



The Quality Of Life Of Informal Caregivers Of Older People With Type 2 Diabetes Mellitus In Indonesia: A Cross-Sectional Study

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Abstract. This study aimed to assess the Quality of Life (QoL) of family caregivers of older persons with type 2 diabetes mellitus (T2DM) at home. The study utilized the 33-item Quality of Life Index to evaluate the QoL of 394 family caregivers caring for older persons with T2DM under the six Community Health Centers working area in City of Medan, Indonesia. Data analysis involved descriptive statistics and chi-square tests. The study found that the caregivers aged between 60 and 74 years reported a significantly higher prevalence of poor QoL (78.9%). Male caregivers were more likely to report poor QoL (84.7%) compared to female caregivers (45.0%). Unmarried caregivers have good QoL (100%) compared to widowed and married status (24% and 48.7%). Low level of education has poor QoL 83.1%. Spouse caregiver has poorer QoL compared to child and other relative's relationships. Those caring for older persons with T2DM for less than 5 years (68.7% for 1-2 years and 71.9% for 3-5 years) reported poorer QoL compared to those caregiving for more than 6 years (44%). Caregivers who look after older adults with two and more than three chronic illnesses and complications tend to have a lower QoL. This study highlights that older age, male gender, married/widowed, elementary school, caregiver spouse, shorter caregiving duration (less than 5 years), and having comorbid and complication tend to have poorer QoL.

Keywords: Quality of Life, family caregivers, type 2 diabetes mellitus, elderly.

1. INTRODUCTION

Type 2 Diabetes Mellitus (T2DM) is disease of aging [1]. As the aging population around the world continues to grow, more older people are living with diabetes [2]. In Indonesia, the number of people with diabetes mellitus in 2021 is 19.47 million people, and it is predicted to rise to 28.6 million by 2045 [3]. Indonesia has been ranked fourth as having the highest number of people with diabetes mellitus in the world after China, India, and America [3].

Type 2 Diabetes Mellitus in older person is requiring self-management and continuous care from family member and friends [4]. Family caregivers can perform activities such as helping with medication management, preparing meals, reminding older persons to check blood glucose levels daily, or by appointment, or to drive older persons to health services as scheduled, prevent and manage long-term complications, and address the psychosocial challenges inherent in living with a chronic condition [5, 6].

The demands of caregiving in managing diabetes mellitus in the elderly have been proven to burden the physical, social, financial, and emotional health of Family Caregivers (FCs) [7, 8] Ripoll et al., [7] revealed that caregiver burden remained persistently high for the

frail elderly patients with diabetes. Previous research suggests that caregivers may experience depression, stress and frustrations, fatigue, relationship strain, financial difficulties due to the additional responsibilities of managing an elderly patient's medications, diet, blood sugar checks, clinic appointments, and psychological problems [9]. A study by Jorwal et al., [10] revealed that 62 % and 74% of caregivers of patients with diabetes mellitus were observed mild to severe depression and anxiety disorders.

In Indonesian culture, caring for parents or older persons is the obligation of a child and other family members. However, caring for older persons with T2DM experienced high to severe burden category [11-13]. Family caregivers felt anxious, afraid, irritated, angry, and stressed when caring for older persons with T2DM [14]. Family caregivers faced with financial burden of paying for diabetes care such as blood sugar checks, other supporting examinations, and occasional hospital admissions [11]. If an elderly experience depression, caregivers (couples or children) provide more care, have poor mental health, and have a worse Quality of Life (QoL) [15].

Quality of Life (QoL) is a person's satisfaction with the areas of life that are important to him/her, which covered four domains: health and functioning, psychological and spiritual, social and economic, and family [16]. Identifying the QoL of FCs of older persons with T2DM is very important, because the well-being of the FCs will support the effectiveness of intervention for the patients [17]. The Family Caregiver is considered a valuable component in the integration of patients who are the main role of caring for the elderly people with chronic diseases [17, 14]. Furthermore, the low of QoL of caregivers can trigger violent and neglectful behavior in caring for sick family members [18]. Sambasivam et al., [19] revealed that poor QoL (physical and mental health domain) among caregivers can impair their ability to provide adequate care to older adults with progressive medical needs.

