Knowledge and Stigma of Alzheimer's Disease in the General Population of Zimbabwe

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Submission of Thesis and Dissertation

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AI Acknowledgement Supplement

Final Year Project

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This section is a supplement to the main assignment, to be used if AI was used in any capacity in the creation of your assignment; if you have queries about how to do this, please contact your lecturer. For an example of how to fill these sections out, please click here.

AI Acknowledgment

This section acknowledges the AI tools that were utilized in the process of completing this assignment.

Tool Name	Brief Description	Link to tool
ChatGPT	What does it mean to have a low Cronbach's alpha score?	https://chat.openai.com/
ChatGPT	What statistical analysis should I use for RQ3?	https://chat.openai.com/

Description of AI Usage

This section provides a more detailed description of how the AI tools were used in the assignment. It includes information about the prompts given to the AI tool, the responses received, and how these responses were utilized or modified in the assignment. **One table should be used for each tool used**.

ChatGPT	
ChatGPT was used to identify what it meant to have a low Cronbach's alpha score. ChatGPT was used to further understand confusion I had regarding what statistical analysis I needed to run for RQ3.	
Sample prompt: " What does it mean to have a low Cronbach's alpha score?"	Sample response from ChatGPT: " A low Cronbach's alpha score generally indicates that the items or questions in a test or survey are not reliably measuring the same underlying construct. In other words, the internal consistency of the scale is poor. Cronbach's alpha is a statistic used to assess the reliability or internal consistency of a set of items (such as survey questions, test items, or other measures). It ranges from 0 to 1, with higher values indicating better reliability. Here's what a low Cronbach's alpha could mean: • **Weak internal consistency**: The items may not be strongly related to each other or may be measuring different concepts.

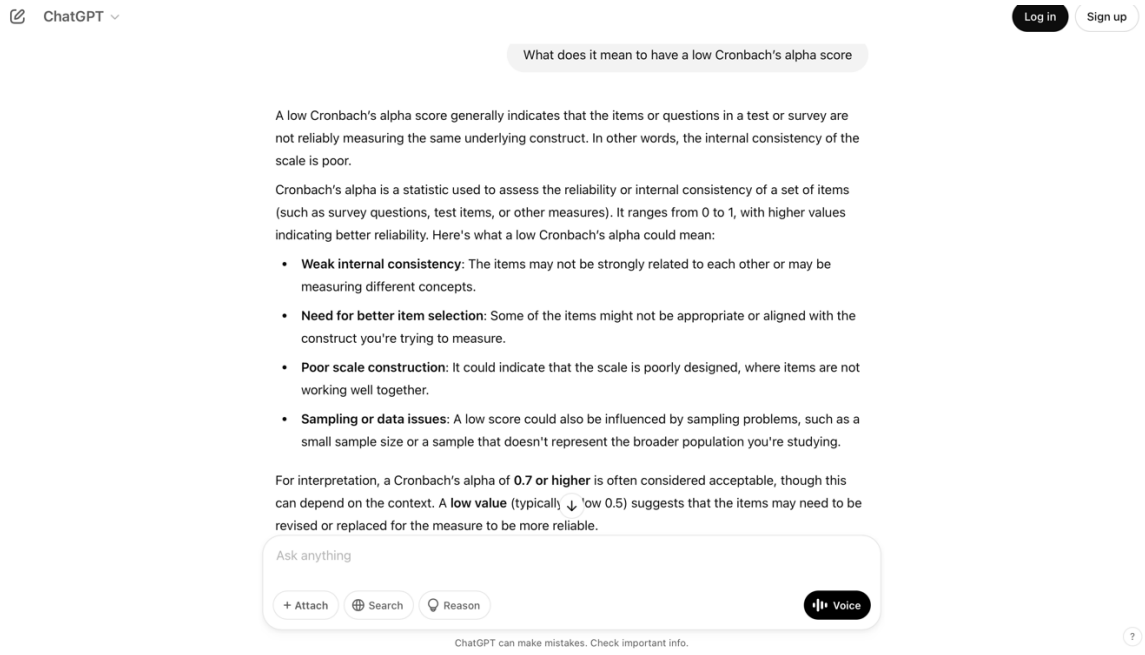
	• **Need for better item selection**: Some of the items might not be appropriate or aligned with the construct you're trying to measure. • **Poor scale construction**: It could indicate that the scale is poorly designed, where items are not working well together. • **Sampling or data issues**: A low score could also be influenced by sampling problems, such as a small sample size or a sample that doesn't represent the broader population you're studying. For interpretation, a Cronbach's alpha of **0.7 or higher** is often considered acceptable, though this can depend on the context. A **low value** (typically below 0.5) suggests that the items may need to be revised or replaced for the measure to be more reliable."

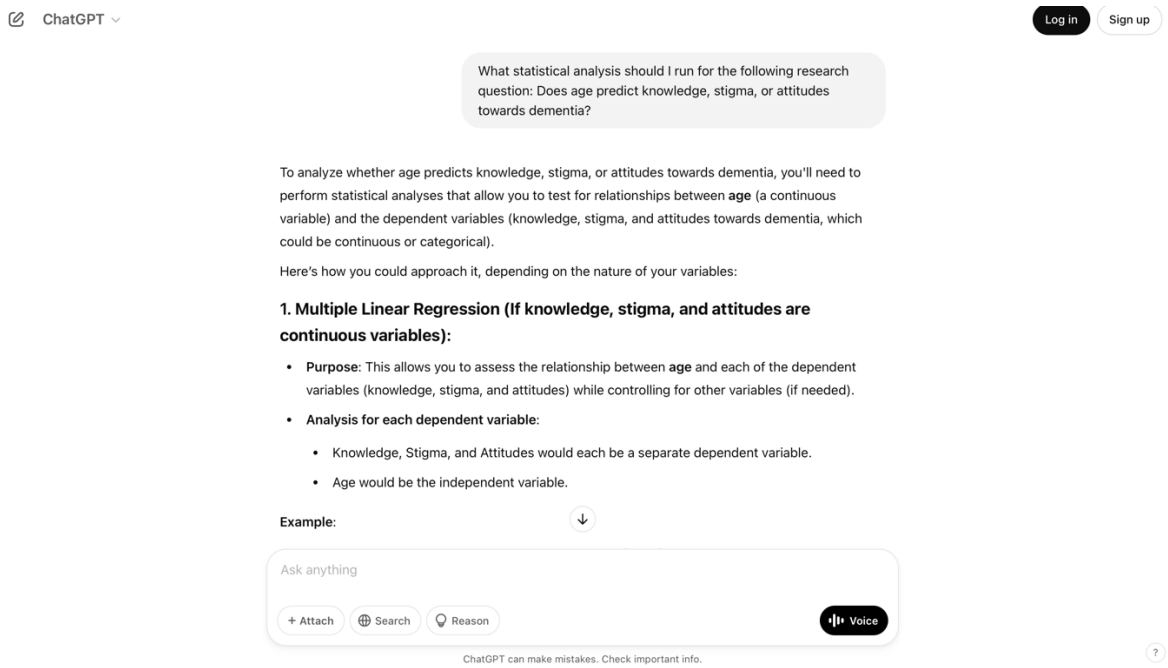
Sample prompt: "What statistical analysis should I run for the following research question: Does age predict knowledge, stigma, or attitudes towards dementia?"	To analyse whether age predicts knowledge, stigma, or attitudes towards dementia, you'll need to perform statistical analyses that allow you to test for relationships between **age** (a continuous variable) and the dependent variables (knowledge, stigma, and attitudes towards dementia, which could be continuous or categorical). Here's how you could approach it, depending on the nature of your variables:
	1. Multiple Linear Regression (If knowledge, stigma, and attitudes are continuous variables):
	• **Purpose**: This allows you to assess the relationship between **age** and each of the dependent variables (knowledge, stigma, and attitudes) while controlling for other variables (if needed).
	• **Analysis for each dependent variable**:
	  ○ Knowledge, Stigma, and Attitudes would each be a separate dependent variable.
	  ○ Age would be the independent variable.
	Example:
	Knowledgei=β0+β1(Agei)+ϵiKnowledgei=β0+β1(Agei)+ϵi
	Where β0β0 is the intercept, β1β1 is the coefficient for age, and ϵiϵi is the error term.
	2. Multiple Regression with Covariates (If you have additional control variables):
	• If there are other factors that might influence knowledge, stigma, or attitudes (such as gender, education level, or socioeconomic status), you can include them as covariates in a multiple regression model.
	• This will help you assess the unique effect of age while controlling for these other variables.
	3. Correlation (If you are only interested in the strength and direction of the relationship):

