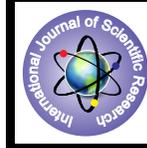


Activities, Social Engagement and Cognitive Decline among Elderly Male



Psychology

KEYWORDS: Elderly men, activities and Social Engagement, Cognitive Decline

Dr. Ankita Sharma

Assistant Professor, IIT Jodhpur, Rajasthan, India

ABSTRACT

'Stay active-stay healthy', 'use it or lose it' are common mantra advised for optimal functioning. Though how far it is really applicable to heterogeneous group of Indian elderly is question. Results of the present study through some light on this issue. It was found that elderly are not a homogenous group, there are significant differences in their demographic condition, level and type of social engagement they are involved in, but contrary to usually held conception there was no significant difference on cognitive functioning. The interaction of age, activities and level of cognitive functioning appear to be significantly different. Level and type of activity is determined by age and other demographic characteristics and cognitive functioning is also predicted by these, hence, it is indicated that enhancement in activities and social engagement may have a role to play in maintaining an adequate level of cognitive functioning among the older men.

Introduction

The old age is perceived as gray period of life and cognitive decline is generally considered as essential feature of old age. Memory decline is seen as the first indication of coming old age. One of the great challenges of the next century is expected to be to complete the architecture of the human life course, to transform old age into a period where the gains outnumber the losses, where labeling old age as the "golden years" is more than a dream. And the current idea for that is gradually becoming more connected to the need to stay young, both in the sense of activity (Katz 2000) and physical appearance (Biggs 2002; Coupland 2007).

Cognitive Functioning

Cognition is something people fear will decline with age. Some cognitive functions increase with age, some peak early and are maintained and others show decline into early adulthood. One of the major aspects of cognitive functioning of older people relates to the age related decline in memory which interferes with day to day activities and has been accepted as an aspect of normal aging. Burke and Mackay (1997) in their review of empirical research on age-related changes in memory and language comment that there is a consistent pattern of spared and impaired abilities in normal old age. Memory performance involving highly practiced skills and familiar information, including factual, semantic and autobiographical information are relatively preserved in old age.

Older adults often notice forgetfulness and other lapses of memory that occur in their daily lives. At all levels of ability, lapses of attention are clearly a part of everyone's life. Some are merely inconvenient, such as missing a familiar turn-off on the highway, and some are extremely serious, such as failures of attention that cause accidents, injury, and loss of life (Robertson, 2003). Cognitive failures interfere with day-to-day life of an individual, his/her independence, self-esteem, dependency on others and ability to maintain and generate new social contacts.

But cognitive failure translated into memory failure can be affected by social support system and social interaction. Harvard School of Public Health researchers (2004) reported that socially active people show low cognitive decline than others. Similarly, Beland, Zunzunegui, Alvarado, Otero and Ser, (2005) reported that respondents with higher level of family ties and social engagement with relatives maintained better cognitive function up until 80 years of age than respondents with low level.

Activities and Social Engagement

Ansiau, Marquie, Soubelet and Ramos (2005) reported individuals who engage in activities that make significant loads on

their cognitive skills show greater maintenance or improvement of their abilities than individuals who are exposed to less complex environment with minimal cognitive loads. Social support is linked to protection against hypertension and depression which are each related to cognitive decline. It has been postulated that because social interaction have essential intrinsic cognitive component and sustain ongoing cognitive engagement, they may contribute to enhanced cognitive functioning (Baltes & Baltes 1990, Rowe & Kahn 1998).

According to WHO (2002) participation in light and moderate physical activities may delay the functional decline. Thus, an active life improves mental health and contributes towards managing disorders like depression and dementia. For the most part, there is no "right" or "wrong" activity, if it makes one feel good physically and mentally. However, there are numerous types of activities. In fact, the "busy ethic" that has shaped modern retirement seems to suggest that any activity will do. Three aspects of activity seem to be of concern with respect to older people - activities related to daily living, activities engaged in to pass leisure time and activities which keep the individual involved in his or her social network. In the Indian context, the social exchanges in a closely knit social circle of relatives and friends appears to be one of the major source of mental stimulation available to a person especially during the last phase of life when the cognitive stimulations from external sources available during the active work life are no longer available.

