

Anxiety in Family Caregivers of Dialysis Patients in Nairobi County, Kenya

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Abstract

End stage kidney disease (ESKD) signifies that the kidney has failed to work. Henceforth, in the absence of a kidney transplant, the work of the kidney is carried out by the process known as dialysis. A diagnosis of ESKD and subsequent dialysis results in major lifestyle changes in the family. It also calls for drastic measures in caregiving for the patient as changes occur in medication and diet. With time, one member of the family, referred to as the Family Caregiver (FCG) becomes responsible for all the patient's care. Studies have shown that this caregiving burden may compromise the FCG's health, resulting in, among other mental disorders, anxiety. However, this has not been studied enough and therefore there is need to consider the incidence of and factors associated with anxiety among FCGs of dialysis patients. In a cross-sectional study, using a convenience sample of 96 FCGs and their patients in various private hospitals in Nairobi and using the Beck Anxiety Index (BAI), this study determined the mean anxiety score among the FCGs as 18.9, indicating moderate anxiety. The results demonstrate the following aspects as being significantly associated with elevated anxiety levels: residing away from the patient, educational level of the patients, and doing other work, particularly business, apart from caring for the patient. These findings are relevant for clinical practice for all those involved in the care including the FCGs, medical community and psychologists.

Key Words: end stage kidney disease, family caregivers, anxiety

Introduction and background

It has been established that giving care to a chronically ill family member can have negative effects on the caregivers' life (Feinberg, Reinherd, Houser, & Choula, 2011). In particular, it has been noted that FCGs of patients with renal disease undergo serious stresses due to their role, which could result in the development of mental disorders among this population (Auer, 2002; Belasco & Sesso, 2002; Belasco, Barbosa, Bettencourt, Diccini, & Sesso, 2006). In a review of 30 years of general caregiving literature, Feinberg et al. (2011) found a key theme, namely giving care to a chronically ill family member can have negative effects on the caregiver's life. Accordingly, the FCG is negatively affected in terms of finances, retirement,

career, physical and emotional health, and social networks. If the patient with renal disease has a comorbidity of mental and physical disorders, the impact becomes particularly severe on the FCGs. In turn, they might present with difficulties such as depression and anxiety-related symptoms.

Caregiving literature refers to FCGs as the “hidden patients” (Kristjanson, 2004) or as "secondary patients" (Reinherd, Given, Petlick, & Bremis, 2008). Like any other terminal illness, from diagnosis and in the course of treatment, the family experiences major adverse financial and lifestyle changes. It is the family that withstands the worst of the illness as it seeks to facilitate, accommodate and effect requisite changes (Auer, 2002). Certainly, most of the patient's life is spent at home under the care of (most probably) a family member who is unpaid for the diverse roles he or she plays. These roles are burdensome and need to be addressed during the course of treatment of the patient.

Consequently, FCGs can be identified as the individuals who during the course of treatment are most closely involved in caring for the patients and helping them cope with and manage their chronic illness. Auer (2002) pointed out that the renal medical team takes great care of the patient after diagnosis. This is not so for the caregivers whom the medical team lends little support, whether psychologically or otherwise. This support to FCGs is crucial because there are complex medical tasks that FCGs undertake. They often feel unprepared to provide care, have inadequate knowledge to deliver proper care, and receive little guidance from the formal health care providers (Scherbring, 2002).

Due to their inadequate knowledge and skill in medical procedures, FCGs may be unfamiliar with the type of care they must provide, or the amount of care needed. For instance, they are tasked with observing their patients for early signs of problems such as medication side effects, and high or low blood pressure. These are serious responsibilities and FCGs are often unable to interpret their patients' symptoms, including the ability to discern emergency situations. With the scanty help from health care professionals in managing these tasks and the emotional demands of caregiving, the health care needs of FCGs end up being neglected, hence the possibility of deterioration of their physical and psychological well-being (Gayomali, 2008).

A consequence of this may be the development of mental disorders such as anxiety. Studies have tended to mention in passing that FCGs have stress and anxiety due to their caregiving role (Avsca et al., 2013; Celik, Annagur, Yilmaz, Demir, & Kara, 2012; Shultz & Sherwood, 2008). However, little appears to have been done to establish the severity levels of the disorder. Accordingly, this study aimed at establishing the incidence, severity levels and specific factors that led to anxiety among the FCGs. This would create awareness among the kidney medical fraternity that they have secondary patients, that is, the FCGs who may require subsequent referral for psychological help. Psychologists are also equipped to diagnose anxiety in family members of ESKD patients.