	• **Purpose**: If you're just interested in seeing if there is a linear relationship between age and each of the dependent variables (knowledge, stigma, or attitudes), you can calculate Pearson's correlation. • This would give you an idea of the strength and direction of the relationship between age and each dependent variable. • **Note**: This doesn't allow you to test for causality or control for other factors. **4. ANOVA or t-test (If age is categorized):** • **Purpose**: If you categorize age into different groups (e.g., younger adults, middle-aged, older adults), you can use **Analysis of Variance (ANOVA)** or a **t-test** to compare the mean differences in knowledge, stigma, or attitudes across these age groups. • **Example**: If you have three groups (e.g., <30, 30-60, and >60), you could run an ANOVA to compare how knowledge, stigma, or attitudes vary by these age groups. If only two groups (e.g., younger vs. older adults), a **t-test** would be appropriate. **5. Path Analysis or Structural Equation Modeling (If you are examining more complex relationships):** • If you want to explore more complex relationships, such as whether age affects knowledge, which in turn affects stigma or attitudes, path analysis or structural equation modeling (SEM) would be appropriate. • This would allow you to assess direct and indirect effects between the variables. **Conclusion:** • **If your dependent variables are continuous**, **Multiple Linear Regression** is typically the best approach to assess how age predicts knowledge, stigma, and attitudes. • **If your dependent variables are categorical**, you might need to use **logistic regression** or other appropriate methods. • **If age is grouped into categories**, **ANOVA or t-tests** would work well for comparing groups. Would you like help with deciding which specific analysis is best for your data, or need guidance on how to perform any of these analyses?

Evidence of AI Usage

This section includes evidence of significant prompts and responses used or generated through the AI tool. It should provide a clear understanding of the extent to which the AI tool was used in the assignment. Evidence may be attached via screenshots or text.





Acknowledgements

Firstly, I would like to thank my amazing mom, Lynn, who has stood by me and guided me through my educational journey. Thank you for helping me stay true to who I am and never letting me lose sight of my dreams. This achievement is as much yours as it is mine. To my partner, Keagan, thank you for always listening to me when I was stressed and worried and offering your support in times of need. Thank you to the Bubye Valley Conservancy for making this dream a reality. Your generosity has gone above and beyond, and I will forever be indebted to you. I would like to thank my supervisor Dr Michelle Kelly for her incredible support and guidance throughout the duration of this project. Our shared passion for this topic made working with you and absolute honour and something I will forever be grateful for. Lastly, I would like to pay special attention to all the participants who took part in my study. Thank you for taking the time out of your busy lives to answer my survey, this would not have been possible without you.

Abstract

Background: Previous research has shown large gaps in knowledge surrounding Alzheimer's disease on a global level. In addition to this, there has been strong indication that lower levels of knowledge are associated with elevated levels of stigma. **Aims:** In order to understand the effect of this on the Zimbabwean population, overall knowledge and stigma were assessed. **Methodology:** A quantitative correlational mixed within and between participant's design was used to investigate the extent in which outcomes of Alzheimer's disease knowledge, perceived stigma and attitudes towards dementia are influenced by age, gender and educational attainment. The sample used to investigate the variables was that of 88 participants recruited form the general population of Zimbabwe. **Results:** Alzheimer's disease knowledge scale revelled low levels of knowledge within the sample. Perceived stigma scores indicated high levels of stigma, however, contradictory to this, attitudes towards dementia within the sample were shown to be more positive. Statistical analysis revealed that only knowledge of Alzheimer's disease was predicted by age ($p < .001$). All other statistical analysis were non-significant. **Conclusion:** The lack of knowledge shown by the sample indicates that policy needs to be put in place. Furthermore, further research needs to be conducted in order to gain a more in depth understanding on the levels of stigma within the population.

Key words: Alzheimer's disease, dementia, knowledge, stigma

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Introduction

Alzheimer's disease (AD) is a neurodegenerative disorder that effects cognition by damaging connections between neurons (National Institute of Aging, 2024). Resulting in memory loss, trouble using language, and thinking. As the disease progresses, the individual becomes significantly impaired resulting in them needing 24-hour care. Thus putting huge emotional, financial, and sometimes physical strain on the family and caregivers (Tosun et al., 2024). According to Scheltens et al. (2021) AD is becoming one of the most expensive, lethal, and burdening diseases of the 21st century. The world population is rapidly aging with World Health Organisation (2024) predicting that by 2030, every 1 in 6 people will be over 60, thus creating a higher prevalence of people living with AD. Reliable reports containing statistics for AD in Zimbabwe are substantially scarce. However, a local newspaper article reported that there are 27 377 people currently living with the disorder and the number is expected to increase to 80 386 by 2030 (Zinyuke, 2024).

Research has indicated that many people in western societies still believe that dementia associated to AD is a natural part of the aging process (Breining et al., 2014; McParland et al., 2012). This clearly indicates that knowledge surrounding AD in the general population is substantially low. It is however important to note that this data is not inclusive of populations such as those within Africa. Research conducted in different cultures has also found that there is a subset of the population that do have an understanding of the symptoms associated with AD (Breining et al., 2014; Roberts et al., 2014; Sun et al., 2014). Despite this, knowledge of other aspects such as risk factors, the difference between AD and dementia, and treatment and prevention is poor. This shows that knowledge specifics across cultures is varied; however, overall there appears to be major gaps that still need to be addressed based on the specific needs within the population. By raising public knowledge about AD, care is

optimized which in turn enhances quality of life (QoL) for both the person living with AD, their family, and caregivers. This is due to the fact that a well-informed population is more likely to challenge popular discourse, detect the first signs of AD, and seek out early intervention (Rimmer et al., 2005).

Despite there being no cure for AD, early identification is incredibly important as there are multiple approaches an individual with AD may take to slow the progression of the disease and improve QoL (Rasmussen & Langerman, 2019), including taking medication (Atri, 2019), or engaging with evidence-based interventions (Clare et al., 2003; Spector et al., 2003). Early recognition is important for the individual to gain the most benefit from the treatments available. However, an individual is less likely to seek out help if they feel that they will be treated in a negative manner due to stigma.

