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Abstract: Emotional intelligence can contribute to quality of life and as a health predictor. The aim of this study is to analyze emotional intelligence, quality of life and the correlation factors associated in patients undergoing chronic hemodialysis. A quantitative, observational, cross-sectional design was performed, and one hundred and thirty-eight multi-centers hemodialysis patients were recruited. A battery of questionnaires, including Trait Meta-Mood Scale (TMMS-24), Kidney Disease Quality of Life-Short Form (KDQOL-SF), and an ad-hoc sociodemographic questionnaire, were answered. Sex differences existed when assessing the three dimensions of emotional intelligence: ranked by order, the highest scores in males were in clarity, repair, and attention. However, in females were in repair, clarity, and attention. Males had higher scores than females in emotional role (p=0.045). Younger participants had better scores in all physical functions (p=0.001) and vitality (p=0.038) than older. Moreover, those who had a higher level of education presented better physical function (p=0.027) and higher scores in emotional wellbeing (p=0.036). Finally, in females, emotional attention (p=0.046) and repair (p<0.001) were strongly associated with general health perception. The assessment of emotional intelligence considering sex differences in patients undergoing chronic hemodialysis can be an indicator of quality of life including the use in health interventions.

Keywords: Chronic Kidney Disease; hemodialysis; emotional intelligence; quality of life; sex differences; nursing

1. Introduction

1.1. Chronic kidney disease and its impact

Chronic Kidney Disease (CKD) is a serious illness that is not curable and has been recognized as a leading public health problem worldwide. Its estimated prevalence is between 11.7% and 15.1% in the world population [1,2]. In addition, the number of individuals suffering from it is growing globally and it is expected that the number of patients who will require renal replacement therapy will increase in the coming years [3–6]. Updated data show that the global all-age mortality rate from CKD increased 41.5% between 1990 and 2017 [7].

The most widely-used therapy around the world is hemodialysis (HD) [8] that entails an absolute life dependency on a blood filtering machine. The patient undergoing HD therapy usually suffers from stressful and threatening situations throughout his or her life, which often results in disability, and physical and psychological suffering [9]. Moreover, the adverse events in patients who suffer from advanced chronic kidney disease are multiple, such as pain [10], and can inform patient counselling and medical decision-making [11]. Mortality in renal replacement therapy has decreased due to technological advances. However, the morbidity risk for these chronic kidney patients continues to increase due to the existence of mental and physical negative impacts that affect their health-related quality of life (QL) [12].

1.2. Emotional intelligence

Research into the regulation and management of emotions and its potential implications for quality of life, has aroused great interest in all areas [13,14]. Emotional Intelligence (EI) is composed of three dimensions and can be defined as the ability to attend (emotional attention), understand (emotional clarity), and modify (mood repair) emotional states [15], as well as the ability to regulate emotions to promote emotional and intellectual growth [16]. However, a high level of emotional attention interferes negatively with the positive effect of mood repair and personal growth if it is not complemented by a clear understanding of emotions [17].

Many studies show the role of emotional intelligence as a predictor of positive emotional states as well as well-being [18,19], and it has an effect on the quality of life of elderly people with chronic disease [20]. When measured as a trait, emotional intelligence is more strongly associated with health than when measured as an ability and, therefore, it can be a possible health predictor [21].

Sex-related differences in emotion management is a reality given that sex differences in brain structure as well as psychological functioning do exist. Although females are better at recognizing emotions and expressing themselves more easily, males show greater responses to threatening cues and this may reflect different behavioural response tendencies between males and females [22]. In order to increase understanding of why males and females differ behaviourally, and why many psychiatric diagnoses show unequal sex ratios, brain studies have been developed and results show that sex and gender identity-related differences in humans effects from experience, rather than causing variability in gender identity [23]. In a study where adult brains were analyzed, it was found that most brains did not show a consistent sex-typical pattern in all regions [24]. Similarly, the same study found that brain connectivity was never consistently male-typical or female-typical in any of the brains. This interferes with the challenge of the interpretation of the outcomes.

Emotional intelligence and quality of life studies in patients undergoing chronic hemodialysis therapy are scarce. However, in 2016 a positive correlation between both variables was proven. Two years later, a positive effect of an educational program in emotional intelligence on quality of life was observed in HD patients [25,26].

