation (ASHA 2015). Often times, hearing impaired individuals base their decision to get treatment on the perceptions they believe their peers have of persons with hearing impairment, as well as their own self-perceptions of persons with hearing loss. The suspected factors that contribute to this negative stigma are hearing aids' associations with age, disability, and appearance. Another negative stigma associated with hearing aid usage has been that hearing aids are extremely expensive. Hearing aid users seem to be embarrassed by having to wear a device that identifies them as hearing impaired, and hearing aid users have reported self-esteem issues associated with wearing hearing aids because of how they believe normal hearing individuals perceive them. Ross (1992) asserts that vision impairment is less stigmatized than hearing loss. He further asserts that hearing impairment is a disability while visual impairment is not a disability.

If approximately twenty-five percent of the hearing impaired population has sought treatment, one has to ask what the other seventy-five percent are doing about their hearing losses, and why haven't they requested assistance (Ross 1992). The stigma associated with the use of hearing aids has become known as the "Hearing Aid Effect", and this effect shows a trend in which normal hearing individuals judge their hearing aid wearing peers negatively. The "Hearing Aid Effect" is often used to discuss perceptions of persons wearing hearing aids. This term came about after a report from Blood, Blood,

and Danhauer showed that just seeing a hearing aid makes survey raters evaluate the intelligence, achievement, appearance, and personality of hearing aid wearers more negatively. The “Hearing Aid Effect” was found to be present in hearing impaired individuals and deaf school-age children when evaluated by others (Blood et al., 1978).

This study focuses on surveying a student population in a university community and will focus on the perception of individuals who wear hearing aids when viewed by individuals who do not wear hearing aids. Data for this study will be obtained through a survey that focuses on the perceptions of hearing aid users by individuals who do not wear hearing aids in the Hattiesburg university community. The populations sampled in this study are young adults at USM. The participants will be asked to answer questions about appearance, disability, perception, and attitude about hearing aids. They will do so by observing photographs of a person wearing different types of hearing aids and then rate their perceptions on a scale. The independent variable will be the types of hearing aids shown in the pictures. In this research project, the researcher will seek to answer the question: “Is there a stigma for persons who wear hearing aids among young individuals who do not wear hearing aids?”

## **Chapter 2: Literature Review**

The number of the people in the American population with a hearing loss has grown substantially in the past thirty years. Approximately thirty million children and adults in the United States have experienced a hearing loss. However, out of these thirty million persons with hearing loss, only about twenty-five percent of those needing hearing aid devices have sought treatment and received hearing aids (ASHA). Negative stigma is believed to be a primary explanation for this lack of hearing impaired individuals seeking assistance. (Ross 2003) One of the largest contributing factors to the “hearing aid effect” seems to be the psychosocial aspects of self and peer perceptions. Blood stated in 1997, that hearing aids are often looked at as stigmatizing and not in line with the perception of what is desirable, and therefore potential hearing aid users reject them (Blood 1997).

In children with hearing aids, the biggest concern appears to be what their peers think of them in and outside of the classroom. Kent and Smith (2006) studied New Zealand school children. They found that most of the children in the study preferred smaller, thus less visible, ITC (in-the- canal) aids because it meant that their classmates may not notice the aid. Other sample participants told the researchers that they were teased and made fun of for wearing their hearing aids. Kent and Smith also reported that children wearing highly visible BTE (behind-the-ear) devices admitted to taking their aids out at school and hiding them to avoid being teased by their peers.

Kochkin (1993) found that sixty percent of middle-age adults and thirty percent of older adults listed stigma as one of five reasons for not using hearing aids. Doggett, Stein, and Gans (1998) measured the hearing aid effect among older females with hearing



aids covering two groups of informed and uninformed judges. The informed judges were made aware of their peers who were wearing aids, while the uninformed judges were not. Each judge read a scenario to a study collaborator who was told whether the collaborator did or did not have a hearing device. After reading to the study collaborator, the judges were asked eleven questions pertaining to friendliness, attractiveness, confidence, intelligence, and age. Results of this study showed that the collaborators with hearing aids were rated by judges to be less confident, less friendly, and less intelligent than those not wearing aids. The authors agreed that their findings confirmed the continued presence of a hearing aid effect among older females (Doggett, Stein, Gans 1998).