Stigma, according to the Oxford English Dictionary (2014), is "a mark of disgrace associated with a person, a personal quality, or a personal circumstance". The literature has expressed stigma in three different ways. Public stigma, self-stigma, and spillover stigma (Stites et al., 2018). Public stigma refers to the negative attitudes shown by the general public towards and individual (Stites et al. 2018). Developed by Corrigan and Watson (2002), the tripartite framework aims to give understanding to public stigma. Within the framework, there are three key concepts. First is stereotype, which refers to the generalised negative beliefs developed about a group. Second is prejudice, which is agreement and emotional responses to the stereotypes. Lastly is discrimination, which is negative behaviour shown as a result of prejudice. Despite these concepts being distinct, they develop off the one that comes before. Broken down, the tripartite model describes stigma as a product of the way in which discrimination results from prejudice and prejudice results from stereotypes that develop within a population about certain groups (Brookman et al. 2025). In this case, AD. Self-stigma, also known as internalised stigma occurs when an individual begins to view oneself

in a negative way due to public stigma (Dubreucq et al., 2021). The individual does not merely acknowledge the public stigma, instead they begin to believe it to be true and adopts the beliefs as their own (Stefaniak 2021). This type of stigma often results in an individual experiencing mental health challenges such as depression, lowered levels of self-esteem, social avoidance, among many other negative outcomes (Mukadam & Livingston, 2012). Lastly, spillover stigma is stigma shown towards an individual who is not affected by AD, but rather associated to someone with the disease such as family members or caregivers (Werner et al. 2011). In order to create effective strategies to combat stigma, it is important to gain understanding about the way in which stigma manifests within populations.

Demographics such as age, gender, and level of education have all shown to play a role in stigma levels surrounding AD. The literature suggested that younger individuals show higher rates of stigma (Kim & Mortby, 2017), but this is contradicted by the findings of Polat et al. (2022) who found there to be no relationship between age and levels of stigma. Research regarding the effects of gender on stigma in relation to AD is substantially varied. A study conducted by Polat et al. (2022) found that woman show higher levels of stigma. In contrary, Rewerska-Juśko & Rejdak (2020) have found that men show higher levels of stigma towards AD than women. However, a study conducted by Abuawad et al. (2024) found there to be no difference in the effect of gender on stigma levels. Inconsistency in these findings may be a result of samples extracted within different cultures as well as different measures having been used. In a study that looked at the effects of public stigma on mental health, it was found that education level did reduce the risk of a person presenting negative attitudes towards mental illness (Barke et al., 2011). In this study, they found that people who had higher educational attainment showed more benevolent views therefore resulting in lower rates of stigma. These finding are confirmed by those of Rewerska-Juśko & Rejdak (2020).

There is a great importance in raising awareness around disease such as Alzheimer's due to the fact it plays an essential role in lowering stigma rates (Abuawad et al., 2024). A randomised control trial investigated the effects on stigma rates after participants had completed a curriculum aimed at increasing knowledge around mental health. Results reported that stigma associated with mental health decreased with the increase of knowledge (Milin et al., 2016). If individuals do not have a great understanding of AD, they may acquire some knowledge through popular discourse. In this case, the information may not be entirely true and is a representation of the extreme symptoms associated with AD (Cabrera et al., 2021). Well informed knowledgeable communities help to lessen the negative interactions that people living with AD and their families may encounter which results in the prevention of isolation and promotes improved QoL (Cahill et al., 2015). Knowledge is also an important factor in aiding people to recognise early indicators of AD and seek out an early diagnosis, ensuring the full benefit of treatment options (Shinan-Altman & Werner, 2017).

Symptoms of AD are generally noticed by a family member, friends, or caregivers of the individual and it is not often the case that the individual notices the cognitive changes in themselves. Unfortunately, these symptoms are seen as just being a natural part of the ageing process, thus delaying consultation with a doctor and treatment (Alzheimer's Association, 2012). Similar to stigma, the literature has concluded that there are several demographic factors that contribute to people's levels of knowledge about AD, however, the findings are not consistent. Van Patten and Tremont (2018) found that women were more informed in relation to AD, yet McParland et al. (2012) found there to be no gender differences. Age has also shown to be a predictive factor, with older individuals showing a greater knowledge about AD (Amado & Brucki, 2018; Li et al., 2011). The inconsistency in the findings suggests a great need for research examining specific demographic factors that influence knowledge of AD such as gender and age.

Furthermore, cultural and social norms have shown to delay or prevent diagnosis and treatment of AD. This was shown through research conducted by Chin et al. (2011) and Herrmann et al. (2018) who looked at health seeking behaviours for dementia in ethnic minorities in the US. They found that there were lower rates of help-seeking behaviours present in the minority groups compared to the general population. It is important to note that this could be due to fear of discrimination, or underlying cultural beliefs. Banda & Munemo (2023) established that a large portion of Zimbabwe's population believes that if an individual develops AD, they are a victim to an act of which-craft which has been set upon them by another member of the family. Due this this, it is believed that the person living with AD cannot be helped through means of "modern medicine" and the family would consult a traditional healer, such as a witch doctor. In the case that "healing" does not take place, the individual living with AD would be cast aside and becomes a subject of shame brought upon the family. Considering this, it is of great importance that the relevant measures are put in place to educate the population on the reality of AD. In addition to this, more research needs to be conducted to gain an understanding of how to address the gaps in knowledge.

The aim of this study is to investigate the level of knowledge and stigma that exists within the general population of Zimbabwe as well as the demographic factors that may influence them. The specific research questions are:

1. Is there a relationship between knowledge of AD (IV), perceived stigma (DV), attitudes towards dementia (DV), and perceived threat of developing AD (DV).
2. Does age (PV) predict knowledge of AD (CV), perceived stigma (CV), or attitudes towards dementia (CV).
3. Are there gender (IV) differences in outcomes of knowledge of AD (DV), perceived stigma (DV), and attitudes towards dementia (DV).

4. Does level of education (IV) result in differences in outcomes of AD knowledge (DV), perceived stigma (DV), and attitudes towards dementia (DV).

Based off of previous research, the first hypothesis states that greater knowledge of AD will result in lower rates of perceived stigma, more positive attitudes towards dementia, and lower rates in perceived threat of developing AD. The second hypothesis states that older individuals will have a greater knowledge of AD, lower levels of perceived stigma and more positive attitudes. Hypotheses three is that woman will have higher levels of AD knowledge, with lower levels of perceived stigma, and more positive attitudes. Lastly, we hypotheses that higher educational attainment would result in greater knowledge of AD, lower levels of perceived stigma, and more positive attitudes.

Methodology

Participants

Participants for this study were recruited using a method of non-probable convenience sampling. Each participant was sent the link to the survey as well as a short description on what the study was looking to measure. The following social media sights were used: WhatsApp, Facebook, and Instagram. In addition to this, snowball sampling was also used as participants were encouraged to share the link with anyone who fell within the inclusion criteria. Minimum sample size of 74 was determined using the equation proposed by Tabachnick & Fidell (2007). The sample size obtained for the current study was 88 which reached the minimum sample required for a statistically powerful analysis. Of the total sample size, 25 were male and 63 were female. Full demographics can been seen in Table 1 of the results section. The sample was drawn from the general population of Zimbabwe.

Materials

Demographics for this study were obtained at the start of the survey which was administered through use of Google Forms. Participants were asked basic demographic question such as gender, age, and educational attainment. In addition to this, they were also asked if they had a personal relationship with a person living with AD.

Alzheimer's Disease Knowledge Scale. The Alzheimer's Disease Knowledge scale (ADKS) (Carpenter et al., 2009) was used to gain an understanding of the knowledge of AD displayed by the general population of Zimbabwe. The scale aims to assess knowledge on multiple areas of the disease such as risk factors, assessment and diagnosis, symptoms, course, life impact, caregiving, and treatment and management (Carpenter et al., 2009). The scale consists of 30 true or false questions (for full details, please see appendices C). Scores were obtained from inputting the correct answers into the google form which in turn

generated the overall score for each participant. The total scores where then manually transferred into SPSS. The higher the score, the more knowledge of AD is displayed by the individual. Carpenter et al. (2009) found their measure to show good internal consistency with a score of $\alpha = .71$. Unlike the original study, the current study revealed an alpha score of 0.52. This value suggests poor internal consistency.

