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Perceived Caregiver Strain in Carers of Patients Living with Heart Failure in Collectivist Societies

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Abstract

Background

Informal caregivers represent the backbone of community-based Heart Failure management, providing nearly 90% of long-term in-home care. Within the caregiving science framework, they function as primary care partners and essential contributors to dyadic illness management. However, the high care dependency associated with Heart Failure, coupled with limited formal system support, places these caregivers at elevated risk for caregiver burden, role strain, and adverse psychosocial outcomes. The aim of this seconday analysis is to identify predictors of caregiver strain among informal caregivers of patients living with Heart Failure in a collectivist society.

Methods

108 patient caregiver who completed questionnaires on caregiver strain, social support, quality of life, caregiving context and needs, caregivers' appraisal of dyadic relationship quality, and dyadic typology. Bivariate analyses were conducted to examine associations between caregiver strain and relevant sociodemographic, clinical, and relational variables. Variables significant at the bivariate level were subsequently entered into a multivariable linear regression model to identify independent predictors of caregiver strain.

Results

On average 37.73 ± 50.67 hours were dedicated for caregiving by informal caregivers. In this sample, decreased caregiver strain was associated with increased patient symptomatology while significant association was identified between increased caregiver strain and poor perceived dyadic relationship quality. A higher feeling of being stressed in caregiving, a lower mental quality of life, and a lower caregiver perceived relationship quality explained about 63% of the variance in Caregiver Strain.

Conclusion

Findings from this study underscore the central role of caregiver strain within the Heart Failure caregiving dyad and highlight the need for systematic assessment of caregiver burden in clinical practice. By proactively identifying caregiver strain and addressing modifiable psychosocial and relational determinants, healthcare professionals can enhance caregiving effectiveness, support adaptive dyadic functioning, and safeguard caregivers' psychological and physical well-being. Integrating caregiver-focused education on self-care, symptom management, structured discharge planning, and longitudinal follow-up into routine Heart Failure care may promote more sustainable informal caregiving in collectivist contexts.

Background

Informal caregivers [ICs] are individuals voluntarily caring for a relative or a friend facing a disease, disability, or any condition requiring particular attention (1). They provide around 90% of in-home long-term care needed by adults and play a key role in supporting the wellbeing and care of people living with chronic illnesses (2). Families develop familial homeostasis or a typical dynamic and routine, that is often disrupted when a member of that family is diagnosed with a chronic illness. While taking care of a loved family member could generate feelings of emotional fulfillment and a sense of accomplishment, ICs often face health hurdles and emotional strains of their own (3). Chronic illness diagnoses alter roles and responsibilities within the family unit and causes feelings of uncertainty, anxiety, depression, resentment, among others (4, 5). This is especially true in patients living with Heart Failure [HF] and their ICs.

The high care dependency and the lack of formal support for the caregiving role have increased the prevalence of caregiver burden and strain (5). Studies have demonstrated that HF caregivers experienced reduced quality of life, and caregiving had a negative impact on their physical and emotional health (6–8) as well as social and career life leaving them to struggle with a huge economic burden (9, 10). In HF patients, higher caregiver burden is associated with reduced quality of delivered care and, consequently, reduced patients' health (11). Notably, the impact of collectivist societies on HF caregiver outcomes is not well understood.

Caregiving experiences differ significantly among cultural and ethnic groups (12). Cultural values and norms influence the perception of the caregiving role in terms of the role being an expected part of one's life course (12). Cultural embeddedness of caregiving also influences whether caregiving is viewed as a choice or an expected duty (13, 14). Values such as familism and family devotion sustain and even mandate caregiving responsibilities and strongly prevent caregivers from saying no to caregiving. This is the case in collectivist cultures present in Lebanon and the Middle East and North Africa [MENA] region. Arabs generally thrive on a large repertoire of family relations; the extended family is the most powerful social institution of the MENA region (15). These strong family bonds can influence the experience of caregiving, concepts of caregiver distress or burden, and caregiver illness beliefs (16). Even though people from the Middle East are racially diverse, shared values and behaviors are not uncommon. This includes the significance of family cohesion, family roles and responsibilities, and participative attitudes towards health and illness (17). Yet, even when social and individual ties are strong, this may not protect ICs from caregiver burnout (9). Therefore, the aim of this analysis was to describe caregiver strain among caregivers of patients living with HF and identify predictors of strain in a collectivist society like Lebanon.

