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A longitudinal exploration of mental health resilience, cognitive impairment and loneliness

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Abstract

Objective: There is a growing interest in how people living with dementia may achieve good outcomes and be resilient despite their health challenges. Understanding what might be important for resilience in this population is largely untested theory.

Methods: The analysis draws a subsample with cognitive impairment ($N = 579$) from two waves of the Cognitive Function and Ageing Studies Wales study, a nationally representative study of community-dwelling people aged 65+ in Wales. We constructed a measure of mental health resilience (MHR) defined as no depression, no anxiety and high well-being. Drawing on a resilience framework, we tested univariate and cumulative effects models of the factors that enable MHR, and then examined whether MHR is important for reducing loneliness over time.

Results: Across both waves of data 22% ($n = 121$) met the criteria for MHR. The cumulative effects model found the odds of MHR were greater for male gender, higher self-esteem, greater social resources and no subjective memory complaints. Controlling for these significant predictors, MHR significantly predicted lower total and sub-scale scores for loneliness at wave 2. Sensitivity analysis shows these effects held at lower levels of cognitive function when the Mini-Mental State Examination score was <25, but not at <23.

Conclusions: This paper addresses a gap in research regarding the conceptualisation and measurement of resilience when facing cognitive impairment. Understanding what aspects of a person's life might enable good mental health despite cognitive impairment—to be resilient—could inform effective strategies for friends and families, along with health, and social policy and practice.

KEYWORDS
anxiety, cognitive impairment, dementia, depression, loneliness, longitudinal, mental health, resilience, well-being

Key points

- This study offers new insights into how people living with dementia may 'do okay', using a measurement approach closely tied to contemporary conceptual understandings of resilience.
- Across two waves of data, just under a quarter of older people living with cognitive impairment sustained good mental health (no depression, no anxiety and high well-being), which we define as mental health resilience.
- MHR significantly predicted lower total and sub-scale scores for loneliness at wave 2. Sensitivity analysis shows these effects held at lower levels of cognitive function when the Mini-Mental State Examination (MMSE) was <25, but not at <23.
- At the lowest level of cognitive function (MMSE <23) greater social resources and self-esteem at wave 1 predicted lower social and emotional loneliness respectively at wave 2.

1 | INTRODUCTION

In older age, awareness of changes in cognitive function which may presage the onset of dementia can be extremely stressful. Cognitive impairment is associated with a significantly higher risk of experiencing depression and anxiety,[1] and decreasing cognitive function is also a risk factor for self-reported loneliness.[2,3] Loneliness itself may lead to faster rates of cognitive decline[4] and dementia has been described as 'the hidden voice of loneliness'.[5] 'Loneliness', defined as a negative emotional state arising from dissatisfaction with the quantity and quality of social resources,[3] is related to a wide range of health outcomes.[6] Contemporary policy now recognises loneliness as a major public health issue, and in 2018, the United Kingdom became the first country in Europe to appoint a Minister for Loneliness. The public health impacts of loneliness in the context of cognitive impairment are compounded by the predicted increase in the number of people with a dementia[7] and add to dementia's position as a global health challenge and an international public health priority.[8]

Whilst cognitive impairment may correlate with poor outcomes, not all individuals will be affected in the same way. This paper focusses on those who do not appear to experience adverse consequences, despite lower cognitive function, and asks whether these individuals, who may be described as resilient, are also less likely to experience loneliness. There is a growing interest generally in people who appear resilient, who despite health challenges, do not experience adverse consequences.

How best to measure resilience is controversial. A number of resilience measurement scales exist; most measure factors that facilitate a resilient outcome, focussing mainly on psychological aspects.[9,10] Contemporary research recognises that an evaluation of resilience should take into account both the adversity and the outcome of interest, and that assets and resources both within the individual and within their social context are important for enabling a good outcome despite adversity.[11] This is often described as an ecological model of resilience.[12] For example, Joling et al.[13] examined resilience in dementia caregivers, with resilience operationalised as low reported levels of psychological distress despite facing substantial care demands (e.g., caring for a relative with more severe dementia, or self-care limitations). Using data from four different studies, the proportion of people who could be defined as resilient was ascertained and the determinants of resilience were explored. The study demonstrated the utility of a measurement approach more closely tied to a conceptual understanding of resilience.

