Supplemental Material

Cognitive Testing in Chronic Kidney Disease Patients: A Literature Screening on the Role of Missing Cases

Objective

The aim of our literature screening was to obtain an overview of the role of missing cases in cognitive testing (CT) in chronic kidney disease (CKD) patients. We focused on specific reasons for excluding patients from CT, and on how other authors categorized and reported such cases. It should be noted that this supplemental material is not a systematic literature review. We just want to provide some preparatory work for our empirical analysis (see related article). There already exist two systematic literature reviews on cognitive functioning (CF) in CKD patients [1,2], but there is no analysis regarding missing cases in CT.

Approach

The bases of our literature screening were two relevant review articles about CT in CKD patients: 1) Koushik et al. [1] with their comprehensive overview, and 2) Elias and colleagues [2] with a short outline of CF in CKD patients. We extended this literature pool by researching further studies that focus on neurocognition in dialysis patients by using the key words "*chronic kidney disease neurocognition*", "*dialysis patients cognitive performance*", "*renal disease cognition*" and their permutations. Databases searched were Pubmed, Embase, PsycInfo, google scholar and the Union Library Network (GBV). We included articles from the year 2000 onward up to 2015. Studies were included when they met the following criteria:

- CT in adult CKD patients,
- indications about exclusion/inclusion criteria or missing data,
- cross-sectional data.

In case of relevant longitudinal approaches, only statements about exclusion criteria and missing data at baseline were included. Further, we excluded case reports and intervention studies (CF in conjunction with a certain drug). To detect and quantify the type of missing-documentation in the literature, articles were reviewed with the following keywords: *"missing (scores) (data)"*, *"excluded"*, *"exclusion"*, *"inclusion", "(in)eligible"*, *"eligibility", "(not) included"*, *"declined"*, *"(withdrew) consent"*, *"incomplete"*, *"did not agree"*, *"unable"*, *"lack of"*, *"(non) response (rate)"*. The so found statements were documented and categorized depending on being either derived from earlier-stage CKD cohorts vs. dialysis cohorts. To evaluate the distribution of reasons for missing data, the frequency of each category occurring in the studies was calculated in relation to all studies screened separated for studies on earlier-stage CKD cohorts and dialysis cohorts. It should be explicitly noted that this approach refers to the sample of studies, but not to a patient sample. In fact, the literature screening revealed the problem of no stringent separation between *ex ante* inclusion or exclusion criteria and missing data *resulting from* the CT procedure. Thus, we included ex ante and reasons emerging during CT.

Overall findings

Koushik et al. [1] included 39 studies, 25 of which had to be excluded because they were published earlier than 2000. Further, one of the studies did not meet our inclusion criteria. Elias and colleagues [2] listed 15 studies. Four were excluded because we already selected them out of Koushik's et al. review. One study did not meet the inclusion criteria. In addition, 23 studies were selected manually through database search. In total, 46 studies were eligible. Finally, 38 were included for a deeper analysis because some studies were based on the same cohort (Table 1). Figure 1 summarizes the sampling of the studies.

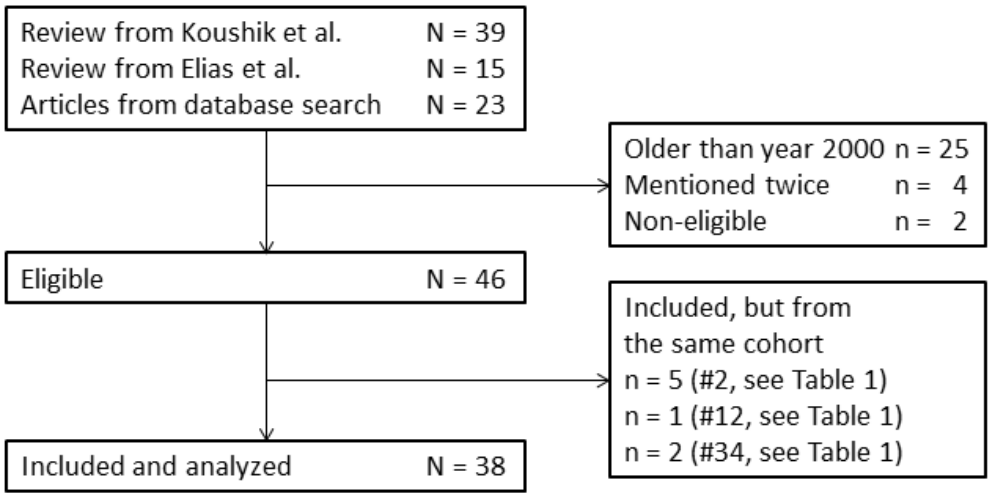

Figure 1. Flow diagram of sampling.

Indications about exclusion criteria or missing data were detected in the article sections "Material and Methods" as well as "Results". Eight articles only mentioned case exclusion or exclusion criteria without numeric indications [3,11,17,28,31,32,37,48]. Merely four articles provided a closer description of excluded patients. In sum, they allow only heterogeneous conclusions. On the one hand, cases with missing values in CT were more likely older and males, had a lower level of education, a more severe disease, more comorbidities (coronary diseases, diabetes) and were more likely Hispano or Afro than white Americans [7,8,36]. On the other hand, some characteristics (e.g., prevalence of comorbidities) of excluded vs. tested patients were described as comparable [8,20].

We derived nine exclusion categories from the literature:

1) One predominant exclusion criterion was the existence or history of a **central nervous system (CNS) disease** such as neurological comorbidity (e.g., former stroke, Parkinson's disease), cerebrovascular disease, and other CNS-affecting conditions (e.g., brain injury, psychotropic medication) or a psychiatric illness (e.g., depression, psychosis).

2) **Non-CNS medical problems**, such as complications due to *other* than CNS comorbidities (e.g., anemia, hypertension, diabetes mellitus, and major organ failure), a poor physical condition, terminal illness or acute hospitalization of patients were also frequently indicated.

3) **Language difficulties** such as not being fluent in written or spoken language were also mentioned as a cause for exclusion.

4) **Visual or hearing impairment** was stated as a reason for preventing study participation.

5) Case exclusion due to the existence of **proven dementia or cognitive impairment** through medical report or tested via MMSE screening was indicated by authors.

6) **Technical problems** (i.e. medical devices) during testing or **unavailable laboratory values** (e.g., serum creatinine, eGFR) as reasons for case exclusion were stated in articles reviewed.

