Family History and Adaptation among Centenarians and Octogenarians

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Key Words

Centenarians • Adaptation • Family history • Functional health • Economic dependence

Abstract

Background: The purpose of this study was to analyze various ‘family history’ variables (i.e. childhood health, financial situation while growing up, living with grandparents before age 17, and number of children) among participants of the Georgia Centenarian Study. **Objective:** To determine whether family history variables predict critical outcome areas such as cognitive functioning, activities of daily living, mental health, and economic dependence. **Methods:** A total of 318 older adults (236 centenarians and 82 octogenarians) were assessed with regard to their mental status, ADL (activities of daily living) functioning, depression, family history, loneliness, and perceived economic status. **Results:** Analyses indicated that the number of children significantly predicted the ability to engage in activities of daily living and loneliness. In essence, the more children, the higher the activities of the daily living score and the lower the loneliness scores. In addition, childhood health significantly predicted loneliness. The poorer one’s health in childhood, the higher the loneliness scores. **Conclusion:** The results of this study confirm the importance of distal family history variables on present-day functioning.

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A number of adaptation outcomes have been of interest to gerontologists regarding the study of aging adults, namely the oldest old. These outcomes areas include (but are not limited to) functional health [1], mental health [2], cognitive functioning [2], and economic dependence [3]. In addition, there is a growing interest in the role that early life events play in the psychological well-being of individuals later in life [4].

However, less knowledge exists regarding how other related distal familial variables (i.e. childhood health, financial situation in the family of origin, living with grandparents while growing up, and number of children) influence the above mentioned key outcomes. The purpose of this study was to analyze these ‘family history’ variables in aging adults. These family history variables were analyzed to determine whether they predicted important adaptation areas such as cognitive functioning, activities of daily living, mental health, and economic dependence.

The current research is of value to gerontologists because it provides further understanding of the role that these distal family variables play in later life. Previous research on distal variables influencing developmental out-

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Table 1. Summary of regression analyses for family history variables predicting critical outcomes

Variables	ADL (n = 223)			GDS (n = 233)			Loneliness (n = 111)		
	B	SE	β	B	SE	β	B	SE	β
Childhood health	0.12	0.44	0.02	-0.23	0.17	-0.09	-1.3	0.48	-0.24*, #
Financial situation while growing up	-0.62	0.65	-0.06	-0.07	0.25	-0.02	-0.52	0.72	-0.07
Living with grandparents before age 17	-0.32	0.89	-0.02	0.29	0.33	0.06	0.73	0.97	0.07
Number of children	0.35	0.17	0.13*	-0.03	0.07	-0.03	-0.48	0.18	-0.23*
R ²		0.03			0.01			0.12	

* $p < 0.05$. # Value still significant after Bonferroni correction.

comes has suggested that early life events are significantly related to depression in later life [4]. Therefore, our understanding of the developmental adaptation of older adults can be enhanced by this research.

Adaptational Outcomes and Individual Resources in Aging Adults

Regarding adaptational outcomes, functional health has been a key variable when studying older adults, especially centenarians. When measuring functional health, the ability of older adults to engage in activities of daily living (ADLs; i.e. bathing, eating, dressing, etc.) is often investigated by researchers. Some studies with centenarians have indicated poor ADL functioning, but acknowledge a small subgroup of centenarians as functionally independent [1]. Instrumental ADLs have also been studied, with relation to subjective health [5]. One key finding from this study was that age was found to be a poor predictor of subjective health. Regardless of the individual's age, it does not seem to have a key influence on subjective health. However, this finding is not associated with instrumental activities of daily living. Mental health has also been an area of research interest regarding aging adults. One key focal point for researchers has been the study of depression as it pertains to older adults. Eisses et al. [2] concluded that functional impairment, loneliness, higher education levels, a family history of depression, and neuroticism are associated with depressive symptoms. Cognitive functioning is one of the most widely studied areas in late adulthood. Cognitive functioning is often examined with other variables of interest in research on aging, such as morbidity [1], and risk indicators for depression [2]. In addition to the variables examined, the role of financial resources has also been studied. Goetting et al. [3] sug-

gested that age, marital status, and race have an impact on women's financial resources. However, despite the depth of literature on these aforementioned critical outcome areas, few studies have examined the role that distal influences play in predicting these developmental outcomes.