Methods

Study Design

This is a secondary analysis of a correlational descriptive study done on 108 patient-caregiver dyads with the aim of identifying dyadic determinants of self-care in HF care dyads in the parent study. The aim of this secondary analysis was to describe caregiver strain among caregivers of patients living with HF and identify predictors of strain in a collectivist society like Lebanon. In the parent study, we studied dyadic determinants of self-care in HF care dyads [patients and their ICs] through the unique anthropologic lens of a collectivist society where care is seen as a family commitment. Knowledge from this study will provide evidence which will help place caregivers' health at the core of caregiving processes. By preventing or addressing caregiver strain, healthcare practitioners can improve the outcomes for ICs and support the psychological and physical well-being of both patients and their ICs.

Participants and Procedures

A convenience sample of 108 patient-caregiver dyads were recruited. Assuming a medium anticipated effect size of 0.15, a desired statistical power level of 0.8, a probability level of 0.05 for a multiple regression with 8 predictors, a minimum sample size of 108 subjects was needed. HF patients were included in the study if they spoke Arabic, had confirmed HF with Reduced Ejection Fraction [left ventricular ejection fraction less than or equal to 40%] or symptomatic HF with Preserved Ejection Fraction [echocardiographic evidence of diastolic dysfunction] for at least 3 months prior to inclusion in the study, and at the time of data collection had an IC who assisted with their self-care. HF patients were excluded from the study if they were clinically unstable, in an acute exacerbation, had a concomitant terminal illness such as cardiogenic shock, documented dementia, and documented severe psychological illness [excluding depression] or any impairment [any uncorrected visual or hearing problems] that would impede them from performing self-care. ICs in this study were defined as the person [regardless of his/her status in the family] who provided the most informal care to the patient. These were identified by the HF patient, designated as the primary caregiver, were present with the HF patient in the hospital visit, and provided consent to participate in the study.

The parent study received ethical approval by the institutional review board of the data collection site. Data confidentiality was maintained all throughout the data collection phase. Information that identified participants directly was not collected. Questionnaires were stored in a locked cabinet in the primary investigator's office and electronic files were stored in the primary investigator's password protected computer.

Data Collection and Instruments

The sample was recruited from a coronary care inpatient unit and at outpatient cardiology specialty clinics at Lebanon's largest tertiary medical center for the parent study. A trained research assistant interviewed the dyads to obtain information on patient and caregiver demographics such as gender, age, marital status, number of persons in the household, education, employment, and income. The average time required to complete the questionnaires was 30 minutes for ICs and 20 minutes for the patient.

Information on the etiology and duration of the chronic illness, number of hospital readmissions in the past year, and an unweighted index of the number of comorbid medical conditions were obtained through a detailed medical record review. Information on the IC's living status, perceived relationship with the patient, number of persons in the household and number of rooms excluding the bathroom and kitchen, caregiving duration and hours spent caregiving per week, other family obligations, available household help, and dyadic type were obtained.

Modified Caregiver Strain Index. The modified Caregiver Strain Index [mCSI] is a 13-item tool that can quickly screen for strain related to care provision. The mCSI is a more recent version of the Caregiver Strain Index developed in 1983. Scoring ranges from 0 to 26 with higher scores indicating a higher level of caregiver strain (18). Cronbach's alpha was 0.9 and the test-retest reliability coefficient was 0.88. The mCSI has been translated into Chinese and has been shown to be valid and reliable in Chinese caregivers [Cronbach's alpha was 0.91] (19). In this study, the Arabic version of the mCSI had a Cronbach's alpha of 0.870.