Considering the risks and consequences of emotional disorders among hemodialysis patients, the literature has highlighted the role of emotional intelligence as an adequate tool to face stressful situations and achieve emotional well-being [27].

1.3. Quality of life in patients undergoing chronic hemodialysis therapy

Health-related quality of life is a concept that is closely influenced by an individual's perception of their physical and psychological state, level of independence, social relations, and their relationship with the environment [28].

Complications stemming from hemodialysis therapy, and which may interfere in different areas of quality of life, are physical (loss of normal body function, sleep disorders, hemodialysis complications); psychological (pain, anxiety, depression, fatigue, self-image disturbance, decreased quality of life); and social (role change, perception of the disease, time in dialysis unit) [29–31].

Due to an increase in survival rates for patients with CKD, the outcome measures for dialysis therapy, such as quality of life, have become increasingly important not only as a quality assessment for health professionals, but also for patient survival [32,33]. Studies show how low quality of life leads to higher mortality and a greater number of hospitalizations [12]. Moreover, there are some differences in dialysis modality in relation to quality of life outcomes [34].

The quality of life of hemodialysis patients is affected by emotion-focused coping strategies and cognitive processing, which can both be affected by socio-environmental and situational factors related to emotional intelligence [27].

The aim of this study is to look into the factors that are related to emotional intelligence and quality of life of patients undergoing chronic hemodialysis therapy by sex. The authors hypothesize that emotional intelligence could be a modulating factor of quality of life in people undergoing chronic hemodialysis therapy according to sex differences, so the findings of this study are expected to draw more attention to the psychological distress of patients undergoing chronic HD therapy.

2. Materials and Methods

2.1. Aims

Firstly, we have analyzed emotional intelligence skills in relation to sex and age differences in patients undergoing chronic HD therapy. Secondly, we have studied quality of life of HD patients according to sex. Finally, we have described the correlation factors associated with emotional intelligence.

2.2. Methods

2.3. Study design

A descriptive, observational, cross-sectional, analytical, multicentre study was conducted [35] to determine the factors that affect quality of life in chronic HD patients as well as differences by age and sex.

2.4. Participants

The study was directed at all 297 patients included in the chronic HD program of a region of Catalonia (Spain) in a convenience sample of four HD centres which presented similar characteristics. The inclusion criteria required patients to be older than 18 years of age, attend one of the four different HD units, and voluntarily agree to participate. Patients who suffered from mental disorders or a clinical condition at the time of data collection and those with language barriers were excluded. After applying the above criteria, a total of 138 patients were eligible to answer the self-assessment questionnaires (46.5%).

2.5. Data Collection

Initially, permission to contact the patients was requested from the clinics or hospital direction as well as from the medical and nursing supervision members at the hemodialysis units. We informed not only the patients but also the professional members of the hemodialysis units about the purpose of the study, including confidentiality and voluntary participation. Data collection was undertaken during the time of HD therapy and paper format questionnaires were handed out to be answered in situ. Some patients requested to answer them at home due to physical difficulties, such as needle insertions or not carrying reading glasses at the time of HD therapy, and these questionnaires were returned on the next session.

2.6. Variables

The independent variables used to explain variations in quality of life were sociodemographic variables (sex, age, living situation and level of education). Emotional Intelligence was a modulating variable for quality of life. The dependent variables were those related to quality of life such as physical and mental dimensions.

2.7. Instruments

The participation ad-hoc questionnaire designed for sociodemographic data collection included the following variables: age and sex; level of studies (primary, secondary and university); living situation (alone, nursing homes, lives with family); employment status (employed, unemployed, retired, other situation); and monthly income (above or below €645, based on the Spanish minimum standard salary in 2016).

We assessed Emotional Intelligence with the Trait Meta-Mood Scale (TMMS-24) [15], Spanish translation and validation [36]. It is a self-report measure designed to assess individual's beliefs about their own emotional abilities. This scale addresses three key aspects of perceived emotional intelligence: *Attention* conveys to what extent individuals tend to observe and think about their feelings and moods; *Clarity* evaluates the understanding of one's emotional states, and *Repair* refers

to the individual's beliefs about their ability to regulate their feelings. Specifically, the TMMS-24 is a 24-item Likert-type scale on which participants are required to rate the extent to which they agree with each item on a 5-point scale with anchors of 1=strongly disagree and 5= strongly agree. The scale appeared to have adequate psychometric characteristics with high reliability (Cronbach Alpha: perception α=0.90; clarity, α=0.90, repair α=0.86) (test-retest reliability: perception=0.60, clarity=0.70, repair=0.83) [37]. The score on the different factors was obtained from the sum of the set of items on each scale. Items 1-8, 9-16, and 17-24 evaluated emotional attention, clarity, and repair correlatively. Based on these scores, participants were classified as: "need to improve", "adequate" or "excellent" in emotional clarity/repair and "need to improve", "adequate" and "too much" in emotional attention. This classification was made using different cut-off points for males and females as, according to the authors, there are sex differences in the handling of emotions.

