

Impact of Gender and Age on Confrontation Naming and Linguistic Facility in Aging Populations

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Will age and gender have an impact on confrontation naming?

Introduction

- Word retrieval often presents a problem for aging populations. The Boston Naming Test (BNT) is a prevalent neuropsychological exam that uses word retrieval to reveal relevant information leading to a diagnosis of a cognitive disorder such as Alzheimer's disease or other types of Dementia.
- The Boston Naming Test allows experimenters and health providers to evaluate the scope of their client's visual confrontation naming capabilities by presenting images and challenging clients to name the item in the images within 20 seconds.
- Prior studies have found both cognitively normal and impaired women performed significantly worse on the Boston Naming Test compared to men (Zec et al., 2007). Additionally, older age groups exhibited lower BNT scores than younger age groups. (Zec et al., 2007).
- This experiment investigated the effects of age and gender on confrontation naming using BNT consisting of 60 items. This study was designed to test the hypothesis that age groups and gender will have a considerable influence on confrontation naming ability; we expect that that older adults and women would score significantly lower on the BNT, with older women presenting the overall lower scores.

Method

Participants

538 participants aged 55-100.
185 males and 353 females.

Each gender was divided into four age groups:

- 55-65 years old
- 66-76 years old
- 76-85 years old
- older than 85 years old

Cognitive function was determined by using mini mental state examination scores (MMSE) adjusted for level of education. Participants with a history of neurological or motor disorders were excluded from the study. A one way ANOVA was used to test for homogeneity in education across gender groups.

Materials

Boston Naming Test (60 items).

Procedure

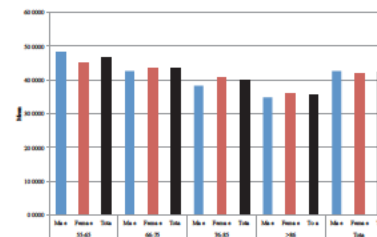
The Boston Naming Test (BNT) was used to assess confrontation-naming capabilities in the participants. The BNT consisted of 60 drawings to identify and 20 seconds to answer correctly. If failed to do so within the 20 seconds, the participants were provided a semantic cue with an additional 20 seconds to answer. If the participant did not provide an answer, a phonemic cue was given with an additional 20 seconds. A positive score was given to the participants that were able to answer correctly within the first 20 seconds and after given a semantic cue. The effects of the age and gender on the number of BNT responses using semantic and phonemic cues were analyzed using 2 (sex) x 4 (age groups) general lineal model analyses. A one way ANOVA was used to test for homogeneity in education across gender groups resulting in non-significant differences.

Results

1. A 4 x 2 analysis of variance (ANOVA) was conducted to assess the effect of age in four age groups 55-65, 66-76, 76-85, and older than 85 years old, and two gender groups (males and females) on BNT scores .

- There was a significant effect due to age on BNT scores $F(3,530) = 15.54, p = .00$

Figure 1. BNT Sum of answers without cue and with semantic cue (60 items)



- There was a non-significant effect on BNT scores associated with gender $F(1, 530) = .08, p = .77$
- $M = 42.54, SD = 13.07$ for males
- $M = 41.92, SD = 11.34$ for females.

- Interaction of age and gender was non-significant $F(3,530), p = .29$.

2. A multiple regression analysis was conducted including MMSE adjusted scores, gender, and age as predictors for BNT scores.

- Overall, taking into account all predictors, we were able to predict 45% of the sample variance ($R^2 = .45$), $F(3, 534) = 147.3, p = .00$. Age ($\beta = -.12, t(534) = -3.48, p = .001$) and MMSE ($\beta = .63, t(534) = 18.91, p = .00$) were significant predictors for BNT scores, with gender only approaching significance ($\beta = .06, t(534) = 1.93, p = .055$).

Discussion

- The effect of age and gender on confrontation naming was studied in a sample of elderly adults. The finding of age having a significant contribution on BNT scores is consistent with word retrieval difficulties in normal aging (Zec et al. 2007). The mean BNT scores declined for both sexes with successively older age groups.
- Contrary to the findings obtained by Hall et al. (2012) who found that males surpassed females on confrontation naming, the present study did not demonstrate gender differences in BNT scores. However, Zec et al. (2007) did not find a significant trend of gender differences on BNT scores, which is consistent with the findings of this study. A limitation to this study was the unequal distribution of men and women participants in the sample. Women comprised the majority of the participants, exceeding the amount of male participants.
- It is hypothesized that older adults and women would score considerably lower on the BNT compared to younger adults and men. However, findings from this study indicate that there is an effect on age in relation to scores on the BNT but a significant effect on gender in relation to scores on the BNT was not found

References

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