



Research article

Quality of life of working and non-working Jordanian mothers caring for chronically ill child and its associated factors

Huda F. Gharaibeh^{a,*}, Muntaha K. Gharaibeh^b^a Maternal-Child Health and Midwifery Department, Faculty of Nursing, Jordan University of Science and Technology, Po Box (3030), 22110, Irbid, Jordan^b Maternal-Child Health and Midwifery Department, Jordan University of Science and Technology, Po Box (3030), 22110, Irbid, Jordan

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ABSTRACT

Background: Balancing work-life and routines of daily life gets complex when a child is chronically ill.**Aim:** This study aimed to examine the QOL of working and non-working mothers caring for children with a chronic illness in Jordan and determine predictors of QOL of working mothers.**Design:** Descriptive comparative cross-sectional design.**Method:** Data from 164 mothers who cared for a child with a chronic disease were collected. The World Health Organization Quality of Life – BREF (WHOQOL-BREF) was used to collect the data on physical, psychological, social relationships, and environment domains.**Results:** The quality of life of working mothers was significantly lower than those of non-working mothers on all domains of WHOQOL-BREF. Mother's working status, monthly income, evaluation of their own health explained 41% of the variance. Social, family and employer support may help them overcome the challenges of caring for a child with a chronic illness and maintain good QOL.

1. Introduction

Caring for a chronically ill child can significantly impact families and can result in negative health consequences and poor quality of life (QOL) in caregivers. According to the National Caregiver Alliance, one in six Americans cares for someone with health problems while continuing their employment either full time or part-time (Family Caregiver Alliance, 2019). Family Caregiver Alliance also reports that 70% of them experience work-related difficulties because of their dual role. About 75% of the caregivers are females and of that 14% care for children with chronic illnesses (Family Caregiver Alliance, 2019). Female workers may suffer from more economic hardship from caregiving due to alternate work arrangements or taking less paid jobs to fit the schedule (Family Caregiver Alliance, 2019). Therefore, they may choose to take additional jobs to meet their economic demands to cover the cost of caring (Family Caregiver Alliance, 2019). While this is in the context of the United States, similar statistics on caregivers are not available in the Middle Eastern/Arabic or Jordanian context.

Chronic illness in children affects the health and QOL of caregivers and mothers are usually the primary caregivers particularly so in the middle eastern context. Working women will experience even more

consequences of caregiving with adaptation, stress, depression, and hopelessness and affect their quality of life (QOL) (Delina and Raya, 2013). (Vickers et al., 2004a). Common chronic conditions that affect children in Jordan include inherited diseases, asthma, congenital heart diseases, cystic fibrosis, seizure disorders, and cerebral palsy, and each condition may have a unique impact on the caregivers.

2. Literature review: impact of caregiving on QOL

Quality of life defined by “WHOQOL Group as the “individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns” (WHOQOL, 1994) p.28). Quality of life may be affected by the person's physical health, psychological state, personal beliefs, social relationships, and their relationship to salient features of their environment (WHOQOL, 1994). The literature has documented that self determination is impacted by environmental factors, including living or work. The quality of life of working and non-working women had been investigated in the past. Women who are employed may have to go home and complete the household chores like cooking, cleaning, and other chores resulting in mental and physical exhaustion (Bhola and Nigade,

* Corresponding author.

E-mail address: hudag@just.edu.jo (H.F. Gharaibeh).

2016; Jackson, 2013; Stevanovic et al., 2009). Quality of work-life could determine the overall QOL of women (Bhola and Nigade, 2016). Emotional exhaustion at work can result from family stressors and lack of family support (Stevanovic et al., 2009). (Jackson, 2013) reported that 78% of women felt they worked a 'second shift' when they try to fulfill the daily family responsibilities of doing tasks like laundry, cleaning, making dinner, and taking care of the family (Jackson, 2013). (Drobnic and Guillén Rodríguez, 2011) described this as a "double burden" hypothesis. The stress experienced by women who try to balance work and life on an ongoing basis may be aggravated when there is an additional responsibility of caring for a sick child at home.

2.1. QOL of mothers who care for children with chronic illnesses

QOL of mothers of healthy and sick children had been a topic of research for the past few decades. Croatian mothers of healthy preschool children reportedly have a better QOL if they are employed and they remain physically active (Babić Čikeš et al., 2015). (Cooklin et al., 2015) found that work-life balance may be important particularly in the early years of parenting. Single mothers maybe even more at a disadvantage (Dziak et al., 2010). Mothers have reported "doing-it-all" while constantly being disappointed and challenged in their role of rearing a sick child (Vickers et al., 2004). QOL of working mothers with healthy children may be different from the QOL of those who care for sick children.

