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Health-related quality of life in sandwich generation Iranian women

AZADEH ZANGENEHPOUR[1, B, E, F], PARVIN ABEDI[2, A, D, E],
ORCID ID: 0000-0002-4373-5758 ORCID ID: 0000-0002-6980-0693

MOJGAN JAVADNOORI[3, A, D, E–G], AMAL SAKI MALEHI[4, C, D]
ORCID ID: 0000-0001-7645-3629 ORCID ID: 0000-0002-0952-5861

[1] Department of Midwifery, School of Nursing and Midwifery, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
[2] Menopause Andropause Research Center, Department of Midwifery, School of Nursing and Midwifery, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
[3] Reproductive Health Promotion Research Center, Department of Midwifery, School of Nursing and Midwifery, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
[4] Department of Biostatistics and Epidemiology, School of Public Health, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

A – Study Design, **B** – Data Collection, **C** – Statistical Analysis, **D** – Data Interpretation, **E** – Manuscript Preparation, **F** – Literature Search, **G** – Funds Collection

Summary **Background.** Women play an important role in family caregiving, but there is inconclusive information about the effect of caregiving on women's quality of life. The contradictory effects of caregiving on the physical and emotional health of caregivers have been reported.

Objectives. The main objective of this study was to investigate the relationship between health-related quality of life (HRQoL) and multi-generational caregiving.

Material and methods. This is a case-control study conducted in Ahvaz, Iran, on 360 family caregiver women: 180 women as sandwich generation caregivers who cared for family members in addition to caring for their own children, at least 21 hours per week for 6 months; and 180 women in the control group who only cared for their own children. Health-related quality of life was compared in the two groups. The two groups were matched regarding age, the number of children and socio-economic status. Data was analyzed using the chi-square test and ANCOVA test.

Results. There was no significant difference between the sandwich generation and control groups in terms of the total score of health-related quality of life and its eight domains, as well as the scores of physical and mental health component summaries.

Conclusions. It may be suggested that HRQoL is not negatively affected by sandwich generation caregiving in Iranian women. Cultural and religious factors prevent significant negative effects on health-related quality of life.

Key words: quality of life, caregivers, women, long-term care.

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Background

Today, despite the increase in life expectancy in most countries, numerous health and social factors have been involved in the reduction of women's quality of life [1]. Being middle aged is a period with a combination of challenges and opportunities for health care in a woman's life [2]. This midlife period is characterized by a complex interplay of multiple roles [3].

The numbers of persons who need informal care are increasing as a result of the growing elderly population [4]. Informal care means caregiving to older and dependent persons by a person who had a social relationship with the care recipient without payment [5]. According to evidence from the 1990s, 30% of women have been stuck between the needs of two generations at the same time [6]. Most often, caregiving is done by the adult women of a family, and this responsibility is not equally shared among family members [7]. Sandwich generation caregiving (SGC) is a phenomenon in which a person takes the responsibility to care for his/her children and an adult person simultaneously – usually a sick/disabled elderly person: their parents, parents-in-law, grandparents or grandchildren [8].

The contradictory effects of caregiving on the health of caregivers have been reported in literature. It is expected that a multi-generation caregiver is more vulnerable to diseases due to her/his involvement in caregiving activities [9]. It is assumed that SGC has a negative impact on the physical, emotional and financial dimensions of caregivers. Some studies found higher levels of anxiety [10] and depression [11], chronic diseases [12] and low quality of life [11] among sandwich generation caregivers in comparison to other caregivers. In addition, it is reported that it reduces the quality of caring for children [13] and the quality of marital relationships for caregivers [14]. Being a member of SGC affects the profession and many aspects of the caregivers' lives, their aging parents' lives, as well as the socialization process of their children and family [15]. On the contrary, some studies have reported the benefits, rewards and satisfaction of the caregiving role. They have shown that caregivers are not under pressure and stress in all aspects [16]. Mutual support for the caregivers by those who are cared for, as well as financial and emotional support by the elderly, are some of the positive effects of SGC [10]. Some studies report reduced mortality rates in caregivers compared to non-caregivers and conclude that most reports have focused on adverse effects of SGC, and the positive effects of caregiving are ignored [17].

