



Clusters of midlife women identified by cognitive symptoms

Eun-Ok Im^{a,*}, Yun Hu^{a,b}, Ching-Yu Cheng^{a,c}, Young Ko^d, Eunice Chee^e, Wonshik Chee^a

^a Duke University, School of Nursing, 307 Trent Dr., Durham, NC, 27710

^b Shanghai Jia Tong University, South Chongqing Road, NO. 227, Building 1, 209, Shanghai

^c Chang Gung University of Science and Technology, 261 We-hua 1st Road, Kwei-shan, Tao-yuan, Taiwan

^d Gachon University, School of Nursing, Incheon, South Korea

^e North Carolina State University, School of Engineering, Biomedical Engineering Department, Engineering Building III, 911 Oval Drive, Campus Box 7115, Raleigh, NC 27695

ARTICLE INFO

Keywords:

Cognition
Symptom
Cluster analysis
Middle aged
Women
Race/ethnicity

ABSTRACT

Objectives: The study aimed to identify clusters of midlife women by their cognitive symptoms and to examine racial/ethnic differences in the clusters.

Study design: This secondary analysis was conducted on the data from 1054 midlife women of multi-ethnic groups in two Internet studies (conducted from 2005 to 2013).

Main outcome measures: Only the data from the questions on background characteristics, health status, and menopausal status and the Cognitive Symptom Index for Midlife Women were used for this secondary analysis. The data were analyzed using factor analyses, hierarchical cluster analyses, chi-square tests, multinomial logistic analyses, and analyses of covariance.

Results: Four clusters were extracted: the low total symptom group (Cluster 1; 49.9%), the low-moderate total symptom group with high tertiary symptoms (Cluster 2; 17.3%), the high-moderate total symptom group with low tertiary symptoms (Cluster 3; 21.2%); and the high total symptom group (Cluster 4; 11.7%). There were significant differences in the level of education, employment status, family income, marital status, social support, the country of birth, race/ethnicity, body mass index, perceived general health, diagnosed disease(s), access to health care, and menopausal status among the clusters ($p < .01$). There were significant racial/ethnic differences in the total numbers and total severity scores of tertiary symptoms in Cluster 1. Also, there were significant racial/ethnic differences in individual symptoms in each cluster.

Conclusions: Racial/ethnic differences in midlife women's cognitive symptoms and multiple factors that might differently influence their cognitive symptoms need to be considered in health care for midlife women in menopausal transition.

1. Introduction

As women become aged, they begin to have memory problems, and memory problems are prevalent in midlife [1,2]. In a study by Mitchell and Woods [2], 60% of the participants reported memory changes during the past few years, and they indicated problems in remembering words and numbers, interruptions in everyday behavior (related to loss of memory), concerns on concentration, and needs for memory aids. In a longitudinal study by the Study of Women's Health Across the Nation (SWAN) team, *peri*-menopause was found to be significantly associated with self-reported forgetfulness [1]; 31% of pre-menopausal, 44% of early or late *peri*-menopausal and 42% of naturally post-menopausal women indicated their symptoms of forgetfulness.

Despite the high prevalence rate of cognitive symptoms experienced by midlife women in their menopausal transition, racial/ethnic differences in the cognitive symptoms have rarely been determined, especially among multi-ethnic groups of midlife women [3]. Although racial/ethnic differences in hormone levels during the menopausal transition could be vague, significant racial/ethnic differences in sex hormone-binding globulin (SHBG) and free androgen index (FAI) among a multi-ethnic group of pre-menopausal and *peri*-menopausal women have been reported [4]. In other words, these hormonal variances could influence racial/ethnic variances in the cognitive symptoms [5].

A cluster analysis could be useful in identifying sub-groups with similar characteristics, which allows researchers to identify the

* Corresponding author at: School of Nursing, Duke University/307 Trent Drive DUMC 3322, Durham, NC, 27710, United States.

E-mail addresses: eun-ok.im@duke.edu (E.-O. Im), nursing@shsmu.edu.cn (Y. Hu), cycheng@mail.cgu.edu.tw (C.-Y. Cheng), youngko@gachon.ac.kr (Y. Ko), echee@ncsu.edu (E. Chee), wonshik.chee@duke.edu (W. Chee).

<https://doi.org/10.1016/j.maturitas.2018.01.013>

Received 14 September 2017; Received in revised form 23 December 2017; Accepted 12 January 2018
0378-5122/ © 2018 Elsevier B.V. All rights reserved.

Table 1
Background characteristics of the participants by cluster.