Methodology

This study used a cross-sectional design. This is an observational approach where the study environment is not manipulated (Mugenda, 2013). Study participants were enrolled from four dialysis units, all in the private sector in the City County of Nairobi. Following the baseline recruitment, a total of 96 participants were enrolled in the study using convenience sampling. Only family members of the patients who had mild and moderate anxiety were included in the study.

Selection of the sample in this study was challenging in that there was no sampling frame from which to calculate the sample size. The only indication of the numbers of the population of FCGs was that they were pegged to the available patients. The formula that was used to calculate the minimum required sample size is known as the Lameshow Model. Difference in points of recruitment did not confound the results because the unit of analysis was the family caregiver (FCG) accompanying the dialysis patient. Due to scarcity of the number of FCGs accompanying their dialysis patients, all consenting FCGs were consequently enrolled into the study until the sample size was attained.

Most of the caregivers were female (56.2%) with slightly over 50% of them being married. The mean age among the FCGs was $42.7 \pm (13.4 \text{ SD})$ ranging between 18 and 74 years. Mean age of female FCGs was high ($44.8 \pm (11.3 \text{ SD})$), though not significantly different compared to the mean age of their male counterparts ($39.9 \pm (15.3 \text{ SD})$, $(p=0.072)$).

A researcher-generated questionnaire capturing the socio-demographic data of the FCGs was used. The data sought included: age, gender, marital status, educational level, religion, occupation, cost of dialysis per week, who paid for dialysis, religion and occupation of the FCGs.

The Hospital Anxiety and Depression Scale, a 14-item tool was used to screen participants. Those who scored 8 and above joined the study. The test developer Snaith (2003) considered this as the threshold that indicates the presence of anxiety.

The psychological tool used to measure anxiety was the BAI. It was developed to address the need for an instrument that would distinguish anxiety from depression. It was expected that the BAI would offer advantages in clinical and research settings over the then existing self-report measures which were not distinguishing depression and anxiety adequately. It is a 21-item scale that measures the severity of self-reported anxiety in adults and adolescents consisting of descriptive statements of anxiety symptoms which are rated on a 4-point scale (Beck & Steer, 1993).

Each of the 21 items describes common symptoms of anxiety. The respondent is asked to rate how much he or she has been bothered by each symptom over the past week on a 4-point scale ranging from 0 to 3. The answers are summed to obtain a total score that can range from 0 to 63. The following guidelines are recommended for the interpretation of scores: 0–9, normal or no anxiety; 10–18, mild to moderate anxiety; 19–29, moderate to severe anxiety; and 30–63, severe anxiety (Julian, 2011). This study excluded those with severe anxiety. This is because this severity level would require pharmacological interventions which were beyond the purview of this study.

The BAI has been found to be psychometrically sound with its internal consistency (Cronbach's alpha) ranging from .92 to .94 for adults and test-retest (one-week interval) reliability at .75 (APA, 2014; Beck, Epstein, Brown, & Steer, 1988). It has been used in Zambia to measure anxiety among HIV patients in Lusaka (Ncheke, 2014). In Nigeria it was used with a reliability coefficient of .79 which was obtained in a school study that measured anxiety due to examinations (Olaitan & Moroluyo, 2014). A Kenyan study also used the BAI to measure anxiety among diploma students at a nursing college and found its psychometric

properties sound (Muriungi & Ndeti, 2013). It was therefore a culturally and psychometrically relevant tool to use in this study.

Results

A total of 96 participants (FCGs) were enrolled in the study. Table 1 presents the socio-demographic characteristics of the participants. The proportion of women was relatively high (56.3%). This indicates that it is females who mostly care for patients on dialysis. A high number of participants were aged 36-55 years (49.0%), suggesting that FCGs are mainly people in their prime. Most of the FCGs were married (51.0%), with 33.3% being single. A relatively high proportion (68.8%) had attained tertiary education, with most participants reporting to be Christians (78.1%). Most of the participants (68.8%) resided with the patients, with a relatively high proportion of the participants (66.7%) reporting that the patient they were taking care of had been on treatment for at least 1 year. This suggests that there may have been a sufficient time to have experienced the caregiving burden. The majority of the participants were engaged in informal employment (71.9%), possibly giving them the flexibility to divide their attention between their businesses and giving care to their patients.

