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SCIENTIFIC BRIEF REPORT

Caregiving Readiness Among Malaysian Undergraduates: The Role of Ageing Expectations and Intergenerational Interactions

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Abstract

The ageing population has increased reliance on informal caregiving. Nevertheless, caregiving readiness before the role begins is understudied. Thus, this cross-sectional study examined caregiving readiness and the role of ageing expectations and intergenerational interactions among 300 Malaysian undergraduates in Klang Valley. Multiple regression analysis was conducted, with robustness checks performed using bootstrapping (10,000 replications) and robust regression using the Huber M-estimator. Intergenerational interactions ($\beta = -0.163$ to -0.167 , $p < 0.01$) were negatively associated with caregiving readiness across model specifications, whereas ageing expectations showed a positive but less stable association. These findings suggest that exposure to older adults may prompt more cautious appraisals of caregiving demands rather than uniformly increasing perceived preparedness. The study highlights the need for educational policies supporting structured intergenerational engagement for caregiving preparation among young adults.

Keywords: caregiving readiness; ageing expectations; intergenerational interaction; undergraduates; Malaysia

Sustainable Development Goals (SDGs): SDG 3: Good Health and Well-Being; SDG 4: Quality Education

1. Introduction

An ageing population is a growing demographic change that has direct implications for family structures, intergenerational relationships, and caregiving responsibilities. In this study, informal caregiving refers to unpaid care provided by family members or close persons to older adults who require daily, health-related, or emotional support. Malaysia has already entered an ageing demographic phase, with the proportion of the population aged 65 years and above increasing from 7.4% in 2023 to 7.7% in 2024 (Department of Statistics Malaysia, 2024a).

Caregiving readiness is particularly relevant in Malaysia because family care is developing alongside smaller households, urbanisation, and women's labour force participation. The 2020 census reported that average household size declined from 4.2 persons in 2010 to 3.8 in 2020, while the urbanisation rate increased from 70.9% to 75.1% (Department of Statistics Malaysia, 2022). Women's labour force participation was 56.2% in 2023, suggesting that future family caregiving may occur under more constrained household and work conditions (Department of Statistics Malaysia, 2024b).

Caregiving readiness refers to an individual's perceived ability to manage the physical, emotional, and organisational demands of caregiving. Low readiness has been associated with higher caregiving stress and burden, whereas better readiness is linked to positive adjustment and well-being among caregivers (Archbold et al., 1990; Özkan Tuncay, 2024). However, most studies have focused on active caregivers, while readiness before assuming the caregiver role remains understudied.

Conceptually, this study is guided by a role preparation perspective and intergenerational contact theory. From a role perspective, caregiving readiness can be viewed as anticipatory preparation for a possible future family caregiver role, in which individuals evaluate their perceived ability before the role is formally enacted (Schumacher, 1995). Intergenerational contact theory further suggests that contact with older adults can shape beliefs, emotions, and expectations about ageing, although the effect of contact depends on its quality, context, and emotional meaning (Drury et al., 2016; Pettigrew & Tropp, 2006). Therefore, intergenerational interactions may not automatically increase readiness; they may also make the demands of later-life care more visible and encourage more cautious self-assessment.

Undergraduate students are relevant to this study because early adulthood is a period of forming values, beliefs, and expectations for future social roles. In a society that emphasises familial responsibility, they may become future caregivers for older family members. Ageing expectations may shape how individuals interpret old age and evaluate care-related abilities (Lin et al., 2024).

Intergenerational interactions are often considered an early exposure to the realities of ageing and the lives of older adults. The experience of interacting with older adults may strengthen the understanding of the demands of caregiving and related challenges. Past studies have demonstrated that intergenerational interactions are related to attitudes towards ageing and ageing expectations, even though the effects of these interactions depend on their type and context (Burnes et al., 2019; Smith et al., 2017). Nevertheless, empirical studies that examine the relationship between ageing expectations, intergenerational interactions, and caregiving readiness among university students are limited, particularly in the context of Malaysia.

Despite growing attention to ageing and informal care, limited research has examined caregiving readiness before role enactment, particularly among emerging adults who have not yet assumed formal caregiving responsibilities. The contribution of this study lies in examining this pre-role stage among Malaysian undergraduates by linking ageing expectations and intergenerational exposure to self-perceived caregiving readiness in a context where family support remains central to later-life care. Thus, the present study aims to examine the relationship between caregiving readiness, ageing expectations, and intergenerational interactions among undergraduate students in Klang Valley.