Quality of life was measured with the Kidney Disease Quality of Life-Short Form questionnaire (KDQOL-SF) [38]. It consists of the generic 36-Item Short Form Health Survey (SF-36) [39] as well as 11 multi-item scales focusing on quality of life issues specific to patients with kidney disease. The generic survey consists of 8 scales that can provide two summative scores: physical and mental summative index. The internal consistency of the generic part is strong, alpha values range from .78 to .92 [40]. The questionnaire is completed with 44 specific items of kidney disease distributed on 11 scales. For the present research, one item was removed because it only referred to patients undergoing peritoneal dialysis. The specific part of the questionnaire had a high internal consistency with a Cronbach's alpha α = .80 (with 2 exceptions α = .68 in cognitive function and α = 0.61 as social interaction). The average values of the objective scales oscillated between 25.6 (DT = 37.82) in work and 79.11 (DT = 19.75) in cognitive function in the percentage of possible total score (0 - 100). This instrument is the most used internationally because it assesses patients with kidney failure in a holistic way [41].

2.8. Statistical analysis

Statistical analysis was performed using Windows SPSS software, version 25.0 for IBM. Continuous variables were described as the mean and standard deviation or the median and interquartile range, according to their probability distribution. Continuous variables were compared with the Student's t-test or with a one-way ANOVA and the categorical variables with the Chi-square test. A linear regression model was carried out to study the factors related to quality of life. The variables accepted for the lineal regression analyzes were the ones associated to emotional intelligence in the bivariant analysis. In all cases, a p-value < 0.05 was considered statistically significant.

2.9. Ethical considerations

This research study has complied with the fundamental ethical principles that govern the conduct of research. The anonymity of the participants was guaranteed at all times, and the informed consent form was signed by all participants prior to the start of data collection. The study was approved by the Ethics Committees of Clinical Research of the area of influence (acceptance number: 2014.016 date: 24/02/2014 act #3).

3. Results

3.1. Study sample characteristics

Participant demographics showed that there was a total of 138 participants of whom 89 were men and 48 were females (64.5%-35.5%). In relation to level of education, 76.8% of all participants had primary studies and only 5.1% university level. Nine out of ten participants lived with family and had an employment status of retirement, in greater proportion in males than in females (p=0.009). In terms of household income, we can underline that more than two thirds of males had a higher income than females (p=0.029)

In relation to the participants' clinical characteristics, the mean hemodialysis time was 54.4 months (4.5 years) and a median of 36 [IQR 12-72] in males. In females, the mean hemodialysis time was 56.5 months (4.7 years) and a median of 42 [IQR 23-72] (p= 0.415). The hours of hemodialysis per session in males and females were 3.9 and 3.8, respectively (p=0.004). The number of hospitalizations over the last 3 months was 0.16 in males and 0.08 in females (p= 0.104).

3.2. Emotional Intelligence in chronic hemodialysis patients

Table 1 shows the descriptive values of the three dimensions of Emotional Intelligence, split by sex, because males and females had different reference values. The highest scores in males were in Clarity followed by Repair and finally in the Attention dimension. In females, the highest scores were firstly in Repair, followed by Clarity and finally in Attention.

Table 1. Description of emotional intelligence according to sex.