To our knowledge, there has not been found a study assessing the quality of life of caregivers of elderly with diabetes mellitus in Indonesia. Assessing the QoL becomes important because the increasingly demanded intervention to help the Family Caregiver can be evaluated adequately [20. 14]. Due to the increasing prevalence of the elderly in Indonesia [21] and followed by high cases of diabetes mellitus [3] where the number has never decreased; particularly in Medan North Sumatra Indonesia. Thus, it is very important to know about the description of the quality of life of family caregivers who care for the elderly with

diabetes mellitus. If this is not investigated, then the effect will be detrimental to the health status of caregivers and adversely affect the quality of care they provide. Therefore, the aim of this study was to identify the QoL of family caregiver of older persons with T2DM based on the characteristic of the family caregiver.

2. METHOD

Study design

This study was descriptive cross-sectional design.

Participants

Participant in this study was primary family caregiver (spouse, children, grandchildren, or other relatives) caring for elderly with diabetes mellitus residing at Community Health Centers Medan, North Sumatra Indonesia. Official data from Health Department Officer Medan in 2019-2022, the number of elderly suffering Type 2 Diabetes Mellitus about 867 older people. Participant selected purposively with inclusion criteria: 1) family caregivers who provide care for older people with T2DM at least three months, 2) aged 18 years and older, 3) living together with older persons at home, 4) able to write and speak bahasa Indonesia, and 5) willing to participate in this study. The inclusion criteria for older persons were 1) age 60 and older, 2) have been diagnosed with T2DM by physician at Community Health Centers Medan. Participants who took care of older people with T2DM at the hospital during the data collection were excluded in this study. There were 394 family caregivers eligible and participated in this study. Collecting data was conducted in May 2022 – August 2022.

Instrument

The Caregiver Demographic Characteristic.

The Caregiver Demographic Characteristic was used to identify the family caregiver demographic data including age (years), gender, marital status, religion, ethnic, educational level, monthly household income (IDR/month), relationship to the elderly, care assistant, duration of caregiving (hours/day), overall duration of caregiving (year), and age of elderly, gender of elderly, diabetes duration, comorbidities, chronic complication.

Quality of Life Index (QLI) Ferrans & Power Generic version III.

The QLI Ferrans & Powers Generic version III was developed by Ferrans & Powers, (1985) to measure QoL of family caregiver. This instrument consist of 33-item measures the area of satisfaction and importance of various aspect area of life including four domains: health /functioning (13-item) with items number of 1,2,3,4,5,6,7,11,16,17,18,25,26; social/economic (8-item) with items number of 13,15,19,20,21/22, 23,24; psychological/spiritual (7-item) with items number 27,28,29,30,31,32,33; and family domain (5-item) with items number of 8,9,10,12,14 (Ferrans & Power, 1985). This items questionnaire including a 6-point rating scale (6=very satisfied;1=very dissatisfied) for the satisfaction items under the global question of “How satisfied are you with....?” and a 6-point rating scale (6=very important; 1 = very unimportant) for the important items. After completing the satisfaction section, the items are asked again with the leading question of “How important to you is....?”. The 33-satisfaction items are then weighted with corresponding importance items. The scores range from 0 to 30 (Ferrans & Powers, 1985). Higher scores indicate good family caregiver’s QoL. This instrument have been used to measure QoL of family caregiver of heart failure caregivers with Cronbach alpha at 0.92 [22]. Also QoL of family caregiver of dialysis patients with Cronbach alpha at 0.91 [20].

The QLI was done translated into Indonesian language in this study. The researcher contacted Professor Carol Estwing Ferrans for agreement to using this instrument and translate process. The translate process was using the back translation proposed by Brislin’s guideline [23]. Four bilingual translators were selected (two forward translators and two back-translator). The two forward translators were Indonesians with doctoral degree in nursing (one is an adult nursing graduate from Taiwan, and another was a mental and community nursing graduates from Thailand). The two back translators were English Lecturer at Sam Ratulangi University Manado North Sulawesi and Flying Colours International English school. One native English (Australian) as English lecturer at Yanks & Brits English Institute. The QLI English version was translated using forward translation method by two bilingual translators who were familiar in both English and Indonesian language and could understand the cultural and the construct the study variables

independently. Then, the two translators were met to synthesize the QLI Indonesian by comparing in terms of: semantic equality, equality idiomatic, and conceptual equality of QLI, and reach the consensus. The QLI Indonesian (QLI-I) was translated back into English language by the two bilingual English translators which was blind to the original version. The discrepancies between the translated version were evaluated and noted. Any inconsistencies were identified, discussed with the back translators, and a consensus reached by the author. Finally, both Indonesian and Back translation version of QLI were approved by Advisors and the English language center in Indonesia (sworn and certified translator from Jakarta Indonesia with Decree of Governor of DKI Jakarta No. 1765/2006 and Decree of Governor of DKI Jakarta No. 527/1995). For the content validity was checked by five experts with S-CVI at 1.0 and has tested for internal consistency in Family Caregiver who the same with actual sample (N=30) with the Cronbach's Alpha was 0.97.