7) The selected studies described patient exclusion due to **refused consent** despite being eligible for CT. These refusals might have resulted from **lack of motivation** and could also hide a sense of "*not feeling good enough for testing*" (p. 7) by patients themselves, as interpreted by Schneider and colleagues [14].

8) **Motor characteristics** that prevented patients from completing the scheduled assessments (e.g., inability to walk without help, being left-handed) were also indicated as exclusion criteria.

9) Patients were excluded when they did **not achieve a certain educational level**, with a minimum of grade 6 being most frequently mentioned.

Findings from earlier-stage CKD cohorts

In 19 screened studies on CF in non-dialysis-treated earlier-stage CKD patients, the predominant reasons for excluding patients were technical problems or unavailable data (68%), followed by CNS disease or psychiatric condition (47%), and non-CNS medical problems/comorbidities (32%). Technical problems were often described as unavailable laboratory measures (i.e. serum creatinine) that prevented an appropriate diagnostic assignment of patients to the "CKD"-diagnosis (Figure 2). Hence, technical problems could be understood as ex-ante reason for exclusion.

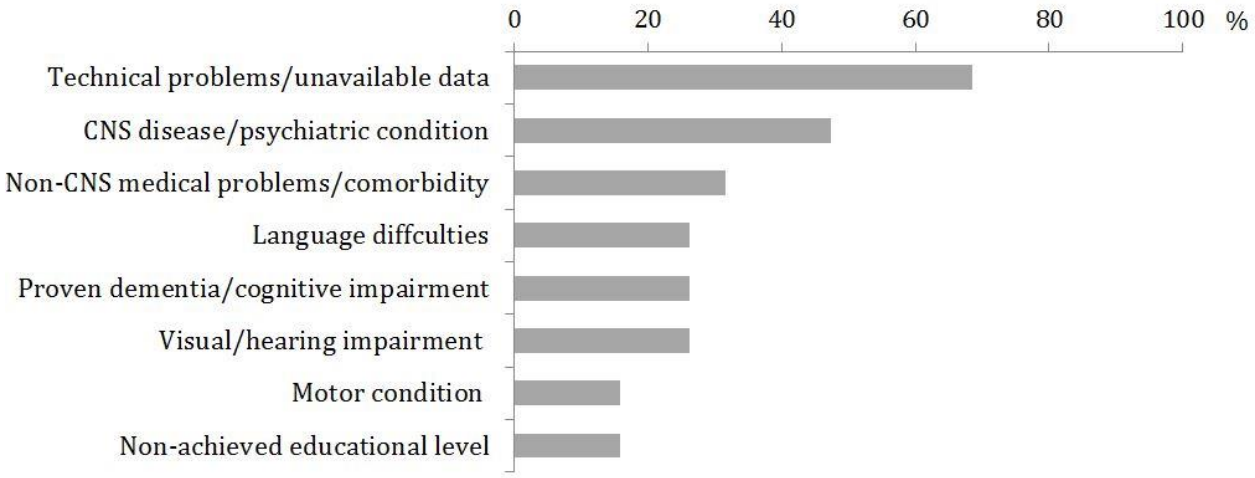

Figure 2. Frequency distribution of reasons for case exclusion in studies on earlier-stage CKD patients (N=19 studies). Note: Percentages do not sum up to 100% because in some cases more than one category existed.

Findings from dialysis cohorts

Within the 19 screened studies on CF in dialysis or end-stage renal disease (ESRD) patients the main reasons for exclusion were a present CNS disease or psychiatric condition (79%), followed by an existing non-CNS medical problem (68%) and language difficulties as well as visual/hearing impairment (58%). The distribution of exclusion categories almost resembled that of the studies with earlier-stage CKD patients (Figure 3). The only exception was "technical problems/unavailable data". As stated above, it is well documented in earlier-stage CKD studies whether serum creatinine measures were unavailable and lead to case exclusion. In contrast, in studies observing dialysis patients only, non-CNS medical problems, language difficulties, visual/hearing impairment, lack of motivation, and proven dementia were more frequent than technical or laboratory-related reasons. It may be that this is partly due to the more severe state of disease and higher average age at ESRD.

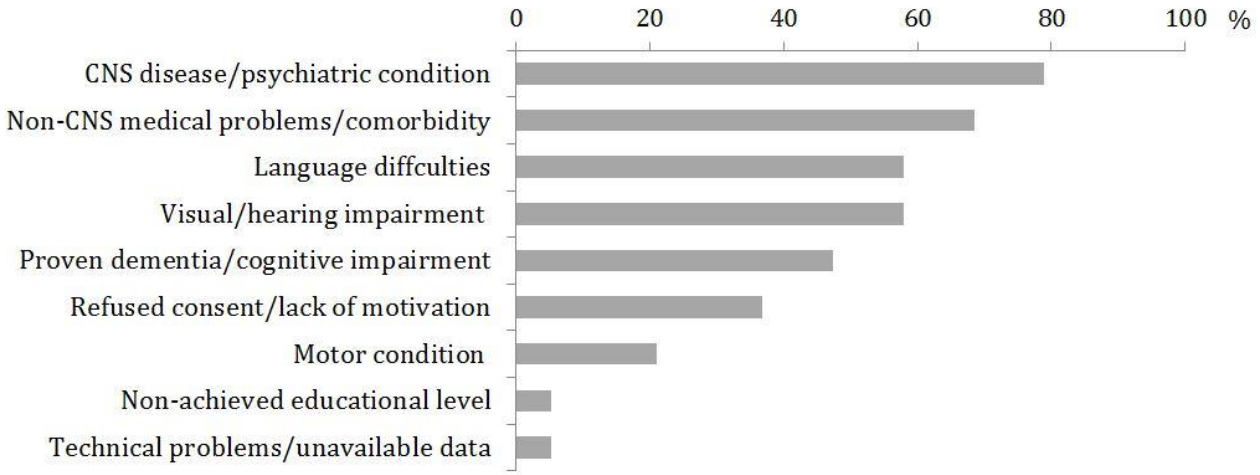

Figure 3. Frequency distribution of reasons for case exclusion in studies on dialysis patients (N=19 studies).
Note: Percentages do not sum up to 100% because in some cases more than one category existed.

Summary and conclusion

We reviewed 19 studies on CT in earlier-stage CKD patients and 19 studies on CT in dialysis patients with respect to reasons for case exclusion. In sum, the frequency distributions were similar, with the exception of "technical problems/unavailable data". Finally, the literature-derived exclusion categories provided a reasonable starting point for our empirical analysis (see related article).

Table 1. Findings from the literature screening (N=38).