The caregiver burden and QOL of mothers who care for children with different types of chronic illnesses had been investigated. Poor QOL had been reported in caregivers of children with tracheostomy (Joseph et al., 2014), autism spectrum disorder (Cadman et al., 2012; Miranda et al., 2015; Vohra et al., 2014), sickle cell disease (Van den Tweel et al., 2008), cerebral palsy (Marrón et al., 2013) and brain damage (Chronister et al., 2016). Mothers who care for children with a chronic illness were found to have a higher level of anxiety and depression (Özkaya et al., 2010), and disrupted sleep patterns that can influence the mood, and, motor and cognitive functioning (Meltzer and Mindell, 2006) Maintaining the QOL of mothers is vital to meet the demands of her caring role, maintain her physical and mental health, and enable her to meet the physical and emotional needs of the ill child (Goldbeck, 2006). The complexity of the situation increases when the mothers, with their additional tasks at home, try to fulfill their professional responsibilities. However, holding a job may be essential to meet their increasing financial demands. Financial instabilities secondary to missed work or leave of absences can affect their QOL (Lawoko and Soares, 2003). As women workforce increase globally it is essential to examine the status of Jordanian women who try to achieve work-life balance while caring for their sick child.

2.2. Women workforce in Jordan

While the status of women in Arabic culture is a topic of interest, Jordanian women have made significant achievements throughout the years such as higher school enrollment (98%), marriage age of 26.7 years, and a life expectancy of 74.2 years (Report, 2016). Despite these achievements and the reduced gender gap in education, Jordan still has one of the world's lowest rates of working women at 17.7%, a rate lower than the average women workforce in the Middle East (Jordan stats, 2016; The world bank data, 2019). Thus, due to low demand, services available for working women such as flexible working hours and availability of childcare services are limited in Jordan.

Caregiving identity framework can be used to explain the processes involved in the complex caregiving situation (Montgomery et al., 2007). Family obligations and role expectations of females/mothers in the Jordanian context endorses women as primary caregivers of children with chronic illness. Women are assumed to be gentle and caregiving in nature and nurture. This can physically and emotionally drain them and as the child grows in chronological age, their sense of loss of their dream child aggravates the emotional exhaustion. Educated women desire to have a career future and contribute to society. They develop their identity as a

professional-a teacher, nurse, etc., however, struggles to balance the caregiving role and professional role. In addition, the family may expect her to meet the regular needs of the family –care for household chores, care for parents, siblings, and spouse. Mothers may try to negotiate the roles, seek support from family members, or even change jobs to accommodate the caregiving roles. Sometimes the context demands that they quit their jobs to meet the caregiving needs, placing an additional financial burden on the family. Women should have the opportunity to remain in the workforce while managing the day-to-day affairs of life and identifying the factors that impact their QOL is essential to develop strategies to support them to balance work, life, and caregiving (Alfuqaha and Zeilani, 2019). conducted a descriptive phenomenology study to describe the lived experience of Jordanian working women in the health sectors after returning from maternity leave. They described themes that women face; a new life with burdens, errands and tasks, eager and keen to sleep, experiencing diverse emotions and experiencing guilt feelings (Alfuqaha and Zeilani, 2019).

2.3. Gap in literature and significance of the study

Literature is scant on studies that examined the QOL of mothers –working or non-working-who care for a chronically ill child in the Jordanian context. The purpose of the study was to examine the difference in the perceived QOL of working and non-working mothers who care for children with a chronic illness. In addition, the relationship between mothers' socio-demographic variables and QOL was examined. For purposes of this study the terms 'working women' were defined as women who work outside the home for a regular salary, and 'non-working women' was defined as the women who do not work for a regular salary. The caregiver identify framework will be used to examine the variables and the impact of employment on QOL of caregiving mothers. We set the research hypotheses as:

1. The QOL of Jordanian working mothers are significantly lower than that of the nonworking mothers who care for a chronically ill child.
2. The sociodemographic variables and the overall perception of their health are predictive of the QOL of Jordanian mothers caring for a chronically ill child.