3. DATA ANALYSIS

The data analyses were performed using Statistical Package for the Social Sciences (SPSS) version 25.0. Family caregiver's characteristics and QoL were presented as frequencies or percentage in the form of distribution tables. A Chi-square test and Spearman Rank Correlation to examine the association between characteristics demographic and QoL of family caregiver with significant alpha .05. This study was approved by the Sari Mutiara Indonesia University Health Research Ethics Commission with Certificate Number: 1286/F/KEP/USM/IV/2022.

4. RESULT

Characteristic of Participants

This study included 394 Family Caregivers of older persons with T2DM. Most participants were female (78.4%), married (85.5%), the mean ages were $M \pm SD = 53.22 \pm 11.29$ years old. Nearly a third had a senior high school (36.3%). The most common caregiver's relationship with the older persons of T2DM were children (52.8%), and duration of caregiving were 3-5 years (34.35%). While the characteristic of older person was found that mean $M \pm SD = 72.65 \pm 5.57$ years old, female (58.6 %). Almost half of older persons have 2-comorbid and 1-chronic complication (47.2% and 43.7%) respectively (Table 1).

Quality of Life of Family Caregivers

Most Quality of life (QoL) of Family Caregivers were poor (53.6%) with the total scores ranging from 6.23-22.7 (M ±SD = 14.02±4.80). Psychological and spiritual subscales were poor (90.1%) with the score ranging from 13.36 – 16.59, M±SD = 14.91±0.83, followed by social and economic (86.5%) with score ranged from 12.76 – 17.05, M±SD =14.59±1.15, and family subscale (85.3%) with scores ranged from 13.50-16.55, M±SD = 15.04±0.79. While the health and functioning subscale have 59.9 % poor QoL with ranged from 11.30-17.83, M±SD = 14.53±2.09 (Table 2).

The characteristics and QoL of Family Caregivers of older persons with T2DM.

Family caregivers aged < 45 years found 75.2 % have good QoL. While Family Caregivers aged between 60 – 74 years old found 78.9% have a poor QoL. Younger family caregivers are more likely to have a good quality of life, compared to older family caregivers who are more likely to have a poor quality of life. There was a significant difference QoL of family caregivers among age groups ($X^2=80.474$, $P= 0.000$, < 0.05). This means that the higher the age of the caregiver, the lower the quality of life.

Table 1. Demographic data of Family Caregivers caring for older persons with Type 2 Diabetes Mellitus (N=394)

Characteristics		n	%	Min	Max	M±SD
Gender	Male	85	21.6			
	Female	309	78.4			
Age of FC (Year)	< 45	113	28.7	30	71	53.22 ±11.29
	45-59	121	30.7			
	60-74	160	40.6			
	>74					
Marital status	Married	337	85.5			
	Widowed	50	20.7			
	Unmarried	7	1.8			
Educational level	Elementary School	118	29.9			
	Junior High School	86	21.8			
	Senior High School	143	36.3			
	University	47	11.9			

Relationship with older persons	Spouse	165	41.9			
	Children	208	52.8			
	Others	21	5.3			
Employee status	Employee	161	40.9			
	Unemployed	233	59.1			
Overall caregiving duration (Year)	1-2	67	17.0			
	3-5	135	34.3			
	6-9	125	31.7			
	>10	67	17.0			
Age of older persons (Year)	60-74	228	57.9	63	84	72.65 ±5.57
	75-90	166	42.1			
Gender	Male	163	47.8			
	Female	231	58.6			
Comorbidities	1-Comorbid	121	30.7			
	2-Comorbids	186	47.2			
	3-Comorbids and more	87	22.1			
Chronic complication	No complication	60	15.2			
	1-chronic complication	172	43.7			
	2-chronic complication	162	41.1			
	3-chronic complication	-	-			

Min=Minimum; Max = Maximum, M=Mean; SD = Standard Deviasi

Table 2. The Quality of Life (QoL) of Family Caregivers distribution (N=394)