Rationale of Study

It is apparent that a disjuncture exists between the literature/media portrayals of older people, and the lived experiences of older people themselves. As for cognitive decline associate with old age Deary, Inch, Cross and MacLennan (1997) noted that there are number of questions that need to be answered before trying to claim for understanding the situations of elderly. It may be assumed that individuals who are able to maintain a high level active life and social engagement are likely to be higher on level of cognitive functioning as compared to their counterpart. However, there is not much indication of what kind of link is there between them as old age also involving not one but several life phases and these life phases exhibit different qualities. In present study researcher propose that activities and social engagement challenges persons to communicate effectively and participate in complex interpersonal exchanges. Besides providing a dynamic environment that requires the mobilization of physical and cognitive faculties, activity and social engagement may also indicate to community and family and engender a health promoting sense of purpose, fulfillment and emotional support from relatives and friends. Activities and Social engagement may provide cognitive stimulation that help to maintain cognitive

capacity and lack of that stimulation and could hence lead to cognitive decline.

Objectives

Therefore, the present study aims at exploring **role of activities and social engagement in cognitive decline of elderly males with consideration of demographic characteristics**. The specific objectives are:

1. To explore the age related changes in demographic variables, activities, social engagement, cognitive decline (perceived memory aging and cognitive failure) among elderly.
2. To explore the relationship and prediction of activities and social engagement by demographic characteristics among elderly.
3. To explore the relationship and prediction of cognitive decline by demographic characteristics, activities and social engagement among elderly.

Hypotheses

Following hypotheses were formulated in the light of above literature review.

- H1. Respondents belonging to higher age group would likely to significantly differ in demographic characteristics, activity and social engagement, perceived memory aging, and cognitive failure.
- H2. There would likely to be no correlation of demographic characteristics with activities, social engagement, perceived memory aging, and cognitive failure across age groups.
- H3. There would likely to be significant role of demographic characteristics in prediction of activities and social engagement across age groups.
- H4. There would likely to be negative correlation of activities and social engagement with perceived memory aging, and cognitive failure across age groups.
- H5. There would likely to be significant role of demographic characteristics, activities and social engagement in prediction of perceived memory aging, and cognitive failure across age groups.

Methodology

Participants

The present study was conducted on a sample of 250 elderly men aging 60 and above from eastern Uttar Pradesh. Since the elderly population mostly consists of persons who were retired, hence, identifying and approaching them was difficult. Therefore, random and snowball sampling methods were considered appropriate and used.

Measures

Indian adaptation of Cognitive Failure Scale (Dwivedi & Mishra, 1993) was used to assess everyday cognitive failures related to memory, Memory Complaint Questionnaire developed by Crook, Feher and Larrabee (1992) was used for assessing age-related perceived memory aging. An interview schedule based on Harlow and Cantor (1996) interview schedule, developed by the researcher was used to gain information about the demographic data, level of activity and social engagement, covering themes like, household activities within and outside home, entertainment activities within and outside home, physical activities, cognitive activities and social activities.

Result and Discussion

Present study aimed at exploring the influence of activities and social engagement on cognitive decline of elderly males with consideration of demographic characteristics. Specifically, the first objective of the study was to **'explore the age**

related changes in demographic variables, activities and social engagement, perceived memory aging and cognitive failure', results of one way ANOVA suggested that there were significant differences for income, professional status, marital status, all the social engagement activities except household and entertainment activities within home but not for perceived memory aging and cognitive failure, partially supporting the H1.

Table 1 One Way ANOVA for Demographic Characteristics

		Sum of Squares	df	Mean Square	F
Education	Between Groups	.833	2	.416	.31
	Within Groups	334.271	247	1.353	
	Total	335.104	249		
Income	Between Groups	10.472	2	5.236	5.12**
	Within Groups	247.528	242	1.023	
	Total	258.000	244		
Present Professional Status	Between Groups	10.746	2	5.373	6.63**
	Within Groups	200.154	247	.810	
	Total	210.900	249		
Marital Status	Between Groups	4.835	2	2.417	7.23**
	Within Groups	82.561	247	.334	
	Total	87.396	249		
Family Type	Between Groups	.705	2	.352	1.44
	Within Groups	60.319	247	.244	
	Total	61.024	249		
No. of Dependents	Between Groups	13.065	2	6.533	.73
	Within Groups	1880.206	211	8.911	
	Total	1893.271	213		
Health Status	Between Groups	.594	2	.297	.27
	Within Groups	273.022	247	1.105	
	Total	273.616	249		