Variables	Cluster1 n(%)	Cluster2 n(%)	Cluster4 n(%)	Cluster3 n(%)	Total N (%)	p-value
Age (Mean \pm SD)	48.84 \pm 5.84	49.92 \pm 5.42	48.70 \pm 5.90	48.61 \pm 4.91	48.97 \pm 5.69	0.09
Education						
\leq high school	53 (37.6)	23 (16.3)	39 (27.7)	26 (18.4)	141 (13.38)	< 0.01
> high school	471 (51.8)	159 (17.4)	184 (20.2)	97 (10.6)	913 (86.62)	
Employment						< 0.01
Yes	413 (52.3)	135 (17.1)	167 (21.1)	75 (9.5)	790 (75.0)	
No	113 (42.8)	47 (17.8)	56 (21.2)	48 (18.2)	264 (25.0)	< 0.01
Family Income						
Very hard	62 (33.5)	28 (15.1)	48 (25.9)	47 (25.4)	185 (17.6)	
Somewhat hard	176 (43.3)	75 (18.5)	101 (24.9)	54 (13.3)	406 (38.5)	
Not hard	288 (62.2)	79 (17.1)	74 (16.0)	22 (4.8)	463 (43.9)	0.13
Marital status						
Married/partnered	371 (52)	119 (16.7)	150 (21.0)	74 (10.4)	714 (67.7)	
Non-married/separated	155 (45.6)	63 (18.5)	73 (21.5)	49 (14.4)	340 (32.3)	0.18
Number of children						
None	114 (59.4)	31 (16.1)	30 (15.6)	17 (8.9)	192 (18.2)	
1–2	275 (50.7)	85 (15.7)	118 (21.8)	64 (11.8)	542 (51.4)	
More than 3	137 (42.8)	66 (20.6)	75 (23.4)	42 (13.1)	320 (30.36)	< 0.01
Social support						
None of time	75 (43.9)	29 (17.0)	36 (21.1)	31 (18.1)	171 (16.2)	
A little of the time	120 (44.4)	37 (13.7)	71 (26.3)	42 (15.6)	270 (25.6)	
Some of the time	128 (46.7)	58 (21.2)	53 (19.3)	35 (12.8)	274 (26.0)	
Most of the time	203 (59.9)	58 (17.1)	63 (18.6)	15 (4.4)	339 (32.2)	< 0.01
Country of birth						
US	376 (46.4)	159 (19.6)	171 (21.1)	105 (12.9)	811 (76.9)	
Outside of US	150 (61.7)	23 (9.5)	52 (21.4)	18 (7.4)	243 (23.1)	< 0.01
Race/ethnicity						
Hispanic	106 (41.6)	48 (18.8)	71 (27.8)	30 (11.8)	255 (24.2)	
Asian	161 (69.1)	12 (5.2)	46 (19.7)	14 (6.0)	233 (22.1)	
African American	124 (19.6)	60 (24)	38 (15.2)	28 (11.2)	250 (23.7)	
White	135 (42.7)	62 (19.6)	68 (21.5)	51 (16.1)	316 (30.0)	< 0.01
Body Mass Index (kg/m2)						
Normal (< 25)	243 (57.4)	59 (13.9)	85 (20.1)	36 (8.5)	423 (40.1)	
Overweight (25 to < 30)	131 (49.4)	51 (19.2)	56 (21.1)	27 (10.2)	265 (25.1)	
Obese (\geq 30)	152 (41.5)	72 (19.7)	82 (22.4)	60 (16.4)	366 (34.7)	< 0.01
Perceived general health						
Unhealthy	63 (31.2)	37 (18.3)	51 (25.2)	51 (25.2)	202 (19.2)	
Don't know	25 (32.5)	14 (18.2)	18 (23.4)	20 (26)	77 (7.3)	< 0.01
Healthy	438 (56.5)	131 (16.9)	154 (19.9)	52 (6.7)	775 (73.5)	
Diagnosed disease(s)						< 0.01
Yes	184 (39.0)	97 (20.6)	116 (24.6)	75 (15.9)	472 (44.8)	
No	342 (58.8)	85 (14.6)	107 (18.4)	48 (8.2)	582 (55.2)	< 0.01
Access to health care						
Yes	439 (48.1)	170 (18.6)	202 (22.1)	102 (11.2)	913 (96.6)	< 0.01
No	87 (61.7)	12 (8.5)	21 (14.9)	21 (14.9)	141 (13.4)	
Menopausal Status						< 0.01
Pre-	269 (90.9)	21 (7.1)	6 (2.0)	0 (0)	296 (28.1)	
Early/late peri	100 (29.4)	100 (29.4)	123 (36.2)	17 (5.0)	340 (32.3)	
Post	157 (37.6)	61 (14.6)	94 (22.5)	106 (25.4)	418 (39.7)	
Total	526	182	223	123	1054	

Cluster 1 = the low total symptom group; Cluster 2 = the low-moderate total symptom group with high tertiary symptoms; Cluster 3 = the high-moderate total symptom group with low tertiary symptoms; and Cluster 4 = the high total symptom group.

association of specific factors to being included in the category [6]. Subsequently, a cluster analysis could help identify the association of race/ethnicity to cognitive symptoms experienced by midlife women during their menopausal transition, and give future directions for effective interventions on cognitive symptoms in midlife racial/ethnic minority women [6]. Furthermore, a cluster analysis predicts behaviors/characteristics of the sub-groups on the basis of the participants' membership to the sub-groups (with specific common characteristics). Thus, a cluster analysis helps identify risk groups and approaches to efficiently decrease the risks by intervening the common characteristics of the sub-groups [6].

No study in the literature identified through PUBMED, however, has

examined clustering of cognitive symptoms, especially among multi-ethnic groups of midlife women. Rather, a few cluster analyses have been conducted on general menopausal symptoms, including physical and psychological symptom profiles [7–9] or menopausal symptoms experienced by breast cancer survivors [10,11]. Cluster analyses could be conducted by people or by symptoms. Cluster analyses by people help identify risk groups while cluster analyses by symptoms could help identify the associations of various co-existing symptoms (e.g., how sleep disturbances influence memory problems) [6]. Yet, most of the few cluster analyses have been done only by symptoms. For instance, the cluster analysis by Terauchi et al. [9] reported three components that defined the variance of physical and psychological symptom

Download English Version:

<https://daneshyari.com/en/article/8283872>

Download Persian Version:

<https://daneshyari.com/article/8283872>

[Daneshyari.com](https://daneshyari.com)