#	Authors	CT measures	Sample n (net)[a]	Sample N (gross)[b]	Indications of missing data and/or exclusion criteria	Section	Derived exclusion categories
1	Anwar et al. [3]	TMT A + B, MMSE.	100 (HD=50, NTX=50); (controls=30)	(-)	Ex ante exclusion criteria: "[…] patients with evident cerebrovascular disease, thyroid disease, severe anemia, uncontrolled hypertension, malnutrition, major psychiatric illness, major visual or hearing impairment, unstable coronary heart disease, collagen vascular disease and vasculitis. All the medications were revised to exclude any drugs that might have an effect on the cognitive function except steroids and cyclosporine in all transplantation patients group" (p. 2-3).	Materials and methods.	CNS disease/psychiatric condition, Non-CNS medical problem/comorbidity, Visual/hearing impairment.
2	Drew et al. [4]; Drew et al. [5]; Sarnak et al. [6]; Sorensen et al. [7]*; Weiner et al. [8]#; Pereira et al. [9] **Note: Cohorts stem from 5 Dialysis Clinic Inc . (DCI) units, *and from 1 hospital-based unit, #Cognition and Dialysis Study**	MMSE, NAART, WMS-III, Word List Learning Subtest, WAIS-III, Block Design and Digit Symbol-Coding Subtests, TMT A + B, MAT, COWAT.	Drew et al. [4]:				
			292 (HD)	314*#	**n=22**: did not have "sufficient data to create memory and executive factors" (p. 305). Ex ante inclusion criteria: "Reflecting the nature of cognitive test battery, eligibility criteria included English fluency and sufficient visual and hearing acuity to complete neurocognitive testing" (p. 304). Ex ante exclusion criteria: "To minimize floor effects and reflecting inability to provide consent, individuals with Mini-Mental State Examination (MMSE) score of 10 or lower and/or advanced dementia based on medical record review were excluded. Temporary exclusion criteria included non-access-related hospitalization within 1 month, receipt of hemodialysis for less than 1 month, and single-pool Kt/V < 1.0" (p. 304). Missing scores on cognitive testing: MMSE (n=0), Delayed Recall (**n=5**), Short Recall (**n=4**), Recall Total (**n=2**); Delayed Recognition (**n=4**), Blocks Design (**n=7**), Digit Symbol (**n=32**),Trail A (**n=21**), Trail B (**n=85**), Digits forward (**n=198**), Digits backward (**n=198**), Mental Alternations (**n=198**), COWAT animal (**n=197**), COWAT supermarket items (**n=198**).	Methods, Results.	Language difficulties, Non-CNS medical problem/comorbidity, Proven dementia/cognitive impairment, Visual/hearing impairment.
			Drew et al. [5]:				
			41 (HD)	256*#	Exclusion criteria: "Language/not fluent in English (**n=64**); Dementia/mental status (**n=17**); Vision not sufficient (**n=11**); Hospitalized in previous month (**n=8**); Hearing not sufficient (**n=3**) (p. 153)." **n=109:** "[…] declined consent for entry into the study […] the patients who declined consent were significantly older (67 vs. 59 years) and were more likely to have diabetes as a cause of ESRD (23 vs. 10%), but were otherwise similar with regard to sex, race, and dialysis vintage" (p. 153). **n=3**: Missing data due to withdrawal.	Methods, Results.	CNS disease/psychiatric condition, Language difficulties, Non-CNS medical problem/comorbidity, Refused consent /lack of motivation, Proven dementia/cognitive impairment, Visual/hearing impairment.
			Sarnak et al. [6]:				
			314 (HD)	929*#	**n=201**: Missing cases due to lack of patient interest. "Patients who were eligible but did not enroll were slightly older (aged 66 vs 63 years, p 5 0.05) and had slightly lower serum albumin (3.7 vs 3.8 g/dL, p 5 0.01), but otherwise had similar demographic and clinical characteristics" (p. 473). **n=18**: "Missing results on 1 cognitive test (or 2 results if derived from the same test" (p. 472). Missing data on cognitive testing: NAART VIQ (**n=3**), Delay recall (**n=5**), Immediate recall (**n=2**), Recognition (**n=4**), Block Design (**n=7**), Digit Symbol (**n=32**), Digit Span (**n=149**), Trails A (**n=21**), Trails B (**n=25**), COWAT (**n=147**), MAT (**n=147**). "Digit Span, Mental Alternation Test, and the COWAT were not used in calculation of the PCA because of the smaller number of individuals who completed these tests" (p. 472). Ex ante inclusion criteria: "Eligibility criteria included English fluency as well as sufficient visual and hearing acuity to complete cognitive testing" (p. 472). Exclusion criteria: Behavioral/Psychiatric (**n=14**), Physical impediments (**n=42**), Hospitalization/Dying (**n=108**), Language (**n=194**), MMSE score≤10/ advanced dementia (**n=36**).	Methods, Results.	CNS disease/psychiatric condition, Language difficulties, Non-CNS medical problem/comorbidity, Refused consent/lack of motivation, Proven dementia/cognitive impairment, Visual/hearing impairment.
			Sorensen et al. [7]:				