Erler and Garstecki (2002) studied hearing aid stigma and its relationship to women's age. A group of young and older women were given semantic differential tasks with questions such as "If someone has a hearing loss, other people think of them as \_\_\_\_\_" and "If someone wears a hearing aid, other people think of them as \_\_\_\_\_". The women were then given the choice to rate the women as appearing young or old on a one to seven scale. Sixty-five percent of women in the younger group perceived the use of hearing aids as negative, and fifty-eight percent perceived people who wore hearing aids as handicapped. Erler and Garstecki concluded that a stigma associated with hearing aids exists (Erler & Garstecki 2002).

The cosmetics of hearing aids seem to also have an important role pertaining to stigma. The size and visibility of the aid contributes to the hearing aid effect. In 2005, researchers at Auburn University and University of California, Santa Barbara tested the hearing aid effect associated with newer hearing aid styles. The study looked at the visibility of open ear hearing aids to investigate their potential to reduce the stigma

associated with hearing aids. The researchers took three groups of young adults and asked them to rate six different hearing aid styles on their visibility when worn by a peer model. They tested the open ear (OE), completely in the canal (CIC), mini in the canal (m-ITC) half and full shell in the ear (ITE), and behind the ear (BTE) styles in three different angles. The results were that the completely in the canal style was rated most invisible and the open ear and behind the ear styles were rated as least invisible.

Danhauer, Johnson, Karns, Lopez, and Reith (2005) reported that the appearance of a device continues to be a factor associated with stigma and the hearing aid effect.

Blood (1997) studied the challenges of counseling individuals with hearing loss and the stigma associated with the hearing aid effect. Blood placed 100 students under adverse listening conditions and fitted them with different types of hearing aids. The results showed that eighty-eight percent of the students would wear a less visible In-The-Ear hearing aid, while twenty-five percent stated that they would not wear highly visible Behind-The-Ear hearing aid after observing themselves wearing it, indicating that twenty-five percent of these listeners were biased against aids if they were highly visible. Understanding this cosmetic aspect will help in counseling the hearing impaired and in developing strategies to combat the stigma (Blood 1997).

While most of these studies have shown that there is still a stigma attached to wearing hearing aids, they were mostly conducted in the 1970s, 1980s, and 1990s. To see if the stigma still exists, Palmer and Rauterkus (2014) conducted a study that involved twenty-four students at the University of Pittsburgh, and had them view photographs of a young man reading while wearing five different types of ear devices including a BTE aid with a standard ear mold, an open-fit slim-tube BTE, and invisible

CIC, a Bluetooth headset, and personal listening device ear buds. After viewing these photographs, the students rated their perceptions on a 7-point scale for eight different characteristics. They rated on attractiveness, age, success, motivation, trustworthiness, intelligence, friendliness and education. The results of the study showed that other than a major difference on age perception while wearing the BTE device versus the ear buds, there were no other major differences between the subject's perceptions of persons wearing hearing aids. Palmer & Rauterkus argued that the "hearing aid effect" no longer exists.

This project attempted to confirm that the "hearing aid effect" has disappeared among young and older adult populations. The title of this project is "The Evaluation of Hearing Aid Wearers' Appearance by Individuals Who Do Not Wear Hearing Aids" and it seeks to answer the question, "Is there a stigma ascribed to persons with hearing aids among younger and older individuals who do not wear hearing aids?"

