

Research Paper

Study of Memory and Age: Comparing Recall Abilities in Young Age and Middle Age persons through Video Stimuli

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ABSTRACT

Introduction and Objective: Understanding the human mind has always been a very complex process. Memory can be vague or misty at times, crumbling has a role in forgetfulness. 'As individuals grow older, there is a common perception of declining memory abilities. This study quest to explore the effects of age on memory encoding, storage, and retrieval processes. The literature on memory and aging suggests that there are age-related declines in memory functioning, although not all studies have found consistent results. In one study by Lalitha & Jamuna (2015) "The research on memory and aging indicates that there are differences in memory functioning between younger and older individuals. Numerous studies have indicated that memory processing may be a potential source of age differences in memory functioning." The present study aims to understand the relationship between age and memory using video clips as stimuli. Specifically, the study focused on Young age and Middle age persons. **Methodology:** In this study, total sample size is Forty(N=40), age group between 20-55 years. For this study, participants were enlisted from the focused age groups and ascribed to the 20-25 years group and the 50-55 years from both the gender (males and females). **Tools used:** Video clip, Questionnaire based on the video. **Results:** The results of the research are discussed in the paper. **Conclusion:** Memory of Young age person is better than the Middle age person. Young age person has the quality of factors Add-on than the middle age. Deletion of information is more in Young age person than the middle age person.

Keywords: *Memory, Aging, Video Stimuli*

The study by (West & Stone, 2014) aimed to examine the modality effect in the recall of multimedia information among children between the age ranges of 6 years to 9 years 11 months. It was found that recall abilities increase with age, with older children recalling better than younger children (Davis et al., 2015). The study also highlighted the use of visual stimuli for teaching new vocabularies, skills, and concepts in younger children (Otgaar et al., 2018). Another study investigated age-related differences in the neural correlates of successful memory encoding and found that young and older adults exhibited equivalent subsequent memory effects in certain brain regions (Paige et al., 2019). A review of the literature on memory in middle-aged adults revealed a steady decline in

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memory performance, with some areas showing less decline than others (Light & Anderson, 1985). Additionally, research on episodic memory in older adults showed that advancing age is associated with difficulties remembering past events and decreasing awareness of the accuracy of episodic memories.

Memory and Age

The study of memory and age is a topic that has received significant attention in psychological research. As individuals grow older, there are noticeable changes in cognitive abilities, including memory. These changes can have a profound impact on daily functioning and quality of life.

One area of interest in the study of memory and age is the comparison of recall abilities in younger individuals versus middle-aged individuals. Research has shown that there are significant age-related changes in memory performance. For example, studies have found that older adults tend to have more difficulty with tasks that require remembering specific details or recalling information in a specific order. The purpose of this research study is to compare the recall abilities of young and middle-aged individuals using video stimuli.

Understanding Recall Abilities

Recall abilities refer to the process of retrieving stored information from memory. This process can be assessed through various tasks, such as free recall and cued recall. In free recall tasks, individuals are asked to remember as much information as possible without any external cues or prompts. In cued recall tasks, individuals are given specific cues or prompts to help them remember information that they have previously encountered.

Age-related changes in recall abilities have been widely studied, with some conflicting findings. However, other research suggests that older adults may experience declines in memory retrieval and the ability to accurately recall information. Fabiani and Friedman found an age-related decline in recall abilities for both verbal and pictorial stimuli (Starkstein & Kremer, 2001).

Influence of Age on Memory Recall

Research has shown that there is a decline in memory recall abilities with age. As mentioned in previous studies, some mental functions such as general knowledge, and numerical and verbal abilities remain relatively intact during aging. However, when it comes to memory, there tends to be a decline in certain types of memory performance. For example, older adults may have more difficulty with tasks that require episodic memory, which involves remembering specific events and contexts.

One possible explanation for the age-related decline in recall abilities is changes in cognitive functioning. As individuals age, there may be changes in memory structures and recall strategies that require adaptations in cognitive functioning (Downs, 1994). For example, Salthouse found that age differences in task speed and accuracy increase when the task becomes more complex.