A review of longitudinal resilience studies notes most research using cohort data operationalises resilience as the absence of psychiatric distress (e.g., no depression; no anxiety) in the face of an adversity,[14] defined more precisely as 'mental health resilience' (MHR).[15] However, Cosco et al.[14] noted that measures of positive function (e.g., well-being) had not been used, yet well-being may not be adequately reflected simply by the absence of psychiatric symptoms. A wide range of adverse circumstances are described by Cosco et al.[14] (e.g., bereavement), but no studies in their review examined the experience of cognitive impairment. In response, this paper builds on the approach taken by Joling et al.[13] and the recommendations of Cosco et al.[14] in order to provide a rigorous evaluation of resilience in the context of cognitive impairment and possible protection against loneliness.

A holistic assessment of resilience requires the identification of environmental and individual aspects commonly referred to as 'protective factors' or the 'resilience reserve'. Recently, there has been a shift towards thinking about how people with dementia might achieve positive outcomes and resilience.[16] However, there is little published research on resilience and dementia from this perspective. Other factors important for resilience can be hypothesised from the broader literature. There is good evidence for some of the important and potentially modifiable lifestyle risk factors such as social engagement, physical activity, diet and alcohol consumption[17] that may impact on cognitive decline, Alzheimer's disease and other dementias. These factors are also recommended for good mental health.[18] Subjective memory complaints, which may reflect awareness of cognitive difficulties, have been associated with anxiety and depression for people living with cognitive impairment.[19] Exploring the role of these factors may offer some preliminary indication of relevant assets and resources.

The present study accordingly aims to contribute new insights into resilience and cognitive impairment, building on developments in resilience measurement and a recognition of the potential for positive responses to cognitive impairment and dementia. Reflecting suggestions regarding the operationalisation of resilience[11,14] we explore, for the first time in people with cognitive impairment, resilience conceptualised as the absence of psychological distress (no depression or anxiety), together with the presence of well-being (defined as MHR). The objectives are as follows:

- To identify participants with good mental health over time, despite cognitive impairment (MHR).
- To explore some of the factors that may enable MHR.
- To examine whether MHR is a determinant of loneliness, as a key public health outcome, over time.

2 | METHODS

2.1 | Data source and participants

Data are from waves 1 and 2 of the Cognitive Function and Ageing Studies Wales (CFAS Wales). This is a population-based study investigating change in health, well-being and cognitive function in older people. In wave 1 (between 2011 and 2013), community-dwelling older people (including those living in care homes) aged 65 years and older living in urban and rural areas of Wales were randomly sampled from general practice lists, with equal numbers drawn from the age groups 65 to 74 and 75 and above ($N = 3593$). They were followed up 2 years later ($N = 2236$). The response rate in wave 1 was 44%, and in wave 2, 70%.

Ethical approval was granted by the appropriate NHS Ethics committee. Participants took part in face-to-face interviews in both waves, administered using computer-assisted direct data entry, usually conducted in their own homes through the medium of English or Welsh with trained interviewers. The interview collects detailed information on health and disease, lifestyles, cognitive function, social networks, mental health, well-being and resilience, and demographics (for more details, see http://cfaswales.bangor.ac.uk/publications.php.en).

2.2 | Measures

2.2.1 | Mental health resilience

Cognitive function/impairment (the 'adversity')

This was assessed with the Mini-Mental Status Examination (MMSE[20]) which assesses cognitive functioning in five areas: orientation, registration, attention and calculation, recall, and language, providing an objective measure of global cognitive functioning. Scores range from 0 to 30, with higher scores indicating better cognitive functioning. Various MMSE cut-points have been used in the literature to delineate cognitive impairment; here we follow Sachdev et al.[21] in taking scores ≤27 as indicative of cognitive impairment, with scores ≤23 indicating increasing severity.

Subjective well-being (positive outcome)

The Diener Satisfaction with Life Scale[22] asks five questions designed to elicit global cognitive judgements of satisfaction with one's life. Individual responses range from 1 (strongly disagree) to 7 (strongly agree). These are summed for a final scale ranging between 1 (low satisfaction/extremely dissatisfied) to 35 (highly satisfied), with high well-being defined as a score >26.