3. Methods

3.1. Design and setting

A descriptive comparative cross-sectional design was used to conduct the study between November 2015 and April 2016. Mothers were recruited from two public hospitals in the northern region of Jordan: a tertiary care teaching hospital, and a pediatric-affiliated teaching hospital with pediatric outpatient clinics.

3.2. Ethical consideration

The Institutional Review Board of King Abdulla Hospital, Irbid, Jordan, and approval from the Ministry of Health (MOH), Jordan was obtained. Participation in the study was voluntary, participants provided oral and written consent, and confidentiality was assured. Participants were informed about their right to withdraw from the study at any time.

3.3. Sample

Non-probability, convenient sample was utilized. Inclusion criteria were as follows: mothers of children with a chronic illness; Jordanian nationality; and fluency in oral/written Arabic. Based on power Analysis (G*Power) a minimum of 128 participants was required for a medium effect size of 0.5, power as .80, and predetermined alpha of .05 for a two-tailed test (Cohen, 1992). The sample was increased to 164 (working =

53, nonworking = 111) to ensure representation of working mothers since the percentage of working mothers in Jordan is low.

3.4. Measurements/data collection tools

Data were collected using two tools; a researcher-developed demographic data form (age, marital status, religion, education, occupation number of family members, and household income), and the Arabic version of World Health Organization Quality of Life instrument WHOQOL-BREF (World Health Organization, 1996). The WHOQOL-BREF consists of 26 items that include two questions about the individual's overall perception of their own QOL and overall evaluation of their health. The WHOQOL-BREF has four subscales depicting four domains: physical (7 items), psychological (6 items), social (3 items) and environmental (8 items). Each item is on a five-point Likert scale. The mean score of items within each domain is used to calculate the domain score. Guidelines for transforming the raw score of each item were used for calculating the mean score. Domain scores are scaled in a positive direction (i.e. higher scores denote higher QOL). The WHOQOL-BREF, a tool cross-culturally validated to measure QOL, has excellent psychometric properties Cronbach's Alpha >0.7 for the total sample, values for Cronbach's α were acceptable (>0.7) for Domains 1, 2 and 4 i.e. physical health 0.82, psychological 0.81, environment 0.80, but marginal for social relationships 0.68 (Skevington et al., 2004). The Arabic version of WHOQOL-BREF reported an internal consistency values for the full questionnaire ($\alpha = .92$) and the domains met the 0.7 criterion, except for social domain (0.69) (Dalky et al., 2017).

3.5. Data collection

Mothers were approached in the hospital at the time of their child's appointment and discussed the study. Mothers who agreed to participate were given a complete description of the study and they signed a consent form. Data collection occurred in a private setting. Literate participants self-reported on the data collection form (Demographic and WHOQOL-BREF), while the researcher read the questions for mothers who were illiterate ($n = 7$), and recorded their responses in the form. All data were collected in hard copy forms and entered into SPSS 20.0. Incomplete or missed data were not encountered as the participants responded to all the items in the questionnaire. The hard copies of data were stored in a locked cabinet in the principal investigator's office.

3.6. Data analysis

Descriptive analysis was used to define the sample characteristics. An independent sample t -test was used to identify differences in QOL between working and non-working mothers. All assumptions for performing independent t -test on all domains of WHOQOL-BREF as normality of data distribution, adequacy of sample size and equality of variance in standard deviation were met. Scores of WHOQOL-BREF in all domains were normally distributed with an accepted level of skewness between (-0.44 and -0.062). A p -value of <0.05 level was considered statistically significant. Multiple Linear regression analysis was used to predict factors influencing QOL of working mothers who care for children with a chronic illness. Six of the independent variables entered the model during the multiple linear regressions. Age and income were treated in the model as continuous variables. The remaining four variables were treated as a binomial variable and coded 0 and 1, as follows: (i) working status was categorized in two levels: not working (0) and working (1); (ii) number of family members was re-categorized as 1 to four children (0) and more than 4 children as (1); (iii) mothers' education was also re-categorized as less than secondary education (0) and more than secondary education (1); and (iv) mothers evaluation of health was categorized as poor if their scores below 50 (0), and good if their scores 50 and above (1).

4. Results

4.1. Demographic data

Of the 164 mothers who participated in this study, 111 (67.7%) were unemployed and 4.3% were illiterate (Table 1). The mean age of the participants was 33.8 years (range 16–56 years). The majority were in the 26–36-year age group. While 67% of the families had five or more family members in the household, only 24% of the families had an income of more than 500 Jordanian Dinars per month (JD) (1 JD = 1.40US \$). Complete data on sociodemographic variables of mothers are presented in Table 1. The number of children who were chronically ill varied from 1 to 3 and the type of chronic illness also varied, data on the severity of chronic illness were not collected because the severity level is very subjective and using a self-report measure may not be ideal to gather this information.