The Role of Video Stimuli in Memory Recall Research

In recent years, researchers have started to use video stimuli as a means of studying memory recall abilities. Video stimuli provide a dynamic and immersive medium for presenting information, which may more closely resemble real-life experiences. This method allows

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researchers to examine recall abilities in a more naturalistic context and may provide insights into how memory processes operate in everyday situations. The current study aims to compare the recall abilities of young age and middle age individuals through the use of video stimuli. Recent research has indicated that there may be a weakening relationship between what older adults see and their brain activity when it comes to memory recall.

Comparative Study of Recall Abilities: Young Vs Middle-Age

The present study aims to empirically investigate the differences in recall abilities between young age and middle-age individuals. Specifically, we will examine the ability to recall information presented through video stimuli.

We hypothesize that there will be differences in recall performance between young and middle-age individuals. Younger adults are generally expected to have better recall abilities compared to middle-aged individuals.

This hypothesis is based on previous research that suggests younger adults perform better overall on memory tasks compared to middle-aged individuals due to factors such as cognitive decline and changes in memory structures.

METHODOLOGY

Aim: to understand the relationship between age and memory using video clips as stimuli.

In this study, total sample size is Forty(N=40), age group between 20-55 years. For this study, participants were enlisted from the focused age groups and ascribed to the 20-25 years group and the 50-55 years from both the gender (males and females).

Participants: The study will include two age groups: young adults (age range 20-25) and middle-aged adults (50-55 age)

Hypotheses

1. H_0 : Memory of Young age person is better than middle age person.
2. $H_{0.1}$: Young age person has the quality of factors add on than the middle age person.
3. $H_{0.2}$: Deletion of information is more in Young age person than the Middle Age person.
4. $H_{0.3}$: False Memory is more in Middle age person than the Young age person.

Sample

The sample comprised of total 40 persons. There were two groups of adults between the ages of 20-25years and 50-55 age. Group I (young adults) consisted of 20and Group II consisted of 20 normal healthy middle-aged adults (middle-aged adults).

Design

The research design of the present study is a between-groups design, where two different age groups will be compared on their recall abilities. The independent variable in this study is the age group (young adults vs middle-aged adults), while the dependent variable is the recall ability as measured by performance on the memory recall task.

Sampling method

Participants for this study will be recruited from the general population within the specified age ranges. Random sampling will be used to select participants from each age group.

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Procedure Participants will be informed about the study and provided with an informed consent form to ensure their voluntary participation. Once the participants have given their consent, they will be randomly assigned to either the young adult group or the middle-aged adult group. The participants will be given a brief explanation of the study and the tasks involved.

The study will involve the presentation of video stimuli to both groups. These video stimuli will contain various visual and auditory information that participants will be asked to recall after viewing. To assess recall abilities, participants will be asked to answer questions about the content of the video stimuli immediately after viewing. The study will compare the recall abilities of young adults (age range 20-25) and middle-aged adults (50-55 age) using video stimuli.

Measures

- The main measure in this study was participants' recall ability. This was assessed using a memory recall task, where participants were asked to recall specific details (questions) from the video stimuli they have viewed.
- The questions were designed to probe different aspects of memory, such as the ability to remember factual information, the accuracy of recalling specific details, and the presence of false memories. Participants' responses were recorded and analyzed for accuracy in recalling the details from the video stimuli.

Procedure

At the beginning of the study, participants were given a brief overview of the study and its purpose.

They were then asked to provide informed consent before proceeding with the study. Participants were randomly assigned based on their age to the young adult group or the middle-aged adult group. Participants in both groups were exposed to the same video stimuli. After viewing the video stimuli, participants were given a set of questions to assess their recall abilities.

These questions include both open-ended and multiple-choice items (yes or no) to assess participants' ability to recall specific details from the video stimuli. Additionally, participants' responses were analyzed for the presence of false memories or inaccuracies in recall.