2. Methods

This study employed a quantitative cross-sectional survey to examine the relationship between caregiving readiness, ageing expectations, and intergenerational interactions.

2.1 Respondents and Sampling Procedure

The study sample consisted of 300 undergraduate students from public and private universities in Klang Valley, Malaysia. Sampling was conducted in stages. First, universities in Klang Valley were stratified by institution type, namely public and private universities. Second, three public and three private universities were selected from the sampling frame. Third, faculties within the selected universities were used as clusters, with selected faculties invited to distribute the survey link to eligible undergraduate students. Eligible respondents were aged 18 years and above, enrolled as full-time undergraduate students, and registered at selected faculties invited to participate in the study. Participation was voluntary, and only completed questionnaires were included in the analysis. Because recruitment used an online survey distributed through selected institutional channels, non-response and self-selection bias cannot be fully ruled out.

Postgraduate students and individuals with professional caregiving or geriatrics training were excluded to maintain the focus on ordinary undergraduates before professional socialisation into eldercare. This did

not exclude everyday intergenerational exposure, as the IGI measured informal contact rather than formal training or professional experience.

2.2 Variables and Instruments

The three main variables, caregiving readiness, ageing expectations, and intergenerational interactions, were measured using a self-administered questionnaire. The instrument was administered in both the Malay and English languages. The Malay and English versions were reviewed to ensure clarity and conceptual equivalence of key terms related to caregiving, ageing, and intergenerational contact. Internal consistency was assessed for the multi-item scales in the present sample, with Cronbach's alpha values reported in the Results section. However, full validation and measurement invariance testing were beyond the scope of this brief report.

Caregiving readiness was measured using the Preparedness for Caregiving Scale (Archbold et al., 1990). This scale contains eight items that measure the extent to which individuals feel ready to perform caregiving duties, including physical caregiving, emotional support, care needs management, and stress management. Items were evaluated using a five-point Likert scale ranging from 0 ("not at all prepared") to 4 ("very well prepared"). The total score was obtained by summing all items, with higher scores indicating higher levels of caregiving readiness.

Next, ageing expectations were measured using the Expectations Regarding Aging Scale (ERA-12) developed by Sarkisian et al. (2005). This scale comprises 12 items that measure beliefs about physical, mental, and cognitive changes as individuals age. The items were evaluated using a four-point Likert scale, and the scores for each item were summed to generate the total score. Higher scores indicated more positive expectations towards ageing.

Finally, intergenerational interactions (IGI) were measured using the cumulative exposure index adapted from Smith et al. (2017). Four items were employed to evaluate interaction experiences with individuals aged 65 years and above, including living with older adults, being raised by older adults, involvement in volunteer or work-related activities with older adults, and having frequent interactions with older adults. Each item was coded as a binary response (1 = no and 2 = yes), and the item scores were summed to obtain the total score. A higher total score indicated a higher level of exposure to older adults. The index should be interpreted as a cumulative exposure measure rather than a comprehensive measure of intergenerational contact quality. The binary indicators capture exposure but not emotional valence, closeness, conflict, reciprocity, or perceived interaction quality. Additional questions about the pattern and frequency of interaction were used for descriptive purposes.

Several demographic variables were included as controls. Age and gender were controlled because developmental differences and social norms may influence caregiving. Ethnicity was included using a Malay versus non-Malay categorisation as a background control to adjust for broad socio-cultural variation in the sample, rather than to test ethnic differences. Field of study and institution type were also controlled to account for differences in educational exposure and institutional background.

2.3 Data Collection and Data Analysis

Data were collected using an online questionnaire. At the time of data collection, formal ethical clearance was not required by the affiliated institution for anonymous, low-risk survey research involving adult respondents and no identifiable personal data. Nevertheless, electronic informed consent was obtained, participation was voluntary, and responses were collected anonymously, kept confidential, and reported only in aggregate form. Only completed questionnaires were analysed using EViews econometric software, employing descriptive statistics, Pearson's correlation, and regression analyses.

Prior to interpreting the regression models, basic diagnostic checks were conducted for multicollinearity, residual normality, and heteroskedasticity. Bootstrapped standard errors with 10,000 replications and robust regression using the Huber M-estimator were used as sensitivity checks. The Huber M-estimator was applied to minimise the biasing effects of influential observations or outliers. The interaction term was orthogonalised to reduce non-essential multicollinearity between the interaction term and its lower-order terms.

