Correlation Between Mean Length of Utterances in Preschoolers and Different Maternal Education Backgrounds

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Abstract

Purpose: The purpose of this study was to measure the mean length of utterances in typically developing preschool children and to identify whether maternal education is an influential variable in morphological development. The study also researched the relationship between mean length of utterance (MLU) and number of different words (NDW).

Methods: 13 preschoolers between the ages of 3 and 5 were recruited to participate in the study. To participate in the study, each participant had to be typically-developing with the area of language, nonverbal cognitive abilities and hearing. This was assessed using standardized measures. Then, a 15-minute language sample was taken.

Results: The results of this study showed that there was a medium correlation between MLU and maternal education. There was a slightly weaker relationship between MLU and matenal education. There was a medium correlation between MLU and vocabulary, but with older children (36 to 60 months old).

Background

Morpheme calculation is widely used as a technique for speech-language pathologists to assess the development of language in typically-developing children. Previous research has highlighted numerous variables that could affect language production. The variables studied previously have included SES, IQ, and the presence of SLI (Rice, Redmond, & Hoffman, 2006). The results of a study by Walker et al. (1994) showed that language samples of children aged 7 to 36 months varied based on socioeconomic status, along with measured IQ. Similarly, this study will analyze SES as an influential variable, but with older children (36 to 60-month-olds).

Research Questions

1. Will preschool language samples show a correlation between MLU and maternal education?
2. Will there be a correlation between number of different word (NDW) scores and MLUs?

Methods

Participants: The study included 13 children (7 boys and 6 girls). The participants ranged in age from 39 months to 68 months with a mean age of 57.2 months. 76.9% of participants were Caucasian and 23.1% were African American.

Inclusion criteria: Included the Primary Test of Nonverbal Intelligence (Ehren & McGhee, 2018; PTDI), Oral and Written Language Scales-2 (Carrow-Woolfolk, 1995; OWLS), and Goldman-Fristoe Test of Articulation 3 (Goldman & Fristoe, 2015; GFTA-3). See Table 1 for participant data.

Results

Question 1: Will preschool language samples show a correlation between MLU and maternal education?

The correlation between MLU and maternal education by group was r = .442, p<.13, which is not statistically significant. However, this is considered to be a medium positive correlation. The results suggest that as maternal education increased (e.g., mother's with higher levels of education) so did the length of MLU in the participants such that the participants from higher maternal education families had longer MLUs.

Graph 1: Maternal Education Correlation Between MLU

Post Hoc Question: Is there a difference between MLU and NDW when children are divided into high maternal education and low maternal education?

The researcher was interested in the impact of varying maternal education on MLU of preschoolers. Therefore, descriptive analysis was conducted to further investigate the relationship between maternal education and MLU by dividing the participants into two groups based on maternal education level. See Table 2. Results indicate that the mean MLU for the higher education group was greater than the lower education group. After conducting an independent t-test, results for the two groups were not statistically significant. This could be contributed, in part, to the small group size.

The correlative results indicate that there is a medium correlation between both MLU and maternal education level and NDW and MLU that did not reach significance. The researcher believes that the correlation would have been stronger if the sample size was larger. However, the medium correlation still reinforces previous research about the relationship between MLU and maternal education, as well as between MLU and NDW.

Table 2: High and Low Ed Groups

Question 2: Will there be a correlation between number of different word (NDW) and MLUs?

The mean NDW for the participants was 102.8 with a standard deviation of 21.3. The Pearson correlation between NDW and MLU was r = .474, p<.1, which was not statistically significant. However, this is considered to be a medium positive correlation. The results suggest that there is a relationship between NDW and MLU such that the participants who had larger NDW had longer MLU. See graph 2.

Discussion

Relationship between MLU and NDW

One study conducted by Rice, Redmond, and Hoffman (2006) sought to determine the correlation between MLU and vocabulary as age increased. Their results showed a decreasing correlation between MLU and vocabulary as age increased. The current study’s results showed a medium correlation between MLU and NDW (as a measure of vocabulary). This could be attributed to the age range of the participants. The results of the current study are trending to support Rice et al.’s findings of the decreasing relationship between MLU and vocabulary. It could be that a child’s actual vocabulary does not affect his or her MLU as much as the language the child is exposed to in his or her family. It could be speculated that individuals from families with higher maternal education experience more complex language on diverse topics compared to children from lower maternal education families. Likewise, children from families with higher maternal education might also have more diverse experiences. For example, going to the beach, flying on a plane, or going to the zoo, are all experiences that could enhance a child’s overall ability to engage in conversations about those experiences.

Clinical Implications

• Knowing that children of mothers with a lower education level are at risk for lower language abilities will allow speech language pathologists to develop interventions that are appropriate to each child’s needs.
• Speech language pathologists should consider obtaining parental education information when collecting initial background information from new clients.
• This knowledge could aid speech language pathologists as they determine how to educate parents.

Limitations

• The small sample size makes it difficult for the results to be generalized.
• Given the age of participants, it is possible that some of them may have fatigue during the assessment process and did not perform to the best of their ability.
• Parents who were present for the assessment process may have created a distraction for their children and this may have impacted the results.

References

Walker et al. (1994). Showed that language samples of children aged 7 to 36 months varied based on socioeconomic status, along with measured IQ.