4.2. Quality of life scores

For the item on the mother's perception of their overall QOL, a significant difference was noted between the working and non-working mothers. On a scale of 1–5, working mothers reported a mean score of 2.79 (SD = 1.24) and non-working mothers reported a mean score of 3.35 (SD = 0.09), ($t = 3.17$, $p = 0.002$). Similar results were noted on the mothers' evaluation of their own health with the mean score of working mothers being $M = 2.77$ (SD = 1.23), and that of non-working mothers being $M = 3.43$ (SD = 1.09), ($t = 3.46$, $p = 0.001$).

Independent samples t -tests were used to compare the means to examine the difference between the two groups of mothers in each domain of the WHOQOL-BREF (Table 2). For all mothers, the highest mean score of the WHOQOL-BREF domains was reported for social relationships followed by physical health, then the psychological domain, whereas the lowest score was reported for the environment domain. In all domains working mothers had lower scores than non-working mothers. In social relationship domain non-working mothers exhibited better scores (Working mothers: $M = 57.86$, $SD = 24.04$; non-working mothers: $M = 66.06$, $SD = 18.85$; $t = 2.38$; $p = 0.01$). In the physical domain the Mean score of working mothers was $M = 56.40$ (SD = 16.06), while that of the non-working mothers was significantly higher, $M = 62.87$ (SD = 13.78) ($t = 2.66$, $p = 0.009$). This means non-working mothers were physically healthier and have better QOL compared to working mothers who care for children with a chronic illness. In the psychological domain also the non-working mothers had higher score indicating better QOL (Working mothers: $M = 51.49$, $SD = 16.23$; non-working mothers: $M = 59.12$, $SD = 16.23$; $t = 2.66$, $p = 0.009$), whereas no statistically significant difference was noted between the scores of the two groups in the environment domain (Working mothers: $M = 48.34$, $SD = 22.46$; non-working mothers: $M = 54.47$, $SD = 17.47$; $t = 1.91$; $p = 0.057$). Overall these scores indicate that non-working mothers had a better QOL than the working mothers.

4.3. Sociodemographic factors and quality of life

Multiple linear regression was performed to examine factors that could explain the variance in mothers' QOL scores. Six independent variables such as work status, mother's evaluation of their health, monthly income, education, age of the mother, and the number of family members, were used to perform regression analysis (Table 3). Three variables significantly contributed to the 41percent in variance in the model. While work status of the mother ($\beta = -7.5$, $t = -3.59$, $P = 0.001$) was related to poor QOL, perception of being in good health ($\beta = 0.38$, $t = 9.23$, $P = 0.0001$) and higher income ($\beta = 0.005$, $t = 1.90$, $P = .05$) were significantly associated with improved WHOQOL-BREF scores. However, the number of family members, mother's education, and mother's age did not significantly contribute to the variance (Table 3).

Table 1. Socio-demographic characteristics of participated mothers.

Items	Mean (SD)	Non - Working	Working
		N = 111 n (%)	N = 53 n(%)
Mean Age	33.81 (7.87)		
Age in years:			
-16–25 years' old		20(18)	6(11.3)
-26–36 years' old		46(41.4)	30(56.6)
-37 and more		45(40.5)	17(32.1)
Mothers Education:			
-Less than high school		49(44.1)	4(7.5)
-High school		42(37.8)	17(32.1)
-Diploma and more-		20(18.0)	32(60.4)
Number of family members (including the Parents)			
-1–4 No. of the family		36(32.4)	18(34)
-5-7		52(46.8)	29(54.7)
-8 and more		23(20.7)	6(11.3)
Mean family income	459.57 (350.81)		
Family income			
-350JD or Less		61(55.0)	17(32.1)
-351-500JD		34(30.6)	12 (22.6)
-More than 500 JD		16(14.4)	24(45.3)
Number of diseased children			
-One child		89(80.2)	44(83.0)
-Two children		16(14.4)	5(9.4)
-Three children or more		6(5.4)	3(7.5)
Child chronic illness			
-Respiratory problem		68(62.2)	32(60.4)
-Cardiac Problems &Blood disorder		12(10.8)	6(11.3 3)
-Endocrine problem		3(2.7)	2(3.8)
-Neurological problem		22(19.8)	10(18.9)
-GI problems & others		5(4.50)	5(5.7)

5. Discussion

Hypotheses 1. The QOL of working mothers is significantly lower than that of the nonworking mothers who care for a chronically ill child.