Dementia Attitudes Scale. The dementia attitudes scale (DAS) was developed by O'Connor & McFadden (2010) to measure people's attitudes towards dementia. The scale consists of 20 questions that are answered along a 7-point Likert scale with 1 being affiliated to strongly disagree and 7, strongly agree. The questionnaire consists of two major themes, dementia knowledge and social comfort. The total sum of the scores for each participant is added up, thus giving a total score. For this measure, the score range is 20-140 withs scores above 80 indicating more positive attitudes and scores below 80 indicating negative attitudes. As seen in the original study, the DAS has reported to have robust reliability (Cronbach's alpha = 0.83). However, the current study returned a Cronbach's alpha value of 0.34, which demonstrates poor internal reliability for the sample of this study.

Perceived Stigma Scale. Developed by Polat et al. (2022), the perceived stigma scale was designed to measure and individuals perceived stigma towards AD. The scale was adapted from the "STIG-MA" which was created by Piver et al. (2012). Each of the 10 questions are measured using 4 anchor responses ranging from 0 = yes to 3 = no, with "maybe," and "I don't know" falling in between respectively. For this measure, participants were asked to imagen that they themselves had AD and rate their feelings in relation to each question. Responses for each question were summed and higher scores indicate higher stigma towards AD. The highest possible score was 30 while the lowest was 0. Scores from 0-7 were considered as mild stigma, 8-11 as moderate stigma, and scores 12 and above as high stigma. Questions 2, 8 and 10 were reversed scored. While previous studies have not reported

reliability and validity for this scale, this study showed reliability to be adequate with a Cronbach's alpha score of 0.63.

Perceived Threat of Developing Alzheimer's Disease Scale. The perceived threat of developing Alzheimer's disease scale is a 3-item scale with a 5-point dimensional response format that goes from strongly disagree to strongly agree. The scale aims to assess an individual's perceived threat of developing AD at a later stage in their life. Each question was reverse coded and an average score for the 3 questions was generated. The scale was developed by Ostergren et al. (2007) who reported reliability as adequate (Cronbach's alpha = 0.64). However, this study showed good reliability with a Cronbach's alpha score of 0.71.

Design

This study implemented a quantitative correlational mixed within and between participant's design. Dependent variables (DV) for the study were knowledge about AD, perceived stigma, attitudes towards dementia, and perceived threat of developing AD. Independent variables (IV) were as follows: knowledge of AD, gender, and education level. The only predictor variable (PV) in this study was age. Lastly the criterion variables (CV) were knowledge of AD, perceived stigma, and attitudes towards dementia. Hypothesis 1) Individuals who have greater knowledge of AD will have lower levels of perceived stigma, more positive attitudes towards AD, and a lower threat of developing AD. This hypothesis was analysed using a Spearman's Rho Correlation Coefficient analysis. Hypothesis 2) Individuals who are older in age will have a greater knowledge of AD, as well as having lower levels of perceived stigma, and more positive attitudes towards AD. This was determined using three separate linear regression analysis. Hypothesis 3) Females will show to have greater knowledge of AD, alongside lower levels of perceived stigma, and more positive attitudes towards dementia. This was analysed using a Mann-Whitney U test. Hypothesis 4) Individuals who have obtained a higher level of education will show higher

levels of AD knowledge, with lower levels of perceived stigma, and more positive attitudes towards dementia. Lastly, a one-way between participants ANOVA was run to assess this.

Procedure

A link to Google form was sent out to potential participants via social networking sights and/or messaging apps. The link was sent alongside a message explaining what the study was about and what would be required if they chose to take part. The individual had no obligation to take part in the study and this was made clear in the message that accompanied the link to the google form. If they chose to proceed, they followed the link to the google form and were met with the first page containing the information sheet. Consent was collected through use of a check box that was required in order for the participants to proceed to the survey (see appendix B). Participants were required to check two check boxes. One stating that they had read and agreed with the details presented in the information sheet. The second one was to ensure each individual gave their consent to participate in the study and that they were over 18 years of age. Once this had been established participants were able to begin the survey. Demographics were collected at the start of the Google form before they could move onto the survey questions. Participants were required to answer the scales in the order that follows: 1) Alzheimer's Disease Knowledge Scale (ADKS). 2) Dementia Attitudes Scale (DAS). 3) Perceived Stigma Scale. (PSS) 4). Perceived Threat of Developing Alzheimer's Disease (PTDAD). The survey took participants approximately 15 minutes to complete. Once they had completed the survey, they were presented with a debriefing sheet. The debrief sheet contained contact information for both my supervisor and myself, as well as that for the Zimbabwe Alzheimer's and Related Disorders Association (ZARDA), a help line based in Zimbabwe. Participants were encouraged to reach out to any of the above if they became distressed at any point during the study (see appendix G for full details).

Ethical considerations

This study received institutional ethical approval (Ethics Approval Number: 0511202422101071) from the National College of Ireland in which all data was collected accordingly. Participants were made aware of the full risks and benefits of this study. Participants were under no obligation to take part in this study, and they were clearly made aware of this. All this information was provided in the information sheet and consent had to be obtained before they proceeded with the survey. In addition to this, participants were made aware that the data obtained in this study may be uploaded to a secondary data source for further use, presented at conferences, and in publication. This was explicitly made clear in the information sheet. Contact details for the ZARDA were provided to participants who felt the urge to reach out for support (see appendix G). In addition, contact details for my supervisor and myself were available for those who had further questions in relation to the study (see appendix A and G).

Results

The total sample size of this study consisted of 88 individuals extracted from the general population of Zimbabwe. The sample was made up of 71.6% females (n=63), and 28.4% (n=25). Many of the participants (29.5%) fell in the age range of 51-61, followed by participants in the age range of 18-28 (25%). Data in relation to education level was collected and results showed that 70.5% (n=62) participants completed tertiary level education, 28.4% (n=25) participants completed secondary level education, and only 1.1% (n=1) participants went as far as primary level education. Out of the whole sample, 62.5% (n=55) participants reported not to have had a relationship with an individual living with AD, while the remainder did. Full descriptive statistics are displayed below (Table 1).

Table 1

Descriptive statistics for gender, age, education level, and relationship with someone with AD

Variable	Frequency	Valid %
Gender		
Male	25	28.4
Female	63	71.6
Age		
18-28	22	25
29-39	7	8
40-50	21	23.9
51-61	26	29.5
62-72	9	10.2
73-83	2	2.3
84-94	1	1.1
Education Level		

Primary level	1	1.1
Secondary level	25	28.4
Tertiary level	62	70.5
Relationship with someone living with AD		
Yes	33	37.5
No	55	62.5

This study consisted of 4 continuous variables, knowledge of AD, perceived stigma, attitudes towards dementia, and perceived threat of developing AD. Mean, confidence interval, standard deviation and range are displayed in Table 2. The sample showed low levels of AD knowledge (M = 20.66), high levels of perceived stigma (M = 18.56), and positive attitudes towards dementia (97.65) (Table 2). For perceived threat, 55.7% wanted to know if they would someday get AD, 3.4% believed that they would develop AD, and 18.2% worry about developing AD.

Table 2

Descriptive statistics for Alzheimer's disease knowledge, attitude towards dementia, stigma, and perceived threat of developing AD

Variable	*M* [95% CI]	*SD*	Range
Knowledge of AD	20.66 [20.00, 21.32]	3.31	13-29
Stigma towards AD	18.56 [17.64, 19.49]	4.36	10-30
Attitudes towards dementia	97.65 [96.00, 99.30]	7.78	70-112
Perceived threat of developing AD	2.23 [2.16, 2.25]	.94	0-4

Preliminary analysis was performed to ensure no violation of the assumptions of normality and homoscedasticity; however, it was found that knowledge of AD, perceived stigma, and perceived threat of developing AD, were all non-normally distributed. Considering this, Spearman's product moment correlation was run to analyse the relationship between knowledge of AD, perceived stigma, attitudes towards dementia, and perceived threat of developing AD. This analysis did not identify a statistically significant correlation between the variables (Table 3).