#	Authors	CT measures	Sample n (net)[a]	Sample N (gross)[b]	Indications of missing data and/or exclusion criteria	Section	Derived exclusion categories
		+KDQOL-CF	168 (HD)	487*	**n=163:** did not agree to participate. **n=156:** did not join for added KDQOL-CF to cognitive battery. "Those who completed the KDQOL-CF were slightly younger, more often were African American, and had lower rates of coronary artery disease" (p. 5). **n=24**: no complete cognitive assessment. Ex ante inclusion criteria: "Eligible participants were fluent in English and had sufficient visual and hearing acuity to complete cognitive tests" (p. 3). Ex ante exclusion criteria: "[…] advanced dementia or confusion (as defined by provider testimony, medical chart review, or Mini-Mental State Examination score ≤10), non–access-related acute hospitalization within 1 month, receipt of maintenance hemodialysis for less than 1 month, and single-pool Kt/V <1.0" (p. 3).	Methods, Results.	Language difficulties, Non-CNS medical problem/comorbidity, Refused consent/lack of motivation, Proven dementia/cognitive impairment, Visual/hearing impairment.
			Weiner et al. [8]:				
			200 (HD)	420#	**n=140**: Refused consent. **n=32**: Incomplete cognitive testing, "[…] individuals not included in principal components analysis due to incomplete cognitive testing were older (68.2 ± 13.6 versus 62.8 ± 17.1 years, p=0.09) but had a similar prevalence of comorbid conditions" (p. 4). **n=48**: "with known stroke" (p. 4). Ex ante inclusion criteria: "English fluency as well as sufficient visual and hearing acuity to complete cognitive testing" (p. 2). Ex ante exclusion criteria: "[…] individuals with Mini-Mental State Exam (MMSE)≤10 [...] advanced dementia based on provider history, confusion, non-access related hospitalization within 1 month, receipt of hemodialysis for less than 1 month, and single pool Kt/V<1.0" (p. 3).	Methods, Results.	CNS disease/psychiatric condition, Language difficulties, Non-CNS medical problem/comorbidity, Refused consent/lack of motivation, Proven dementia/cognitive impairment, Visual/hearing impairment.
			Pereira et al. [9]:				
			25 (HD)	90*#	**n=45**: "ineligible subjects"; "The primary reason for not being eligible was a non-English speaker" (p. 311). **n=20**: "not consented"; "those not enrolled were more likely to be of African American race" (p. 311). Ex ante inclusion criteria: "[…] age≥18 years, English fluency, and MMSE score≥24" (p. 310). Ex ante exclusion criteria: "[…] history of prior stroke, were hospitalized within 1 month, were unable to participate in the neuropsychological survey, or were unable read large font (14 pt. Times New Roman)" (p.310).	Materials and Methods, Results.	CNS disease/psychiatric condition, Language difficulties, Non-CNS medical problem/comorbidity, Refused consent/lack of motivation, Proven dementia/cognitive impairment, Visual/hearing impairment.
3	McAdams-DeMarco et al. [10]	3MS, TMT A + B.	324 (HD)	394	**n=8**: excluded if not having "at least one measure of cognitive function" (p. 2182). **n=62**: excluded if not having "a complete measure of frailty" (p. 2182). **n=1**: no 3MS score. **n=4**: no TMT A score. **n=10**: no TMT B score. Ex ante inclusion criteria: "[…] age ≥ 18 years at enrollment and the ability to speak English" (p. 2182). Ex ante exclusion criteria: "Parent study exclusion criteria included living in a hospice, nursing facility, or prison; having a pacemaker or automatic implantable cardioverter defibrillator; having cancer other than non-melanoma skin cancer within the prior year; or being pregnant or breast feeding […] diagnosis of dementia, Alzheimer's disease, or schizophrenia were excluded as were those who were unable to complete consent or follow through on a study visit. In addition, we excluded participants who were illiterate or had a disability that limited their ability to complete the cognitive function assessments" (p. 2182).	Materials and methods, Results.	CNS disease/psychiatric condition, Language difficulties Non-CNS medical problem/comorbidity, Proven dementia/cognitive impairment.
4	Ozcan et al. [11]	BCSE.	181 (HD=54, PD=58, NTX=69)	(-)	Ex ante exclusion criteria: "Participants with earlier psychiatric conditions, currently getting psychiatric treatment, or with central nervous system disease, mental retardation, or visual or hearing loss" (p. 1349).	Materials and methods.	CNS disease/psychiatric condition, Visual/hearing impairment.

#	Authors	CT measures	Sample n (net)[a]	Sample N (gross)[b]	Indications of missing data and/or exclusion criteria	Section	Derived exclusion categories
5	Palmer et al. [12]	MMSE, RAVTL, SDMT, Phonemic Fluency Test, DSB, RBANS.	751 (HD)	958	**n=207**: did not consent. Ex ante inclusion criteria: "(1) had end-stage kidney disease; (2) were treated with long-term outpatient haemodialysis for at least the previous 90 days; (3) were 18 years or older; (4) their treating team agreed to involvement in the study; and (5) were willing to provide written and informed consent" (p. 2). Ex ante exclusion criteria: "(1) were unable to participate in study procedures even if assisted; (2) had a life expectancy less than 6 months according to their treating physician; (3) had a planned kidney transplantation within 6 months of baseline; or (4) had anticipated recovery of kidney function" (p. 2-3).	Methods and analysis.	Non-CNS medical problem/comorbidity, Refused consent/lack of motivation.
6	Tsuruya et al. [13]	TMT A + B.	95 (pre-dialysis CKD)	106	**n=2: "**[…] images of magnetic resonance imaging (MRI) were not available because of the poor quality of the images" (p. 3). **n=9**: "TMT was not performed" (p. 3). Ex ante inclusion criteria: "(1) patients aged 20–80 years at the time of entry into the study; and (2) NDD-CKD patients whose estimated glomerular filtration rate (eGFR) was less than 60 mL/min/1.73 m^2 irrespective of urinalysis findings (CKD stages 3–5) or patients with ESRD on either HD or PD, who started dialysis within 2 years of study entry" (p. 3). Ex ante exclusion criteria: "(1) pregnant women, or women who have the possibility of pregnancy, (2) patients who have previously received another dialysis therapy for longer than 3 months, (3) patients who have previously undergone renal transplantation, and (4) patients who have a previous history of brain injury, such as symptomatic stroke, traumatic brain injury, brain tumor, or any neuropsychiatric disease" (p. 3).		CNS disease/psychiatric condition, Technical problems/unavailable data.
7	Schneider et al. [14]	TAP, TMT A + B, WMS-R, RBMT, RCFT, Digit span, BADS, RWT.	28 (HD); (controls=20)	43[d]	**n=12**: Patients did not agree. Ex ante inclusion criteria: "(i) aged 18 years or more, (ii) no clinical history of neurological disorders (e.g. stroke and Parkinson's disease) and (iii) being fluent in spoken German" (p. 2).	Methods.	CNS disease/psychiatric condition, Language difficulties, Refused consent/lack of motivation.
8	Costa et al. [15]	MoCA, MMSE, TAP, Digit span forwards, CVLT, MCGCF, VOSP, BNT, Digit span backwards, TMT A + B, Stroop test.	47 (HD); (controls=40)	366	Inclusion criteria: "Patients were eligible to participate if they were 18 years or older (not included: **n=1**), had sufficient German language knowledge (not included: **n=19**), and were able to consent (not included: **n=98**) […] due to dementia, altered state of consciousness, delirium, or third-party legal custody]" (p. 435-436). Exclusion criteria: "[…] history of neurologic disease (**n=96**), chronic psychiatric disease (**n= 26**), severe auditory or visual disability, and current unstable acute medical condition (**n=61**)" (p. 435-436). **n=19**: "[…] not willing to participate" (p. 436).	Methods, Results.	CNS disease/psychiatric condition, Language difficulties, Non-CNS medical problem/comorbidity, Proven dementia/cognitive impairment, Refused consent/lack of motivation, Visual/hearing impairment.
9	Tiffin-Richards et al. [16]	MoCA, MMSE, CVLT, MCGCF, TMT A + B, phonemic and semantic word fluency, DSB, Incomplete Letters subtest of VOSP.	43 (HD); (controls=42)	48	Exclusion criteria: "All participants with a history of neurological or psychiatric disease were excluded. In two cases of severe visual or motor impairment, specific tasks were not administered and therefore considered missing values. These cases included one patient with residual eye sight of 30% due to diabetic retinopathy and glaucoma and one patient with a disabilitating hand tremor" (p. 2). Missing data on cognitive testing: MoCA (n=0), MMSE (**n=2**), TAP (**n=8**), Digit span forwards (**n=2**), CVLT (n=6), MCGCF (**n=7**), VOSP (**n=3**), BNT (**n=4**), Phonemic/semantic word fluency (**n=4**), DSB (**n=2**), Stroop Test (**n=10**), TMT A (**n=4**), TMT B (**n=5**).	Subjects and methods, Results.	CNS disease/psychiatric condition, Motor condition, Visual/hearing impairment.
10	Tholen et al. [17]	MoCA, MMSE.	26 (HD)	(-)	Ex ante exclusion criteria: "[…] if they had any motor impairment of the dominant hand, aphasia or amaurosis, which would impair test performance" (p. 32).	Methods.	Language difficulties, Motor condition, Visual/hearing impairment.
11	Davey et al. [18]	Visual-spatial organization and memory, scanning and tracking, verbal	590	1081 (community-based)[e]	Exclusion criteria: "(i) data for study variables were missing (**n=21**); (ii) history of acute stroke at baseline (**n=12**), dialysis at baseline (**n=2**) or probable dementia at baseline (n=0) […] Dementia was excluded by virtue of other exclusions listed above" (p. 1811).	Methods.	CNS disease/psychiatric condition, Technical problems/unavailable data, Proven dementia/cognitive impairment.