Carers of Older People in Europe Index. Social Support was assessed using the 15-item Carers of Older People in Europe Index [COPE] (20). This index consists of three subscales: the negative impact of caregiving [7 items], positive values of caregiving [4 items], and quality of support [4 items]. A validation study of the 15-item version of the COPE among nearly 6000 caregivers of elderly people from six European countries [Germany, Greece, Italy, Poland, Sweden and United Kingdom] revealed three subscales for caregiving with a Cronbach's alpha varying from 0.64 to 0.83 (20).

Caregiver Quality of Life. The Arabic version of the short-form 12 was used to measure quality of life of ICs in this sample (21). The composite physical and mental health scores were computed. Scores ranged from 0 to 100, with higher scores indicating better physical and mental health.

Caregiving Type. This is a one item question that asked caregivers to choose their caregiving type among three options: whether they provided minimal, moderate, or full care to their HF patient.

Caregiver Perceived Quality of the Dyadic Relationship. This is one item question generated from the COPE index that asked caregivers whether they had a good relationship with the person they care for. Answers were on a Likert scale ranging from 1 to 4, with higher scores indicating greater perceived relationship quality.

Caregiver Dyadic Typology. Caregiver dyadic types were assessed using the Dyadic HF Care Types (22) where they were asked to choose what best describes their relationship with their counterpart in terms of how they take care of the disease. Response options were categorized into one of four categories: Patient oriented category where the patient takes care of his/her HF without input from the caregiver; Caregiver oriented category where the caregiver takes care of the HF patient without any input from the patient him/herself; Collaborative category where both the patient and the caregiver take care of the patient together; and Complementary category where both the patient and the caregiver take care of different aspects of HF (22).

Data Analysis

Data analysis was performed using the Statistical Package for the Social Sciences version 29.0 in several steps. An alpha of 0.05 was used in all analyses. First, we analyzed sociodemographic and clinical characteristics of the study participants using descriptive statistics [Means and Standard Deviations].

Scores on perceived caregiver strain were compared across patient and caregiver demographic and clinical characteristics using independent t test and analysis of variance tests or Pearson r as appropriate. Descriptive statistics were analyzed on all data to assess for normality, linearity, homoscedasticity, multicollinearity, and singularity. Multicollinearity was tested using VIF; scores greater than 4 were judged indicative of multicollinearity (23). The mCSI score was then used as the outcome variables to create the best regression model using significant variables from the univariate analyses.

Results

Sample Characteristics

A total of 108 HF Arabic speaking patients [mean age 63.54 years, 29.6% females, 81.55% married] and ICs [mean age 49.37 years, 85.2% females, 82.2% married] were included [please refer to Table 1 for Sample Characteristics]. Caregivers in this sample were spouses [52.4%] or children [40.8%] of patients they cared for and provided care for an average of 8.53 ± 7.75 years and for a mean of 37.73 ± 50.67 hours per week. Almost half of the caregivers [46.9%] reported providing minimal care while approximately 35% reported providing full care for their patient.

Table 1
Sample Characteristics

Variable	Mean ± SD or n [%]	
	Caregiver	**Patient**
Age in years	49.37 ± 13.69	63.54 ± 10.52
Male Gender	16 [14.8]	76 [70.4]
Marital Status		
Single	17 [15.9]	6 [5.6]
Married	88 [82.2]	88 [81.55]
Widowed	1 [0.9]	1 [0.9]
Divorced	1 [0.9]	13 [12.0]
Education		
Less than High School	33 [32.3]	40 [38.5]
High School	28 [27.5]	31 [29.8]
University Degree	40 [39.2]	33 [31.7]
Employment Status [**Employed**]	41 [39.4]	32 [31.0]
Income Dollars per year		
6 to 12,000	35 [38]	31 [30.7]
12 to 15,000	21 [20.8]	21 [20.8]
More than 15,000	49 [48.5]	49 [48.5]

More than 80% of the patient/caregiver dyads lived in the same household, with most being unemployed and having less than a university degree education .The majority [86.8%] of ICs reported having an often or always good relationship with the person they cared for while 96.2% of patients reported having an often or always good relationship with their caregiver.