Table 3

Correlation analysis for age, knowledge (ADKS), stigma (PSS), perceived threat (PTDAD), and attitudes towards dementia (DAS)

Variable	1.	2.	3.	4.	5.
1. Age	1				
2. ADKS	.36**	1			
3. DAS	.08	.12	1		
4. PSS	-.19	-.09	-.10	1	
5. PTDAD	.09	.05	.05	-.19	1

Note. Statistical significance: *p < .05; **p < .01; ***p < .001

Three separate linear regression analyses were performed to investigate the extent to which age influences knowledge of AD, perceived stigma, and attitudes towards dementia. Preliminary analyses were conducted to ensure no violation of the assumptions of normality and homoscedasticity with attitudes being the only variable that met these criteria. The correlations between the PV and the CV are displayed above in Table 3. The correlations between the PV and the CV were assessed and *r* values ranged from -.05 to .63. Tests for multicollinearity also indicated that all tolerance and VIF values were within an acceptable

range. There was a significant relationship found between age and knowledge of AD $F(1, 86) = 13.03$, $p < .001$. Whereby age explained 13.1% of the variance in scores for knowledge of AD (Table 5). However, there was no significant relationship between age and perceived stigma $F(1, 86) = 3.28$, $p = .074$, or age and attitudes towards dementia $F(1, 86) = .38$, $p = .542$ (Table 5).

Table 5

Linear regression model for age predicting outcomes of knowledge, stigma and attitudes

Variable	R^2	*B*	*SE*	β	*t*	*p*
Knowledge	.13	.77	.21	.36	3.61	<.001
Stigma	.004	.60	1.03	.60	.58	.561
Attitudes	.003	-.91	1.85	-0.5	-.49	.626

Note: ***p<.001

A Man Whitney U test was conducted to compare the level of AD knowledge (Fig. 1), perceived stigma (Fig.1), and attitudes towards dementia (Fig. 2) between males and females. There was no statistical difference levels of AD knowledge between males ($Md = 19$) and females ($Md = 21$), $U = 659.50$, $z = -.86$, $p = .392$, levels of perceived stigma between males ($Md = 19$) and females ($Md = 18$), $U = 868.50$, $z = .75$, $p = .452$, and dementia attitudes between males ($Md = 96$) and females ($Md = 98$), $U = 719$, $z = -.64$, $p = .526$.

Figure 1

Difference in Median ADKS scores and PSS Scores Between Males and Females

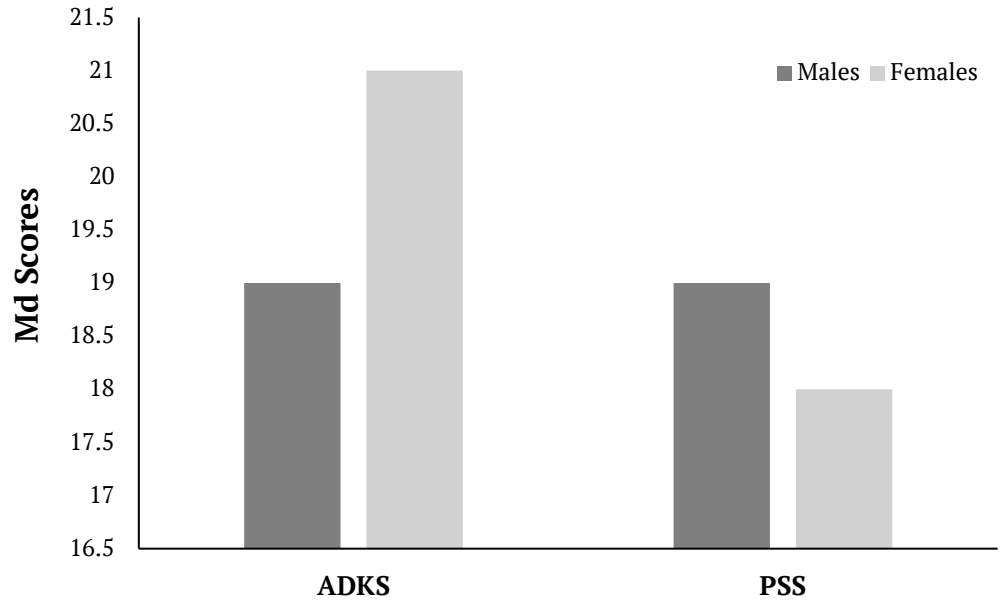
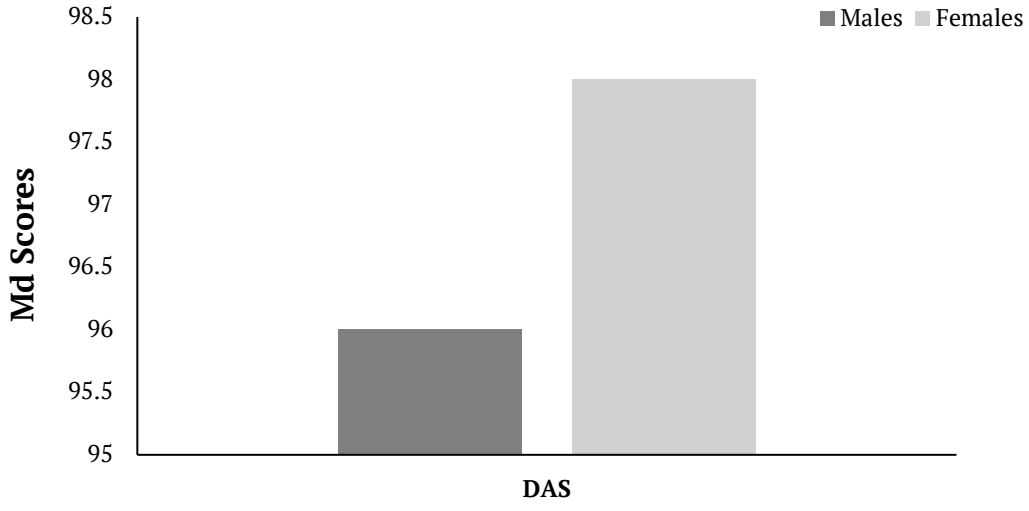


Figure 2

Difference in Median DAS Scores Between Males and Females



A one-way between groups ANOVA was conducted to determine if level of education resulted in differences in outcomes of AD knowledge, perceived stigma, and attitudes towards dementia. Participants were divided into three groups depending on their level of

education (primary, secondary and tertiary level). There was no statistically significant difference in levels of AD knowledge, $F(2,85) = .14$, $p = .867$, perceived stigma $F(2,85) = .47$, $p = .630$, and attitudes towards dementia $F(2, 85) = .11$, $p = .899$, across the three groups.

Discussion

Lack of knowledge and stigma towards AD have shown to go hand in hand (Abuawad et al., 2024), lowering rates of help seeking behaviour and early intervention, resulting in poorer QoL for those living with the disease (Cahill et al., 2015). Therefor it is important to understand the predictors for lack of knowledge and elevated stigma to successfully implement strategies to combat the negative impact. The current study aimed to gain an understand of the overall levels of knowledge and stigma shown towards AD by the general population of Zimbabwe. In addition, this study investigated whether demographics such as age, gender, and education level played a role in the outcomes of AD knowledge and perceived stigma. This was important in gaining an understanding as to where policies and strategies would be most suitably implemented. It was hypothesized that there would be a correlation between knowledge of AD, levels of perceived stigma, attitudes towards dementia, and perceived threat of developing AD; older individuals will have greater knowledge of AD, lower levels of perceived stigma, and more positive attitudes towards dementia; females will show to have greater knowledge of AD, lower levels of perceived stigma, and more positive attitudes towards dementia; and lastly, that individuals who have obtained a higher level of education will show higher levels of AD knowledge, lower levels of perceived stigma, and more positive attitudes towards dementia.