* p < .05, ** p < .01

Table 2 Tuckey Post Hoc Test for Demographic Characteristics

Dependent Variable	Age Groups	65-69	70 & Above
Income	60-64 (M= 2.67)	.20	.49*
	65-69 (M= 2.47)	--	.29
	70 & Above (M=2.17)	--	--
Present Professional Status	60-64 (M=1.87)	.40*	.47*
	65-69 (M=1.48)	--	-.07
	70 & Above (M=1.41)	--	--
Marital Status	60-64 (M=1.11)	.03	-.27*
	65-69 (M= 1.08)	--	-.32*
	70 & Above (M= 1.38)	--	--

* p < .05, ** p < .01

Table 3 One Way ANOVA for Social Engagement Activities

		Sum Of Squares	df	Mean Square	F
Household Activities Within Home	Between Groups	21.529	2	10.765	.18
	Within Groups	14361.355	247	58.143	
	Total	14382.884	249		
Household Activities Outside Home	Between Groups	481.088	2	240.544	9.91**
	Within Groups	5995.856	247	24.275	
	Total	6476.944	249		
Entertainment Activities Within Home	Between Groups	267.581	2	133.790	3.38*
	Within Groups	9775.095	247	39.575	
	Total	10042.676	249		
Entertainment Activities Outside Home	Between Groups	712.411	2	356.205	5.14**
	Within Groups	17118.313	247	69.305	
	Total	17830.724	249		
Social Activities	Between Groups	1039.936	2	519.968	4.01*
	Within Groups	31990.208	247	129.515	
	Total	33030.144	249		
Physical Activities	Between Groups	528.555	2	264.277	7.40**
	Within Groups	8820.661	247	35.711	
	Total	9349.216	249		
Cognitive Activities	Between Groups	1181.808	2	590.904	8.09**
	Within Groups	18040.416	247	73.038	
	Total	19222.224	249		

* p < .05, ** p < .01

Table 4 Tuckey Post Hoc Test for Social Engagement Activities

Dependent Variable	Age Groups	65-69	70 & Above
Household Activities Outside Home	60-64 (M= 12.28)	.92	3.25*
	65-69 (M= 11.36)	--	2.32*
	70 & Above (M= 9.03)	--	--
Entertainment Activities Outside Home	60-64 (M= 8.99)	-2.67	1.39
	65-69 (M= 11.66)	--	4.06*
	70 & Above (M= 7.60)	--	--
Social Activities	60-64 (M= 20.22)	-1.69	3.17
	65-69 (M= 21.91)	--	4.86*
	70 & Above (M= 17.05)	--	--
Physical Activities	60-64 (M= 16.90)	1.83	3.53*
	65-69 (M= 17.06)	--	1.69
	70 & Above (M=13.37)	--	--
Cognitive Activities	60-64 (M=25.00)	3.03	5.26*
	65-69 (M=21.96)	--	2.23
	70 & Above (M= 19.73)	--	--

* p < .05, ** p < .01

Table 5 One Way ANOVA for Criterion Variables

		Sum of Squares	Df	Mean Square	F
Perceived Memory Aging	Between Groups	90.240	2	45.120	1.16
	Within Groups	9628.644	247	38.982	
	Total	9718.884	249		
Cognitive Failure	Between Groups	723.878	2	361.939	1.38
	Within Groups	64817.886	247	262.421	
	Total	65541.764	249		

* p < .05, ** p < .01

Result of ANOVA and Tukey post hoc test revealed that 60-64 yrs age group has significantly more income than 70 & above age group. Similarly, 60-64 yrs age group are more involved in work than to 65-69 yrs and 70 & above age group and with increasing age no. of elderly with alive spouse significantly decreases. **This suggest that with increasing age the income decreases as working status change from full time to part time or as retired and more people face bereavement.**

The difference in the level of engagement were generally found after the age of 70 as all the significant differences were between 60-64 yrs and 70 & above, and 65-69 yrs 70 & above. There were no age related differences for the household and entertainment activities within home but the trend indicate toward decreasing activity with increasing age. It appears that the outside home household, entertainment, physical and cognitive activities gradually decline in old age but the significant sharp decline is evident after the age of 70, whereas for social and physical activities there is slight insignificant increase in 65-69 yrs and then again a significant decline appears at age of 70. Against the common notion that with increasing age the functioning deteriorates, it was found that there were no significant differences for level of perceived memory aging or cognitive failure.