Theoretical Orientations

When investigating the role that distal influences play in these critical outcome variables in late adulthood, the key theoretical model used in our study is the developmental adaptation model. The developmental adaptation model [6] can help explain the role of these distal variables on current developmental outcomes. The model includes distal developmental influences, proximal influences, and developmental outcomes. The central idea is that distal influences continue to be important in late life, but that these distal influences may be mediated by individual and social resources. This model has two central components found in other models of adult development: a resource component and a life-span/life-course time frame. The developmental adaptation model serves to provide an understanding of how potential developmental trajectories based on life histories as well as present resources influence successful adaptation.

Research Questions

Due to the lack of previous research on the aforementioned variables as well as the use of these variables with the developmental adaptation model, a central open-ended research question was posed. This question was: 'What effects do experiences from the distal past have on functional health, mental health, cognitive functioning, and economic dependence?' Consistent with the developmental adaptation model, we tested distal effects (i.e. childhood experiences) above and beyond proximal (i.e. personality) influences.

MMSE (n = 259)			Perceived economic status (n = 113)		
B	SE	β	B	SE	β
0.33	0.70	0.03	-0.07	0.18	-0.03
-0.00	1.0	0.00	0.36	0.27	0.13
1.3	1.4	0.05	-0.51	0.36	0.13
-0.36	0.27	-0.08	0.05	0.07	0.06
0.01			0.03		

Methods

Participants

This study consisted of 318 older adults (236 centenarians and 82 octogenarians). These participants were part of the interview segment assessing their mental status, ADL functioning, depression, and family history. Another subset of questions was asked to only 182 participants (111 centenarians and 71 octogenarians) who were cognitively able to answer survey questions. Those questions included loneliness, perceived economic status, and personality. Of the total sample, 79.7% were women and 20.1% were men. The majority of participants was Caucasian (81%) and widowed (78.7%).

Measures

There were several measures used in the present study. Functional health was assessed by using the self-care capacity scales from the Duke Older Americans Resources and Service procedures (OARS) [7]. The functional health component of the OARS has evidence of high reliability in our study ($\alpha = 0.85$). Mental health was examined by utilizing two measures, a shortened version of the Geriatric Depression Scale (GDS) [8], and the UCLA Loneliness Scale [9]. The shortened version of the GDS contains 15 items (30 items are on the full scale), and for the present study, the reliability coefficient of this measure was $\alpha = 0.67$. Regarding the UCLA Loneliness Scale, we used a 10-item shortened version of the scale (20 items are on the full scale) and the Cronbach's α for the present study on this measure was $\alpha = 0.81$.

Cognitive functioning was assessed by using the Mini-Mental Status Examination (MMSE) [10]. For some of the self-report measures (loneliness, perceived economic status, and personality), only centenarians with an MMSE >16 were included. There was no participant screening for neurological or psychiatric illness. The perceived economic status of the participant was measured by asking octogenarians and centenarians whether their current financial resources were sufficient enough for them to meet the demands of an emergency. In addition, one item (a distal variable) asked about the financial well-being of the participant's family while growing up. Regarding personality, both the neuroticism and extraversion domains from the revised NEO Personality Inventory [11] were used to assess personality in the present study. The reliability coefficients for these domains were as follows: $\alpha = 0.83$ for neuroticism and $\alpha = 0.60$ for extraversion.

Results

The first research area focused on the effects of several 'family history' variables (childhood health, financial situation while growing up, living with grandparents before age 17, and number of children) on functional health. Blockwise multiple regression analyses were computed with distal variables in the first block. The personality traits were then added in the second block to assess whether significant relationships were maintained after controlling for proximal influences. Analyses indicated that the number of children significantly predicted the ability to engage in activities of daily living ($\beta = 0.136$, $p < 0.05$). In essence, the more children, the higher the activities of the daily living score (table 1). However, when controlling for personality, this distal variable no longer significantly predicted the ability to engage in activities of daily living ($\beta = 0.143$, $p = 0.11$).