Table 1: Socio-Demographic Characteristics of the Participants

Variables	n=96	%
Gender		
Male	42	43.8%
Female	54	56.3%
Age in years		
<36 years	29	30.2%
36 - 55 years	47	49.0%
>55 years	20	20.8%
Marital status		
Married	49	51.0%
Single	32	33.3%
Divorced/ Separated/ Co-habiting/ Widowed	15	15.6%
Education level		
Secondary and below	30	31.3%
Tertiary	66	68.8%
Religion		
Christianity	75	78.1%
Other	21	21.9%
Resides with patient		

Yes	66	68.8%
No	30	31.3%
Duration of treatment		
<1 year	32	33.3%
1 year and above	64	66.7%
Other work done by the participant apart from taking care of the patient		
Employed	27	28.1%
Business	35	36.5%
Others	34	35.4%

Analysis of socio-demographic characteristics of the patients was done as presented in Table 2. The proportion of participants with male patients was relatively high (75.0%) indicating that most ESKD patients are male. A high number of participants had patients aged more than 55 years (43.8%). Most of the participants' patients were married (59.4%), with 17.7% being single. A relatively high proportion of the participants' patients (52.1%) had attained secondary education or below, with the majority of participants (67.7%) reporting to be related to the patients at the nuclear family level (Mother/ Father, Wife/ Husband, and Daughter/ Son). Most of the participants (82.3%) reported that the patients were Christians. A profile of the patients that the FCGs took care of therefore emerged as being in late adulthood, married and being a close member of the family of the patient.

Table 2: Socio-Demographic Characteristics of the Patients

Variables	n=96	%
Gender		
Male	72	75.0%
Female	24	25.0%
Age in years		
<36 years	19	19.8%
36 - 55 years	35	36.5%
>55 years	42	43.8%
Marital status		
Married	57	59.4%
Single	17	17.7%
Divorced/ Separated/ Co-habiting/ Widowed	22	22.9%
Education level		
Secondary and below	50	52.1%
Tertiary	46	47.9%
Relationship to FCG		
Mother/ Father	12	12.5%

Wife/ Husband	21	21.9%
Daughter/ Son	32	33.3%
Sister/ Brother	18	18.8%
Other	13	13.5%
Religion		
Christianity	79	82.3%
Other	17	17.7%

Table 3 presents other epidemiological characteristics of the participants. A relatively small proportion of the participants (11.5%) were smoking cigarettes while 28.1% were taking alcohol. This might be because they described themselves as Christians who typically would frown at the use of alcohol and cigarettes in this part of the world. Approximately one-third of the participants (34.4%) had a history of mental illness in the family, with the possibility that this predisposed them to anxiety. The majority of the participants were suffering from other health conditions/ illnesses (56.3%), possibly resulting from the complication of the caregiving burden. Almost all the participants (96%) indicated that they were experiencing stress from caregiving.

Table 3: Other Epidemiological Characteristics of the Participants

Variables	n=96	%
Smoking	11	11.5%
Alcohol use	27	28.1%
History of mental illness in the family	33	34.4%
Suffers from other health conditions/ illnesses	54	56.3%
Experiences stress from care-giving	93	96.9%

Table 4 presents the distribution of the BAI scores. The analysis of the BAI score revealed an overall mean score of 22.5 (\pm 6.3 SD) ranging between 3 and 34. This shows that there existed clinical anxiety among the FCGs. According to the BAI, the severity level of this mean score was mild to moderate, indicating some form of psychological intervention.

Table 4: Distribution of Beck Anxiety Inventory (BAI) Scores

Variables	N	Mean	SD	95% CI		Median	Min.	Max.
				Lower	Upper			
Beck Anxiety Inventory (BAI)	96	18.9	6.3	17.6	20.2	18.0	3	34

Factors associated with elevated Beck Anxiety Inventory (BAI) scores among the study participants:

BAI score in relation to socio-demographic characteristics

Table 5 presents mean, standard deviation and range of the BAI score by different social demographic characteristics of the participants. Other work done by the participant apart from taking care of the patient was significantly associated with BAI score. In particular, those involved in business had significantly high mean BAI score (21.3 (\pm 5.7 SD)), compared to other occupations ($p=0.007$). In addition, residence with the patient had a marginal significant association with the BAI mean score. Participants who did not reside with their patients had high mean BAI score (20.7 (\pm 6.9 SD)), compared to those residing with the patients (18.0 (\pm 5.4 SD); $p=0.057$). Presumably, living away from the patients raised anxiety levels due to lack of knowing minute-by-minute the state of the patients.