The findings of this study highlight the impact of caring for a sick child on the QOL of working mothers. The QOL of these mothers is important for their productive professional life, maintain their own social and emotional life, and deliver appropriate care to their sick children so that the child's health is maintained. Findings of the study lend support to

Table 2. Independent *t*-test for differences in health-related quality of life between non-working and working mothers.

Quality of life subscales	M±SD	Mean difference	<i>t</i> -value	<i>P</i> -value
Domain1-Physical Health				
Non-Working	62.87± (13.78)	6.46	2.66	.009**
Working	56.40 (16.06)			
Domain 2-Psychological				
Not-Working	59.12 ± (16.23)	7.62	2.66	.009**
Working	51.49 ± (19.00)			
Domain 3-Social Relationship				
Not -Working	66.06 ± (18.82)	8.20	2.38	.018*
Working	57.86 ± (24.04)			
Domain 4-Envrionment				
Non- Working	54.47 ± (17.35)	6.12	1.91	.057
Working	48.30 ± (22.46)			
An individual's overall perception of quality of life				
Non- Working	3.35 ± (0.95)	0.55	3.17	0.002**
Working	2.79 ± (1.24)			
An individual's overall perception of their health				
Non- Working	3.43 ± (1.09)	0.66	3.46	.001**
Working	2.77 ± (1.23)			

Table 3. Predictors of Health-related quality of life for working Mothers of children with chronic illness.

	B	SE	Beta	T	P-value
Constant	49.35	4.95		7.73	.0001**
Working mothers	-7.58	2.10	-.23	-3.59	.0001**
Mothers evaluation of health	0.38	.04	.57	9.23	.0001**
Monthly income	0.005	.003	.12	1.90	.050*
Mothers education	-2.91	2.16	-.09	-1.34	.18
Number of family members	-0.40	.48	-.05	-.83	.40
Mother age	0.02	.126	.01	.17	.86

$R^2 = 0.414$, $R = 0.64$. Predictors (constant): Working mother, Mothers' evaluation of health, Monthly income mother education, Numbers of family members, and mother age. Dependent variable: total quality of life.

the existing literature that working mothers caring for children with a chronic illness have lower QOL than non-working mothers. Many mothers in this study have children with respiratory problems such as asthma. Asthma has become the most serious chronic disease prevalent worldwide and Jordan is no exception. The rate of physician-diagnosed asthma in northern Jordan was 4.1%, and wheezing was reported in 8.3% of primary school children and a two-fold increase in Asthma in Jordan in the previous decade (Abu-Ekteish et al., 2009). A systematic review including 50 studies on the prevalence of physician-diagnosed Asthma in the Middle East was noted as 7.53% (Mirzaei et al., 2017). This predicts an increasing rate of Asthma affecting more families, particularly the mothers. Exacerbations in Asthma in the child may result in the mother's absenteeism from work, lower her financial potential, and poor life satisfaction from poor productivity, as well as emotional tension from having a sick child. While (Sadeghifard et al., 2013) identified family functions, collaboration, and power structure predictive of the QOL of women, they did not find any significant difference in the QOL scores of working and non-working women ($df = 260$; $p.682$). However, they identified healthier family functions exist among the working women ($p = 0.005$). It is understood that the success of Asthma management is achieved by building on family strength and resources (Crespo et al., 2011). Social and family support are essential for improving the QOL of these mothers.

Hypotheses 2. The sociodemographic variables are predictive of the QOL of mothers caring for a chronically ill child.

Three variables in this study could predict the QOL of mothers: being a working mother, the mothers' evaluation of their health, and monthly income. Table 3 illustrates the details of the results. Working mothers perceive their health is more than 7 times lower compared to non-working mothers ($B7.7$; $p = 0.0001$). Monthly income while has a borderline significance ($p = .05$), age, or education did not impact the QOL of mothers. The marital status and the religion were not included in the model because all the mothers were married and all of them were Muslims. Jordan is an Islamic nation (92%) and it is imperative that you have to be married to have children.

