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Letter to the Editor

Renata, my nephrologist, can children's literature act as a tool to raise awareness and prevent kidney disease?

Renata, mi nefróloga, ¿puede la literatura infantil actuar como instrumento de sensibilización y prevención de la enfermedad renal?

Dear Editor,

Chronic kidney disease (CKD) is a silent epidemic with a concerning economic and psychosocial impact on Public Health.[1] Despite this, there is a lack of awareness among the general population regarding the implications and scope of this condition,[2] which represents an obstacle to early detection and treatment. To improve kidney health, it is essential to understand this disease and how to prevent it.

In this context, schools play a vital role in educating children on scientific-health issues, as recognised by the World Health Organization in various programmes.[3] Nonetheless, children and young people are undervalued in national health plans on CKD.[4] They are often rendered invisible as health promoters, and the reality is that they play an essential role in literacy and the dissemination of knowledge in their family and social environment.

Given this perspective, and considering the paucity of studies in the scientific literature on the impact of kidney health literacy in schools, this preliminary research raises a question: can children act as drivers of health education in their immediate environment and contribute to the prevention of CKD?

In order to shed light on this issue, the impact of a talk-workshop on CKD with 21 pupils from the 3rd year of Early Childhood Education (age 5 years), from the Arco Iris Nursery and Primary School (Aguadulce, Almería), and on their families, was analysed. The activity consisted of reading the illustrated children's book *Renata, my nephrologist*,[5] written and devised by the Renal Foundation, as well as conducting a series of associated workshops.[6] Knowledge before and after the initiative was assessed using an *ad hoc* questionnaire (pre- and post-intervention) adapted for children and adults (who were not present during the activity).

The initial hypothesis was that the talk-workshop would improve pupils' knowledge about CKD, and that they would pass on what they had learned to their families. The average grade of the children improved significantly after the intervention (from 2.43 [SD 2.18] to 9.19 [SD 1.17] in the final evaluation [$p < 0.001$]), as did the grade of their relatives, although to a more moderate extent (from 6.81 [SD 1.29] at baseline to 8.10 [SD 1.48] after the initiative [$p = 0.024$]).

These data show that, after the activity with the pupils, their families' level of knowledge increased. Other international research projects have also shown that, after lessons at school, children discuss health issues at home, increasing their parents' knowledge[7] and encouraging lifestyle changes in their families.[8] Kidney health education programmes in schools (through teacher training, school support nursing and investment in resources by institutions) have a direct impact on literacy throughout society (Fig. 1).[9]

One worrying finding, however, is the family members' relative lack of background knowledge on kidney-related issues and kidney health. A large proportion of adults did not know many of the answers: a quarter had never heard of the speciality of Nephrology, approximately half thought that kidneys hurt when affected by CKD or did not know what the marker of kidney function is (creatinine), and less than 10% were familiar with the available treatment options (Table 1). These data show that many adults would be unable to interpret their tests or do not even know which specialist they should see, directly resulting in delayed CKD diagnosis.

Compared to other diseases, such as cardiovascular disorders, hypertension, diabetes or cancer, CKD urgently requires more awareness raising and campaigns. Lack of knowledge