About18% of the ICs reported that the HF care was collaborative or complementary, that is both members of the dyad assumed care of the patient's health together or took care of different aspects of patient's health jointly. About 30% of caregivers reported that the care is done solely by the patient while 34.3% of the ICs reported that the care is done only by them. An alarming 68.6% of the dyads in this sample were considered discordant and did not agree on how and by whom [by patient, caregiver, or jointly] the care is being provided [please refer to Table 2 for Caregiving Setting].

Table 2
Caregiving Setting

Caregiving Setting	**Mean ± SD; n [%]**
Dyad Relationship Type	
Husband/Wife	54 [52.4]
Children	42 [40.8]
Brother/Sister	7 [6.8]
Caregiver Perceived Quality of the Dyad Relationship	
Poor	14 [13.2]
Strong	92 [86.8]
Patient Perceived Quality of the Dyad Relationship	
Poor	4 [3.8]
Strong	101 [96.2]
Dyadic Type [**Discordant**]	72 [68.6]
Patient Oriented	32 [29.6]
Caregiver Oriented	37 [34.3]
Collaborative	23 [21.3]
Complementary	16 [14.8]
Caregiving Type	
Minimal Care	38 [46.9]
Moderate Care	14 [17.3]
Full Care	29 [35.8]
Living Status	
In the same household	90 [83.3]
In different houses but same building	7 [6.5]
Walking distance	3 [2.8]
10-minute drive	4 [3.7]
30-minute drive	3 [2.8]
1 hour drive	1 [0.9]
Duration of **Caregiving** [years]	8.53 ± 7.75

Caregiving Setting	Mean ± SD; n [%]
Dyad Relationship Type	
Number of **Caregiving Hours**/ Week	37.73 ± 50.67

Perceived Caregiver Strain Described

Caregiver strain, measured using mCSI, was average in this sample with a mean of 11.32 ± 6.94. About three quarters of the sample reported having sleep pattern disturbances sometimes or on a regular basis and 67.3% thought that caregiving was inconvenient. More than half of the sample of caregivers thought that caregiving was confining. The majority denied having to have major family modifications while 32.7% reported that there have been changes in their personal plans secondary to their caregiving roles. More than 40% of the sample reported having other demands on their time in addition to caregiving. About half the sample reported that some behaviors were upsetting to them at times or on a regular basis. Almost 60% of the caregivers felt completely overwhelmed at times or on a regular basis [please refer to Table 3 for Caregiver Strain].

Table 3
Caregiver Strain

Caregiver Strain Index	Regular	Sometimes	No
My sleep is disturbed	41 [38.3]	41 [38.3]	25 [23.4]
Caregiving is inconvenient	35 [32.7]	37 [34.6]	35 [32.7]
Caregiving is a physical strain	42 [39.3]	18 [16.8]	47 [43.9]
Caregiving is confining	47 [43.9]	14 [13.1]	46 [43.0]
There have been family modifications	23 [21.5]	16 [15.0]	68 [63.6]
There have been changes in personal plans	35 [32.7]	23 [21.5]	49 [45.8]
There have been other demands on my time	44 [41.1]	25 [23.4]	38 [35.5]
There have been emotional adjustments	34 [31.8]	16 [15.0]	57 [53.3]
Some behavior is upsetting	24 [22.4]	32 [29.9]	51 [47.7]
It is upsetting to find the person I care for has changed so much from their former self	51 [47.7]	17 [15.9]	39 [36.4]
There have been work adjustments	20 [18.7]	15 [14.0]	72 [67.3]
Caregiving is a financial strain	28 [26.4]	17 [16.0]	61 [57.5]
I feel completely overwhelmed	25 [23.4]	38 [35.5]	44 [41.1]

Identifying Predictor Variables of Caregiver Strain

Scores on mCSI were compared across patient and caregiver demographic and clinical characteristics using independent t test and analysis of variance tests as appropriate [please refer to Table 4 for Predictor Variables].