The second objective was to *'explore the relationship and prediction of activities and social engagement by demographic variables'* and result of correlation analysis and stepwise regression analysis suggest that education negatively correlated and predicted household activities within home in 60-64 age group and physical activities in 65-69 age groups and explained 9 percent and 11 percent variance respectively, suggesting that the more education the more people do not like to indulge in house chores and physical work in early old age whereas later in age they prefer more house chore as substitute. Also supporting the common notion education does lead to preference and actual cognitive activities.

Results for number of dependents suggest that individuals depending upon elderly significantly influence their level of activity specifically in 65-69 age group, it also appear that the bigger the family size like joint family or extended family, elderly get to do more household activities within and outside, and less entertainment activities outside home. Results suggest that bereaved elderly less engage in household chores specifically in 65-69 age group, negative health status reduces the outside home household activities and cognitive activities also, similarly people still involved in part time or full time work do get involve in cognitive and entertainment activities within home. Hence the H2 was not supported and H3 was partially supported.

All these findings indicate toward the strong role of demographic characteristics in determining the kind of activities elderly get involved in, though none of them explained social activities neither they quite explain entertainment activities of elderly, but it does seem that all the three phases of old age have a distinguished feature as elderly in initial old age seem to not getting affected by their demographic characteristics, as it may be too early for that and this is the transition phase where they still are looking towards the option available to

them for best utilization of their leisure time, whereas in 65-69 years duration, they appear to get influence in determining their activities by their familial role which is influenced by structure of their family: nuclear, joint or extent, whether spouse is alive or not and how many people are dependent on them. Later in age the education level and health status are the dominant characteristics which determine their preference for activities.

Table 6 Correlation between Demographic Characteristics and Social Engagement Activities

	Household Activities Within Home			Household Activities Outside Home			Entertainment Activities Within Home			Entertainment Activities Outside Home		
	60-64 Yrs.	65-69 Yrs	70-75 Yrs	60-64 Yrs.	65-69 Yrs	70-75 Yrs	60-64 Yrs	65-69 Yrs	70-75 Yrs	60-64 Yrs.	65-69 Yrs	70-75 Yrs.
Education	-.264*	-.111	.215	.023	.103	.240*	.095	.175	.169	.158	-.008	.059
Income	-.148	-.109	.340**	-.189	.019	.238*	.018	-.143	-.030	-.023	-.037	.113
Present Professional Status	.150	.011	.016	.138	.177	-.043	-.035	-.167	-.180	.105	.006	.063
Marital Status	.072	-.059	-.091	.058	-.159	-.001	-.014	-.249*	.047	.118	.153	-.029
Family Type	.006	.267*	.034	-.074	.256*	-.164	-.097	-.122	.007	-.128	-.043	.010
No. of Dependents	.280*	-.107	-.091	.023	-.049	.162	-.096	-.121	-.080	.068	.015	-.077
Health Status	.095	-.032	.023	.047	.043	-.232**	.056	.132	-.185	-.136	.033	-.018

* p < .05, ** p < .01

Table 7 Correlation between Demographic Characteristics and Social Engagement Activities

	Social Activities			Physical Activities			Cognitive Activities		
	60-64 Yrs.	65-69 Yrs	70-75 Yrs	60-64 Yrs.	65-69 Yrs	70-75 Yrs	60-64 Yrs	65-69 Yrs	70-75 Yrs
Education	.073	.000	.101	.033	-.153	.023	.280*	.149	.220
Income	.015	-.075	.147	.067	-.131	-.045	.073	.100	.134
Present Professional Status	.125	.101	-.092	-.055	-.087	-.026	.069	.151	-.194
Marital Status	-.014	.085	-.093	.092	.099	-.139	.007	-.059	-.049
Family Type	-.129	-.107	.130	.158	.011	.092	-.054	-.169	.091
No. of Dependents	.037	-.159	.110	-.014	-.102	-.078	-.112	-.264*	-.109
Health Status	-.088	.012	-.012	-.075	-.130	.033	.070	.117	-.241*

* p < .05, ** p < .01

Table 8 Stepwise Regression Analysis for Social Engagement by Demographic Variables