#	Authors	CT measures	Sample n (net)[a]	Sample N (gross)[b]	Indications of missing data and/or exclusion criteria	Section	Derived exclusion categories
		memory, working memory originating from WMS-R, WAIS III, WAIS, H-RNTB.					
12	Tamura Kurella et al. [19]; Tamura Kurella et al. [20] Cohort[c] of Tamura Kurella et al. [19,20] **Note: Frequent Hemodialysis Network (FHN)**	TMT B, 3MS.	Tamura Kurella et al. [19]				
			245 (HD)	378	**n=133** "[…] excluded for multiple reasons" (Fig. 1 S1). Ex ante exclusion criteria: "[…] age <13 (Daily) or <18 (Nocturnal) years, inability to achieve a mean equilibrated Kt/V (eKt/V)urea ≥1.0 on two occasions, life expectancy less than six months, medical need for hemodialysis > 3x-per-week, residual urea clearance >3 ml/min (Daily), history of poor adherence to hemodialysis, inability to communicate in English or Spanish and anticipated kidney transplantation or relocation within the next 14 months" (p. 3).	Methods, Results.	Language difficulties, Non-CNS medical problem/comorbidity.
			Tamura Kurella et al. [20]				
			383 (HD)	496	**n=8:** excluded because of "years of age<21" (p. 2). **n=105**: "[…] missing cognitive scores" (p. 2); "Subjects who were excluded because of missing cognitive scores had a smaller median ESRD vintage but were otherwise similar to the analytic cohort" (p. 3). Ex ante exclusion criteria: "[…] age<13 (daily) or <18 (nocturnal) years, inability to achieve a mean estimated Kt/Vurea ≥ 1.0 on two occasions, life expectancy<6 months, medical need for hemodialysis >3 times per week, residual urea clearance>3 ml/min (daily), history of poor adherence to hemodialysis, medical conditions preventing cardiac magnetic resonance imaging, inability to communicate in English or Spanish, and anticipated kidney transplantation or relocation within the next 14 months" (p. 2).	Materials and methods, Results.	Language difficulties, Non-CNS medical problem/comorbidity.
13	Williams et al. [21]	CSI'D, TMT A + B.	79 (CKD 3-5); (controls=79)	79[f]	**n=24**: "Only 55 patients were able to complete TMTB on account of educational status" (p. 3). Ex ante exclusion criteria: "Patients with a history of cerebrovascular disease, other neurological or psychiatric disorders, visual or auditory impairment, or delirium were excluded" (p. 2).	Materials and methods, Results.	CNS disease/psychiatric condition, Non-achieved minimal educational status, Visual/hearing impairment.
14	Helmer et al. [22]	MMSE.	8521 (moderate CKD)	9294	Exclusion criteria: "without serum creatinine" (**n=589**); "prevalent dementia" (**n=184**) (p. 2045). **n=33**: missing data for MMSE.	Methods.	Technical problems/unavailable data, Proven dementia/cognitive impairment.
15	Rocco et al. [23]	TMT B.	87 (HD)	118	Exclusion criteria: "Patient unwilling or unable to receive home dialysis (**n=9**), home not suitable or monitoring not available for dialysis (**n=7**), MRI not obtained (**n=3**), Baseline GFR>10 ml/min per 1.73m^2 (**n=1**), other reasons (**n=11**)" (p. 1081) (Supplementary Table S1). Ex ante exclusion criteria: "Unable or unwilling to follow the study protocol for any reason (including mental incompetence), Unable or unwilling to provide informed consent or sign the Institutional Review Board-approved consent form **,** Current requirement for hemodialysis more than three times per week due to medical comorbidity. (Ultrafiltration session on a fourth day per week not an exclusion criterion), Current pregnancy, or planning to become pregnant within the next 12 months, Noncompliance with hemodialysis or peritoneal dialysis treatments in the past, Unable to follow the nocturnal home hemodialysis training protocol for any reason, including inability to train the patient or the patient's caregiver, Expected geographic unavailability at a participating HD unit or at home for >2 consecutive weeks or >5 weeks total during the next 12 months (excluding unavailability due to hospitalizations), Currently in an acute or chronic care hospital, Contraindication to heparin, including allergy or heparin induced thrombocytopenia, Expectation that native kidneys will recover kidney function, Glomerular filtration rate (GFR) >10 ml/min per 1.73m^2 as measured	Materials and methods.	CNS disease/psychiatric condition, Language difficulties, Non-CNS medical problem/comorbidity, Refused consent/lack of motivation, Technical problems/unavailable data.