The concept of health-related quality of life (HRQoL) includes perceived physical and mental health and is widely used as a valid tool reflecting upon unmet healthcare needs [18]. Previous studies on HRQoL among Iranian women showed a moderate level of physical and mental health in reproductive-aged women [19] and a decreased QoL in post-menopause women [20]. Women's quality of life has not yet been studied from this perspective in Iran. This study investigated HRQoL in sandwich generation women and their potential problems in the Iranian context.

Objectives

The aim of this study was to investigate the relationship between HRQoL and sandwich generation caregiving in Iran. Another part of the study that investigated the relationship between household caregiving and chronic diseases in sandwich generation women was published separately [12].

Material and methods

Study design

This is a case-control study.

Setting

This study was conducted on women attending healthcare centers in Ahvaz, the capital city of the Khuzestan province in the southwest of Iran. Sampling was started in August 2015 and was completed in December 2015.

Participants

The case group was made up of sandwich generation caregivers who cared for one or more family members (for example their parents, parents-in-law, grandchildren and other relatives) and their own child/children simultaneously. The control group was made up of those who only cared for their own child/children.

The two groups were matched regarding age, number of children and socioeconomic status. The inclusion criteria for the sandwich generation women were caring for one or more family members in addition to caring for their own children at least for 21 hours per week for a duration of 6 months. The exclusion criteria were special diseases requiring special care, such as cancer, a caregiver's physical or mental disability, pregnancy or caring for people other than family members outside one's home.

Measurement

HRQoL, its eight domains and two summaries were the main study variables.

The HRQoL-SF 36 is a short form questionnaire including 36-items which evaluate physical and mental health. It consists of eight domains: limitations in physical activities because of health problems (physical functioning), limitations in social activities because of physical or emotional problems (social functioning), bodily pain, vitality, general health perceptions, general mental health, limitations in usual role activities because of physical health problems (role-physical), limitations in usual role activities because of emotional problems (role-emotional). The questionnaire also has two brief subscales that assess physical and mental health. The physical component summary includes physical functioning, role-physical, bodily pain and general health perception. The mental component summary includes social functioning, role-emotional, vitality and general mental health [21]. The scale scores range from 0 to 100, with higher scores indicating better quality of life [22]. Its translation, cultural adaptation, validity and reliability have been proven by Iranian researchers [21].

The Iran-specific socioeconomic status questionnaire was used to collect demographic data. It consisted of six questions about the head of the household's personal information, his/her spouse's personal information, their housing status, the price of their place of residence, their amenities and leisure time and whether they owned a car and/or a personal computer. In order to classify them into two groups with appropriate and inappropriate socioeconomic status, a cutoff point of 16 was considered [23].

Sampling method

Three public healthcare centers in the east (1, 4, and 7) and three in the west (3, 5, and 9) of the city were selected randomly. In each center, case and control groups were purposefully enrolled.

The researcher (A Z) visited the healthcare centers on a daily basis for 6 months and selected eligible participants. After explaining the objectives of the study to the participants, and guaranteeing the confidentiality and anonymity of their personal information, they were asked to sign a written consent form indicating their desire to participate in the study.

Sample size

The sample size was considered as 179 members for each group after a pilot study with a power of 90%. Finally, 180 participants were recruited into each group.

Ethical consideration

The study was approved by the Ethics Committee of Ahvaz Jundishapur University of Medical Sciences (Ethics Code: IR.AJUMS.REC.1394.278).