	Male		Female	
	Mean (standard deviation)	Median (interquartile)	Mean (standard deviation)	Median (interquartile)
Attention	23.8 (7.466)	24.00 [17–30]	22.29 (8.319)	21.00 [16.50-29.50]
Clarity	28.80 (7.478)	27.00 [24–36]	26.59 (8.178)	25.00 [23.00-31.50]
Repair	27.29 (7.271)	29.00 [22–33]	27.35 (8.268)	28.00 [20.50-34.00]

Figures 1 and 2 show the classification of emotional intelligence in males and females. As we can observe in Figure 1, the largest proportion of male participants scoring "Excellent" were in the Clarity dimension. Of those scoring "Adequate", the largest percentage were in the Repair dimension. In females (Figure 2), however, the largest proportion of participants scoring "Excellent" were in the Repair dimension followed by Clarity, and a high proportion in Attention were in "Need to improve" (67.3).
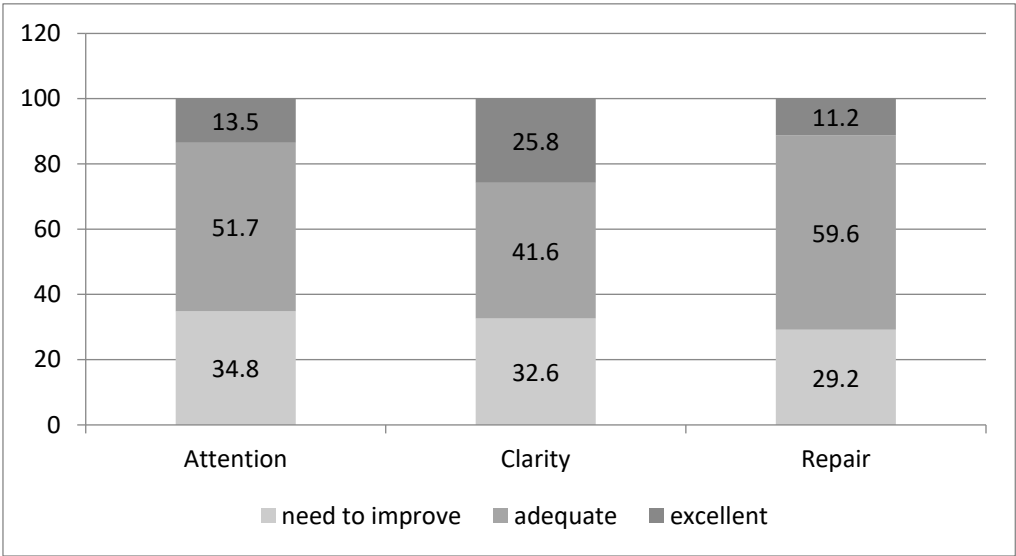

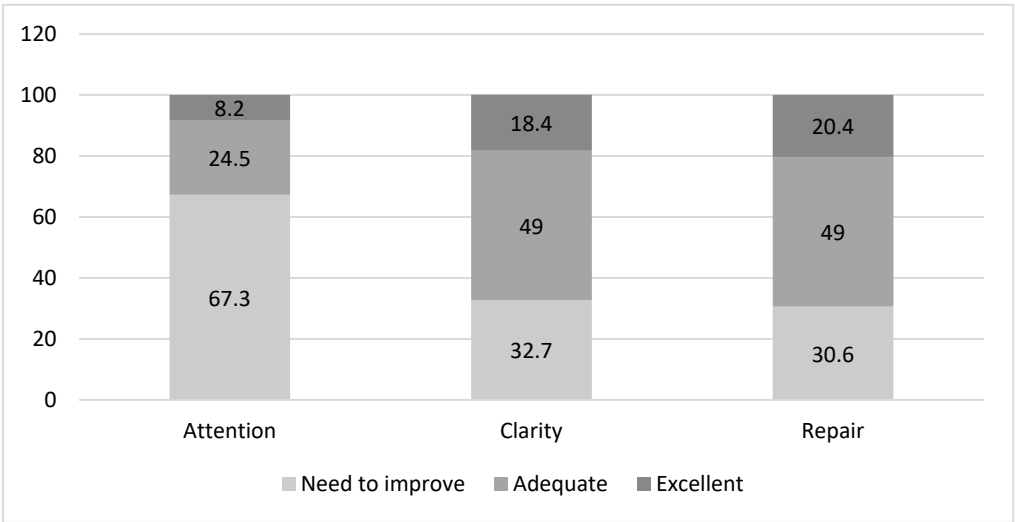**Figure 1.** Level of emotional intelligence in male (%).

Figure 2. Level of emotional intelligence in female (%).

When comparing emotional intelligence according to age groups in males, we observed that Attention, mean=24.1 (7.5), and Clarity, mean= (6.8), were higher in participants older than 64 years old. On the other hand, in terms of Repair, mean=28.3 (8.8), the highest scores corresponded to 46 to 65 year-old participants. However, there was no significant statistical differences between males according to age groups.