	Poor (<16)	Good (>16)	Min	Max	M±SD
	n(%)	n(%)			
Overall QoL	211(53.6)	183 (46.4)	6.23	22.27	14.02±4.80
Health and functioning	236 (59.9)	158 (40.1)	11.30	17.82	14.53±2.09
Social and economic	341(86.5)	53 (13.5)	12.76	17.05	14.59±1.15
Psychological and spiritual	355 (90.1)	39 (9.9)	13.36	16.59	14.91±0.83
Family	336 (85.3)	58 (14.7)	13.50	16.55	15.04±0.79

Min = Minimum; Max = Maximum; M = Mean; SD = Standard Deviation

Family caregivers who male have a worse quality of life (84.7%) compared to women (45.0%). The results of the chi square test showed that there were significant different the QoL of family caregivers between male and female ($X^2=42.287$, $P= 0.000$, < 0.05).

Family caregivers who have married had a poor quality of life (51.3%) compared to unmarried family caregivers where 100% have a good quality of life. There was a significant

different QoL among marital status groups of family caregivers ($X^2=18.866$, $P= 0.000$, < 0.05).

Family caregivers who have a low level of education group (83.1%) have poorer QoL than high level of education group (17%). There was a significant different QoL among education level groups of Family Caregivers ($X^2 = 124.797$, $P= 0.000$; < 0.05).

Family caregivers who have spouse relations with older people have poorer QoL than children and other relationships. There was a significant different in QoL among relationship with older persons groups of Family caregiver of older persons with T2DM (care receiver) ($X^2= 69.714$, $P = 0.000$; < 0.05). Family Caregivers who were unemployed have poorer QoL (59.7%) than employers (44.7%). There was a significant difference in QoL among employed status groups of family caregivers of older persons ($X^2 = 8.539$, $P = 0.003$; 0.05).

In terms of caregiving duration, it was found that family caregivers who taking care of their elderly for less than 5 years (68.7% for 1-2 years and 71.9% for 3-5 years of caregiving durations) have poorer QoL than group of more than 6 years (44%). Surprisingly, the group of Family Caregivers who taking care of their elderly with T2DM more than 10 years have 80.6% have good QoL. There was a significant different in QoL among caregiving duration groups (Family Caregivers who were provide caregiving less than 5 years, more than 6 years, and over 10 years) ($X^2=60.318$; $P = 0.000$; < 0.05).

The family Caregivers who taking care for older persons older than 75 -90 years old (93.4%) have poorer QoL than older person with aged 60-74 years old (24.6%). There was a significant difference in QoL between Family Caregivers who taking care for older persons with aged 60 -74 years group and 75 -90 years old ($X^2 = 182.867$, $P= 0.000$; < 0.05).

Family caregivers who taking care for male older person with T2DM have poorer QoL (75.5%) than female (38.1%). There was a significant different in QoL for family caregiver who taking care for male and female ($X^2 = 53.640$; $P=0.000$; < 0.05).

Family Caregivers who take care of older persons with T2DM who more than 3-comorbidities have poorer QoL (100%) than who take care of older person who have one comorbidity (16.5%). There was a significant different among QoL of family caregivers who taking care for older persons more than 3- comorbidities, 2 – 3 comorbid, and 1- comorbid ($X^2 = 142.555$, $P = 0.000$; < 0.05).

Family caregivers who care for older persons with two and more chronic complications have poorer QoL (96.7%) than no-chronic complications (15,0%). There was a significant different among QoL of Family Caregivers caring for older persons having 2 and more chronic complications, 1 chronic complication, and no-chronic complication ($X^2 = 210.182$, $P = 0.000$; < 0.05) (Table 3).

Table 3. The association between Characteristic of Family Caregivers of older persons and QoL using Chi-Square statistic test (N=394)