Depression and anxiety (absence indicates positive outcome)

These were each defined using the Geriatric Mental State Automated Geriatric Examination for Computer-Assisted Taxonomy (GMS-AGECAT) algorithm,[23] where a score of 2 indicated mild symptoms and a score of 3 or above indicated a case-level anxiety or depression. These were each dichotomised as 0 = no symptoms; 1 = symptoms present (mild and case level).

2.2.2 | Independent variables (the 'resilience reserve')

Demographic characteristics include age (years), education (years), gender (1 = male 0 = female) and marital status (1 = not married, 0 = married/co-habiting).

Social engagement

Social network resources, in the form of the size, closeness and frequency of contact with friends and relatives were measured by the six-item Lubben Social Network Scale.[24] Scores range from 0 (completely isolated/few social resources) to 30 (low isolation/many social resources).

Based on Fortuijn et al.[25] breadth of social participation in group activities was ascertained through a range of questions providing an index ranging from 0 (no participation) to 6 (high levels of participation). These reflected activity across six domains (sports, political involvement, environmental groups, education or learning, arts, and voluntary or community groups).

Psychological factors

Abbreviated versions of three psychological factors are available in the CFAS Wales survey. *Personal competence* was assessed with six items derived from the Resilience Scale,[26] with responses ranging from 1 = strongly disagree to 5 = strongly agree. *Self-esteem* was assessed with eight items derived from the Rosenberg Self Esteem Scale (RSES),[27] with responses ranging from 1 = strongly disagree to 5 = strongly agree. *Interpersonal control* was derived from the Spheres of Control (SOC) scales[28] consisting of five questions, with responses ranging from 1 = strongly disagree to 5 = strongly agree. These items were selected based on psychometric

evaluation in a previous large cohort study of older people.[29] Subjective memory complaints were identified from the following questions 'Have you ever had any difficulty with your memory?' and 'Have you tended to forget things recently?' Following the rationale of Yates et al.[19] a positive answer to either question indicated a memory complaint, which was recoded into a dichotomous outcome (1 = no, 0 = yes).

Healthy lifestyle variables

A range of healthy lifestyle variables were derived in the previous analysis of the CFAS Wales data examining modifiable lifestyle factors and cognitive function.[17] *Level of physical activity* was determined by the reported frequency of engagement in 18 types of mild (e.g., light gardening, bowls, light housework), moderate (e.g., gardening, walking at a moderate pace, floor or stretching exercises), and vigorous (e.g., jogging, swimming, cycling) physical activity. A continuous scale was generated using the frequency levels (0 = once a year or less, 1 = several times a year, 2 = several times a month, 3 = several times a week, and 4 = every day or almost every day) multiplied by the intensity ratio (mild: moderate: vigorous = 1:2:3), based on the metabolic equivalent of task (MET) ratio.[17] *Healthy diet* represents the frequency of 'Mediterranean Style' food intake. Responses to each question ranged from never, seldom, once a week, 2–4 times a week, 5–6 times a week or daily. A total score for healthy diet was generated based on the six levels of frequency. *Alcohol consumption* was determined with the question 'How often have you had an alcoholic drink of any kind in the last 12 months?' Responses ranged from 0 = not at all to 7 = almost every day.

2.2.3 | Outcome variable (loneliness)

Loneliness was assessed with the six-item De Jong Gierveld scale.[30] The scale ranges from 0 to 6 where a score of 0 to 1 indicates no loneliness, score of 2 to 4 moderate loneliness and 5 to 6 severe loneliness.

The scale has two sub-scales which measure emotional loneliness (the absence of an intimate relationship, such as a partner, best friend), and social loneliness (the absence of a broader social network such as siblings, cousins, friends and neighbours).