In females, the 25 to 45-year-old age group presented the highest scores in Attention, mean=29 (9.3), and Clarity, mean=31.3 (74). In the Repair dimension, the groups between 25 to 45 and 46 to 65 years of age had similar scores of 30.3 (7.8) and 30.6 (6.4), respectively, without significant statistical differences between females according to age groups.

3.3. Quality of life in chronic hemodialysis patients

With a general overview of the results obtained regarding the physical dimensions of quality of life, we can note that scores were low. The four physical dimensions of quality of life are shown in Table 2. There were significative differences in age groups where younger participants had a better score in all the physical functions than older participants (p=0.001). Moreover, those who had a higher level of education presented better physical function (p=0.027).

Table 2. Relationship between physical dimensions of quality of life and sociodemographic variables.

	Physical function		Physical role		Pain		General health	
	Mean	p	Mean	p	Mean	p	Mean	p
Sex								
Male	52.13 (28.56)	0.120	42.97 (40.41)	0.422	57.27 (31.94)	0.261	37.58 (20.74)	0.419
Female	46.00 (30.12)		44.38 (38.94)		53.62 (31.89)		36.83 (20.45)	
Age								
25-45	75.52 (17.15)		56.57 (38.94)		62.76 (27.87)		39.73 (17.27)	
46-65	57.16 (27.14)	<0.001	41.89 (38.66)	0.305	61.28 (31.70)	0.207	42.02 (20.29)	0.166
>65	40.79 (27.99)		41.15 (40.51)		52.01 (32.52)		34.63 (21.15)	
Living situation								
Alone	57.22 (32.86)	0.199	38.88 (39.50)	0,478	55.13 (33.06)	0.242	38.88 (16.58)	0.348
With family	48.38 (28.53)							

Nursing homes	77.50 (10.60)		43.64 (40.19)		55.46 (31.69)		36.73 (21.09)
			75.00 (0.00)		93.75 (8.83)		57.50 (17.67)
Level of education							
Primary	46.32 (29.09)	0.027	39.85 (39.30)	0.122	53.58 (31.50)	0.160	36.42 (20.39)	0.604
Secondary	61.80 (27.07)		53.00 (39.07)		60.80 (30.10)		39.60 (22.68)
University	62.85 (25.79)		64.28 (45.31)		75.00 (39.55)		42.85 (15.77)

*Results are shown with their mean and standard deviation.

In relation to the mental dimensions of quality of life (Table 3), males presented higher scores than females in the emotional role (p=0.045). Younger participants had higher scores in vitality (p=0.038). Finally, participants who had university studies presented higher scores in emotional wellbeing (p=0.036).

Table 3. Relationship between mental dimensions of quality of life and sociodemographic variables.

	Emotional wellbeing		Emotional Role		Social Function		Vitality	
	Mean	p	Mean	p	Mean	p	Mean	p
Sex								
Male	64.51 (23.00)	0.235	76.40 (37.42)	0.045	66.03 (27.39)	0.173	49.32 (24.27)	0.187
Female	61.38 (26.52)		64.11 (45.33)		61.22 (30.85)		45.30 (27.22)	
Age								
25-45	68.42 (24.54)	0.463	73.68 (39.40)	0.916	71.44 (30.22)	0.447	60.26 (22.20)	0.038
46-65	65.18 (23.41)		73.87 (38.59)		65.20 (24.49)		49.72 (23.83)	
>65	61.43 (24.63)		70.83 (42.27)		62.28 (30.04)		44.20 (25.93)	
Living situation								
Alone	62.00 (23.61)	0.679	79.62 (34.56)	0.693	65.97 (26.36)	0.964	44.44 (26.00)	0.537
With family	63.37 (24.58)		70.97 (41.64)		64.11 (29.14)		48.13 (25.41)	
Nursing homes	78.00 (2.82)		66.66 (47.14)		62.50 (35.35)		65.00 (07.07)	
Level of education								
Primary	60.83 (24.17)	0.036	69.26 (41.77)	0.346	61.93 (28.23)	0.182	46.41 (25.78)	0.143
Secondary	69.19 (24.11)		81.33 (36.10)		71.00 (29.69)		49 .20 (23.34)	
University	81.71 (15.45)		80.95 (37.79)		76.78 (28.34)		65.71 (20.70)	

*Results are shown with its mean and standard deviation.