The test which was used for this study was the Pearson's Coefficient Correlation. Results were calculated using an online statistical software. The results were further analyzed and then discussed.

RESULTS

The results of the study are expected to show differences in recall abilities between young adults and middle-aged adults. Specifically, it is anticipated that young adults will demonstrate higher recall accuracy and fewer false memories compared to middle-aged adults.

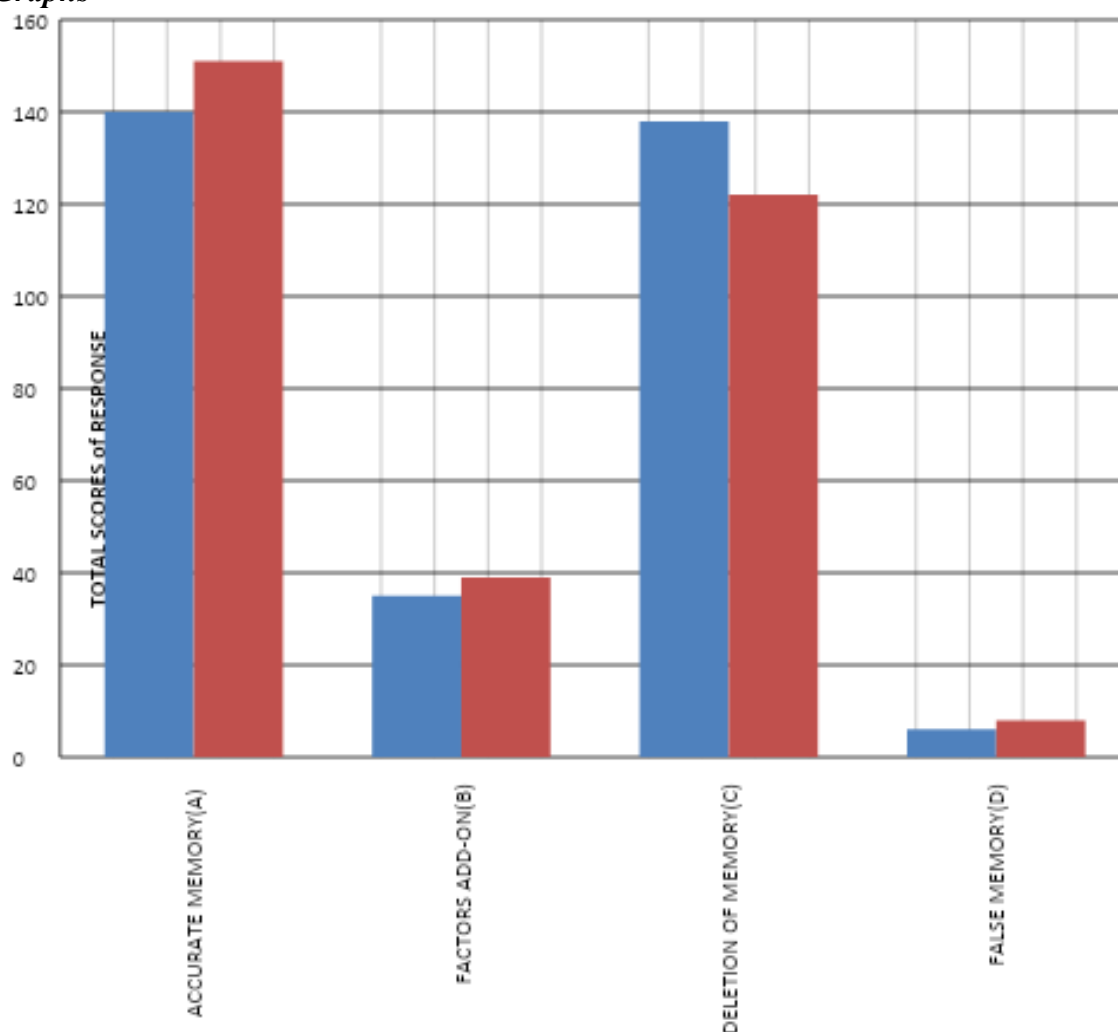
- A. Accurate Memory** - According to table (Bar graph)1 and 1.1, our null hypothesis has been Accepted. Coefficient Correlation indicated that there is an insignificant positive relationship.