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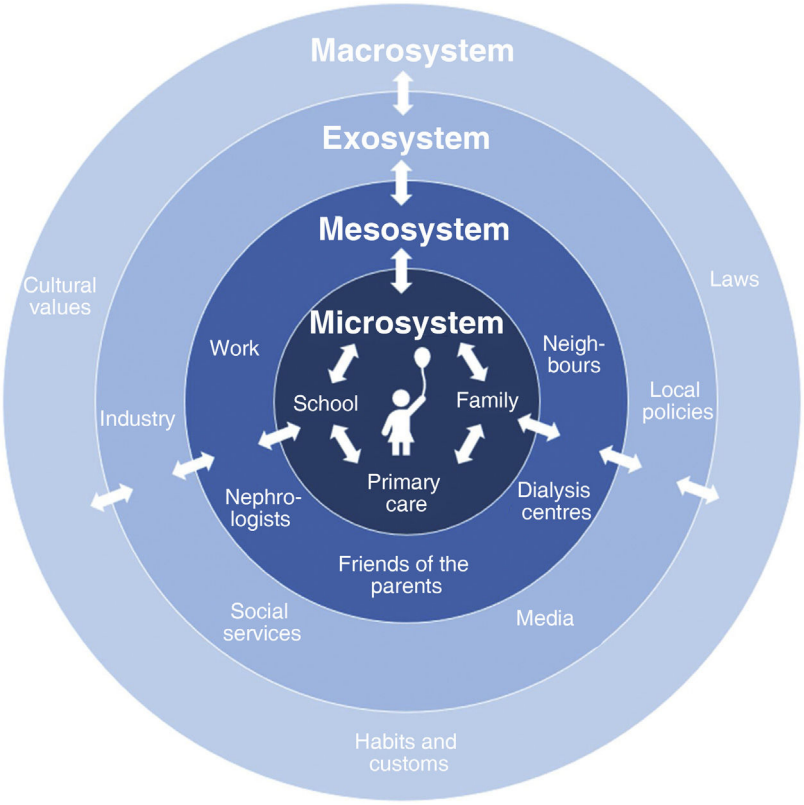

Fig. 1 – Diagram of Bronfenbrener's ecological model (Handbook of Child Psychology. Hoboken, USA: John Wiley & Sons; 2007) on the relationship between the development of an individual and his/her environment, adapted as a theoretical framework for literacy in chronic kidney disease.

Table 1 – Results for each item pre- and post-intervention for children and family members.

Questions and answers	Children pre	Children post	Family members pre	Family members post
1. *What is a kidney specialist called?*				
Paediatrician	4.8% (1)	0% (0)	0% (0)	0% (0)
Urologist	0% (0)	4.8% (1)	14.3% (3)	4.8% (1)
Nephrologist[a]	0% (0)	85.7% (18)	76.2% (16)	90.5 (19)
Kidneyologist	42.9% (9)	4.8% (1)	9.5% (2)	4.8% (1)
I don't know	52.4% (11)	4.8% (1)	0% (0)	0% (0)
2. *Do kidneys hurt?*				
Yes	38.1% (8)	4.8% (1)	52.4% (11)	23.8% (5)
No[a]	38.1% (8)	95.2% (20)	47.6% (10)	76.2% (16)
I don't know	23.8% (5)	0% (0)	0% (0)	0% (0)
3. *How many kidneys do we have?*				
One	23.8% (5)	4.8% (1)	0% (0)	0% (0)
Two[a]	38.1% (8)	95.2% (20)	100% (21)	100% (21)
Three	9.5% (2)	0% (0)	0% (0)	0% (0)
Four	19% (4)	0% (0)	0% (0)	0% (0)
I don't know	9.5% (2)	0% (0)	0% (0)	0% (0)
4. *Kidneys are shaped like...*				
A lentil	14.3% (3)	0% (0)	0% (0)	0% (0)
A French bean[a]	9.5% (2)	100% (21)	90.5% (19)	100% (21)
A tomato	4.8% (1)	0% (0)	9.5% (2)	0% (0)
A square	19% (4)	0% (0)	0% (0)	0% (0)
I don't know	52.4% (11)	0% (0)	0% (0)	0% (0)
Head	0% (0)	0% (0)	0% (0)	0% (0)
5. *The kidneys are located...*				
Back above your bottom[a]	23.8% (5)	95.2% (20)	85.7% (18)	95.2% (20)

– Table 1 (*Continued*)