## **Chapter 3: Methodology**

### **Participants**

The sample for this study consists of college students on the Hattiesburg campus of The University of Southern Mississippi. The sample size was 150 subjects, and the aim of this study was to determine if a stigma exists for individuals who wear hearing aids by individuals who do not wear hearing aids.

### **Data Collection**

Demographic data will be collected on each subject including age, gender, major area of study, participants' hearing abilities, and whether the participant currently owns or uses a hearing aid. The independent variable in this study is hearing aid type. The participants will view four photographs with each photograph showing a model wearing one of three currently popular hearing aids and a control photograph with no device worn. The type of hearing aid shown in the photograph will range from behind the ear, to in the canal, to an almost invisible completely in the canal device on a human model. The levels of the independent variable will consist of the hearing aid model number and type and will be assigned to each photograph for subsequent data analysis.

The dependent variable for this study was the responses given by the participants in the survey instrument. The dependent variable was used to explore the presence of stigma associated with wearing a hearing aid. A definition of stigma (Merriam-Webster 2015) is "a mark of guilt or disgrace; a set of negative or unfair beliefs that society or a group of people have about something." Stigma was operationalized and scaled by using Palmer's & Rauterkus' scale of eight different measures. The study explored the perceived level of attractiveness, age, success, motivation, trustworthiness, intelligence,

friendliness and education of individuals wearing a hearing aid. The researcher added characteristics of disability, body image, and confidence to those judged by participants.

### **Instrumentation and Procedures**

The survey was given in paper form and the researcher contacted students throughout the USM campus to gain participants. The participant had to be 18 years or older. After viewing each of the four photographs, each participant was asked to rate each picture on a scale measuring the characteristics: attractiveness, age, success, motivation, trustworthiness, intelligence, friendliness, education, disability, body image, and confidence. The ratings for each characteristic were counted and examined statistically using the McNemar Test. With the help of the thesis director, the researcher entered the data into a spreadsheet and produced a statistical analysis of the data.

## **Chapter 4: Results**

150 students from the University of Southern Mississippi completed surveys pertaining to the research project. It was decided by the researcher and the faculty advisor that the participants' classification, education level, age, or major had no significant impact on the results. The survey measured responses based on the hearing aid wearer's attractiveness, success, motivation, trustworthiness, intelligence, friendliness, education, confidence, disability, and body image. After analyzing data, the researcher concluded that there was no significant correlation between hearing aid use and success, motivation, trustworthiness, intelligence, friendliness, education, or confidence. Because of this, it was decided to not pursue any further testing of these factors.

Factors that showed a significant effect included attractiveness, body image, and disability. In measuring the hearing aid wearer's attractiveness, when wearing the Behind-The-Ear (BTE) device, more participants perceived this hearing aid wearer as less attractive in comparison to the control picture. For the In-the-Ear (ITE) device, participants viewed the hearing aid wearer less attractive than the control. When judging the hearing aid wearer in a Completely-In-the-Canal (CIC) device, participants rated the hearing aid wearer once again as less attractive than the control.

When asked to rate the hearing aid wearer's body image, there was a significant difference between the devices. For the BTE device, the participants stated that the hearing aid wearer appeared to not have a positive body image. In response to the CIC device, the researcher found a significant difference that suggested the hearing aid wearer had a less positive body image. For the ITE device, the participants found the hearing aid

wearer to have a less positive body image, as well. However, the significant difference was smaller for the ITE than it was for the BTE.

For the attribute of disability, the researcher found that the participants rated the hearing aid wearer the most disabled when wearing the BTE device, more disabled when wearing the ITE device, and less disabled when wearing the CIC device. This attribute had the largest significant difference and indicates that certain hearing aid types change an individual's perception of a hearing aid wearer's disability level.

## **Chapter 5: Discussion & Conclusion**

After data collection and analysis using the McNemar Test, it can be concluded that individuals who do not wear hearing aids perceive their hearing aid wearing peers with some forms of stigma and bias. While the attributes of intelligence, success, motivation, education, confidence, and friendliness showed no significant differences reported, the attributes of disability, body image, and attractiveness all showed significant negative perceptions from the participants in the study. It can be noted that while the surveys collected the participant's background information pertaining to gender, education level, and major, these factors were determined to be insignificant.