Table 4
Predictor Variables

Variables	Category	Mean ± SD or Pearson's r
Caregiver Gender	Male	9.67 ± 8.20
	Female	11.59 ± 6.73
Patient Gender	Male	11.41 ± 7.01
	Female	11.10 ± 6.89
Caregiver Marital Status	Married	11.44 ± 6.82
	Single	10.47 ± 7.71
Patient Marital Status	Married	11.64 ± 6.80
	Single	9.84 ± 7.60
Caregiver Employment	Working	11.23 ± 7.49
	Unemployed	11.55 ± 6.65
Patient Employment	Working	12.08 ± 6.92
	Unemployed	10.00 ± 6.91
Caregiving Type	Minimal	9.82 ± 7.16
	Moderate	13.38 ± 5.61
	Full Care	13.75 ± 6.16
Dyadic Typology	Patient Oriented	8.28 ± 6.35**
	Caregiver Oriented	14.97 ± 5.60**
	Collaborative	10.68 ± 6.42
	Complementary	10.06 ± 7.67
Caregiver Perceived Quality of the Dyad Relation	Poor	16.07 ± 4.82**
	Strong	10.71 ± 6.9**
Patient Symptomatology	Asymptomatic	12.69 ± 6.21*
	Symptomatic	9.90 ± 7.43*
Caregiver Social Support Scale	Positive Value	0.129

*p < 0.05; **p < 0.001

Variables	Category	Mean ± SD or Pearson's r
	Negative Impact	0.774**
	Quality of Support	-0.168
Caregiver Quality of Life	Physical Quality of Life	-0.291**
	Mental Quality of Life	-0.536**
Caregiver Involvement in Self-Care	Maintenance	0.125
	Perception	0.195
	Management	0.298**
Patient Involvement in Self-Care	Maintenance	-0.122
	Perception	-0.224*
	Management	0.079
*p < 0.05; **p < 0.001		

The type of caregiving provided to the HF patient as perceived by the caregivers significantly affected caregiver strain. Providing full care significantly increased caregiver strain compared to ICs providing minimal care [13.75 ± 6.16 versus 9.82 ± 7.16; F(2,76) = 3.329, p = 0.041]. Likely, dyads with a caregiver-oriented typology had higher caregiver strain when compared to patient oriented typology [14.97 ± 5.60 versus 8.28 ± 6.346; F(3,102) = 6.475; p < 0.001]. Poor perceived caregiver quality of the relationship was also significantly associated with higher caregiver strain [16.07 ± 6 versus 10.71 ± 6.9; p < 0.001]. Unexpectedly, ICs of symptomatic patients [those with New York Heart Association classes III and IV] had lower caregiver strain than ICs of asymptomatic patients [9.90 ± 7.43 versus 12.69 ± 6.21; p = 0.019].

Pearson correlation was used to ascertain correlations between variables such as age, years since HF diagnosis, perceived social support, caregiving duration, caregiving hours, and mCSI score. COPE's negative impact scale that relates to the IC's personal feeling of being stressed in caregiving was significantly associated with caregiver strain [Pearson's r = 0.774; p < 0.001]. Likely, lower caregiver physical or mental quality of life were significantly associated with higher caregiver strain [r = -0.291 and − 0.536 respectively; p < 0.001].