In the linear regression model used to study the variables associated with the perception of general health, no sociodemographic variables were observed or related to the three dimensions of emotional intelligence in males. However, Attention (p=0.046) and Repair (p<0.01) were found to be strongly associated with perception of general health in female (Tables 4 and 5).

Table 4. Lineal regression model: variables associated to quality of life with general health. according to sex.

Coefficients[a,b]					
	Non standarized coefficients	Standardized coefficients	t	Sig.	95.0% CI for B
	B	**Std. Error**	**β**			
Constant	80.449	76.904		1.046	.299	-72.511 to 233.409
Age	.590	.744	.087	.793	.430	-.890 to 2.070
Level of education	10.405	19.832	.058	.525	.601	-29.041 to 49.850
Attention	-1.762	1.659	-.128	-1.062	.291	-5.062 to 1.538
Clarity	-.253	2.057	-.018	-.123	.903	-4.345 to 3.839
Repair	3.805	2.200	.270	1.730	.087	-.570 to 8.180

a, Sex = males; b, Dependent variable: general health; CI, confidence interval; R2 =0.06.

Table 5. Lineal regression model: variables associated to quality of life with general health. according to sex.

Coefficients[a,b]					
	Non standarized coefficients	Standardized coefficients	t	Sig.	95.0% CI for B
	B	**Std. Error**	**β**			
Constant	242.504	96.294		2.518	.016	48.309 to 436.699
Age	-1.666	.866	-.266	-1.923	.061	-3.414 to .081
Level of education	-6.354	27.897	-.032	-.228	.821	-62.614 to 49.905
Attention	-3.730	1.816	-.301	-2.055	.046	-7.392 to -.069
Clarity	-2.004	2.085	-.159	-.961	.342	-6.209 to 2.201
Repair	7.163	2.025	.574	3.538	<.001	3.080 to 11.247

a, Sex = females; b, Dependent variable= general health; CI, confidence interval; R2 =0.31.

4. Discussion

This study analysed emotional intelligence skills and quality of life in a sample of 138 patients undergoing chronic hemodialysis therapy. In relation to emotional intelligence, we could observe major differences in the dimensions of emotional attention and repair. More females than males (+33.3%) had low attention. However, 27.2% more males had adequate attention compared to females and finally 5.3% more males paid too much attention to emotions compared to females. Results showed that 9% more females had excellent emotional repair compared to males. These contradicting results could be explained by the characteristics and the different emotional stages that chronic hemodialysis therapy represents. This contradicts other results reporting higher emotional intelligence skills in females in a healthy population [42]. These differing patterns constitute an indication of a great sociodemographic diversity, as well as the progesterone phase of their menstrual cycle in young females could perform better on EI [43] and we did not control this potential confounder. Pardeler et al., 2018 exposed that cognitive abilities need to be considered when assessing emotional intelligence in healthy individuals as sex differences are present [44]. When analyzing EI as an ability-base approach rather than analyzing trait emotional intelligence, also appears that females have higher scores compared to males [45].

Across the majority of emotion-related outcomes, trait emotional intelligence tends to be a stronger predictor and, consequently, O'Connor et al (2019) suggest that new users of emotional intelligence should consider using a trait-based measure before assessing alternatives (14). When using self-report measures, such as TMMS-24, sex differences in results are shown. Thus, males perceive themselves as more emotionally intelligent than females, so these measures demonstrate levels of emotional attention that are too high [46].

We need to consider that negative emotions can have an impact and lead to higher emotional attention and clarity. Therefore, they enhance a state of anxiety, which is why it is relevant to achieve

a balanced level of emotional intelligence in order not to suffer other disorders. Paying excessive attention to emotions can have detrimental effects, reducing the ability to regulate emotions [47]. Multiple aspects of intelligence need to be controlled when assessing emotional intelligence for the prediction of health outcomes [45].

When studying emotional intelligence by age, we can mention that our results were similar to the literature [48] as the ability to repair increased with age. These results could be related to life experience as well as better emotional control.

The existence of a positive correlation between emotional intelligence and quality of life in chronic hemodialysis patients was shown in 2016 using a different instrument from TTMS-24 (25). Other studies showed no sex difference in terms of quality of life and emotional intelligence, marital status, and educational levels [49].