	Age Group	Variable	R	R ²	R ² Change	β	t-value
Household Activities Within Home	60-64	Education	.30	.09	.09	-.30	2.59**
		No. of Dependents	.45	.20	.11	.33	2.96**
	65-69	Family Type	.35	.12	.12	.35	3.02**
		Marital Status	.42	.17	.05	-.23	2.09*
		No. of Dependents	.49	.24	.06	-.27	2.31*
	70-75	Education	.40	.16	.16	.40	3.72**
Household Activities Outside Home	60-64	No Variable Entered					
	65-69	Present Professional Status	.27	.07	.07	.27	2.26*
		Marital Status	.39	.15	.08	-.29	2.47*
		Family Type	.45	.20	.05	.23	2.01*
	70-75	Health Status	.30	.09	.09	-.30	2.64**
		Education	.38	.15	.06	.24	2.17*

Entertainment Activities Within Home	60-64	No Variable Entered					
	65-69	Present Professional Status	.26	.07	.07	-27	2.29*
	70-75	No Variable Entered					
Entertainment Activities Outside Home	60-64	No Variable Entered					
	65-69	No Variable Entered					
	70-75	Family Type	.25	.06	.06	-25	2.14*
Social Activities	60-64	No Variable Entered					
	65-69	No Variable Entered					
	70-75	No Variable Entered					
Physical Activities	60-64	No Variable Entered					
	65-69	Education	.34	.11	.11	-.33	2.90**
		No. of Dependents	.41	.16	.05	-.24	2.04*
70-75	No Variable Entered						
Cognitive Activities	60-64	Education	.26	.07	.07	.26	8.73**
	65-69	No. of Dependents	.28	.08	.08	-.28	2.35*
	70-75	Health Status	.32	.10	.10	-.31	2.82**
		Education	.43	.18	.08	.29	2.65**
	Present Professional Status	.48	.23	.05	-.22	2.04*	

* p < .05, ** p < .01

The third objective of the study was to *explore the relationship and prediction of cognitive decline by demographic variables, activities and social engagement variables*, and result of correlation and stepwise multiple regression analysis suggested that among demographic characteristics, number of dependents is very important variable which negatively correlated and predicted perceived memory aging and cognitive failure, and education and marital status appears to be negatively predicting cognitive failure later in 65-69 and 70 -75 age group.

Table 9 Correlation of Demographic Characteristics and Social Engagement Activities with Criterion Variables

Demographic and Social Engagement Variables	Cognitive Failure			Perceived Memory Aging		
	60-64 Yrs	65-69 Yrs	70-75 Yrs	60-64 Yrs.	65-69 Yrs	70-75 Yrs.
Education	-.033	-.189	-.111	-.149	-.094	-.135
Income	-.104	.009	-.160	.100	-.087	-.075
Present Professional Status	-.096	.059	-.044	-.034	-.136	-.136
Marital Status	-.001	-.021	.052	-.193	.062	.014
Family Type	.217	.059	-.221	.228*	-.133	.004
No. of Dependents	-.284*	.006	.221	-.278*	-.324**	-.167
Health Status	.059	-.149	.065	.061	-.026	.109
Household Activities Within Home	-.044	.130	-.101	-.014	.281*	-.138
Household Activities Outside Home	.068	.159	-.038	-.180	.052	-.310**
Entertainment Activities Within Home	-.040	-.205	.070	-.076	.160	-.431**
Entertainment Activities Outside Home	.116	-.105	-.075	-.215	.085	-.170
Social Activities	-.169	-.014	-.078	-.117	.247*	-.141
Physical Activities	-.045	.092	-.072	-.175	-.012	-.249*
Cognitive Activities	.072	-.188	-.110	.027	.176	-.404**

* p < .05, ** p < .01

Table 10 Step Wise Multiple Regression Analysis for Criterion Variable by Demographic Variables

	Age Group	Variable	R	R ²	R ² Change	β	t-value
Perceived Memory Aging	60-64 Yrs.	No. of Dependents	.28	.08	.08	-.28	2.37*
	65-69 Yrs.	No. of Dependents	.31	.10	.10	-.31	2.68**
	70-75 Yrs.	No Variable entered					
Cognitive Failure	60-64 Yrs.	No. of Dependents	.28	.08	.08	-.28	2.43*
		Family Type	.39	.15	.07	.26	2.32*
	65-69 Yrs.	Education	.24	.06	.06	-.24	2.05*
	70-75 Yrs.	Education	.27	.07	.07	-.27	2.14*
		Marital Status	.37	.14	.07	-.26	2.14*