Table 5: Beck Anxiety Inventory (BAI) Score in Relation to Socio-Demographic Characteristics of the Study Participants

Variables	n	Mean	SD	95% CI		Min.	Max.
				Lower	Upper		
Gender							
Male	41	20.0	6.7	17.9	22.0	5	34
Female	54	18.0	6.0	16.4	19.7	3	31
p value		0.143					
Age of participant in years							
<36 years	29	17.6	6.2	15.2	19.9	5	31
36 - 55 years	47	19.2	6.3	17.4	21.1	5	34
>55 years	20	20.0	6.8	16.8	23.1	3	31
p value		0.375					
Marital status:							
Married	49	19.7	6.5	17.8	21.5	5	34
Single	32	18.0	6.1	15.8	20.2	5	30
Divorced/ Separated/ Cohabiting/ Widowed	15	18.1	6.5	14.5	21.8	3	29
p value		0.475					
Education level							
Secondary and below	30	20.2	7.1	17.6	22.8	5	34
Tertiary	66	18.3	5.9	16.8	19.7	3	31
p value		0.169					
Religion							
Christianity	75	19.1	6.3	17.6	20.5	3	34

Other	21	18.2	6.7	15.2	21.3	5	29
p value		0.605					
Resides with patient							
No	30	20.7	6.9	18.1	23.3	3	31
Yes	66	18.0	5.9	16.6	19.5	5	34
p value		0.057					
How long have you been taking care of the patient?							
<1 year	32	19.8	7.9	16.9	22.6	3	34
1 year and above	64	18.4	5.4	17.1	19.8	5	30
p value		0.325					
other work done by the participant apart from taking care of the patient							
Employed	27	18.6	6.0	16.2	21.0	7	31
Business	35	21.3	5.7	19.3	23.2	11	34
Others	34	16.6	6.5	14.3	18.8	3	28
p value		0.007					

Analysis of mean, standard deviation and range of BAI score by different socio-demographic characteristics of the FCG was done, as presented in Table 6. Education level of the patient was significantly associated with the FCG BAI mean score ($p=0.048$). The results show that the mean BAI score among FCGs whose patients had secondary school or below education was significantly high ($20.1 (\pm 6.5 \text{ SD})$), compared to those at tertiary level ($17.5 (\pm 5.2 \text{ SD})$). This shows that FCGs with a lower education level had a higher significant level of anxiety than those with higher levels of education. Tertiary educational level in this study denoted the level beyond secondary school education which included college, university and graduate learning.

Table 6: Beck Anxiety Inventory (BAI) Score in Relation to Socio-Demographic Characteristics of the FCG

Variables	n	Mean	SD	95% CI			
				Lower	Upper	Min.	Max.
Gender							
Male	72	18.9	6.9	17.3	20.5	3	34
Female	24	18.9	4.4	17.0	20.7	13	27
p value		1.000					
Age							
<36 years	19	18.2	5.7	15.4	20.9	5	29
36 - 55 years	35	18.5	5.2	16.7	20.3	7	27
>55 years	42	19.5	7.5	17.2	21.8	3	34
p value		0.687					

Marital status							
Married	57	19.0	6.4	17.3	20.7	3	31
Single	17	17.9	5.2	15.2	20.6	5	29
Divorced/ Separated/ Cohabiting/ Widowed	22	19.3	7.2	16.1	22.5	5	34
p value		0.786					
Education level							
Secondary and below	50	20.1	6.5	18.3	21.9	5	34
Tertiary	46	17.5	6.0	15.8	19.3	3	29
p value		0.048					
Relationship to patient							
Mother/ Father	12	20.4	6.6	16.2	24.6	5	31
Wife/ Husband	21	17.2	5.3	14.8	19.7	7	28
Daughter/ Son	32	20.2	6.2	17.9	22.4	9	31
Sister/ Brother	18	18.8	6.1	15.8	21.9	3	29
Other	13	17.0	7.9	12.2	21.8	5	34
p value		0.341					
Religion							
Christianity	79	18.7	6.3	17.3	20.1	3	34
Other	17	19.5	6.6	16.1	22.9	7	29
p value		0.642					

Beck Anxiety Inventory (BAI) score in relation to socio-behavioural characteristics

Table 7 presents mean, standard deviation and range of BAI score in relations to socio-behavioural characteristics of the participants. None of the socio-behavioural characteristics of the participants was significantly associated with Beck Anxiety Inventory (BAI) score ($p > 0.05$). However, the Table shows that those who smoked and took alcohol had a mean higher level of anxiety than those who did not, suggesting that substance use was a coping mechanism.