Questions and answers	Children pre	Children post	Family members pre	Family members post
Belly	14.3% (3)	0% (0)	4.8% (1)	4.8% (1)
Chest	28.6% (6)	0% (0)	9.5% (2)	0% (0)
I don't know	33.3% (7)	4.8% (1)	0% (0)	0% (0)
6. Which organs are responsible for cleaning the blood?				
Lungs	9.5% (2)	4.8% (1)	0% (0)	4.8% (1)
Kidneys[a]	14.3% (3)	90.5% (19)	81% (17)	90.5% (19)
Tummy	4.8% (1)	0% (0)	0% (0)	0% (0)
Heart	33.3% (7)	0% (0)	19% (4)	4.8% (1)
I don't know	38.1% (8)	4.8% (1)	0% (0)	0% (0)
7. The waste in the blood is called...				
Creatinine[a]	9.5% (2)	90.5% (19)	42.9% (9)	71.4% (15)
Bilirubin	0% (0)	0% (0)	47.6% (10)	19% (4)
Glitter	14.3% (3)	0% (0)	4.8% (1)	0% (0)
Melatonin	28.6% (6)	4.8% (1)	4.8% (1)	9.5% (2)
I don't know	47.6% (10)	4.8% (1)	0% (0)	0% (0)
8. What can I do to take care of my kidneys?				
Not eat sweets /sugar	4.8% (1)	0% (0)	0% (0)	0% (0)
Drink water	100% (21)	100% (21)	100% (21)	100% (21)
Not eat salt	0% (0)	0% (0)	0% (0)	0% (0)
Do sport	100% (21)	100% (21)	76.2% (16)	100% (21)
Not eat junk food	100% (21)	100% (21)	71.4% (15)	90.5% (19)
Not self-medicate	23.8% (5)	4.8% (1)	0% (0)	0% (0)
Not smoke	–	–	61.9% (13)	76.2% (16)
Not drink alcohol	–	–	0% (0)	0% (0)
Not take NSAIDs	–	–	0% (0)	0% (0)
All of the above are correct[a]	71.4% (15)	95.2% (20)	57.1% (12)	66.6% (14)
9. Which liquid is most beneficial for the kidneys?				
Cola soft drink	0% (0)	0% (0)	0% (0)	0% (0)
Orange juice	23.8% (5)	19% (4)	0% (0)	4.8% (1)
Water[a]	57.1% (12)	81% (17)	100% (21)	95.2% (20)
Beer	0% (0)	0% (0)	0% (0)	0% (0)
I don't know	19% (4)	0% (0)	0% (0)	0% (0)
10. HD, PD, Tx are the treatment options				
True[a]	4.8% (1)	90.5% (19)	HD: 47.6% (10) PD: 52.4% (11) Tx: 38.1% (8) No tmt: 0% (0)	HD: 52.4% (11) PD: 52.4% (11) Tx: 42.9% (9) No tmt: 0% (0)
False	95.2% (20)	9.5% (2)		
Choose all the correct options	9.5% (2)	14.3% (3)		

McNemar test. $p < 0.05$; $p > 0.05$.
HD: haemodialysis; PD: peritoneal dialysis; tmt: treatment; Tx: transplant.
[a] Indicates the correct answers in the form.

among the population about CKD and its risk factors favours the development and progression of the disease, is associated with a worse diagnosis and prognosis, and with worse outcomes in renal replacement therapy.[10]

Ultimately, healthcare professionals are responsible for identifying patients with low health literacy and, in collaboration with teachers, helping to promote the health of the population. New strategic plans that include CKD as a priority disease and that also place children at the centre of their care are urgently needed. The results of this research (to the best of our knowledge, the first to be conducted in Spain on the potential of children as agents of awareness raising and prevention of kidney disease) open up new avenues for nephrology research and initiatives.

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The migratory flood in hemodialysis population

El aluvión migratorio en hemodiálisis

Dear Editor,

Overwhelmed by the constant trickle, which in recent months has now turned into a flood, of migrants who come to accident and emergency fleeing the precarious renal replacement therapy (RRT) offered in developing countries, I consider it my duty to alert people to the situation.

In the last six months, 17 people with terminal chronic kidney disease (CKD) on haemodialysis (HD) have come to the Hospital 12 Octubre Accident and Emergency Department to continue with their regular sessions. In recent years, the number of people arriving has continued to increase (Fig. 1). Each of these individuals reminds us that humanity and globalisation are failing, and that there is a gap in equity in access to RRT between countries. They are also teaching us the classic clinical signs of kidney disease, which Western nephrologists have forgotten, as they are the result of sustained underdialysis (Fig. 2). These people, after falling into debt to pay for treatment in countries where health coverage does not protect them, escape from their reality to continue living. Some of them, if they are lucky, have family or friends who take them in; others come alone and end up homeless. Migrants on RRT lack residence permits and work permits, in addition to suffering the employment problems of terminally ill patients who require hospital care three times a week.

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