### **Future Implications**

Based on the findings in this study and research studies conducted in the past, it would appear that disability, attractiveness, and body image are factors that seem to be the most changed by the use of hearing aids as perceived by individuals who do not wear hearing aids. Further research should be conducted to determine which specific device causes non hearing aid wearing individuals to perceive their peers as more disabled, less attractive, and with a less positive body image and used for hearing aid companies to design new aids that are less noticeable.



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## Appendices

### Appendix A: Institutional Review Board Approval



#### INSTITUTIONAL REVIEW BOARD

118 College Drive #5147 | Hattiesburg, MS 39406-0001

Phone: 601.266.5997 | Fax: 601.266.4377 | [www.usm.edu/research/institutional.review.board](http://www.usm.edu/research/institutional.review.board)

#### NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.  
Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 16021003

PROJECT TITLE: Evaluation of Hearing Aid Wearers' Appearance by Individuals Who Do Not Wear Hearing Aid Devices

PROJECT TYPE: New Project

RESEARCHER(S): Lauren Lott

COLLEGE/DIVISION: College of Health

DEPARTMENT: Speech and Hearing Sciences

FUNDING AGENCY/SPONSOR: N/A

IRB COMMITTEE ACTION: Exempt Review Approval

PERIOD OF APPROVAL: 02/16/2016 to 02/15/2017

**Lawrence A. Hosman, Ph.D.**

**Institutional Review Board**

## Appendix B: Consent Form

Title of the study: Is There A Stigma for Persons Who Wear Hearing Aids Among Younger and Older Individuals Who Do Not Wear Hearing Aids?

**Introduction:** I, \_\_\_\_\_, have been asked to participate in this study. Lauren Lott, undergraduate student, Department of Speech & Hearing Sciences, USM, who is conducting this research, has explained the study. I certify that I am 18 years or older.

**Purpose of the Study:** The purpose is to obtain information to determine if there is a stigma of hearing aid users among younger and older non hearing aid users.

**Description of Procedures:** This study will be done at the Hattiesburg campus of the University of Southern Mississippi. I will be asked to complete a survey, which will take about 10 minutes to complete. Upon completion, I will give the form to the researcher. At least 100 participants will be in this study.

**Risks and Discomforts:** There are no known expected risks from participating in this study.

**Benefits:** I understand that this study may not have a direct benefit to me, but the knowledge gained will be beneficial to others.

**Contact Persons:** For more information about this study, I can contact Dr. Edward Goshorn. For more information regarding my rights as a research participant, I may contact the Chair of the Institutional Review Board at 266- 6820.

**Confidentiality:** I understand that any information obtained as a result of my participation in this research will be kept as confidential as legally possible. I understand that these research records may be subpoenaed by court order or may be viewed by federal authorities. In any publications that result from this research, neither my name nor any information from which I might be identified will be published without my consent.

**Voluntary Participation:** Participation in this study is voluntary. I understand that I may withdraw from this study at any time. Refusal to participate or withdraw will not result in loss of benefits or punishment on my behalf. By signing this form, I willingly consent to my participation in this study.

---

Signature of Participant

Date

---

Signature of Investigator or Investigator's Representative

Date

This project will be reviewed by the Human Subjects Protection Review Committee, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-6820.