3. Results

Table 1 presents the descriptive statistics. Respondents had a mean age of 21.92 years ($SD = 1.84$), with the majority being female (70.3%), Malay (78.7%), and enrolled in public universities (65.0%). The mean score for caregiving readiness was 21.45 ($SD = 7.01$; Cronbach's $\alpha = 0.94$), while the mean score for ageing expectations was 24.22 ($SD = 7.30$; Cronbach's $\alpha = 0.89$). The mean intergenerational interactions index was 5.60 ($SD = 1.23$), indicating moderate exposure to older adults.

Table 1. Descriptive statistics

Panel A: Sample Characteristics

Variable	Category	n (%)
Gender	Male	89 (29.7%)
	Female	211 (70.3%)
Ethnicity	Non-Malay	64 (21.3%)
	Malay	236 (78.7%)
Institution	Public	195 (65.0%)
	Private	105 (35.0%)
Field of Study	Social sciences	150 (50.0%)
	Science & technology	150 (50.0%)

Panel B: Continuous Study Variables

Variable	Minimum	Maximum	Mean	SD
Caregiving Readiness (CR)	.00	32.00	21.45	7.012
Ageing Expectations (AE)	12	48	24.22	7.298
Intergenerational Interactions Index (IGI)	4.00	8.00	5.600	1.232
Age (years)	18	27	21.92	1.837

Panel C: Ageing Expectations by Subscale

Subscale	Lower n (%)	Moderate n (%)	Higher n (%)
Physical Health	205 (68.3)	66 (22.0)	29 (9.7)
Mental Health	140 (46.7)	108 (36.0)	52 (17.3)
Cognitive Function	187 (62.3)	76 (25.3)	37 (12.3)
Overall AE	165 (55.0)	116 (38.7)	19 (6.3)

Panel D: Intergenerational Interaction Indicators

Indicator	Category	n (%)
Regular interaction with adults ≥ 65 years	Yes	162 (54.0)
	No	138 (46.0)
Co-residing with adults ≥ 65 years	Yes	69 (23.0)
	No	231 (77.0)
Ever raised by an older adult ≥ 65 years	Yes	164 (54.7)
	No	136 (45.3)
Volunteered/worked with adults ≥ 65 years	Yes	85 (28.3)
	No	215 (71.7)

Note. SD = standard deviation.

Table 2 shows the correlation matrix. Caregiving readiness was negatively correlated with intergenerational interactions ($r = -0.20$, $p < 0.01$) and positively correlated with age ($r = 0.14$, $p < 0.05$). Ageing expectations were not significantly correlated with caregiving readiness but were negatively correlated with age ($r = -0.17$, $p < 0.01$) and intergenerational interactions ($r = -0.13$, $p < 0.05$). These correlations were modest and should be interpreted cautiously.

Table 2. Correlation matrix

Variable	1	2	3	4	5	6	7	8
1. Caregiving Readiness (CR)	1.000							
2. Ageing Expectations (AE)	0.111	1.000						
3. Intergenerational Interactions Index (IGI)	-.204**	-.126*	1.000					
4. Age (years)	.140*	-.167**	-.232**	1.000				
5. Female	0.015	-0.051	0.087	-0.051	1.000			
6. Malay	0.027	0.01	0.102	0.120*	0.057	1.000		
7. Private Institution	0.028	-0.093	-0.006	0.069	-.197**	0.03	1.000	
8. Science & Technology	-0.073	0.013	0.038	0.05	-.117*	.162**	0.025	1.000

Note. Significance level (2-tailed): * $p < .05$, ** $p < .01$. Variables were coded as follows: gender (1 = male, 2 = female), ethnicity (1 = non-Malay, 2 = Malay), institution type (1 = public, 2 = private), and field of study (1 = social sciences, 2 = science and technology).

Diagnostic checks indicated no serious multicollinearity, with centred VIF values ranging from 1.056 to 1.145. The Jarque–Bera test on the OLS residuals was not significant at the 5% level (Jarque–Bera = 4.285, $p = 0.117$). The White test was not significant at 5% but marginal at 10% (F-statistic $p = 0.056$; Obs*R-squared $p = 0.065$).