Table 7: Beck Anxiety Inventory (BAI) Score in Relation to Socio-Behavioural Characteristics of the Participants

Variables	n	Mean	SD	95% CI			
				Lower	Upper	Min.	Max.
Smoking							
No	85	18.7	6.5	17.3	20.1	3	34

Yes	11	20.3	5.5	16.6	24.0	9	27
p value		0.441					
Alcohol use							
No	69	18.6	6.0	17.1	20.0	3	31
Yes	27	19.6	7.2	16.8	22.5	5	34
p value		0.469					

Factors associated with elevated Beck Anxiety Inventory (BAI) scores among the study participants (Multiple regression analysis)

Linear regression was used to model BAI scores using factors identified to be significant at $P < 0.1$ during bivariate analysis. Backward conditional method was specified with removal at $P < 0.05$. Two independent predictors of elevated Beck Anxiety Inventory (BAI) scores among participants were identified, as presented in Table 9.

Apart from taking care of the patient, running a business was identified to be significantly associated with elevated BAI scores among the FCG ($p = 0.008$).

Table 9: Factors Associated with Elevated Beck Anxiety Inventory (BAI) Scores

Variables	B	95% CI		t	p value
		Lower	Upper		
(Constant)	20.13	18.58	21.68	25.79	<0.001
Other work done by the FCG apart from taking care of the patient: Business	3.54	0.94	6.15	2.70	0.008

Discussion

This study aimed at establishing whether FCGs of dialysis patients suffered from anxiety; if so, what the severity level was, and the factors that might have led to this state of affairs. The finding was positive for anxiety which was at moderate severity according to the BAI. Determining severity levels of mental illness is necessary because it has implications on modalities of treatment, particularly establishing the need for psychopharmacology and psychiatric involvement. This finding agrees with a study that affirmed that the role of caregiving for a chronically ill patient who is frequently admitted can cause elevated anxiety scores. This could arise from the fact that dialysis patients are frequently admitted due to various complications of ESKD (Al-Zahrani et al., 2015). Moderate severity was also found in a study by Avscar et al. (2015), thus affirming the results of this current study.

Two other interesting findings of this current study deserve a mention at this point. One was that males had a slightly higher mean BAI score than females. The mean score for males was 20 (\pm 6.7 SD) ranging from 5-34 while the female mean score was at 18 (\pm 6.0 SD). While this difference was not statistically significant, it is in contrast with the literature which shows that women are twice as likely to suffer anxiety more than males (Byers et al., 2010; Harvard University, 2008; McLean et al., 2011).

The other finding was that FCGs over 55 years had proportionately higher levels of anxiety than their younger counterparts who had a mean score of 20.0 (\pm 6.8 SD) ranging from 3-31, while those between 36 and 55 had a mean score of 19.2 (\pm 6.3 SD) ranging from 5-34. Those below 36 had a mean score of 17.6 (\pm 6.2) ranging from 5 to 31. As a result, the younger the FCG the lower their level of anxiety would be. This again contrasts with several other studies that found the converse to be true. For instance, three epidemiological studies in the United States showed that older adults are at a lower risk and that anxiety prevalence peaks at the ages of between 15 and 44 (Stein & Steckler, 2009).

Indeed, it has been confirmed that prevalence rates of mood and anxiety disorders in late life tend to decline with age, but remain very common, especially in women (Byers et al., 2010). This translates to more severe anxiety levels among the younger and not vice-versa. The question is whether the findings of the literature are universal and applicable in all settings. For instance, a Saudi study measuring depression, anxiety and stress in caregivers found that severity of the three were approximately three times higher in caregivers who were older than 20 years of age (Al-Zahrani et al., 2015). It concluded that this age might demonstrate a high level of maturity and responsibility for caring. This Al-Zahrani study neither agrees with this current study nor with previous studies. The occurrence of this contradiction clearly demonstrates the need for resolution of the matter.

The researcher is not aware of any literature on anxiety among adults in the African context, thus immediately presenting with a difficulty in finding comparatives for these two findings, namely that older FCGs and male presented with more anxiety. Moreover, she did not come across any study on anxiety among FCGs of dialysis patients in Africa. The differences mentioned above need to be studied particularly in this context where anxiety may be

understood in a culturally different way. In this quest, it seems imperative to design psychological tools that are relevant in the African context, as suggested by Sweetland (2014) and Ndetei et al. (2011). The latter call for further research on anxiety to inform policy and improve clinical practice.