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- B. Factors Add- on** - According to table (Bar graph)1 and 2, the hypothesis has been Accepted. Coefficient Correlation indicated that there is Insignificant positive relationship. (Not enough to be Statistically Significant)
- C. Deletion of Memory** - According to table (Bar graph) 1 and 3, our hypothesis has been accepted. Coefficient Correlation indicated that there is an insignificant positive relationship.
- D. False Memory-** According to table (Bar graph)1 and 4, null hypothesis has been Rejected. Coefficient Correlation indicated that there is an insignificant very small negative relationship.

This finding further supports the validity of our survey data since more than three-quarters of the participants were female (Wang & Shepley, 2022). The research findings from previous studies on aging and memory suggest that older adults may be more vulnerable to misinformation compared to young adults. These findings are consistent with the idea that memory abilities decline with age. Additionally, it is expected that intentional memory conditions will result in higher recall compared to incidental memory conditions (West & Stone, 2013).

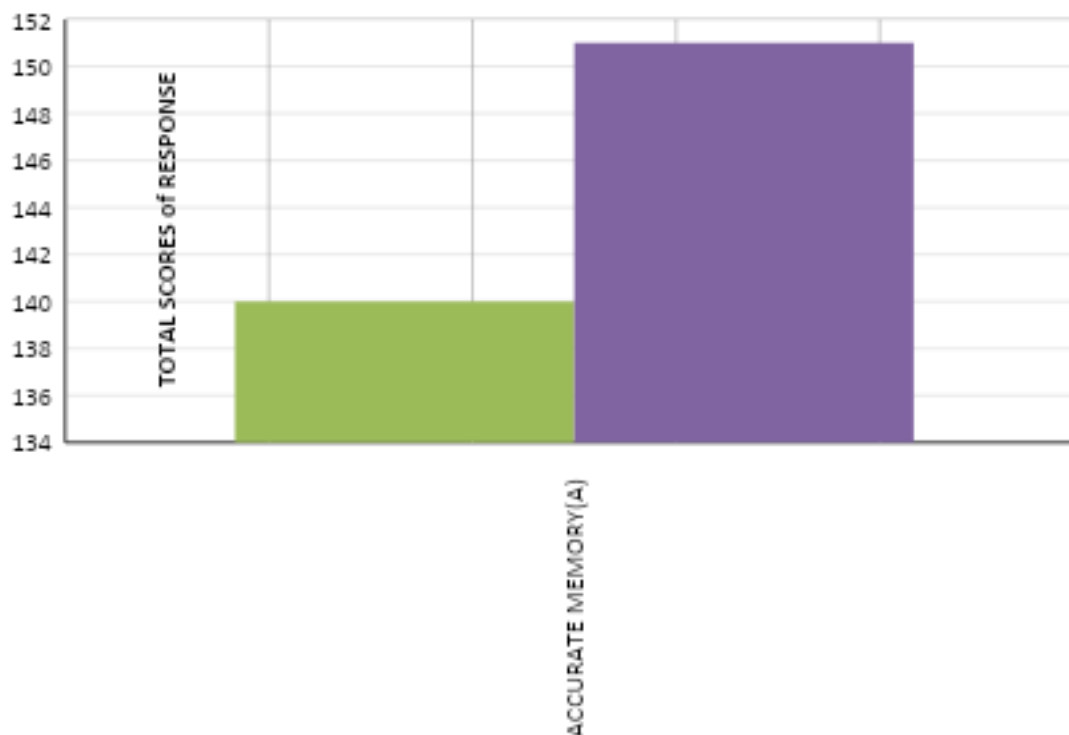
Graphs



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Interpretation

A. Young Age and Middle Age Adults Accurate Memory



Graph 1

A. ACCURATE Memory

Results of the Pearson correlation indicated that there is a non-significant medium positive relationship between Young aged (20-25Years) and Middle age (50-55 years) person's Accurate Memory(A), $r(18) = .344$, $p = .137$.