#	Authors	CT measures	Sample n (net)[a]	Sample N (gross)[b]	Indications of missing data and/or exclusion criteria	Section	Derived exclusion categories
					by the average of urea and creatinine clearances from urine collection obtained over at least 24 hours, Currently on nocturnal HD, or less than 3 months since the patient discontinued daily or nocturnal HD, Less than 3 months since patient returned to HD after rejection resulting in allograft failure from a kidney transplant, Current use of investigational drugs or participation in another clinical trial that contradicts or interferes with the therapies or measured outcomes in this trial, Scheduled for living donor kidney transplant, change to peritoneal dialysis, or plans to relocate to a non-study center within the next 12 months, Life expectancy less than 6 months, Medical history that might limit the individual's ability to take the trial treatments for the 12 month duration of the study, including: currently receiving chemo or radiotherapy for a malignant neoplastic disease other than localized non-melanoma skin cancer, active systemic infection (including tuberculosis, disseminated fungal infection, active AIDS but not HIV), and cirrhosis with encephalopathy, Medical conditions that would prevent the patient from performing the cardiac MRI procedure (e.g., inability to remain still for the procedure, a metallic object in the body including cardiac pace-maker, inner ear (cochlear) implant, brain aneurysm clips, mechanical heart valves, recently placed artificial joints, and older vascular stents), Inability to communicate verbally in English or Spanish, Current access is temporary non-tunneled catheter" (Supplementary Table S1). Ex ante inclusion criteria: "Age≥18 years, Achieved mean eKt/V≥1.0 for last two baseline hemodialysis sessions, Willing to perform hemodialysis at home" (Supplementary Table S1).		
16	Jassal et al. [24]	MMSE, TMT B, Animals Naming Category Fluency test.	1345 (pre-dialysis CKD)	1429	Missing data: "without urine samples" (**n=11**); "age < 50 years" (**n=12**), "with stroke" (**n=61**) (p. 278).	Materials and methods.	CNS disease/psychiatric condition, Technical problems/unavailable data.
17	Lux et al. [25]	WIE, BTT, VLMT, DCS, TMT A + B, FWIT, LPS, MMST.	12 (HD); (controls=12)	12[f]	Particular missing data on neurocognitive testing: "Attention- Interference (**n=1**); speech- verbal comprehension (**n=2**), speech- word fluency (**n=3**); perception- spatial visualization (**n=3**), perception- perceptual speed (**n=6**), Reasoning (**n=2**)" (p. 796). Inclusion criteria: "[…] receiving chronic HD therapy for 46 months, hemoglobin 410 mg/dl for 43 months, stable blood pressure during the last HD session, significant fluid removal during the dialysis treatment (typically 42 l after a long weekend interval), and right handedness" (p. 799). Ex ante exclusion criteria: "[…] diabetes mellitus, presence of a known cerebral disease (i.e., previous brain trauma, cerebral ischemia, brain tumors, and hydrocephalus), presence of a known psychiatric disease, malignancies, chronic infectious diseases (i.e., chronic hepatitis B or C infection or human immunodeficiency virus infection), left handedness, anemia (hemoglobin 10 mg/dl over the past 3 months), hemodynamic instability during the past HD sessions (430% decrease in systolic blood pressure during HD treatment), uncontrolled arterial hypertension (4180/100mmHg), metal-containing devices and implants (i.e., pacemakers, mechanical heart valves, implanted hearing aids, and artificial joint replacements), tattoos, and claustrophobia" (p. 799).	Materials and methods, Results.	CNS disease/psychiatric condition, Motor condition, Non-CNS medical problem/comorbidity.
18	Wang et al. [26]	MMSE.	1351	2310 (community-based)[g]	**n=153**: "[…] excluded participants with a history of stroke at baseline; Inclusion criteria: residents aged ≥ 40 years from an urban district of Beijing" (p. 118).	Methods.	CNS disease/psychiatric condition.
19	Buchman et al. [27]	Word List Recall, Word List Delay, Word List Recognition, Immediate Story Recall,	886	1062 (elderly)[h]	**n=83**: "[…] had clinical dementia at their baseline evaluation" (p. 921). Ex ante inclusion criteria: "Inclusion in these analyses required 1) valid serum CRN, 2) the absence of dementia based on clinical cognitive testing" (p. 921).	Methods.	Technical problems/unavailable data, Proven dementia/cognitive impairment.

#	Authors	CT measures	Sample n (net)[a]	Sample N (gross)[b]	Indications of missing data and/or exclusion criteria	Section	Derived exclusion categories
		Delayed Story Recall, Logical Memory, BNT, Reading Test, Verbal Fluency, Digit Span Forward, Digit Span Backward, Digit Ordering; Symbol Digit, Number Comparison, Stroop Color Naming, Stroop Word Naming, Line Orientation, Progressive Matrices.					
20	Dahbour et al. [28]	Attention, MMSE, orientation, registration and recall.	54 (HD); (controls=54)	(-)	Ex ante inclusion criteria: "[…] were 18 years of age or older with no history of stroke or dementia" (p. 81).	Material and methods.	CNS disease/psychiatric condition, Proven dementia/cognitive impairment.
21	Elias et al. [29]	Verbal episodic memory, visual-spatial organization/memory, scanning and tracking, working memory and similarities from WMS-R, HVLT, WAIS-III, WAIS, HVOT, H-RNTB.	923	1047 (community-based)	Exclusion criteria: "[…] data necessary to calculate eGFR were missing (**n=82**); dementia (**n=9**); active dialysis treatment (**n=4**) and under 40 years of age (**n=29**)" (p. 2447).	Methods.	Technical problems/unavailable data, Proven dementia/cognitive impairment.
22	Etgen et al. [30]	6CIT.	3679	3908 (community-based)	Exclusion criteria: "[…] excluded due to incomplete data for calculation of renal function (**n=227**) or missing baseline 6CIT (**n=2**)" (p. 3145).	Subjects and methods.	Technical problems/unavailable data.
23	Harciarek et al. [31]	MMSE, RAVLT, BVMT-R, RCF, WAIS-R-PL, TMT A+B, Finger Tapping Test from H-RNTB.	42 (NTX=22; ESRD=20); (controls=30)	(-)	Ex ante inclusion criteria: "[…] between 21 and 65 years of age, had no malignancies or clinically evident cerebrovascular disease as reflected by neurological deficits, had no uncontrolled hypertension, diabetes and/or anemia, mental retardation, psychiatric disorders, psychoactive drug treatment (e.g., benzodiazepines), dementia, or alcohol abuse" (p. 686). Ex ante exclusion criteria: "[…] subjects who had clinically relevant visual or hearing difficulties, as well as other major organ failure were not included" (p. 686).	Methods.	CNS disease/psychiatric condition, Non-CNS medical problem/comorbidity, Proven dementia/cognitive impairment, Visual/hearing impairment.