Other work done by the participants apart from taking care of the patient, particularly business, was significantly associated with the BAI score. Those involved in business had high mean score of 21.3 (\pm 5.7 SD), compared to other occupations ($p=0.007$). Business people were also the higher proportion of the participants at 36.5% while those employed were 28.1%. Seemingly, running a business can be linked to elevated anxiety scores. A study by Buyck et al. (2011) indicated that emotional disorders, anxiety included, seemed related to several factors, among them unemployment. Similarly, it has been found that employment provides some caregivers respite from ongoing care activities and serves as a buffer to distress (Tuithof et al., 2015). It can also be surmised that certainty and stability of income that comes from employment may likewise offer protection from stress. In the current study, the majority of the participants ran micro-businesses with uncertain returns, due to the then prevailing difficult business environment, which might have had implications for their high anxiety levels.

These three significant findings on anxiety, namely males having more anxiety than females, older FCGs having higher anxiety levels than the younger ones, and being in business, may also be interpreted from a financial viewpoint. Just before the recruitment of the participants in this study, there was a government announcement that more dialysis machines were going to be provided to government health facilities, meaning that services would be more affordable there (Office of the President, 2015). Unfortunately, the matter was politicised in the period that followed, causing a lot of uncertainty in the renal arena. Many FCGs were on tenterhooks as they awaited the resolution of the matter and this went on for the duration of recruitment for this study. Given that ESKD is a disease that is very costly to treat, financially involving, capital intensive, the government's promise was going to alleviate a lot of need. In addition, with the unemployment situation described above, it could be that the controversy regarding the possibility of free or subsidised dialysis contributed to these three findings.

Education level of the patients was significantly associated with the BAI. The mean BAI score among FCGs whose patients had secondary school education or below was significantly high (20.1 (+ 6.5 SD)), compared to those whose patients had had or were undertaking college and above level education (17.5 (+ 5.2 SD)). This may imply that patients with lower levels of education may have difficulty in understanding what their condition entailed thereby making caregiving difficult for the FCGs. This only served to worsen the FCGs' anxiety. The self-determination theory would view this as a violation of one of the psychological needs of relatedness, that is, poor relationships would rob the FCGs of the intrinsic motivation required to keep them mentally healthy (Markland, Ryan, & Rollnick, 2005). This resulted in symptoms of mental disorders, among them anxiety.

Residence away from the patients was also a predictor of high anxiety scores. Residence had marginal significant association with BAI score. Participants who did not reside with their patients had high mean BAI score (20.7 (\pm 6.9 SD)), compared to those residing with the patients (18.0 (\pm 5.4 SD); $p=0.057$). This was an interesting finding as it had been reasonable to assume that FCGs who spent most time with the patients would have higher anxiety. It can be conjectured however that being away from the patient and not knowing what was happening to him or her would be cause for worry and fear. In addition, as seen in Table 2, most patients were male, and most caregivers were their married daughters (Table 4.1). This suggests that because of their absence from their fathers, they would not be fully informed of the state of their patients, hence the excessive anxiety.

When interpreting the results of this study, it is important to realise that its scope was within the private sector only, confined only to the capital city and county of Nairobi. It is probable that data from other counties and from public hospitals may have varied the results of this study. However, this provides opportunities for future research.

The other limitation was about having a small sample size. ESKD is a very expensive disease and only a few can afford to use private sector facilities. Dialysis units are also small in that they cater for a small number of patients. They are also few, thus the researcher was only able to access a small number. Private hospitals tend to be protective of their clients and are sensitive to any form of investigations being carried out in their domain. For this reason, the researcher was constrained to working with a small sample.

A small sample implies that the generalizability of the study results is limited. Nevertheless, statistical methods were used to calculate a scientifically acceptable number to ensure the results were meaningful. The researcher also took cognisance of the fact that small samples are a usual occurrence in psychology research (Gurgan, 2013; Marszalek, Barber, & Kohlhart, 2011) and particularly in a study on depression (Mohabat-Bahon, Meleki-Rizi, Akbari, & Moradi-Joo, 2015).

Conclusion

This study sought to establish the incidence, severity and factors related to anxiety among family caregivers of patients with End Stage Kidney Disease who were on dialysis. It found that due to the stressful caregiving burden, FCGs tend to fall prey to mental illnesses, anxiety included. The participants in this study presented with moderate anxiety which was a state of concern that required treatment. The educational level of the patients, the fact that the FCGs were engaged in business and the fact that they were not residing with the patients were significantly associated with elevated BAI scores.

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