↑ $r = 0.3443$

1. H_0 hypothesis

Since the p -value $> \alpha$, H_0 cannot be rejected.

The population's correlation is considered to be equal to the expected correlation (0). In other words, the difference between the sample correlation and the expected correlation is not big enough to be statistically significant.

A non-significance result cannot prove that H_0 is correct, only that the null assumption cannot be rejected.

2. P-value

The p -value equals 0.1371, ($P(x \leq 1.5559) = 0.9314$). It means that the chance of type I error, rejecting a correct H_0 , is too high: 0.1371 (13.71%). The larger the p -value the more it supports H_0 .

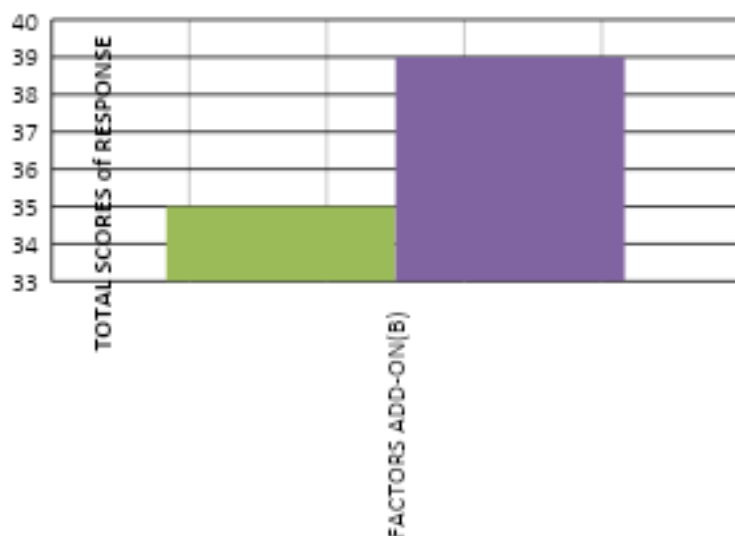
3. Test statistic

The test statistic T equals 1.5559, which is in the 95% region of acceptance: $[-2.1009, 2.1009]$.

The 95% confidence interval of **correlation** is: $[-0.1159, 0.6828]$.

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B. Factors Add-on



Graph 2

B. Factors Add- on

Results of the Pearson correlation indicated that there is an insignificant small positive relationship between young age (b) and middle age (b), ($r(18) = .143, p = .274$).

$\hat{r} = 0.1427$

Correlation-test, using T(df:18) distribution (right-tailed)

Uses the T distribution to test the correlation.

The correlation's distribution is not symmetrical when $r \neq 0$, hence we use the Z distribution to create the confidence interval.

1. H_0 hypothesis

Since the p-value $> \alpha$, H_0 cannot be rejected.

The population's correlation is considered to be less than or equal to the expected correlation (0).

In other words, the sample correlation is greater than the expected correlation, but not enough to be statistically significant.

A non-significance result cannot prove that H_0 is correct, only that the null assumption cannot be rejected.