2.2.4 | Data analysis

Data were analysed in SPSS v22. The sample was defined as the number of people who met the criteria for cognitive impairment at both baseline and at wave 2 (N = 579). A dichotomous outcome variable MHR was operationalised as those who met the previous criteria for cognitive impairment, and also had sustained good mental health (no depression, no anxiety and high well-being) in both waves of data (vs. those with cognitive impairment without sustained good mental health). Missing data led to the deletion of 30 cases when constructing the outcome variable, leaving a final sample of 549. Next, univariate differences in wave 1 characteristics were examined across the two MHR groups using logistic regression. A cumulative effects model using logistic regression then tested the extent to which the significant wave 1 predictors from the univariate analysis jointly contributed to MHR. Finally, a multiple regression model examined whether those with MHR would be less lonely over time, controlling for significant predictors from the cumulative effects model, baseline loneliness and wave 2 cognitive function. The same model examined each of the loneliness sub-scales to ascertain whether any effects found for MHR were differentiated by emotional or social loneliness. Sensitivity analyses examined the impact of increasing severity in cognitive impairment at MMSE scores of <25 and <23 across this model. The analysis is based on complete cases, with list-wise deletion removing cases with missing variables. With the exception of 'subjective memory complaints', the proportions of missing data for the independent variables are small (see Table 1). To ascertain whether the missing data for subjective memory complaints' influenced estimations, the analysis was repeated without this variable.

3 | RESULTS

3.1 | Study sample

Five hundred and seventy-nine people met the criteria for cognitive impairment at both t1 and t2. At wave one, the mean MMSE of this study sample was 24.64 (SD = 2.46) ranging between 12 and 27. N = 286 had an MMSE <25, and n = 126 had an MMSE <23. The mean age was 76.34 (SD = 7.11) ranging from 65 to 102. Forty-four percent (n = 255) were male and 53% (n = 309) were married. The mean score for loneliness was 1.12 (SD = 1.28). 28.8% (n = 166) reported moderate loneliness and 2.4% (n = 14) reported severe loneliness. At wave 2, the mean MMSE of this study sample was 24.46 (SD = 3.09) and the mean for loneliness was 1.20 (SD = 1.35), 28.4% (n = 162) reported moderate loneliness and 3.8% (n = 22) reported severe loneliness.

3.2 | Mental health resilience

At wave 1, 65% (n = 374) of the study sample reported no depression, 52.5% (n = 304) no anxiety, and 57% (n = 326) high well-being (M = 26.38, SD = 5.38), cumulatively classifying 35.6% (N = 203) as resilient. At wave 2, the cumulative figure was similar at 35% (n = 194), with 60% (n = 350) with no depression, 55.4% (n = 327) with no anxiety and 60.5% (n = 336) with high well-being (M = 26.53, SD = 5.43). Across both waves, 22% (n = 121) sustained this resilience, whilst 78% (n = 428) did not (data was missing for n = 30, leaving a total n = 549 for subsequent analysis).

TABLE 1 Mental health resilience according to characteristics and resilience factors

			Univariate analysis		Cumulative effects analysis	
	Mental health resilience	No mental health resilience	OR (95% CI)	*p*-Value	OR (95% CI)	*p*-Value
Demographic characteristics						
Male gender, % (*n*)(Missing data = 0)	54% (*n* = 65)	41% (*n* = 175)	1.67 (1.11–2.51)	0.01	1.62 (1.03–2.55)	0.03
Age, mean years (SD); range 65–102 (Missing data = 0)	76.61 (7.12)	75.90 (6.91)	1.01 (0.98–1.04)	0.32		
Education, mean years (SD); Range 0–22; (missing data = 9)	11 (2.16)	10.79 (1.94)	1.05 (0.95–1.16)	0.31		
Married/co-habiting, % (*n*) (Missing data = 1)	63% (*n* = 76)	52% (*n* = 221)	0.63 (0.42–0.96)	0.03	0.75 (0.47–1.20)	0.23
Social engagement factors						
Social resources, mean (SD); Range 0–30; (missing data = 5)	16.07 (5.80)	13.96 (6.04)	1.06 (1.02–1.09)	0.001	1.04 (1.00–1.08)	0.01
Social participation, mean (SD); Range 0–6; (missing data = 1)	0.76 (1.06)	0.71 (0.94)	1.04 (0.85–1.28)	0.64		
Psychological factors						
Self-esteem, mean (SD); range 13–40 (Missing data = 12)	32.72 (3.24)	30.64 (4.19)	1.15 (1.09–1.22)	0.001	1.14 (1.06–1.24)	0.001
Control, mean (SD); range 9-25 (Missing data = 12)	18.79 (2.38)	17.93 (2.57)	1.14 (1.05–1.25)	0.001	0.98 (0.88–1.05)	0.83
Competence, mean (SD); range 7–30 (Missing data = 11)	23.78 (2.39)	23.23 (2.69)	1.08 (1.00–1.17)	0.05	0.95 (0.86–1.05)	0.38
No subjective memory complaints, % (*N*) (Missing data = 35)	66.9% (*n* = 81)	51.4% (*n* = 220)	1.67 (1.08–2.56)	0.01	1.71 (1.08–2.71)	0.02
Healthy lifestyle factors						
Physical activity, mean (SD); range 0-88 (Missing data = 3)	17.93 (13.98)	14.25(12.87)	1.02 (1.00–1.03)	0.007	1.00 (0.99–1.02)	0.28
Healthy diet, mean (SD); range 3-30 (Missing data = 5)	17.68 (4.34)	17.22 (4.34)	1.02 (0.97–1.07)	0.31		
Alcohol, mean; range 0-7 (missing data = 5)	3.33 (2.49)	2.82 (2.30)	1.17 (0.97–1.40)	0.08		