Characteristics		QLI			X ²	P-Value
		TOTAL n(%)	Poor (<16) n (%)	Good (>16) n (%)		
Gender	Male	85 (21.6)	72 (84.7)	13.6 (15.3)	42.287	0.000
	Female	309 (78.4)	139 (45.0)	170 (55.0)		
Age of FC (Year)	< 45	113 (28.7)	28 (24.8)	85 (75.2)	80.474	0.000
	45-59	121 (30.7)	57 (47.1)	64 (52.9)		
	60-74	160 (40.6)	126 (78.9)	34 (25.3)		
	>74	0	0	0		
Marital status	Married	337 (85.5)	173 (51.3)	164 (48.7)	18.866	0.000
	Widowed	50 (20.7)	38 (76.0)	12 (24.0)		
	Unmarried	7 (1.8)	0	7 (100)		
Educational level	Elementary School	118 (29.9)	98 (83.1)	20 (16.9)	124.797	0.000
	Junior High School	86 (21.8)	66 (76.7)	20 (23.3)		
	Senior High School	143 (36.3)	39 (27.3)	104 (72.7)		
	University	47 (11.9)	8 (17.0)	39 (83.0)		
Relationship with older persons	Spouse	165 (41.9)	129 (78.2)	36 (21.8)	69.714	0.000
	Children	208 (52.8)	76 (36.5)	132 (63.5)		
	Others	21 (5.3)	6 (28.6)	15 (71.4)		
Employee status	Employee	161 (40.9)	72 (44.7)	89 (55.3)	8.539	0.003
	Unemployed	233 (59.1)	139 (59.7)	94 (40.3)		
Overall caregiving duration (Year)	1-2	67 (17.0)	46 (68.7)	21 (31.3)	60.318	0.000
	3-5	135 (34.3)	97 (71.9)	38 (28.1)		
	6-9	125 (31.7)	55 (44.0)	70 (56.0)		
	>10	67 (17.0)	13 (19.4)	54 (80.6)		
Age of older persons (Year)	60-74	228 (57.9)	56 (24.6)	172 (75.4)	182.867	0.000
	75-90	166 (42.1)	155 (93.4)	11 (6.6)		
Gender of older persons	Male	163 (47.8)	123 (75.5)	40 (24.5)	53.640	0.000
	Female	231 (58.6)	88 (38.1)	143 (61.9)		

Comorbidities	1-Comorbid	121 (30.7)	20 (16.5)	101 (83.5)	142.555	0.000
	2-Comorbids	186 (47.2)	104 (55.9)	82 (44.1)		
	3-Comorbids & more	87 (22.1)	87 (100)	0 (0%)		
Chronic complication	No complication	60 (15.2)	9 (15.0)	51 (85.0)	210.182	0.000
	1-chronic	172 (26.2)	45 (26.2)	127 (73.8)		
	complication	162 (96.7)	157 (96.7)	5 (3.1)		
	2-chronic and more					

5. DISCUSSION

The results of this study clearly show that caregivers of the elderly with type 2 DM have a low QoL, those who are male, older, widowed, have low education status, have a relationship as a partner in care, unemployed status, length of care for less than 5 years. In addition, those who care for older elderly, care for elderly who are male, care for elderly who have 3 or more comorbidities and care for elderly with 2 or more chronic complications have low QoL. Literature review by Galarraga & Llahana, [24] revealed that T2DM in adults has a significant impact on carer's QoL. Bigelow & Freeland, [4] revealed that diabetes care for elderly can be an overwhelming on caregivers when combine demands of self-care for other chronic conditions. In addition, Longo et al., [25] reported that elderly patients with diabetes have common geriatric syndromes including weakness, cognitive impairment, complication, comorbid, and polypharmacy were a challenge for health care providers and families.

There was significant different between QoL of male and female in this study, male has poorer QoL that female in the present study. This finding was consistent with study by Aljuaid et al., [26] found that caregivers of patients diagnosis with major chronic disease at Saudi Arabia that female had better overall QoL and health satisfaction, they also had more fulfilling social relationship. While the male caregivers had better physical health and environmental scored domain. In Indonesia, family caregivers who take care for older people with chronic disease were mostly female [27, 28]. The hierarchy families that female should respect and obey for taking care of their parents. In Indonesia, women play a crucial role in managing the health care of their family members, while men tend to earn a living [29]. A prevailing patriarchal culture assigns household responsibilities, such as caring for parents and children, primarily to women. Men, on the other hand, often perceive these tasks as outside their responsibility, focusing solely on earning a living [30]. Consequently, when men do engage in housework or caregiving, they may experience heightened stress. Lopez &

Kohli, [31] found that all men caregivers experienced high emotional stress. Moreover, caregiving is the most stressful task for male caregivers [31], which can ultimately impact their overall QoL.

In this study it was found that the QoL of caregivers was inversely proportional to their age. The older the age group, the lower the QoL. This finding is consistent with previous study which highlights that a caregiver's age has a direct impact on the quality of life (QoL) of elderly people with chronic diseases in China [14]. This discrepancy in QoL may be attributed to the natural processes of human growth and development [32]. Younger individuals typically possess greater physical strength, better physiological functioning, and more energy for engaging in social activities [33]. As people age, their physical strength and bodily functions tend to decline, making them more susceptible to diseases [34]. This increased vulnerability can lead to anxiety and negative emotions, subsequently affecting their quality of life [34]. It may also be linked to a person's aging process and the morbidity associated with old age and financial dependency [26]. Therefore, it is important to provide special attention and tailored assistance to older caregivers, addressing their specific needs to help improve their QoL.