2. P-value

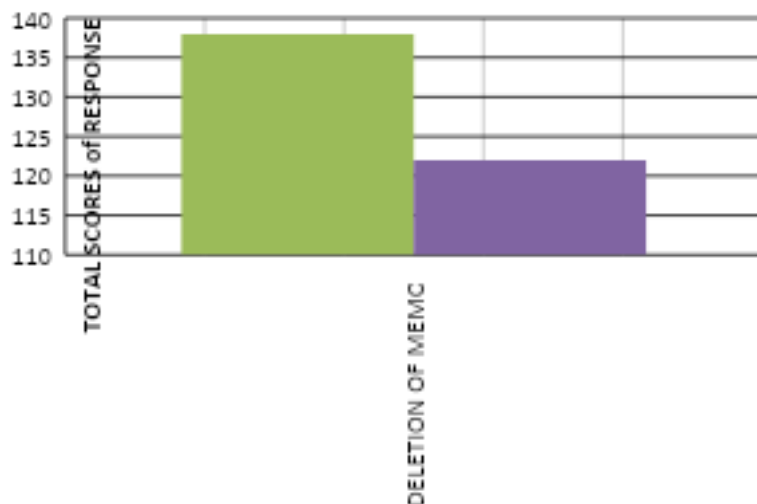
The p-value equals 0.2742, ($P(x \leq 0.6118) = 0.7258$). It means that the chance of type I error, rejecting a correct H_0 , is too high: 0.2742 (27.42%). The larger the p-value the more it supports H_0 .

3. Test statistic

The test statistic T equals 0.6118, which is in the 95% region of acceptance: $[-\infty, 1.7341]$. The 95% confidence interval of correlation is: $[-0.2498, 1]$.

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C. Deletion of Memory



Graph 3

C. Deletion of Memory

Results of the Pearson correlation indicated that there is an Insignificant medium positive relationship between (C) Young Age and (C) Middle Age Deletion of Memory, ($r(18) = .306, P = .190$).

$$\hat{r} = 0.3057$$

1. H_0 hypothesis

Since the p-value $> \alpha$, H_0 cannot be rejected.

The population's correlation is considered to be equal to the expected correlation (0). In other words, the difference between the sample correlation and the expected correlation is not big enough to be statistically significant.

A non-significance result cannot prove that H_0 is correct, only that the null assumption cannot be rejected.

2. P-value

The p-value equals 0.1899, ($P(x \leq 1.3624) = 0.9051$). It means that the chance of type I error, rejecting a correct H_0 , is too high: 0.1899 (18.99%). The larger the p-value the more it supports H_0 .

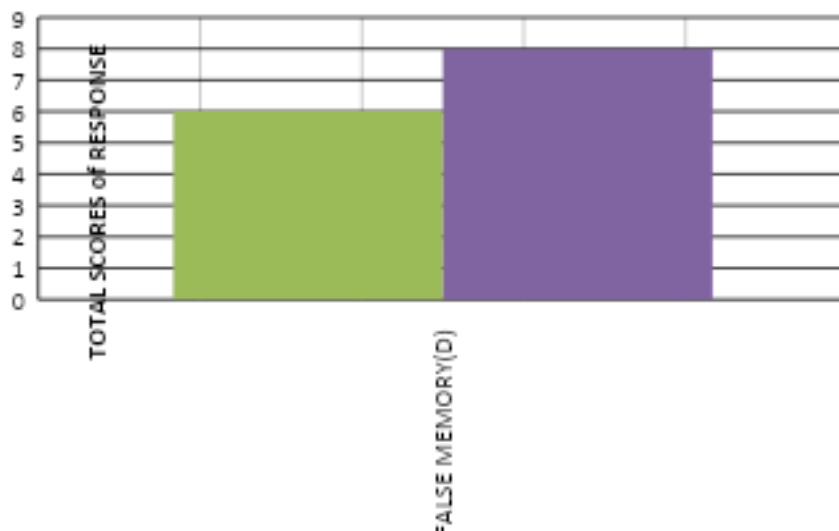
3. Test statistic

The test statistic T equals 1.3624, which is in the 95% region of acceptance: $[-2.1009, 2.1009]$.

The 95% confidence interval of **correlation** is: $[-0.1582, 0.6591]$.

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D. False Memory



Graph 4

D. False Memory

Results of the Pearson correlation indicated that there is a non-significant very small negative relationship between YOUNG AGE (D) and MIDDLE AGE GROUP (D), ($r(18) = .0542, p = .821$).