The average ADKS score for the sample was 20.66 suggesting that knowledge within the population is low. This assumption was made through comparison to the findings of Carpenter et al. (2009). Interestingly, the mean DAS score (97.65) for this sample indicates more positive attitudes shown towards dementia (lower levels of stigma). These findings are not in line with those of previous research (Milin et al., 2016). However, when looking at the mean perceived stigma score for the sample (18.57), it shows very high levels of perceived stigma. Variation in scores of stigma across the two scales could be due to multiple factors. It

is demonstrated through research, that self-report measures are not entirely reliable (Fuller-Rowell et al., 2021; Li et al., 2023) as people will generally answer questions in a way that comes across as prosocial. Respondents' own perceptions, or the way in which they believe others to perceive them, often gets in the way of them responding truthfully. Respondents may also experience a response bias (Robinson & Leonard, 2024), which essentially means that they become reluctant to respond in a truthful manner. This is often driven by a fear of being perceived by others as antisocial. It can also be the case that a respondent will overestimate their response about positive behaviours and underestimate their response about negative ones (Sharot, 2011). In the case of this study, because the DAS comes across in a way that appears to require participants to have had some sort of experience with AD or related disorders, participants may have overestimated their responses. Thus creating possible inaccuracies in results. Psychoanalytic theory argues that there is a limit to people's conscious self-knowledge and that a vast number of important experiences and feelings remain within the unconscious (Freud, 1995). Considering this, when critically analysing the validity of a self-report measure, one may argue that the individual themselves does not fully understand the extent of their bias, in turn, creating an inaccurate response.

When looking back at the way in which stigma was assessed for both scales, one can see that there is great contrast in the approach used. For the dementia attitudes scale, many of the questions take an approach that almost seems to require an individual to have had experience with AD. For example, "I feel confident around a person with Alzheimer's disease or related disorders (ADRD)" requires the participant to have had interactions with a person with AD to be able to respond accurately to the question. On the other hand, the PSS takes a very different approach in the way in which it requires the participant to imagine that they themselves have AD. For example, "would your neighbours or colleagues have less respect for you". When an individual is asked to imagen themselves to be the one living with AD, it

takes away the need for the individual to have had exposure to AD for them to answer the question accurately. Knowing that the sample for this study consisted of 62.5% of respondents having reported no relationship with individuals living with AD, it could be indicative as to why differences in levels of stigma are present between the two measures.

Hypothesis 1 stated that greater knowledge of AD would result in lower rates of perceived stigma, more positive attitudes towards dementia, and lower scores for perceived threat of developing AD. This, however, was not supported by the results. After a correlation analysis had been run, the data suggested that no relationship exists between the variables. Therefore, the null-hypothesis was accepted. This could be because the mean score for knowledge was borderline moderate, thus resulting in no great variation displayed between the measures. In simple terms, if levels of AD knowledge were at either very high or very low levels, the data may have shown more variation in scores across the variables. However, if one was to draw a conclusion about the population based off of these results, despite there being no statistical significance, this finding is still important. It gives insight into the idea that greater levels of knowledge are not always associated with lower rates of stigma. Upon understanding this, policy makers and educators should deeply think about if simply educating the population will reduce stigma rates.

As hypothesized, older individuals showed greater knowledge about AD than younger individuals, even so, the variance was small (13.1%). However, in line with the findings of Polat et al. (2022), no relationship was found between age and perceived stigma or age and attitudes towards dementia. This may indicate that despite older individuals having greater knowledge of AD, stigma may still be present. It is important to note that results may have been insignificant due to methodological issues. One suggested issue may be the fact that confounding variables such as AD exposure was not controlled for. In a paper written by Conklin (2021) the author explained that direct contact with those subject to stigma could

potentially reduce negative attitudes in relation to that specific mental illness. In order to understand this on a greater level, future research may find it beneficial to use an older sample to further analyse the impact and direction of the relationship between age and stigma in addition to controlling for confounding variables such as AD exposure.

The third hypothesis stated that women would have greater levels of AD knowledge, lower levels of perceived stigma, and more positive attitudes towards dementia. This hypothesis was developed off research conducted by Van Pattern and Tremont (2018) and Milin et al. (2016). While one study found woman to have greater levels of knowledge, the other found that an increase in knowledge would result in lower levels of stigma (more positive attitudes) towards AD. Results from this sample showed that there was no statistical difference between males and females in levels of AD knowledge, perceived stigma, and attitudes towards dementia. Therefor the null hypothesis was accepted. Despite these findings not being consistent with previous research, they are in line with those of Abuawad et al. (2024). In their study they looked knowledge and stigma towards dementia in a Palestinian population. Similarities in results could be due to commonalities in culture. Research (Henriksen et al., 2019; Naslund et al., 2020) has suggested that openness about mental health is a strong contributing factor to improving knowledge, however both African and Palestine cultures both have strongly integrated moral beliefs that emphasise privacy and confidentiality (Idang, 2015; Khan, 2015). Thus resulting in less discussion around the topic and possible lower levels of knowledge seen overall. In addition, strong religious influence may result in individuals not wanting to express their stigma explicitly. This could be due to the fear of the perceived consequences from both their believed higher power and those around them. In addition, stigma can manifest in many different ways across cultures (Yang et al., 2007), therefore it is possible that the stigma assessments used in this study may not have been able to measure levels of stigma within the population accurately. Further to this,

Corgan & Watson (2002) suggested that stigma appears to be less apparent in African cultures. They explained that this could be due to two possible reasons. The first being that not enough research has been conducted within the population, and the second being the existence of cultural influence that does not promote discrimination. By using a qualitative method, future research will be able to better understand the complexities of stigma that are embedded within Zimbabwean culture (Stutterheim & Ratcliffe, 2021). This in turn will then allow for the development of culture specific interventions (Ran et al., 2021).

Lastly, we looked at if there were differences in level of education on outcomes of AD knowledge, perceived stigma, and attitudes towards dementia. It was hypothesized that higher educational attainment would result in greater knowledge of AD, lower levels of perceived stigma, and more positive attitudes. This was, however, not supported by the results. Due to this, the null-hypothesis was accepted. Again, these results are not consistent with previous research of Barke et al. (2011). This could be due to the fact this sample was not representative, as that of previous research was. Educational completion rates in Zimbabwe, according to the United Nations Educational, Scientific and Cultural Organization (2024) states that 85% of children completed primary education, 58% completed secondary, and enrolment rates in tertiary education are as low as 9%. These figures are not represented by the sample (Table 1). By using a much larger, and more representative sample, future research will be able to asses this more accurately.

The main strength of this study is that it uses the ADKS and the DAS. Both of which are very popular scales for measuring AD knowledge and attitudes towards dementia respectively. Nonetheless, these two scales both demonstrated poor reliability after assessment in this study. After further investigation, it was found that internal reliability for the original scales was assessed using a greater sample size. Unlike the ADKS and the DAS, the PSS and the PTDAD are not as established resulting in a potential limitation to the study.

However, as discovered, they both hold equitable reliability. Despite the sample size reaching the minimum requirement of 74 (Tabachnick & Fidell, 2007), a larger sample size may be needed for a more accurate assessment. As stated above, this sample was not representative of the population. By increasing the sample size and using a simple random sampling method (Bhardwaj, 2019), future research will be able to run strengthened statistical analysis that could potentially be generalisable to the population. A further limitation to this study was that is used self-report measures of assessment of stigma, allowing for the influence of response bias (Robinson & Leonard, 2024).