#	Authors	CT measures	Sample n (net)[a]	Sample N (gross)[b]	Indications of missing data and/or exclusion criteria	Section	Derived exclusion categories
24	Gelb et al. [32]	CVLT-II, D-KEFS, TMT A+B, Colour–Word Interference Test.	87 (NTX=42, pre-dialysis CKD=45); (controls=49)	(-)	Ex ante inclusion criteria: "(1) capable of giving informed consent; (2) absence of visual impairments (corrected vision≥20/50) or hearing impairments; (3) fluency in the English language; (4) minimum of grade 6 education; (5) absence of psychosis, acute illness (e.g., metastatic cancer), neurological disease and other major organ failure (e.g., end-stage liver disease)" (p. 1033).	Subjects and methods.	CNS disease/psychiatric condition, Language difficulties, Non-achieved minimal educational status, Non-CNS medical problem/comorbidity, Visual/hearing impairment.
25	Jassal et al. [33]	PAOF, Digit Symbol, Digit Span, Spatial Span, TMT B, CVLT-II	99 (pre-dialysis CKD)	103	**n=4:** "[…] declined further participation because of visual impairment, hearing difficulties, or new comorbid illness precluding testing" (p. 852). Ex ante inclusion criteria: "aged 20 years or older, had progressive renal impairment, spoke English fluently, and had a minimum education of Grade 6" (p. 850). Ex ante exclusion criteria: "Patients with a previous history of head injury requiring overnight hospitalization, known learning disabilities, a documented past history of stroke or transient ischemic attacks, or depression" (p. 850).	Methods, Results.	CNS disease/psychiatric condition, Language difficulties, Non-achieved minimal educational status, Non-CNS medical problem/comorbidity, Visual/hearing impairment.
26	Slinin et al. [34]	3MS, TMT B.	5529	5995 (community-based)	**n=466**: "Without baseline SCr (n=461), 3MS score (n=5), or both were older and less likely to be Caucasian and had fewer years of education and a higher prevalence of diabetes mellitus than men with complete baseline measures" (p. 2085). **n=126**: "Did not have baseline Trails B scores […] were older, less educated, less likely to be Caucasian, and more likely to report comorbidities and had lower baseline 3MS scores" (p. 2085). Ex ante exclusion criteria: "Men were excluded from the study if they could not walk without assistance, had had bilateral hip replacements, did not live in or planned to move from the area surrounding the study site, or had a severe medical condition" (p. 2038).	Methods, Results.	Motor condition, Non-CNS medical problem/comorbidity, Technical problems/unavailable data.
27	Tamura Kurella et al. [35] **Note: *REGARDS= REasons for Geographic And Racial Differences in Stroke Study**	Six-item Screener.	23405	24512*	**n=1013**: "Missing creatine"; **n=30**: "Missing cognitive testing"; **n=64**: "GRF<10 ml/min/1.73m²" (p. 9).	Methods, Results.	Technical problems/unavailable data.
28	Hailpern et al. [36]	SRTT, SDST, SDLT.	4849	5662 (random)	"Nonresponse rates varied by test" (p. 2211): SRTT: Missing (valid) test results (**n=524**), "did not have serum creatinine measured" (**n=289**), "taking anti-depressants" (**n=123**), "had eGFR<30 ml/min/1.73m²" (**n=2**), "determined to have impairments preventing compliance" (**n=4**). SDST: Missing (valid) test results (**n=858**), "did not have serum creatinine measured" (**n=392**), "taking anti-depressants" (**n=121**), "had eGFR<30 ml/min/1.73m²" (**n=2**), "determined to have impairments preventing compliance" (**n=4**). SDLT: Missing (valid) test results (**n=700**), "did not have serum creatinine measured" (**n=280**), "taking anti-depressants" (**n=117**), "had eGFR<30 ml/min/1.73m²" (**n=2**), "determined to have impairments preventing compliance" (**n=4**), (p. 2211). "Nonresponse rates increased with age, decreased with educational level, were higher for men, and were lower for non-Hispanic white individual than other ethnic groups" (p. 2209). Ex ante exclusion criteria: "Individuals were excluded from this study when they reported taking antidepressants, when the examining physician found evidence of disabling impairment that prevented them from complying with the examination, when they had invalid (SRTT) or missing (because of nonresponse) test results, when they had an eGFR <30 ml/min per 1.73 m², or when they were missing values for serum creatinine" (p. 2211).	Concise Methods.	CNS disease/psychiatric condition, Technical problems/unavailable data.