The quality of life of married caregivers is worse than that of unmarried caregivers.

Married family caregivers often have many roles and extensive responsibilities including caring for spouses, children, and family members who need care [35]. Managing a household and caring for children, and other family members can be burdensome, causing physical and emotional exhaustion. Often having little personal time and space due to their multiple commitments can lead to burnout and decreased life satisfaction [35]. Apart from that, there is additional financial pressure which can affect the overall quality of life. While marriage can offer emotional support and companionship, the additional responsibilities associated with caregiving can strain the relationship and impact the caregiver's quality of life. To address this, interventions such as counseling, respite care, and group support are recommended. These resources can assist married caregivers in managing the demands of caregiving while prioritizing their well-being.

Our findings of this study also showed that the lower the caregiver's education, the lower their quality of life. Caregivers who are university graduates have a better quality of life compared to those with senior high school, junior high school, and elementary school

education levels. This finding is similar to Aljuaid's research which found that participants with a Bachelor's degree or higher had better quality of life, health satisfaction, psychological health and social relationships [26].

A study found that the level of education influences the quality of life of Indonesian people (36). Other research also statistically proves that the level of education has an effect on improving the quality of health in Indonesia by 14.3% [37]. Moreover, most people with low education have a low economic level [37]. The low economy or financial barrier is factor that contribute to increase caregiver's burden of formal and informal caregivers [38].

Family caregiver's relationship with older person with T2DM, this study found that the spouse relationship poorer QoL than child and other relatives. This may be because couples experience stress, strained relationships between spouses lead to increased caregiver burden, role strain, and negative health outcomes, all of which diminish QoL. Pothiban et al., [2020] revealed that high QoL among Thai family caregivers of older people with dementia were influenced by high experiences of close relationships.

In this study, unemployed status of family caregivers has low QoL compared to employee caregivers. Unemployed caregivers often experience significant financial strain, negatively impacting their QoL. This may be associated with higher levels of financial hardship, leading to increased stress and decreased overall well-being. Employment can provide a sense of social engagement and support often lacking for unemployed caregivers. Also, unemployed family caregivers are more likely to neglect their own health due to lack of resources and time, leading to poorer health outcomes.

Family caregivers who provide care less than five years shows that low QoL. It might because the early years of caregiving can be isolating because caregivers may withdraw from social activities to meet the demands of caregiving. Caregivers' health often deteriorates in the early years of caregiving due to the sudden increase in physical and emotional demands. This decline in health is closely associated with lower QoL.

This study found that family caregivers who care of older have low QoL compared to younger older. Older care recipients often require more intensive and time-consuming care, leading to greater physical and emotional strain on caregivers. A study published in the *Journal of Aging and Health* found that caregivers of older adults (especially those over 85) reported higher levels of stress and lower QoL due to the increased caregiving demands. Also,

the older the care recipient, the higher their level of dependency, which can increase caregiver burden. Research in *The Gerontologist* indicated that caring for older adults with high dependency needs (e.g., mobility issues, cognitive decline) is associated with greater caregiver stress and lower QoL.

In terms of the comorbid of older persons, this present study found that family caregivers who care for older persons with more comorbid shows low QoL. It may be that care recipients with multiple chronic conditions often require more complex care management, which can be overwhelming for caregivers. Caregivers of individuals with comorbid conditions reported lower QoL due to the complexity and intensity of care required. Moreover, frequent medical appointments, hospitalizations, and managing multiple medications for comorbid conditions can be stressful for caregivers. The logistical and emotional demands of managing comorbidities significantly contribute to caregiver burden and poorer QoL.

Family caregivers who care for older people with more complications show low QoL. Care recipients experiencing complications can lead to acute stress for caregivers. The caregivers dealing with such complications reported higher stress levels and lower QoL due to the unpredictability and urgency of care. Also, the caregivers of patients with severe complications reported higher levels of emotional distress, contributing to lower QoL.

6. CONCLUSION

Family caregivers caring for older people with T2DM have low QoL. The low QoL of family caregivers were male, having older age, married, low education, spouse relationship, employee, and providing care less than 5 years. Also, family caregivers caring for male older persons, having more comorbid and complications.

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