Despite this study producing non-significant results it is still clear that there is a lack of knowledge shown by the sample, indicating that efforts need to be put in place to educate the population on AD. This may include public engagement projects (Gronholm et al., 2017) or community action programs (Pescosolido et al., 2020). Because of the inconclusively regarding rates of stigma within the sample, future research may need to reassess the variable using tests such as the IAT (Nosek et al., 2007) or IRAP (Barnes-Holmes et al., 2006). These tests will be able to eliminate the effect of response bias by measuring stigma on an implicit level. Alternatively, a quantitative approach may be more effective in understanding the way in which stigma is expressed within the culture. Upon this, only then could interventions be developed to address the issue.

Conclusion

Overall, it was found that knowledge in Zimbabwe was low, while levels of perceived stigma were high. However, assessment of attitudes towards dementia showed that the population had positive attitudes towards dementia indicating low stigma. This is not consistent with findings of previous research. Thus, validating the importance of the way in which variables such as stigma are assessed. Through use of self-report measures, there is greater threat of response bias, in turn creating inaccuracies. Assessment through the use of

IRAP or IAT may be more suitable. Furthermore, use of a qualitative research will enable for a more in depth understanding of the effects that culture has on the expression of stigma. The results from the statistical analysis were inconsistent with previous findings with the exception of age having a positive relationship with knowledge of AD. These findings give direction for future research to consider the type of assessment used when studying variables while controlling for other factors such as confounding variables such as AD exposure.

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Appendices

Appendix A

Information Sheet

PROJECT TITLE

Stigma and Knowledge of Alzheimer's Disease in the General Population of Zimbabwe

INVITATION

You are being invited to take part in a research study on knowledge of Alzheimer's in Zimbabwe. Before continuing with the study, please take time to read through this document and ensure that you are fully aware of what will be required of you. If you have any questions about the information provided, please do not hesitate to contact via the contact details at the bottom of this information sheet.

This study aims to investigate the extent of attitudes towards Alzheimer's disease, knowledge, stigma and perceived threat of developing Alzheimer's disease in the general population of Zimbabwe. The study will be conducted by myself, Tarryne Collett, and supervised by Michelle Kelly. This study is being conducted through the National College of Ireland and has been approved by the Psychology Research Ethics Committee.

WHAT WILL HAPPEN

In this study, you will be asked to complete and online survey that consist of four different measures. The first set of questions are from the Dementia Attitudes Scale that contains 20 short questions which requires you to rate how strongly you agree or disagree with the statement. The second one will be the Alzheimer's Disease Knowledge Scale (ADKS) which contains 30 true or false questions. The third is a stigma questionnaire containing 10 questions. For the stigma questionnaire, you will be required to imagine yourself to have

Alzheimer's disease and rate how you feel about each question. Responses would be one of the following, "yes, maybe, I don't know, and no". Lastly you will be presented with a questionnaire that will consist of three statements to which you will have to indicate your level of agreement. Responses would be one of the following, "strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, and strongly agree".

Important note: Please insure that you read the questions careful and note the direction of the scale.

TIME COMMITMENT

The study typically takes 15 minutes across 1 session.

PARTICIPANTS' RIGHTS

You may decide to stop being a part of the research study at any time without explanation. Data will be unidentifiable and therefore cannot be retracted upon submission.

You have the right to omit or refuse to answer or respond to any question that is asked of you (as appropriate, "and without penalty").

You have the right to have your questions about the procedures answered (unless answering these questions would interfere with the study's outcome). If you have any questions as a result of reading this information sheet, you should ask the researcher before the study begins.

BENEFITS AND RISKS

There are no known benefits or risks for you in this study. However, in the unlikely event that

you become distressed at any point during this study, relevant supports are listed in the debriefing sheet which is located at the end of the survey. Please note, you do not have to complete the survey in order to access them.

CONFIDENTIALITY/ANONYMITY

The data we collect will not contain any personal information about you. No one will link the data you provided to the identifying information you supplied (e.g., name, address, email). The data collected during this study (including yours) may be presented at conferences and or publication. Please do note that your data will not be identifiable. In addition, your data will be stored on a password protected computer and the National College of Irelands servers in line with NCI's data retention policy for the duration of analysis which only myself and my supervisor Michelle Kelly will have access to. Once analysis for this particular study is completed, it is envisaged that anonymised data will also be uploaded to a secondary data repository to facilitate validation and replication, in line with Open Science best practice and conventions.

FOR FURTHER INFORMATION

My self and supervisor, Michelle Kelly will be glad to answer your questions about this study at any time. In addition, if you would like to find out about the final results of this study, you may either email myself or Michelle and we will be more than happy to share the information with you.

CONTACT DETAILS

Myself (Tarryne Collett)

Email – x221010@student.ncirl.ie

Phone - +353 876233954

Dr. Michelle Kelly

michelle.kelly@ncirl.ie

Appendix B

Consent Form

In agreeing to participate in this research I understand the following:

- The method proposed for this research project has been approved in principle by the Psychology Research Ethics Committee, which means that the Committee does not have concerns about the procedure itself as detailed by the student. It is, however, the above-named student's responsibility to adhere to ethical guidelines in their dealings with participants and the collection and handling of data.
- If I have any concerns about participation, I understand that I may refuse to participate or withdraw at any stage by exiting my browser.
- I understand that once my participation has ended, that I cannot withdraw my data as it will be fully anonymised.
- I have been informed as to the general nature of the study and agree voluntarily to participate.
- All data from the study will be treated confidentially. The data from all participants will be compiled, analysed, and submitted in a report to the Psychology Department in the School of Business.
- All data obtained from this study will be anonymised and stored on NCI servers in line with NCI's data retention policy.
- I understand that my data will be retained and managed in accordance with the NCI data retention policy, and that my anonymised data may be archived on an online data repository and may be used for secondary data analysis. No participants data will be identifiable at any point.
- At the conclusion of my participation, any questions or concerns I have will be fully addressed.

☐ Please tick this box if you have read, and agree with all of the above information.

Appendix C

Alzheimer's Disease Knowledge Scale (ADKS)

Carpenter et al. (2009)

Participant Instructions

Please read the questions carefully and indicate whether you think the statement is true or false.

1. People with Alzheimer's disease are particularly prone to depression.

   True

   False

2. It has been scientifically proven that mental exercise can prevent a person from getting Alzheimer's disease.

   True

   False

3. After symptoms of Alzheimer's disease appear, the average life expectancy is 6 to 12 years.

   True

   False

4. When a person with Alzheimer's disease becomes agitated, a medical examination might reveal other health problems that caused the agitation.

   True

   False

5. People with Alzheimer's disease do best with simple, instructions given one step at a time.

   True

   False

6. When people with Alzheimer's disease begin to have difficulty taking care of themselves, caregivers should take over right away.

   True

   False

7. If a person with Alzheimer's disease becomes alert and agitated at night, a good strategy is to try to make sure that the person gets plenty of physical activity during the day.

   True

   False

8. In rare cases, people have recovered from Alzheimer's disease.

   True

   False

9. People whose Alzheimer's disease is not yet severe can benefit from psychotherapy for depression and anxiety.

   True

   False

10. If trouble with memory and confused thinking appears suddenly, it is likely due to Alzheimer's disease.

    True

    False

11. Most people with Alzheimer's disease live in nursing homes.

    True

    False

12. Poor nutrition can make the symptoms of Alzheimer's disease worse.

    True

    False

13. People in their 30s can have Alzheimer's disease.

    True

    False

14. A person with Alzheimer's disease becomes increasingly likely to fall down as the disease gets worse.

    True

    False

15. When people with Alzheimer's disease repeat the same question or story several times, it is helpful to remind them that they are repeating themselves.