Abbreviation: SD, standard deviation.

3.3 | Univariate predictors mental health resilience

Table 1 presents the descriptive statistics and results of the univariate analyses. It shows that males have better odds for MHR than females, whilst the odds of MHR were lower for those not married compared to those who were married. Of the psychological factors, the odds for MHR were greater for higher levels of self-esteem, interpersonal control and personal competence. Higher levels of social network resources were associated with greater odds for MHR, as were no subjective memory complaints. In terms of healthy lifestyle, MHR was related to more physical activity.

3.4 | Multivariate analyses

Of the significant univariate predictors, the cumulative effects model (Table 1) found the odds of MHR were greater for male gender (odds ratio, OR = 1.62 [CI 1.03–2.55], $p < 0.05$); self-esteem (OR = 1.14 [CI 1.06–1.24], $p < 0.001$); social resources (OR = 1.04 [CI 1.01–1.09], $p < 0.01$) and no subjective memory complaints (OR = 1.72 [CI 1.08–2.71], $p < 0.05$). Removing subjective memory complaints from the analysis did not influence the results.

Controlling for these significant determinants and wave 1 loneliness scores, MHR was significantly associated with lower total and sub-scale scores for loneliness at wave 2 (see Tables 2 and 3).

TABLE 2 Regression of mental health resilience on loneliness at wave two

	MMSE</ = 27*			MMSE </ = 25 **			MMSE </ = 23		
Predictor	**B**	**SE**	***p***	**B**	**SE**	***p***	**B**	**SE**	***p***
Mental health resilience	−0.38	0.09	0.001	−0.39	0.14	0.007	−0.36	0.31	0.25
Controls									
Gender (F)	−0.09	0.08	0.23	−0.04	0.12	0.70	0.26	0.23	0.27
Social resources	−0.03	0.007	0.001	−0.35	0.01	0.002	−0.05	0.02	0.01
Self-esteem	−0.02	0.01	0.03	−0.04	0.01	0.01	−0.08	0.02	0.007
Sub. memory complaints (Y)	0.01	0.08	0.84	−0.38	0.12	0.75	−0.15	0.23	0.49
Loneliness w1	0.36	0.04	0.001	0.37	0.05	0.001	0.29	0.10	0.005
MMSE w. 2	−0.02	0.01	0.01	−0.02	0.01	0.14	−0.02	0.02	0.25

Abbreviation: MMSE, Mini-Mental State Examination.

Adjusted r^2 = *0.26; **0.29; ***r^2 = 0.30.