Overall lower WHOQOL-BREF scores may be the result of overwhelming responsibilities and a struggle to balance work and life. The current trend in Jordan to minimize inpatient hospital days and manage the sick child at home requires more involvement of mothers in the care of their children and may require time away from work thereby lowering the income (Dowdell, 2004; Guo et al., 2015; Koehler et al., 2014). Furthermore, families experience financial burden caused by the recurrent attacks of chronic illnesses requiring unpredictable emergency room visits (Fagnano et al., 2012; Koehler et al., 2014). This financial burden forces mothers to remain employed, while they may have to be absent from work or change jobs to meet the urgent care needs of the child.

Regarding the psychological domain, working mothers reported lower mean score than the non-working mothers. This aligns well with the findings of other researchers who reported that psychosocial determinants are more crucial in predicting parental QOL than medical and demographic variables (Ekim and Ocakci, 2016; Fidika, Salewski,

Goldbeck, & outcomes, 2013; Hatzmann et al., 2009). Providing a higher level of care to children can be burdensome and have a negative effect on the physical and psychosocial health of caregivers (Ekim and Ocakci, 2016). The review supports the findings of our study that the QOL of caregivers is lower (Ekim and Ocakci, 2016). concluded that identifying caregiver burden risks and protective factors can help develop interventional studies to examine the effect on QOL. Support for proper disease management and workplace strategy to support the mothers may help improve their QOL. In the meantime, healthcare professionals should pay structural attention to working mothers' functioning and wellbeing.

Application of the caregiver identity framework in this context tested the hypotheses and the burden of balancing job and caregiving beyond the routines of life may affect the QOL and health of mothers. The interconnectedness of the social, demographic, work-related, and perception do of the mothers were predictive of the physical, emotional, social and environmental domains of QOL as measured by the WHOQOL-BREF.

6. Implications for practice, education, research, and policy

Nurses can plan and implement care for children with chronic illnesses incorporating the social and psychological needs of the family. Special emphasis must be placed on the role of fathers in supporting the mothers in caring for their ill children, thus decreasing the burden of mothers. Until adequate support systems are available, health care professionals should acknowledge the mothers' feeling of 'caregiver burnout', so that support can be offered as the mothers try to balance their work and care for their sick children (Kidshealth, 2019). Emotional support, and, kind, compassionate and respite care can be offered while the child is receiving inpatient care. Health care professionals should be educated about the impact of sickness in their child on the QOL of working mothers so that influencing factors can be addressed. Further research on specific factors in children with specific illnesses can help provide individualized support to the mothers. Research on interventions adaptable to the Jordanian context may lead to support programs for mothers who try to balance work and caregiving. "Working-mother-friendly" policies can help these mothers. The impact of family support on mothers, role of fathers and their QOL, impact of care burden on the care of siblings are other topics that can be explored. In addition, a follow up study including mothers from different health care facilities can be conducted to examine the QOL of all mothers. Policies on paid and emergency leave, childcare assistance, and reduced working hours can help these mothers alleviate their anxiety and improve their QOL. Public awareness on family support for caregiving and its impact on QOL of working mothers may help other family members to offer and provide support during crises situations.

7. Limitations

Findings are limited by the nature of the convenience sample and the higher number of non-working mothers in the sample. The sample size

was small; therefore, further studies to confirm the findings are essential prior to generalization. Severity of illness of the children also might have affected the QOL scores, further studies need to be conducted with mothers of children of same type of illness. In addition, the study used the general QOL measure and a specific measure of quality of life of mothers caring for chronically ill children will be more sensitive and reveal different findings. A qualitative study using focus group may be ideal before doing a quantitative study in this population.

8. Conclusion

Caring for a child with a chronic illness is challenging to anyone, while this has a significant impact on the mothers who work. In the Arabic culture, mothers are the usual primary caregivers of children, particularly the sick ones. The mother's health and QOL have a direct impact on the health and QOL of the children who are sick. This study found that the QOL of working mothers who cared for children with a chronic illness is lower than that of non-working mothers. Family income, mothers' evaluation of their own health, and mother's work status are factors that significantly influenced their QOL. Services such as childcare services, flexible working hours, and psychological support are essential to help working Jordanian mothers caring for children with a chronic illness.

Declarations

Author contribution statement

H. Gharaibeh: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

M. Gharaibeh: Analyzed and interpreted the data; and Wrote in the paper.

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Data availability statement

Data will be made available on request.

Declaration of interests statement

The authors declare no conflict of interest.