* p < .05, ** p < .01

Table 11 Step Wise Multiple Regression Analysis for Criterion Variable by Demographic Variables

	Age Group	Variable	R	R ²	R ² Change	B	t-value
Perceived Memory Aging	60-64 Yrs.	Physical Activities	.46	.21	.06	-.26	2.12*
	65-69 Yrs.	Social Activities	.47	.22	.06	.24	2.08
	70-75 Yrs.	Cognitive Activities	.79	.63	.44	-.78	8.04**
Cognitive Failure	60-64 Yrs.	No Variable entered					
	65-69 Yrs.	No Variable entered					
	70-75 Yrs.	No Variable entered					

* p < .05, ** p < .01, Control Variables: Education, Income, Marital Status, Professional Status, Health Status, Family Type, No. of Dependents

This suggest that demand of taking care of other increase the risk of perceiving memory decline and day to day cognitive lapses but the education and spousal support help to prevent from these lapses, whereas physical activities in initial years and cognitive activities in later years prevent from perceived memory decline. Involvement in social activities could give opportunity for more comparison to others abilities and hence increased perception of memory decline though contrary to claims made by Bassuk and colleagues (1999) none of the activities in social engagement activity predict actual cognitive lapses and failure. Hence the H4 and H5 got partially supported.

All these results indicate toward the possibility that mental or physical decline does not necessarily have to occur. Persons can remain vigorous, active and dignified until their eighties or even nineties. This is quite possible if they take adequate care of themselves right from their middle age years. The education, social support, life style including exercise, diet, and regular health check-ups can help people to enjoy meaningful and active life.

Conclusion: Contrary to earlier concept and researches that

portrayed the later years of life as period of decline and degeneration, the behavioral scientists in the recent years have been reporting more positive findings in the mental, emotional and personality domains of human functioning in the aged which conclude that most people function well psychologically at least up to the age of 75 or so (Labouvie-Vief, 1985, Rybash, Hoyer, & Roodin, 1996, Perlmutter, 2008). Present study also suggests that there are no significant changes till the age of 70.

There is hope which exists not only because of scientific and cultural progress, but also because each individual can be a powerful creator of aging well, even in the face of increasingly limited resources. Aging individuals can adopt strategies of successful aging. There is growing evidence, for instance, that people can find effective strategies of life management like selective optimization and compensation in the face of the reduced reserves and adaptive fitness (Baltes & Baltes, 1990) and could best utilize their leisure time with productive activities and preserve their mental health and cognitive functioning.

REFERENCE

Ansiou, D., Marquet, J.C., Soubelet, A., & Ramos, S. (2005). Assessment and promotion of work ability, health and well-being of ageing workers relationships between cognitive characteristics of the job, age, and cognitive efficiency. *International Congress Series*, 1280, 43-48. | Baltes, P. B., & Baltes, M. M. (1990). Psychological perspectives on successful aging: The model of selective optimization with compensation. In P. B. Baltes & M. M. Baltes (Eds.), *Successful Aging: Perspectives from the Behavioral Sciences* (pp. 1-34). New York: Cambridge University Press. | Bassuk, S. S., Glass, T. A., & Berkman, L. F. (1999). Social disengagement and incident cognitive decline in community-dwelling elderly persons. *Ann Intern Med*, 131, 165-173. | Biggs, H. (2002). The ageing body. In M. Evans & E. Lee (eds.), *Real Bodies. A Sociological Introduction* (pp. 167-184). Houndmills: Palgrave. | Coupland, J. (2007). Gendered discourses on the problem of ageing: Consumerized solutions. *Discourse and Communication*, 5(1), 37-61. | Labouvie-Vief, G. (1985). Intelligence and cognition. In J. E. Birren & K. W. Schaie (Eds.), *Handbook of the psychology of aging* (2nd ed., pp. 500-530). New York: Praeger. | Perlmutter, M. (2008). *Lure life potential*. Washington: Gerontological Society of America. | Robertson, I. H. (2003). The absent mind attention and error. *The Psychologist*, 16(9), 476-479. | Rybash, J. M., Hoyer, W. J., & Roodin, P. A. (1996). *Adult cognition and aging*. New York: Oxford Press. |