TABLE 3 Regression of mental health resilience on loneliness sub-scales at wave two

Emotional Loneliness

	MMSE</ = 27*			MMSE </ = 25 **			MMSE </ = 23		
Predictor	**B**	**SE**	***p***	**B**	**SE**	***p***	**B**	**SE**	***p***
Mental health resilience	−0.25	0.06	0.00	−0.21	0.09	0.02	−0.05	0.18	0.75
Controls									
Gender (F)	0.05	0.05	0.34	0.08	0.07	0.29	0.15	0.13	0.27
Social resources	−0.001	0.004	0.75	−0.004	0.007	0.51	−0.02	0.01	0.11
Self-esteem	−0.03	0.007	0.00	−0.32	0.01	0.001	−0.05	0.02	0.004
Sub. memory complaints (Y)	0.05	0.05	0.35	0.03	0.07	0.65	0.02	0.13	0.89
Emotional loneliness w1	0.31	0.03	0.00	0.31	0.05	0.00	0.22	0.08	0.01
MMSE w. 2	−0.2	0.007	0.00	−0.02	0.10	0.03	−0.03	0.01	0.06

Social Loneliness

	MMSE</ = 27*			MMSE </ = 25**			MMSE </ = 23***		
Predictor	**B**	**SE**	***p***	**B**	**SE**	***p***	**B**	**SE**	***p***
Mental health resilience	−0.15	0.06	0.02	−0.21	0.10	0.03	−0.32	0.20	0.12
Controls									
Gender (F)	−0.13	0.05	0.01	−0.11	0.08	0.15	0.12	0.15	0.41
Social resources	−0.03	0.005	0.00	−0.03	0.008	0.00	−0.03	0.01	0.04
Self-esteem	0.001	0.008	0.90	−0.01	0.01	0.27	−0.03	0.01	0.06
Sub. memory complaints (Y)	−0.03	0.05	0.58	−0.07	0.08	0.39	−0.17	0.15	0.26
Social loneliness w1	0.38	0.37	0.00	0.39	0.05	0.00	0.38	0.09	0.00
MMSE w. 2	−0.007	0.008	0.41	−0.003	0.01	0.78	−0.003	0.02	0.85

Abbreviation: MMSE, Mini-Mental State Examination.

Adjusted r^2 = 0.23*; 0.23**; 0.24***

Adjusted r^2 = 0.25*; 0.27**; 0.28***

Sensitivity analysis shows these effects held at lower levels of cognitive function when the MMSE was <25, but not at <23. The total score for loneliness was lower for those with more social resources and higher self-esteem at all levels of cognitive function. Higher wave 2 MMSE scores were associated with lower loneliness total scores for the sample as a whole, but not in the sensitivity analysis. The effect of MHR on the total loneliness score was stronger than the total loneliness score at wave 1. In relation to the

sub-scales (Table 3), emotional loneliness was lower at all levels of cognitive function for those with higher self-esteem and social loneliness was lower at all levels of cognitive function for those with more social resources.

4 | DISCUSSION

This study offers new insights using a measurement approach closely tied to contemporary conceptual understandings of resilience. Across two waves of data, just under a quarter of older people living with cognitive impairment sustained good mental health (no depression, no anxiety and high well-being), which we define as MHR. To our knowledge, this is the first exploration of MHR in this population and so is an important first step towards advancing theory and measurement approaches. Whilst a substantial body of research has examined resilience in younger populations, in comparison, the study of resilience in later life has not received the same attention.[11]

We sought to identify the personal characteristics and wider social aspects important for resilience, 'the resilience reserve', through logistic regression. The sample size was sufficient in relation to 'rule of thumb' suggestions for logistic regression.[31] Here, we did not find strong statistical evidence that age and years of education were associated with resilience, but male and married/ cohabiting respondents were more likely to be resilient.

Potentially modifiable psycho-social factors were identified in the univariate analysis of the 'resilience reserve' that could be targeted by services, notably social resources from friends and family, psychological factors and physical activity, thereby contributing to the development and sustainability of MHR. The importance of self-esteem and a sense of control and competence resonates with the recovery model of mental health, with its emphasis on hope, building resilience, and a belief that people can maintain a good quality of life despite their condition, and provides a useful framework for practitioners to work from. Although this approach has scant attention in the dementia literature, it embeds the principles of national and international policies for 'living as well as possible'.[8,32]

Absence of subjective memory complaints predicted resilience in both univariate and cumulative effects analyses, suggesting that those who focus less on memory problems, perhaps appearing less aware of difficulties, also report better well-being and mood. Although this effect may be interpreted as a form of positive response bias, it may also be viewed as an adaptive form of coping in some situations, focussing on strengths rather than problems.[33] Several factors showing a univariate relationship with resilience were no longer significant in the cumulative effects model, specifically marital status, physical activity, control and competence. Future research could explore whether factors such as social resources and self-esteem mediate some of these relationships.