↓ $r = -0.05415$

1. H_0 hypothesis

Since the p -value $> \alpha$, H_0 cannot be rejected.

The population's correlation is considered to be equal to the expected correlation (0). In other words, the difference between the sample correlation and the expected correlation is not big enough to be statistically significant.

A non-significance result cannot prove that H_0 is correct, only that the null assumption cannot be rejected.

2. P-value

The p -value equals 0.8206, ($P(x \leq -0.2301) = 0.4103$). It means that the chance of type I error, rejecting a correct H_0 , is too high: 0.8206 (82.06%). The larger the p -value the more it supports H_0 .

3. Test statistic

The test statistic T equals -0.2301, which is in the 95% region of acceptance: $[-2.1009, 2.1009]$.

The 95% confidence interval of **correlation** is: $[-0.4851, 0.3979]$.

DISCUSSION

The results of this study provide valuable insights into the recall abilities of young and middle-aged adults when exposed to video stimuli. These findings contribute to the existing literature on aging and memory, specifically in the context of video stimuli.

The above graphs shows that there was no significant difference found in the memory among both the age group at 0.05% level.

CONCLUSION

In conclusion, this study aimed to investigate and compare recall abilities in young age and middle age individuals through video stimuli. The results of this study provide valuable insights into the effects of age on memory and recall. It is clearly visible through this research that there is no significant difference in memory among the young age person and Middle age person. All 4 categories (Accurate Memory, Factors Add-on, Deletion of Memory, and False Memory) were found to be Insignificant

Implications of Age on Memory and Recall

The results of this study contribute to our understanding of the effects of age on memory and recall abilities.

REFERENCES

- Acevedo-Molina, M. C., Matijevic, S., & Grilli, M. D. (2020). Beyond episodic remembering: elaborative retrieval of lifetime periods in young and older adults. *Memory (Hove, England)*, 28(1), 83–93. <https://doi.org/10.1080/09658211.2019.1686152>
- Aleea L. Devitt, Daniel L. Schacter, False memories with age: Neural and cognitive underpinnings, *Neuropsychologia*, Volume 91, 2016, Pages 346-359, ISSN 0028-3932, <https://doi.org/10.1016/j.neuropsychologia.2016.08.030>. (<https://www.sciencedirect.com/science/article/pii/S0028393216303281>)
- Baudouin, A., Clarys, D., Vanneste, S., & Isingrini, M. (2009). Executive functioning and processing speed in age-related differences in memory: Contribution of a coding task. *Brain and Cognition*, 71(3), 240–245. <https://doi.org/10.1016/j.bandc.2009.08.007>
- Davis, D. K., Alea, N., & Bluck, S. (2015). The Difference between Right and Wrong: Accuracy of Older and Younger Adults' Story Recall. *International journal of environmental research and public health*, 12(9), 10861–10885. <https://doi.org/10.3390/ijerph120910861>
- Henninger, D. E., Madden, D. J., & Huettel, S. A. (2010). Processing speed and memory mediate age-related differences in decision making. *Psychology and Aging*, 25(2), 262–270. <https://doi.org/10.1037/a0019096>
- Hess, T. M., Hinson, J. T., & Statham, J. A. (2004). Explicit and Implicit Stereotype Activation Effects on Memory: Do Age and Awareness Moderate the Impact of Priming? *Psychology and Aging*, 19(3), 495–505. <https://doi.org/10.1037/0882-7974.19.3.495>
- Howard Abikoff, José Alvir, George Hong, Randi Sukoff, Jeanne Orazio, Sanford Solomon & Steven Saravay (1987) Logical memory substest of the wechsler memory scale: Age and education norms and alternate-form reliability of two scoring systems, *Journal of Clinical and Experimental Neuropsychology*, 9:4, 435-448, DOI: 10.1080/01688638708405063
- Katherine Nelson; Emergence of Autobiographical Memory at Age 4. *Human Development* 1 March 1992; 35 (3): 172–177. <https://doi.org/10.1159/000277149>
- Leah L. Light, Patricia A. Anderson, Working-Memory Capacity, Age, and Memory for Discourse, *Journal of Gerontology*, Volume 40, Issue 6, November 1985, Pages 737–747, <https://doi.org/10.1093/geronj/40.6.737>
- Lee, T., Crawford, J. D., Henry, J. D., Trollor, J. N., Kochan, N. A., Wright, M. J., Ames, D., Brodaty, H., & Sachdev, P. S. (2012). Mediating effects of processing speed and executive functions in age-related differences in episodic memory performance: A

