Understanding of Racial Stigma Associated with Assistive Device Use

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Stigma and Race

• In the aging population, prevalence of visual impairments is projected to increase.

• Rehabilitation services have shown to improve the quality of life and provide the necessary tools to remain autonomous. However, research by Overbury & Wittich (2011) shows, only 56% of visually impaired access services despite knowing about them.

• A study by Resnik et al. (2009) showed that within minority populations, societal influences and attitudes towards device use can have negative impacts resulting in avoidance of mobility device use.

• Within Black and Hispanic populations, there is a negative predisposition towards device use and an inclination towards more socially acceptable “fashionable aids”.

• Hispanic participants articulated a greater preference for human assistance over use of mobility devices. Whereas, within White and Black populations there exists an inclination towards upholding independence.

• This suggests that there are racial or ethnic factors, beliefs and perceptions that can influence an individual’s perspective and use of assistive devices.
Hypotheses

Studies have shown;

• Heart rate is significantly lower when exposed to labelled targets. In aversive situations, this is attributed to;
  • Increased situational demands and
  • Hardwiring of animals to promote survival (Lewis, 2014).

• Higher levels of heart rate variability (HRV) in individuals who have greater ability to regulate emotion (Wei et al., 2017).

Therefore we hypothesized;

• Heart-rate variability (HRV) will increase (become more erratic) when young healthy adults observe images of assistive device users and

• An even larger variability when these images contain individuals that are non-White, compared to images of White individuals.
• 21 students (19-30 years), recruited through Concordia Undergraduate Psychology Department and word of mouth.

• The average age was 22 years with the gender distribution being 18 females and 3 males. Of the 21 participants, 15 identified as White and 6 as non-White.

• Participants were randomly assigned to the order of testing blocks and questionnaires.

• 5 Power point presentations were demonstrated to each participant while their HRV was being measured. This was done using an Infra-red photoplethysmography pulse-wave sensor placed on the left finger and connected to an Arduino Uno board (to detect the raw heart rate of the participant)
  • Control condition (18 neutral images) + 4 blocks of 18 images (w/ or w/out device + varying in race, age, and gender)
  • Demographics questionnaire; Expectations Regarding Aging (12 item) questionnaire & Explanatory Model Interview Catalogue (15 item stigma scale).
Data Analysis

- A 2 x 2 repeated measures ANOVA was done to determine whether there exists observable differences between the variable measures of participant group i.e. stigmatization based on the two factors i.e.; race (White versus non-White) and assistive device (device versus no device).

- A correlational matrix was also done to test for any association between the EMIC/ERA questionnaire scores and the different heart rate variables or measures.

- In addition, an independent t-test analysis was conducted to observe whether there exists any trend between the two factors i.e. participant race (White versus non-White) and the EMIC/ERA questionnaire scores.
Results

• The findings indicated no significant variance in HRV among participant groups based on; race, device use or the interaction between the two factors.

• However, we did observe a moderate correlation in HRV among participants regardless of, whether the participant was viewing images of White or non-White individuals and assistive device users versus non-users.

F (1, 19) = 1.405, p = 0.250
Conclusion

• Overall, this study showed no racial stigmatization associated with assistive device use which is contrary to, what we had predicted.

• This could mean that our sample did not perceive race as a stigmatizing factor which is a positive notion.

• However, it is important to consider that the results could have been quite different based on the sample (for example, older participants or first generation immigrants).
### Future considerations

#### Limitations
- Small sample size, younger age group (comparatively more open-minded)
- Psychology students (more aware of stigma)
- HRV device was sensitive (can alter reliability/validity of data)
- External factors - for example, loud sounds (can cause startling effect)
- HRV related to images, anxiety or other factors
- No cut-off for questionnaires

#### Future Studies
- Must consider testing a more varied age group.
- Test a more varied population of individuals (outside of schools, not only psychology students).
- A combination of a qualitative interview & quantitative measures would provide a more comprehensive insight.
- Consider also testing for other factors such as, eye movement tracking.
References & Acknowledgement


I would like to extend my sincere gratitude to my supervisor, Dr. Walter Wittich, as well as Dr. Aaron Johnson, Jonathan Jarry and Marie-Céline Lorenzini for their contribution to this project.