Statistical methods

A chi-square test was used to compare the baseline characteristics between the two groups. Analysis of all domains and summaries of the HRQoL and total scores were adjusted for significant baseline characteristics using ANCOVA. All statistical analyses were performed using SPSS version 22 (IBM Corp., Armonk, NY, USA) and STATA version 12 (STATA Corporation, College Station, TX). A significance threshold of $p < 0.05$ was used in all analyses.

Results

Most of the participants in both groups were 30 to 50 years of age (55.6%), were caring for 2 to 4 children (76.2%), had a good socioeconomic status (66.7%) and were married housewives with less than a high school education (Table 1).

Table 1. Demographic characteristics of the participants in two groups

Variables		SGC group *n* = 180	Control group *n* = 180	*p*
		n (%)		
Marital status*	married divorced widow	175 (97.2) 4 (2.2) 1 (0.6)	171 (95) 5 (2.8) 4 (2.2)	$p = 0.376$
Employment status*	house-wife employed retired	155 (86.1) 23 (12.8) 2 (1.1)	129 (71.7) 46 (25.6) 5 (2.8)	$p = 0.002$
Education*	illiterate < diploma diploma academic	31 (17.2) 83 (46.1) 47 (26.1) 19 (10.6)	12 (6.7) 75 (41.7) 47 (26.1) 46 (25.6)	$p = 0.0001$

Table 1. Demographic characteristics of the participants in two groups

Variables		SGC group *n* = 180	Control group *n* = 180	*p*
		n (%)		
Age (year)**	< 30 30–50 > 50	32 (17.8) 100 (55.6) 48 (26.7)	32 (17.8) 100 (55.6) 48 (26.7)	
Number of children**	1 2–4 > 4	52 (28.9) 121 (76.2) 7 (3.9)	52 (28.9) 121 (76.2) 7 (3.9)	
Socio-economic status**	good weak	120 (66.7) 60 (33.3)	120 (66.7) 60 (33.3)	

* Chi-square test, ** Matching factors.

Most of the caregivers were supporting an adult in addition to their own children and were caring for them 107.52 ± 67.23 hours per week on average and for 95.27 ± 86.47 months since the beginning of caregiving (Table 2).

The highest and the lowest scores for sandwich generation caregivers belonged to social functioning (72.01 ± 30.79) and limitations in usual role activities because of physical health problems (role-physical) (51.94 ± 39.41), respectively. The highest and the lowest scores in the control group belonged to physical functioning (73.80 ± 27.21) and limitations in usual role activities because of physical health problems (role-physical) (53.33 ± 37.96), respectively.

No significant differences were found between sandwich generation women and the control group in terms of the eight domains, physical and mental component summaries and total scores of the HRQoL ($p > 0.05$) (Table 3).

Table 2. Characteristic of care in sandwich generation group

Variable		*n* (%)		
Care recipients	grandchild	48 (26.7)		
	adult	117 (65)		
	grandchild and adult	15 (8.3)		
Care duration	per week (hours)	**Minimum**	**Maximum**	**Mean ± SD**
		21	168	107.52 ± 67.23
	(months)	6	480	95.27 ± 86.47

Table 3. Comparison of the eight domains and total score of HRQoL and its two subscales (summaries) in two groups

Variable*	Sandwich generation caregivers (*n* = 180)			Control group (*n* = 180)			ANCOVA
	Mean ± SD	Min	Max	Mean ± SD	Min	Max	
Physical functioning	68.52 ± 24.98	0	100	73.80 ± 27.21	5	100	$p = 0.372$
Role – physical	51.94 ± 39.41	0	100	53.33 ± 37.96	0	100	$p = 0.914$
Role – emotional	59.59 ± 41.70	0	100	54.98 ± 41.91	0	100	$p = 0.350$
Vitality	55.34 ± 22.44	0	100	59.08 ± 22.58	0	100	$p = 0.448$
General mental health	62.42 ± 21.65	12	100	64.18 ± 22.28	0	100	$p = 0.852$
Social functioning	72.01 ± 30.79	0	100	71.45 ± 28.25	0	100	$p = 0.541$
Bodily pain	63.59 ± 29.97	0	100	64.06 ± 29.21	0	100	$p = 0.407$
General health perception	54.49 ± 24.07	0	100	58.90 ± 23.80	0	100	$p = 0.851$
Physical component summary	59.84 ± 23.20	6.25	100	62.17 ± 22.68	7.50	100	$p = 0.771$
Mental component summary	62.43 ± 22.31	4.25	99.00	62.54 ± 21.54	13.12	97.25	$p = 0.995$
Total score of HRQoL	61.00 ± 19.84	15.57	97.50	63.50 ± 19.71	18.47	97.22	$p = 0.646$