- |  |                   |         |             |
|--|-------------------|---------|-------------|
| 1. Does the model in the photograph appear attractive?                     | Disagree          | Neutral | Agree       |
| 2. Does the model in the photograph appear successful?                     | Disagree          | Neutral | Agree       |
| 3. Does the model in the photograph appear motivated?                      | Disagree          | Neutral | Agree       |
| 4. Does the model in the photograph appear trustworthy?                    | Disagree          | Neutral | Agree       |
| 5. Does the model in the photograph appear intelligent?                    | Disagree          | Neutral | Agree       |
| 6. Does the model in the photograph appear friendly?                       | Disagree          | Neutral | Agree       |
| 7. Does the model in the photograph appear educated?                       | Disagree          | Neutral | Agree       |
| 8. Does the model in the photograph appear confident?                      | Disagree          | Neutral | Agree       |
| 9. Does the model in the photograph appear disabled?                       | Disagree          | Neutral | Agree       |
| 10. Does the model in the photograph appear to have a positive body image? | Disagree          | Neutral | Agree       |
| 11. Estimate the age of the model in the photograph.                       | 18-25             | 26-40   | Over age 41 |
| 12. Is the device in this photograph visible?                              | No Device Present | Visible | Not Visible |

## Survey 2

### Evaluation of Hearing Aid Wearers' Appearance by Individuals Who Do Not Wear Hearing Aid Devices

The model in each photograph may/may not be wearing a hearing aid device



Exam this photograph carefully

For the features listed below, Is this individual's appearance changed. Circle more, less, or unchanged relative to the first photograph you viewed.

1. Attractive: Less    Unchanged    More
2. Successful: Less    Unchanged    More
3. Motivated: Less    Unchanged    More
4. Trustworthy:    Less    Unchanged    More
5. Intelligent: Less    Unchanged    More
6. Friendly:    Less    Unchanged    More
7. Educated:    Less    Unchanged    More
8. Confident:    Less    Unchanged    More

9. Disabled:            Less    Unchanged    More

10. Does the model in the photograph appear to have a positive body image?  
Disagree    Neutral    Agree

11. Estimate the age of the model in the photograph. 18-25    26-40    Over age 41

12. Is the device in this photograph visible?    No Device Present    Visible    Not  
Visible



### Survey 3

#### Evaluation of Hearing Aid Wearers' Appearance by Individuals Who Do Not Wear Hearing Aid Devices

The model in each photograph may/may not be wearing a hearing aid device



Exam this photograph carefully:

For the features listed below, Is this individual's appearance changed. Circle more, less, or unchanged relative to the first photograph you viewed.

1. Attractive: Less    Unchanged    More
2. Successful: Less    Unchanged    More
3. Motivated: Less    Unchanged    More
4. Trustworthy:        Less    Unchanged    More
5. Intelligent: Less    Unchanged    More
6. Friendly:            Less    Unchanged    More

7. Educated:            Less    Unchanged    More

8. Confident: Less    Unchanged    More

9. Disabled:            Less    Unchanged    More

10. Does the model in the photograph appear to have a positive body image?  
Disagree    Neutral    Agree

11. Estimate the age of the model in the photograph. 18-25    26-40    Over age 41

12. Is the device in this photograph visible?    No Device Present    Visible    Not  
Visible

## Survey 4

### Evaluation of Hearing Aid Wearers' Appearance by Individuals Who Do Not Wear Hearing Aid Devices

The model in each photograph may/may not be wearing a hearing aid device



Exam this photograph carefully.

For the features listed below, Is this individual's appearance changed. Circle more, less, or unchanged relative to the first photograph you viewed.

1. Attractive: Less    Unchanged    More
2. Successful: Less    Unchanged    More
3. Motivated: Less    Unchanged    More
4. Trustworthy:    Less    Unchanged    More
5. Intelligent: Less    Unchanged    More
6. Friendly:        Less    Unchanged    More

7. Educated: Less    Unchanged    More
8. Confident: Less    Unchanged    More
9. Disabled:            Less    Unchanged    More
10. Does the model in the photograph appear to have a positive body image?  
Disagree    Neutral            Agree
11. Estimate the age of the model in the photograph. 18-25    26-40    Over age 41
12. Is the device in this photograph visible? No Device Present    Visible    Not Visible