Additional information

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References

Abu-Ekteish, F., Ootom, S., Shehabi, I., 2009. Prevalence of asthma in Jordan: comparison between Bedouins and urban schoolchildren using the International Study of Asthma and Allergies in Childhood phase III protocol. In: Paper Presented at the Allergy and Asthma Proceedings.

Alfuqaha, O., Zeilani, R.J., 2019. The experiences of Jordanian employed women in health sector after returning from maternity leave a qualitative study. *Int. J. Womens Health Wellness* 5 (103), 1–11. ISSN 2474-1353.

Babić Čikeš, A., Tomašić Humer, J., Šincek, D.J. C.a., 2015. Physical activity and quality of life of mothers of preschool children. *Coll. Antropol.* 39 (2), 419–426.

Bhola, D., Nigade, J., 2016. Relationship between work life balance, quality of work life and quality of life of women working in service industry. *Res. Gate* 15 (1), 30–45.

Cadman, T., Eklund, H., Howley, D., Hayward, H., Clarke, H., Findon, J., Psychiatry, A., 2012. Caregiver burden as people with autism spectrum disorder and attention-deficit/hyperactivity disorder transition into adolescence and adulthood in the United Kingdom. *J. Am. Acad. Child Adolesc. Psychiatry* 51 (9), 879–888.

Chronister, J., Johnson, E.T., Chan, F., Tu, W.-M., Chung, Y.-C., Lee, G.K., 2016. Positive person–environment factors as mediators of the relationship between perceived burden and quality of life of caregivers for individuals with traumatic brain injuries. *Rehabil. Counsel. Bull.* 59 (4), 235–246.

Cohen, J., 1992. A power primer. *Psychol. Bull.* 112 (1), 155.

Cooklin, A.R., Westrupp, E., Strazdins, L., Giallo, R., Martin, A., Nicholson, J.M. J.C.c., health, & development, 2015. Mothers' work–family conflict and enrichment: associations with parenting quality and couple relationship. *Child Care Health Dev.* 41 (2), 266–277.

Crespo, C., Carona, C., Silva, N., Canavarró, M.C., Dattilio, F.J.C.F.T., 2011. Understanding the quality of life for parents and their children who have asthma. *Family Res. Chall.* 33 (2), 179–196.

Dalky, H.F., Meininger, J.C., Al-Ali, N.M., 2017. The reliability and validity of the Arabic World Health Organization quality of life-BREF instrument among family caregivers of relatives with psychiatric illnesses in Jordan. *J. Nurs. Res.* 25 (3), 224–230.

Delina, G., Raya, R.P., 2013. A study on work-life balance in working women. *Int. J. Commer. Bus. Manag.* 2 (5), 274–282.

Dowdell, E.B., 2004. Grandmother caregivers and caregiver burden. *MCN Am. J. Matern./Child Nurs.* 29 (5), 299–304.

Drobníč, S., Guillén Rodríguez, A.M.J.S.P., 2011. Tensions between work and home: job quality and working conditions in the institutional contexts of Germany and Spain. *Social Politics* 18 (2), 232–268.

Dziak, E., Janzen, B.L., Muhajarine, N.J., 2010. Inequalities in the psychological well-being of employed, single and partnered mothers: the role of psychosocial work quality and work-family conflict. *Int. J. Equity Health* 9 (1), 1–8.

Ekim, A., Ocakci, A.F., 2016. Caregiver burden in pediatric Asthma: a systematic review. *Health Sci. J.* 10 (6), 1.

Fagnano, M., Berkman, E., Wiesenthal, E., Butz, A., Halterman, J.S., 2012. Depression among caregivers of children with asthma and its impact on communication with health care providers. *Publ. Health* 126 (12), 1051–1057.

Family Caregiver Alliance, 2019. Caregiver Statistics: Work and Caregiving.

Fidika, A., Salewski, C., Goldbeck, L.J.H., outcomes, q. o. l., 2013. Quality of Life Among Parents of Children with Phenylketonuria (PKU), pp. 1–9, 11(1).

Goldbeck, L., 2006. The impact of newly diagnosed chronic paediatric conditions on parental quality of life. *Qual. Life Res.* 15 (7), 1121–1131.

Guo, M., Gao, G., Guo, J., Wen, L., Zeng, L., 2015. Burden among caregivers for children with asthma: a mixed-method study in Guangzhou, China. *Int. J. Nurs. Sci.* 2 (4), 394–401.