As for emotional intelligence training, studies have shown great results in all dimensions. With a comparative study, there were significant correlations in the intervention group, obtaining statistically significant overall results: 42.00 ± 10.22 before the intervention and 58.24 ± 8.66 post intervention. Emotional Intelligence training has shown excellent results towards improving quality of life aspects, including reducing anxiety scores in HD patients [26,50]. Similar results exist in breast cancer patients where effective interventions such as physical activity and psychosocial interventions proved to have worthy outcomes [51].

Our results regarding quality of life by sex and age differ a little from others in the literature, as a study conducted in Jordan on participants undergoing hemodialysis therapy showed that males and younger participants ones had a higher mental quality of life than female participants in general [52]. The systematic review by Yapa [53], where quality of life and symptoms experienced by patients who have CKD and are not on dialysis were analyzed, concluded that quality of life decreased when symptoms increased. Thus, evidence on how and which symptoms change over time was inconclusive. One possibility could be due to gender-related biological factors as well as different lifestyles, socialization, and culture norms [23].

The study of quality of life in patients who suffer other chronic conditions is wide and results are similar. For example, Yalcin et al. (2008) demonstrated that higher emotional intelligence levels were related to a better quality of life and general well-being of people with diabetes [54]. Moreover, the way that females with breast cancer regulate their emotions influences their quality of life and enhances disease adaptation [55]. Emotional intelligence studies in patients who suffer from chronic obstructive pulmonary disease (COPD) showed an association with all domains of quality of life regardless of age [56]. This suggests that, since emotional intelligence is a trainable skill, there is an opportunity to convert this knowledge into management programs in order to improve the quality of life and well-being of such patients. In this sense, it has also been observed in the present study a strong association between general health and emotional intelligence of females. These sex differences could be explained by different responses in processing emotional signals [22] and the interrelation between cognitive abilities and the understanding of the emotions [42].

This research is not without limitations. Firstly, the use of self-report measures is prone to recall bias. Secondly the cross-sectional design has not allowed causal associations, or the direction of the associations to be studied. Thirdly, since most questionnaires were completed during HD therapy, the presence of medical staff and other patients may have influenced the objectivity of the responses and threatened data validity. Finally, we used the term sex, which often refers to biological phenotype. However, there are studies that indicate that the differences are related in the experience itself rather than in gender identity [23]. We believe that in future research on Emotional Intelligence, sex differences and gender identity should be considered separately.

This study has strengthened existing evidence that chronic HD therapy can have detrimental mental health effects in CKD patients. It has been proven that these negative health effects have an impact on patients' wellbeing and quality of life and require effective measures in nursing practice to be developed and implemented.

A holistic view of CKD patients should be adopted by nephrology nurses in order to consider and care for different aspects of their suffering, including emotion management. Emotional

intelligence is a promising protective factor for biological and psychological variables in populations who suffer a chronic condition [57]. Likewise, renal association guidelines currently recommend health-related quality of life to be monitored in patients undergoing renal replacement therapy [58].

We suggest that clinical practitioners treating chronic hemodialysis patients should assess levels of emotional attention, especially in females. If instability is detected, a complete psycho-emotional intervention should be conducted. Nurses have the capacity to establish a helping relationship and have at their disposal key resources to do so, for example, empowering hemodialysis patients to enhance their coping strategies [59].

Finally, quality of life is one of the main concerns of policymakers and public health planners in the community as well as an indicator of quality care. We aim to contribute to this knowledge with the present research.

5. Conclusions

Assessment of emotional intelligence in patients undergoing chronic hemodialysis therapy can be an indicator of clinical outcomes and improve health interventions as well as being a tool for evaluating the therapy carried out. Improving quality of life and subsequently enhancing emotional intelligence may prevent irreversible complications in patients undergoing chronic HD therapy.

Nurse managers need to guide nurses in applying emotional intelligence skills in daily practice with the aim of providing holistic patient care, obtaining positive outcomes of trait emotional intelligence and preventing psychological disorders.

List of Abbreviations

HD	hemodialysis
TMMS-24	Trait meta-mood scale
KDQOL-SF	Kidney disease quality of life-short form questionnaire
CDK	Chronic kidney disease
QL	Quality of life
EI	Emotional intelligence
SPSS	Statistical package for social sciences
IBM	International business machines corporation
IQR	Inter quartile rang
COPD	Chronic obstructive pulmonary disease

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