The second research area investigated the effects of the same variables on mental health. Results suggested that the number of children also was a significant predictor of loneliness in later life ($\beta = -0.233$, $p < 0.05$). The fewer children one had, the higher the loneliness scores. In addition, childhood health significantly predicted loneliness ($\beta = -0.243$, $p < 0.05$). The poorer one's health in childhood, the higher the loneliness scores. When controlling for personality, these variables still were significant predictors of loneliness ($\beta = -0.213$, $p < 0.05$ and $\beta = -0.248$, $p < 0.05$, respectively). In addition, both extraversion and neuroticism significantly predicted loneliness ($\beta = -0.171$, $p < 0.05$ and $\beta = 0.405$, $p < 0.05$, respectively). In essence, the higher the extraversion score, the lower the loneliness score, and the higher the neuroticism score, the higher the loneliness score. Distal variables did not significantly predict depression, cognitive functioning, or perceived economic status in later life (table 1).

Due to conducting several correlational analyses in the present study, the significance level was adjusted accordingly. Utilizing the Bonferroni correction, the adjusted significant level was alternatively set at $p = 0.01$. With this new value applied to our significant findings, only the result of childhood health predicting loneliness in later life still remains significant ($p = 0.008$; table 1).

Discussion

The purpose of this study was to analyze various 'family history' variables in aging adults. These variables were analyzed to determine whether they predicted selected

critical outcome areas for octogenarians and centenarians.

Regarding functional health, the number of children was positively associated with the ability to engage in daily activities (e.g. showering, dressing, etc.). This finding does make intuitive sense in that the presence of family members can assist older adults in completing these tasks. Our finding here suggests that those adult children who take an active role in caring for their aging parents are directly contributing to higher levels of functional health than those adult children who may be present in the older adult's world, but do not serve as active caregivers.

The number of children also played an important role in loneliness. Our results suggested that having fewer children was associated with higher levels of loneliness. Research has indicated that increasing the size of the social networks (more friendships) of older people can contribute in reducing loneliness [12]. The participants in the current study may have been less lonely simply because they either had children present in the immediate vicinity to offer support and companionship or had children who lived some distance from them, but could be there for them when support was needed.

Childhood health also significantly influenced loneliness in later life. If one's childhood health was poor, then this poor health was predictive of greater loneliness in late adulthood. This finding does make intuitive sense. If an individual is dealing with consistently poor health or even a short bout of intense illness, the individual would probably be quite preoccupied with his/her health, even at the expense of forming close relationships with others. If the individual emerges from this stretch of poor health with few close relationships, this pattern of having few intimate relationships in one's life could contribute to his/her world largely characterized by loneliness.

This finding supports the developmental adaptation model [6]. A distal variable, childhood health, directly influences loneliness. Even though the other significant results in our study (number of children predicting both functional health and loneliness) provide evidence of direct effects of a distal variable (number of children) on adaptational outcomes (functional health and loneliness), this finding regarding childhood health is an intriguing piece of evidence of a variable 'extending its reach' decades into the future of the lives of many older adults.

When controlling for personality, the number of children and childhood health were still significant predictors of loneliness. These results suggest that these distal variables have predictive power above and beyond personality regarding loneliness. It is also worth noting that

both extraversion and neuroticism also significantly predicted loneliness.

The present study contributes to the literature by indicating that distal influences do play a role in adaptational outcomes. Distal effects such as childhood health are still part of these individuals' lives years after these events occurred. As indicated earlier, the findings from the current study are explained well by the developmental adaptation model [6]. The model suggests that events from the distant past do influence a developmental outcome (e.g. loneliness). This connection to the past from the present can add to our understanding of the complex diversity found among older adults.

One key limitation of the present study is that the sample, drawn from the Southeast United States, might not be truly representative of aging adults in other parts of the United States or across various cultures. However, despite this limitation, this investigation allows a further glimpse into how distal family history variables influence present-day indicators of functioning, and can serve as a catalyst for future research on the interplay of distal and proximal variables in other developmental outcomes (e.g. spirituality, perceived optimism, etc.). Additional research on the influence of family history variables on current functioning will help explain a vital psychological part of this rapidly growing segment of our population.

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