Comparing the two groups adjusted by Education and Employment.

Discussion

This study investigated whether HRQoL is affected by caregiving in sandwich generation women. The results showed no relationship between HRQoL and SGC. Several studies found the same results [24, 25]. However, some other studies have indicated better health conditions [26, 27] or lower HRQoL in multi-generation caregivers [11, 28–30]. It has been reported that both the benefits and adverse effects of multi-generation caregiving can be experienced by these women [31]. Evans et al. reported that these women may utilize some strategies to achieve a balance within and between roles through a complex process [32].

In addition, both physical and mental component summaries, as well as the eight domains of HRQoL, were not significantly different between the sandwich generation caregivers and the control group. However, in another part of this study, the rate of chronic diseases in the sandwich generation was more than that in the control group [12]. Some previous studies found opposite results [15]. In the study conducted by Kurata and Ojima, the physical health of household caregivers was less than others. Perceived physical conflicts between household care providers and other caregivers (including household caregivers, nurses and family doctors, as well as care managers) showed a significant difference between the groups [33]. In a study carried out in Iran, half of elderly female caregivers (68.9%) showed a worse condition in perceived care pressure [34]. Regarding mental health, Roth et al. found that household caregivers reported worse symptoms of depression than non-caregivers [25]. The different findings could result from the different age range of the participants in their study, whose average age was above 60, while the age of participants in our study ranged from 30 to 50. Schulz and Sherwood also found conflicting results with

our study in this regard [35]. The domains of HRQoL are influenced by individuals' expectations and perceptions, as well as life satisfaction. Religious beliefs and cultural factors, on the other hand, have an important influence on perceiving the nature of caregiving as an acceptable and satisfying responsibility [27]. Yang et al. reported subjective caregiver burden as the strongest predictor of both the physical and mental domain of HRQoL [29].

To our knowledge, no similar studies have been found for comparison of all domains of HRQoL between sandwich generation caregivers and other caregivers. This is the first study that has examined HRQoL in SGC females in Iran. Matching of the two groups in terms of three important demographic factors, i.e. age, number of children and socio-economic status, is one of the strengths of this study. This study, however, has some limitations. The probable effects of some other confounding variables, such as the degree of dependency of the care recipients or family arrangement (nuclear vs extended families), were not investigated in this study. These factors can be addressed in further studies.

Conclusions

This study showed that SGC females do not necessarily experience worse HRQoL. It may be suggested that HRQoL is not negatively affected by SGC in Iranian women. Cultural and religious factors probably compensate for the negative effects on HRQoL via moderating or mediating mechanisms. Thus, household caregiving can be supported as an accepted solution for reducing the burden on health systems, which is justified economically, emotionally, culturally and socially. However, sandwich generation caregivers may experience exhaustion or role conflict. Therefore, it is essential to provide training programs for these women concerning self-care and how to manage their roles.

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Address for correspondence:
Mojgan Javadnoori, PhD, Assoc. Prof.
Reproductive Health Promotion Research Center
Department of Midwifery
School of Nursing and Midwifery
Ahvaz Jundishapur University of Medical Sciences
Ahvaz
Iran
Tel.: +98 9163082048
E-mail: mojganjavadnoori@gmail.com