    True

    False

16. Once people have Alzheimer's disease, they are no longer capable of making informed decisions about their own care.

    True

    False

17. Eventually, a person with Alzheimer's disease will need 24-hour supervision.

    True

    False

18. Having high cholesterol may increase a person's risk of developing Alzheimer's disease.

    True

    False

19. Tremor or shaking of the hands or arms is a common symptom in people with Alzheimer's disease.

    True

    False

20. Symptoms of severe depression can be mistaken for symptoms of Alzheimer's disease.

True

False

21. Alzheimer's disease is one type of dementia.

    True

    False

22. Trouble handling money or paying bills is a common early symptom of Alzheimer's disease.

    True

    False

23. One symptom that can occur with Alzheimer's disease is believing that other people are stealing one's things.

    True

    False

24. When a person has Alzheimer's disease, using reminder notes is a crutch that can contribute to decline.

    True

    False

25. Prescription drugs that prevent Alzheimer's disease are available.

    True

    False

26. Having high blood pressure may increase a person's risk of developing Alzheimer's disease.

    True

    False

27. Genes can only partially account for the development of Alzheimer's disease.

True

False

28. It is safe for people with Alzheimer's disease to drive, as long as they have a companion in the car at all times.

    True

    False

29. Alzheimer's disease cannot be cured.

    True

    False

30. Most people with Alzheimer's disease remember recent events better than things that happened in the past.

    True

    False

Appendix D

Dementia Attitudes Scales

O'Connor and McFadden (2010)

Participant Instructions

Please rate each statement according to how much you agree or disagree with. Please be honest. There are no right or wrong answers.

Please note that Alzheimer's disease is the most common type of dementia but there are also other dementia's that have similar symptoms. The acronym ADRD refers to Alzheimer's disease and other types of dementia

1. It is rewarding to work with people who have ADRD?

   Strongly Disagree

Disagree

Slightly Disagree

Neutral

Slightly Agree

Agree

Strongly Agree

2. I am afraid of people with ADRD.

   Strongly Disagree

   Disagree

   Slightly Disagree

   Neutral

   Slightly Agree

   Agree

   Strongly Agree

3. People with ADRD can be creative.

   Strongly Disagree

   Disagree

   Slightly Disagree

   Neutral

   Slightly Agree

   Agree

   Strongly Agree

4. I feel confident around people with ADRD.

   Strongly Disagree

   Disagree

Slightly Disagree

Neutral

Slightly Agree

Agree

Strongly Agree

5. I am comfortable touching people with ADRD.

Strongly Disagree

Disagree

Slightly Disagree

Neutral

Slightly Agree

Agree

Strongly Agree

6. I feel uncomfortable being around people with ADRD.

Strongly Disagree

Disagree

Slightly Disagree

Neutral

Slightly Agree

Agree

Strongly Agree

7. Every person with ADRD has different needs.

Strongly Disagree

Disagree

Slightly Disagree

Neutral

Slightly Agree

Agree

Strongly Agree

8. I am not very familiar with ADRD.

Strongly Disagree

Disagree

Slightly Disagree

Neutral

Slightly Agree

Agree

Strongly Agree

9. I would avoid an agitated person with ADRD.

Strongly Disagree

Disagree

Slightly Disagree

Neutral

Slightly Agree

Agree

Strongly Agree

10. People with ADRD like having familiar things nearby.

Strongly Disagree

Disagree

Slightly Disagree

Neutral

Slightly Agree

Agree

Strongly Agree

11. It is important to know the past history of people with ADRD.

Strongly Disagree

Disagree

Slightly Disagree

Neutral

Slightly Agree

Agree

Strongly Agree

12. It is possible to enjoy interacting with people with ADRD.

Strongly Disagree

Disagree

Slightly Disagree

Neutral

Slightly Agree

Agree

Strongly Agree

13. I feel relaxed around people with ADRD.

Strongly Disagree

Disagree

Slightly Disagree

Neutral

Slightly Agree

Agree

Strongly Agree

14. People with ADRD can enjoy life.

Strongly Disagree

Disagree

Slightly Disagree

Neutral

Slightly Agree

Agree

Strongly Agree

15. People with ADRD can feel when others are kind to them.

Strongly Disagree

Disagree

Slightly Disagree

Neutral

Slightly Agree

Agree

Strongly Agree

16. I feel frustrated because I do not know how to help people with ADRD.

Strongly Disagree

Disagree

Slightly Disagree

Neutral

Slightly Agree

Agree

Strongly Agree

17. I cannot imagine taking care of someone with ADRD.

    Strongly Disagree

    Disagree

    Slightly Disagree

    Neutral

    Slightly Agree

    Agree

    Strongly Agree

18. I admire the coping skills of people with ADRD.

    Strongly Disagree

    Disagree

    Slightly Disagree

    Neutral

    Slightly Agree

    Agree

19. We can do a lot now to improve the lives of people with ADRD.

    Strongly Disagree

    Disagree

    Slightly Disagree

    Neutral

    Slightly Agree

    Agree

20. Difficult behaviours may be a form of communication for people with ADRD.

    Strongly Disagree

Disagree

Slightly Disagree

Neutral

Slightly Agree

Agree

Appendix E

Perceived Stigma Scale

Polat et al. (2022)

Participant Instructions

If you were living with Alzheimer's disease:

1. Would you rather people did not know about your disease?

   Yes

   Maybe

   I don't know

   No

2. Would you tell the person you are closest to?

   Yes

   Maybe

   I don't know

   No

3. Would you lose self-esteem because of the disease?

   Yes

   Maybe

   I don't know

No

4. Would this disease cause you shame or embarrassment?

   Yes

   Maybe

   I don't know

   No

5. Would your neighbours, your colleagues have less respect for you?

   Yes

   Maybe

   I don't know

   No

6. Do you think others would avoid you because of the disease?

   Yes

   Maybe

   I don't know

   No

7. Would your neighbours and your colleagues have less esteem for your family?

   Yes

   Maybe

   I don't know

   No

8. Do you think your partner would stay with you and support you?

   Yes

   Maybe

   I don't know

No

9. Do you think that people at work or your friends would ask you to stay away, even if you were taking medication for the disease?

   Yes

   Maybe

   I don't know

   No

10. Would your family give you their support right from the start?

    Yes

    Maybe

    I don't know

    No

Appendix F

Scale of Perceived Threat for Developing Alzheimer's Disease

Ostergren et al. (2007)

Participant Instructions

Please indicate your level of agreement for the following three statements.

1. You would like to know your chances of someday getting Alzheimer's.

   Strongly Agree

   Somewhat Agree

   Neither Agree nor Disagree

   Somewhat Disagree

   Strongly Disagree

2. You believe that you will get Alzheimer's one day.

Strongly Agree

Somewhat Agree

Neither Agree nor Disagree

Somewhat Disagree

Strongly Disagree

3. You worry about getting Alzheimer's someday.

Strongly Agree

Somewhat Agree

Neither Agree nor Disagree

Somewhat Disagree

Strongly Disagree

Appendix G

Debrief Sheet

I would like to take a moment to thank you for taking part in this study. Your data will be used to understand knowledge and stigma surrounding Alzheimer's in Zimbabwe.

If you wish to contact me regarding any issue, please do not hesitate to reach out to me via email (x22101071@student.ncirl.ie). My supervisor, Michelle Kelly (Michelle.Kelly@ncirl.ie) will also be available to assist with any issues should you need help.

In the unlikely event that this survey causes you any emotional or psychological distress, or you simply would just like to know more regarding Alzheimer's support in Zimbabwe, please reach out to the Zimbabwe Alzheimer's and Related Disorders Association (ZADA).

Call: +263779714905

Email: zarda@zol.co.zw

Appendix H

Evidence of SPSS data outputs