Self-care affected caregiver strain in this sample. The higher the IC's involvement in self-care management, the higher their strain was [r = 0.298, p = 0.002]. Similarly, the lower the patient self-care monitoring was the more strained were the caregivers [r = -0.224, p = 0.025].

Predictors of Caregiver Strain

Different variables were associated with caregiver strain as shown in Table 3. To explore relationships within the data more thoroughly, the mCSI was used as the outcome variable to create the best regression model using significant variables from the univariate analyses [please refer to Table 5 for Regression Analysis]. Predictors were retained in the regression model if they contributed significantly to the model or were conceptually relevant and did not negatively affect the variance.

A higher negative impact from caregiving [denoting high personal feeling of being stressed in caregiving], a lower physical and mental quality of life, and a lower caregiver perceived relationship quality explained about 63% of the variance in Caregiver Strain.

Table 5
Regression Analysis

	Adjusted R2	**F**	**Sig.**	**Unstandardized Beta**	**Standardized Beta**	**t**	**Sig.**
Constant	0.630	44.001	< 0.001	11.657		2.356	.020
Relationship Quality				-2.794	− .136	-2.209	.030
Social Support - Negative				.960	.601	7.763	< 0.001
Physical Quality of Life				− .093	− .120	-1.808	.074
Mental Quality of Life				− .113	− .211	-2.839	.006

Discussion

We evaluated caregiving strain among ICs of patients living with HF and identified its predictors through secondary analysis of a cross-sectional study that looked at dyadic determinants of self-care. To our knowledge, this is the first study to address perceived caregiving strain in HF patients in collectivist societies such as those in the MENA region.

Research on self-care in patients living with cardiac problems has been growing internationally and in Lebanon and the MENA region. In one of the earlier studies on self-care in Lebanon, ICs of patients living with cardiac illness viewed caregiving as a moral and emotional duty to care for the family member stemming from obligation and responsibility towards their patients (17). Despite this moral obligation, we highlighted moderate levels of caregiver strain among our sample of ICs. Moderate levels of caregiver strain were also reported earlier in a systematic review involving 12 papers with 4659 caregivers from eight Asian countries including one Arabic speaking country (24). This same trend was seen in ICs of older adults with chronic illnesses living in Iran (25). This similarity in strain severity could

be due to cultural peculiarities and the complex medical profile of HF patients who have multimorbidity and complex self-care needs.

We also highlighted the unique roles women play in informal caregiving in collectivist societies like Lebanon. Women caregivers in collectivist societies see themselves in a position of responsibility towards the whole family (17). This finding is confirmed in this study as over 85% of the ICs were women highlighting caregiving as an expected gender role for women in Lebanon. Other studies on older adults in Lebanon have had similar findings (26). Although gender was not a significant predictor of caregiver strain, women caregivers were found to have higher caregiver strain than male caregivers, which could be due to the gender role in collectivist societies. This difference and a higher caregiver strain among women caregivers was seen in previous studies in the Lebanese setting (27). On the contrary, higher levels of strain were reported among male caregivers of Chinese chronically ill patients possibly explained by cultural norms and family structure in China (28).

ICs in this sample provided an average of 37.73 ± 50.67 hours of caregiving per week which is equivalent to a full-time employment. More than a quarter of the ICs reported providing full care for their patient and highlighted that the care was done solely by them with minimal input from the patient; this underscores the high care dependency of patients living with HF. Most of the ICs in this sample were unemployed possibly because the majority are women, and this mirrors the high unemployment rates due to the financial conundrum facing Lebanon. Although not statistically significant, caregivers who were unemployed had higher caregiver strain than those who were employed. This could be because unemployment poses financial burdens and added caregiver strain and going to work may be seen as a respite for ICs. Income and current employment status of the members of the dyad did not have any significant impact on the strain level in this study; however, this was contradicted in a number of studies reporting financial strains and employment to be significantly associated with increased burden (24). Financial strains were also associated with lower scores on the mental component of the quality of life of Chinese ICs (28).