Hatzmann, J., Valstar, M.J., Bosch, A.M., Wijburg, F.A., Heymans, H.S., Grootenhuys, M.A.J.A.P., 2009. Predicting health-related quality of life of parents of children with inherited metabolic diseases. *Acta Paediatr.* 98 (7), 1205–1210.

Jackson, 2013. Daily Life Factors that Contribute to Women's Stress.

Joseph, R.A., Goodfellow, L.M., Simko, L.M., 2014. Parental quality of life: caring for an infant or toddler with a tracheostomy at home. *Neonatal Netw.* 33 (2), 86–94.

Kidshealth, 2019. Aking Care of You: Support for Caregivers.

Koehler, A.D., Fagnano, M., Montes, G., Halterman, J.S., 2014. Elevated burden for caregivers of children with persistent asthma and a developmental disability. *Matern. Child Health J.* 18 (9), 2080–2088.

Lawoko, S., Soares, J.J., 2003. Quality of life among parents of children with congenital heart disease, parents of children with other diseases and parents of healthy children. *Qual. Life Res.* 12 (6), 655–666.

Marrón, E.M., Redolar-Ripol, D., Boixadós, M., Nieto, R., Guillamón, N., Hernández, E., Gómez, B., 2013. Burden on caregivers of children with cerebral palsy: predictors and related factors. *Univ. Psychol.* 12 (3), 767–777.

Meltzer, L.J., Mindell, J.A., 2006. Impact of a child's chronic illness on maternal sleep and daytime functioning. *Arch. Intern. Med.* 166 (16), 1749–1755.

Miranda, A., Tárrega, R., Fernández, M.I., Colomer, C., Pastor, G.J.E.C., 2015. Parenting Stress in Families of Children with Autism Spectrum Disorder and ADHD, pp. 81–95, 82(1).

Mirzaei, M., Karimi, M., Beheshti, S., Mohammadi, M., 2017. Prevalence of asthma among middle eastern children: a systematic review. *Med. J. Islam. Repub. Iran* 31, 9.

Montgomery, R.J., Rowe, J.M., Kosloski, K.J., practice, & policy, 2007. Family Caregiving, pp. 426–454.

Özkaya, E., Cetin, M., Uğurad, Z., Samancı, N., 2010. Evaluation of family functioning and anxiety-depression parameters in mothers of children with asthma. *Allergol. Immunopathol.* 38 (1), 25–30.

Report, J.S., 2016. Department of Statistics. Retrieved from. http://dosweb.dos.gov.jo/DataBank/yearbook/YearBook2016_eng.pdf.

Sadeghifard, M., Zarei, E., Rafiee, N., 2013. Anticipating quality of life of working women and housewives based on power structure, collaboration and family functions. *J. Educ. Manag. Stud.* 3 (3), 257–260.

Skevington, S.M., Lotfy, M., O'Connell, K.A., 2004. The World Health Organization's WHOQOL-BREF quality of life assessment: psychometric properties and results of the international field trial. A report from the WHOQOL group. *Qual. Life Res.* 13 (2), 299–310.

Stevanovic, P., Rupert, P.A., Practice, 2009. Work-family spillover and life satisfaction among professional psychologists. *Prof. Psychol. Res. Pract.* 40 (1), 62.

Van den Tweel, X.W., Hatzmann, J., Ensink, E., van der Lee, J.H., Peters, M., Fijnvandraat, K., Grootenhuys, M., 2008. Quality of life of female caregivers of children with sickle cell disease, a survey. *Haematologica* 93 (4), 588–593.

- Vickers, M., Parris, M., Bailey, J., 2004a. Working mothers of children with chronic illness: narratives of working and caring. *Aust. J. Early Child.* 29 (1), 39.
- Vickers, M., Parris, M., Bailey, J., 2004b. Working mothers of children with chronic illness: narratives of working and caring. *Australas. J. Early Child.* 29 (1), 39–44.
- Vohra, R., Madhavan, S., Sambamoorthi, U., St Peter, C.J.A., 2014. Access to services, quality of care, and family impact for children with autism, other developmental disabilities, and other mental health conditions. *Autism* 18 (7), 815–826.
- WHOQOL, G., 1994. Development of the WHOQOL: rationale and current status. *Int. J. Ment. Health* 23 (3), 24–56.
- WorldHealthOrganization, 1996. WHOQOL-BREF: Introduction, Administration, Scoring and Generic Version of the Assessment: Field Trial Version, December 1996. Retrieved from.