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- cross-validation study. *Neuropsychology*, 26(6), 776–784. <https://doi.org/10.1037/a0030053>
- Liu, Y., Wei, P., Ding, J., & Guo, C. (2014). Age differences in the repetition effect for studied or new objects. *Acta Psychologica Sinica*, 46(3), 321–330.
- Mair, A., Poirier, M., & Conway, M. A. (2017). Supporting older and younger adults' memory for recent everyday events: A prospective sampling study using SenseCam. *Consciousness and cognition*, 49, 190–202. <https://doi.org/10.1016/j.concog.2017.02.008>
- Mair, A., Poirier, M., & Conway, M. A. (2019). Memory for staged events: Supporting older and younger adults' memory with SenseCam. *Quarterly journal of experimental psychology (2006)*, 72(4), 717–728. <https://doi.org/10.1177/1747021818765038>
- Mair, A., Poirier, M., & Conway, M. A. (2021). Age effects in autobiographical memory depend on the measure. *PloS one*, 16(10), e0259279. <https://doi.org/10.1371/journal.pone.0259279>
- Otgaar, H., Howe, M. L., Merckelbach, H., & Muris, P. (2018). Who Is the Better Eyewitness? Sometimes Adults but at Other Times Children. *Current directions in psychological science*, 27(5), 378–385. <https://doi.org/10.1177/0963721418770998>
- Paige, L. E., Fields, E. C., & Gutchess, A. (2019). Influence of age on the effects of lying on memory. *Brain and cognition*, 133, 42–53. <https://doi.org/10.1016/j.bandc.2018.10.020>
- Swick, D., & Knight, R. T. (1997). Event-related potentials differentiate the effects of aging on word and nonword repetition in explicit and implicit memory tasks. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 23(1), 123–142. <https://doi.org/10.1037/0278-7393.23.1.123>
- The Journals of Gerontology: Series B*, Volume 56, Issue 2, 1 March 2001, Pages P103–P110, <https://doi.org/10.1093/geronb/56.2.P103>
- Wank, A. A., Mehl, M. R., Andrews-Hanna, J. R., Polsinelli, A. J., Moseley, S., Glisky, E. L., & Grilli, M. D. (2020). Eavesdropping on Autobiographical Memory: A Naturalistic Observation Study of Older Adults' Memory Sharing in Daily Conversations. *Frontiers in human neuroscience*, 14, 238. <https://doi.org/10.3389/fnhum.2020.00238>
- Ward, E. V., Berry, C. J., Shanks, D. R., Moller, P. L., & Czsiser, E. (2020). Aging predicts decline in explicit and implicit memory: A life-span study. *Psychological Science*, 31(9), 1071–1083. <https://doi.org/10.1177/0956797620927648>
- West, R. L., & Stone, K. R. (2014). Age differences in eyewitness memory for a realistic event. *The journals of gerontology. Series B, Psychological sciences and social sciences*, 69(3), 338–347. <https://doi.org/10.1093/geronb/gbt014>
- Willoughby, K. A., Desrocher, M., Levine, B., & Rovet, J. F. (2012). Episodic and Semantic Autobiographical Memory and Everyday Memory during Late Childhood and Early Adolescence. *Frontiers in psychology*, 3, 53. <https://doi.org/10.3389/fpsyg.2012.00053>

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Conflict of Interest

The author(s) declared no conflict of interest.

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