Higher patient symptomatology was associated with lower caregiver strain in this sample. This contradicts findings of other studies that reported higher burden among ICs caring for patients with moderate to severe HF [New York Heart Association classes III and IV] compared with those caring for patients with mild HF (New York Heart Association classes I and II] (29). This could be explained by the notion that providing care to a person who is symptomatic and in need can be rewarding for a caregiver, as some studies have shown (30–32) and this can compensate the burden due to caregiving. Interestingly, we found that ICs providing full care to their patients reported significantly higher caregiver strain compared to those providing minimal or moderate care and being in a caregiver-oriented dyadic typology had the highest caregiver strain in this sample. This was not consistent with studies that highlighted that caregiver contributions to self-care maintenance and management were not significant predictors of caregiver burden (32).

Poor quality of the dyadic relationship as perceived by the IC was significantly associated with higher caregiver strain in this sample. Conceptually, relationship quality has been proposed to be a key factor in caregiver burden from caregiving, and caregiver depressive symptoms may significantly confound this relationship (33, 34). This was confirmed in a study where relationship quality was positively associated with caregiver benefit and negatively associated with burden and depression (35). Relationship quality and burden remained associated after controlling for depression. These findings further emphasize the critical role of perceived relationship quality in shaping caregiver strain among dyads living with HF. They highlight the need to move beyond individual-level assessments and incorporate relational evaluations into routine HF care. Systematic assessment of dyadic functioning may allow clinicians to identify caregivers at heightened risk for strain and to design interventions that strengthen relational resilience alongside symptom management.

Strength and Limitations

This secondary analysis suffers the limitations common to this type of analysis – we were constrained by factors from the parent study such as cross-sectional design, convenience sampling, social desirability in self-report, and recruiting from both inpatient setting with greater patient needs and outpatient setting with lesser needs for caregiving. At the same time, this study has important strengths. To our knowledge, it is among the first in the MENA region to examine perceived caregiver strain in the context of HF while explicitly situating caregiving within a collectivist sociocultural framework. Although cross-sectional studies on caregiver burden have been conducted in other collectivist societies, such as China, and research on caregiver burden exists in countries like Saudi Arabia, prior work in the region has not clearly conceptualized or analytically linked caregiver strain to the underlying collectivist ethos in which caregiving is viewed as a familial and social obligation rather than an individual choice. By foregrounding this cultural lens, our study advances the discourse beyond prevalence estimates to a more contextualized understanding of strain within collectivist societies.

Conclusion

In this study, we found that different caregiver characteristics influence different dimensions of caregiver strain, and caregivers should be assessed for these potential determinants. HF nurses and physicians in the MENA region should start giving special attention to caregivers of HF patients particularly those who report feeling stressed in caregiving, have poorer quality of life and lower perceived relationship quality because they are more exposed to caregiver strain. Interventions to reduce HF caregiver strain should consider which dimensions of strain is affected in caregivers.

Finally, a very important finding in this study is that ICs have less strain when caring for the more functionally dependent or more symptomatic patients as this can compensate the burden due to caregiving. As such, healthcare providers can depend on ICs when patients need them most.

Governments in the MENA region should recognize that caregiving is equivalent to a full-time employment and that more than a quarter of the ICs report that the care was done solely by them with minimal input from the patient underscoring the high care dependency of patients living with HF in this part of the world.

Abbreviations

IC
Informal Caregiver
HF
Heart Failure
MENA
Middle East and North Africa
mCSI
modified Caregiver Strain Index
COPE
Carers of Older People in Europe Index

Declarations

Ethics Approval and Consent to Participate: This study is in accordance with the Declaration of Helsinki and was approved by the American University of Beirut Institutional Review Board [Approval no. SBS-2018-0529] in December 2018. All participants signed an informed consent prior to the data collection.

Clinical Trial Number: Not Applicable.

Consent for Publication: Not Applicable.

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