Table 3 presents the regression results. Across model specifications, intergenerational interactions were negatively associated with caregiving readiness ($\beta = -0.163$ to -0.167 , $p < 0.01$). Ageing expectations showed a small positive association in the OLS and bootstrapped models, but this relationship became non-significant in the robust regression model. Age was positively associated with caregiving readiness, whereas gender, ethnicity, institution type, and field of study were not significant. The interaction between intergenerational interactions and ageing expectations was also non-significant. Overall, the models explained a modest proportion of variance in caregiving readiness ($R^2 = 0.070$ – 0.075), suggesting that the findings should be interpreted as exploratory associations.

Table 3. Regression results for caregiving readiness

Dependent Variable: Caregiving Readiness (CR)				
Independent variable	(1) OLS	(2) OLS with interaction term	(3) Bootstrapped OLS	(4) Robust regression
Age (years)	0.122* (2.032)	0.122* (2.032)	0.122* (2.214)	0.128* (2.054)
Female	0.040 (0.688)	0.042 (0.714)	0.040 (0.641)	0.041 (0.682)
Malay	0.015 (0.262)	0.016 (0.276)	0.015 (0.288)	0.034 (0.559)
Private Institution	0.036 (0.623)	0.036 (0.614)	0.036 (0.612)	0.032 (0.539)
Science & Technology	-0.067 (-1.147)	-0.066 (-1.127)	-0.067 (-1.106)	-0.050 (-0.844)
Intergenerational Interactions Index (IGI)	-0.163** (-2.730)	-0.164** (-2.729)	-0.163** (-2.800)	-0.167** (-2.718)
Ageing Expectations (AE)	0.117* (1.992)	0.117* (1.989)	0.117* (1.984)	0.116 (1.933)
IGI × AE (orthogonalised)		-0.014 (-0.244)		
F-statistic	3.156**	2.760**	3.156**	3.364**
R-squared	0.070	0.071	0.070	0.075
Adj. R-squared	0.048	0.045	0.048	0.052

Note. Regression coefficients are reported as standardized estimates (β). t -statistics in parentheses. Significance level (2-tailed): * $p < .05$, ** $p < .01$. Variables were coded as follows: gender (1 = male, 2 = female), ethnicity (1 = non-Malay, 2 = Malay), institution type (1 = public, 2 = private), and field of study (1 = social sciences, 2 = science and technology). Model 3 uses bootstrapped SEs with 10,000 replications; Model 4 uses the Huber M-estimator.

4. Discussion

This study examined the factors associated with caregiving readiness among undergraduate students, focusing on ageing expectations and intergenerational interactions. Viewed from a role preparation perspective, caregiving readiness represents an anticipatory evaluation of one's ability to assume a possible future caregiver role. The findings demonstrated that intergenerational interactions were more consistently associated with caregiving readiness than ageing expectations. This pattern suggests that direct exposure to older adults may be more salient than general beliefs about ageing when students evaluate their own future caregiving capacity.

The negative association between intergenerational interactions and caregiving readiness should be interpreted cautiously. Greater exposure may make the practical, emotional, and time-related demands of care more visible, leading students to assess their readiness more cautiously. However, this was not directly tested. Other explanations, including difficult caregiving situations, intergenerational conflict, fear of caregiver burden, or emotionally demanding family experiences, are also plausible. As the index measured exposure rather than contact quality or emotional valence, the finding should not be interpreted as evidence that intergenerational interaction itself reduces readiness.

The positive association between ageing expectations and caregiving readiness became non-significant in the robust regression model, suggesting that this relationship was less stable than the association involving intergenerational interactions. The model did not detect a statistically significant interaction between ageing expectations and intergenerational interactions.

The modest explained variance suggests that caregiving readiness may also be shaped by unmeasured psychosocial and family-context factors, such as filial obligation, empathy, prior caregiving experience, socio-economic background, household composition, perceived family expectations, and social support.

5. Conclusion

This study shows that caregiving readiness among Malaysian undergraduates was more consistently associated with intergenerational interactions than with ageing expectations. In the Malaysian context, where family support remains important for later-life care, caregiving readiness has implications for the quality of life of future caregivers and older family members. However, exposure to older adults alone may not necessarily increase readiness. The findings provide preliminary support for structured intergenerational engagement in higher education, particularly programmes that combine contact with older adults, guided reflection, basic ageing knowledge, and discussion of caregiving demands. Such approaches may support more realistic and constructive preparation for future caregiving roles.

Declarations

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