Having established the determinants of MHR, we finally show that MHR was associated with lower levels of loneliness over time for the study sample, although not for the sub-group with the lowest levels of cognitive function, where the sample size was much smaller. For the sample as a whole, a higher MMSE score at wave 2 was related to lower loneliness, but this association was not evident with the more stringent cognitive impairment criteria. The relationship with MMSE scores was evident only on the emotional loneliness sub-scale. Subjective memory complaints were not related to loneliness over time. Higher levels of social resources and self-esteem were associated with lower loneliness over time, at all three levels of cognitive impairment. The analysis of the loneliness sub-scales found that self-esteem was important for lower emotional loneliness and social resources were important for lower social loneliness at all levels of cognitive impairment, providing a useful insight into the influences on these two distinct aspects of loneliness.

Loneliness is often experienced by those living with dementia related cognitive impairment. Kate Swaffer,[34] a person living with a dementia, describes prescribed dis-engagement®, the loss of pre-diagnosis life, arguing that it 'sets up a chain reaction of defeat and fear, which negatively impacts a person's ability to be positive, resilient and proactive' (p. 3). Given that most people living with dementia live at home in their communities, it is important to ensure strategies are in place to ensure the defeat and fear articulated by Swaffer become consigned to history. Communities need to provide services and opportunities that support self-esteem, reinforce social resources, enable 'recovery' and support resilience, where people can continue to function to the best of their ability despite their condition, be supported, take part and make a useful contribution. The global move towards 'age-friendly'[35] and 'dementia supportive' societies[36] may provide a context to facilitate MHR, through opportunities for inclusion and challenging social attitudes that lead to disengagement. This is important as individuals may be unable to become resilient if the community does not facilitate opportunities to adapt. This indicates the imperative for dementia supportive community initiatives to become widely implemented, especially as almost one-third of the participants in this study experienced some degree of loneliness at both time-points.

To date, very few studies have examined resilience in relation to people living with cognitive impairment and/or dementia. However, when considered with our findings, there are some similarities emerging from qualitative studies. These include having a positive attitude and a positive self-concept, social support networks, a long-term supportive marriage and efficacy,[37] 'active and purposeful living' (reflecting social participation and physical activity), 'perspective' (positive psychological resources), 'resources' (education and social support),[38] improved self-esteem, and positive relationships with careers and family members.[39]

We chose the complete case approach to reflect previous analyses using the CFAS Wales data.[3,40] Although 5.2% (n = 30) of participants were removed, the analysis was still sufficiently powered, but we recognise that undertaking a complete case analysis is not without criticism and is a limitation of the study.

5 | CONCLUSION

This work contributes to the growing literature redressing the dominant narrative around negative aspects of dementia. We do not in any way seek to downplay the devastating impact dementia may have for some people, but show that there is diversity in the experience, and that some people are 'doing okay'. This equated to 22% of our sample, suggesting these individuals are not outliers, but a sizeable proportion of participants. We are mindful of the dichotomy created by this operationalisation of MHR and the wider (negative) implications this might suggest, potentially rendering the non-resilient as failures. This paper is an early-stage exploration, developing a conceptual understanding which is statistically tested. It does not explore what is valuable to the person being classified as resilient or not. Given the lack of literature in this area, there are likely to be other important aspects for resilience that we have not included in this analysis (e.g., physical health), or were not available in the data set. Further research could qualitatively explore this area with people living with dementia, finding out what matters most to them. Understanding what aspects of a person's life might enable resilience is a pressing concern and could inform effective strategies for the public, health and social policy.

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CONFLICT OF INTEREST

There is no conflict of interest.

DATA AVAILABILITY STATEMENT

The CFAS Wales dataset is available from the UK Data Archive The study details are Woods R, Windle G, Burholt V, Brayne C, Bennett K, McCracken C, Clare L, Matthews F, Phillips J, Macleod C. (2019). Cognitive Function and Ageing Study-Wales. Waves. 1–2, 2011–2016.

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