#	Authors	CT measures	Sample n (net)[a]	Sample N (gross)[b]	Indications of missing data and/or exclusion criteria	Section	Derived exclusion categories
29	Thornton et al. [37]	ETS kit, CVLT-II, TMT B, Color-Word Interference test.	51 (pre-dialysis CKD); (controls=55)	(-)	Ex ante inclusion criteria: "(a) they were fluent in the English language, (b) had completed a minimum grade 6 education; and (c) had been followed by the renal clinic for at least six months to ensure medical stabilization of acute illness parameters" (p. 345). Ex ante exclusion criteria: "if they had a history of other major illnesses with known direct CNS effects (e.g., stroke, head injury, CNS malignancies, and Parkinson's disease), or had previously identified cognitive impairments (e.g., diagnosis of dementia). Additional exclusion criteria included diagnosis of concurrent terminal illness, major psychiatric illness, or other major organ failure (e.g., end stage liver disease). Because of the visual nature of some tasks, we screened participants' visual acuity, with the lower limit of corrected vision set at 20/50" (p. 345).	Methods.	CNS disease/psychiatric condition, Language difficulties, Non-achieved minimal educational status Non-CNS medical problem/comorbidity, Proven dementia/cognitive impairment, Visual/hearing impairment.
30	Jassal et al. [38]	CVLT-II, Letter-number sequencing, Spatial Span, Digit Symbol, GPT, TMT A + B, Category Fluency, Boston Naming Test, COWAT.	12 (HD)	14[i]	Ex ante inclusion criteria: "Stable on thrice-weekly HD at baseline, were scheduled for training for NHD, spoke English fluently, and had a minimum educational of Grade 6 or higher" (p. 960). Ex ante exclusion criteria: "A previous history of head injury requiring overnight hospitalization, known learning disabilities, a documented past history of stroke or transient ischemic attacks, or depression" (p. 960).	Materials and Methods.	CNS disease/psychiatric condition, Language difficulties, Non-achieved minimal educational status. Non-CNS medical problem/comorbidity.
31	Murray et al. [39]	3MS, HVLT-R, Color Trails 1 and 210, Stroop Interference test, BVMT-R, COWAT, 13 Clock-drawing Test, Wechsler Digit Span.	374 (HD); (controls=101)	589	Missing data: "[…] refused (**n=206**) or too ill to participate (**n=9**) […] unable to complete testing in ≥2 domains (**n=36**).", "[…] due to visual or writing impairment" (p. 217). Ex ante inclusion criteria: "[…] aged 55 years or older and on maintenance hemodialysis for at least 2 months, and spoke English as their primary language" (p. 216). Ex ante exclusion criteria: " […] previous diagnosis of dementia or International Classification of Diseases, Ninth Edition, Clinical Modification equivalents according to the medical record or self-report" (p. 217).	Methods.	Language difficulties, Non-CNS medical problem/comorbidity, Refused consent/lack of motivation, Proven dementia/cognitive impairment, Visual/hearing impairment.
32	Kurella et al. [40]	3MS.	3034	3075 (elderly)	Missing data due to "scores on the 3MS were unavailable" (**n=44**); "Serum creatinine was unavailable" (**n=28**). Ex ante exclusion criteria: "(1) difficulties in activities of daily living, walking one quarter of a mile, or climbing 10 steps; (2) life-threatening illness; (3) difficulty communicating with the interviewer; or (4) intention of moving from the vicinity in the subsequent 3 yr" (p. 2128).	Materials and Methods, Results.	Language difficulties, Motor condition, Non-CNS medical problem/comorbidity, Technical problems/unavailable data.
33	Kurella et al. [41]	Multiple tests including 3MS, TMT B, BNT, Verbal Fluency, Word List, Memory and Recall.	1015	1063 (post-menopausal)	**n=48: "**Did not have coincident laboratory results and GFR could not be estimated" (p. 69). **n=33:** "[…] having zero score (i.e., 0 seconds to complete the task) on Trails B" (p. 70). Ex ante inclusion criteria: "[…] postmenopausal women younger than 80 years with established coronary artery disease who had not undergone hysterectomy" (p. 67).	Results.	Technical problems/unavailable data.

#	Authors	CT measures	Sample n (net)[a]	Sample N (gross)[b]	Indications of missing data and/or exclusion criteria	Section	Derived exclusion categories
34	Griva et al. [42]; Griva et al. [43]; Griva et al. [44] **Note: Cohort[c] of Griva et al. [42-44] (HD=77, PD=68)**	TMT A + B, SDMT, RAVLT, BVRT, GP.	Griva et al. [42]:				
			28	145 (HD=77, PD=68)[j]	Ex ante inclusion criteria: "(i) aged 18 years or more, (ii) no history or clinically evident cerebrovascular disease as reflected by new, transient or fixed neurological deficits, (iii) no major visual or hearing impairments, or other sensory or motor impairments that prohibit them from completing the scheduled assessments, (iv) absence of acute or chronic psychosis, evident depression, severe learning disabilities and/or dementia, (v) currently stable, defined as not being acutely ill or hospitalized at the time of the assessments, (vi) be fluent in written and spoken English and (vii) a minimum of 3 months on their respective mode of treatment and dialysis techniques" (p. 3276)	Subjects and methods.	CNS disease/psychiatric condition, Language difficulties, Motor condition, Non-CNS medical problem/comorbidity, Proven dementia/cognitive impairment, Visual/hearing impairment
			Griva et al. [43]:				
			262 (HD=77, PD=68, NTX=117)	290	**n=28:** did not consent. Ex ante inclusion criteria: (i) aged ≥ 18 years; (ii) no history or clinically evident cerebrovascular disease reflected by new transient or fixed neurological deficits; (iii) no major visual or hearing impairments, or other sensory or motor impairments that prohibit them from completing the scheduled assessments; (iv) absence of acute or chronic psychosis, evident depression, severe learning disabilities and/or dementia; (v) currently stable, defined as not being acutely ill or hospitalized at the time of the assessments; (vi) fluency in written and spoken English; and (vii) a minimum of 3 months on their respective mode treatment" (p. 1867).	Subjects and methods.	CNS disease/psychiatric condition, Language difficulties, Motor condition, Non-CNS medical problem/comorbidity, Refused consent/lack of motivation, Proven dementia/cognitive impairment, Visual/hearing impairment.
			Griva et al. [44]:				
			145 (HD=77, PD=68)	236	**n=69**: "[…] excluded because they did not meet one or more of the inclusion criteria" (p. 571). **n=22**: did not consent to full research protocol. Ex ante inclusion criteria. "(a) age 18 years or more; (b) no history or clinically evident cerebrovascular disease as reflected by new, transient or fixed neurological deficits; (c) no major visual or hearing impairments, or other sensory or motor impairments that prohibit them from completing the scheduled assessments; (d) absence of acute or chronic psychosis, evident depression, severe learning disabilities and, or dementia; (e) currently stable, defined as not being acutely ill or hospitalized at the time of the assessments; (f) be fluent in written and spoken English and (g) a minimum of 3 months on their respective mode of treatment and dialysis techniques" (p. 571).	Method.	CNS disease/psychiatric condition, Language difficulties, Motor condition, Non-CNS medical problem/comorbidity, Refused consent/lack of motivation, Proven dementia/cognitive impairment, Visual/hearing impairment.
35	Kurella et al. [45]	3MS, TMT B, CVLT short form.	160 (CKD 3-4=80, HD=80)	160[f]	Ex ante exclusion criteria: "Subjects who were younger than 20, who were not fluent in English, or who had major hearing impairments" (p. 1864). Incomplete cognitive testing: 3MS (**n=1**)**,** Trails B: **"**Subjects with significant visual impairment (**n=16**) were not administered the Trails B because this test is vision dependent" (p. 1864), CVLT (**n=3**)**,** KDQOL-CF (**n=3**) (p. 1866).	Methods, Results.	Language difficulties, Visual/hearing impairment.
36	Lee et al. [46]	TMT A + B, Stroop Test, Digit-Span- and Digit-Symbol Test.	56 (HD)	89	Ex ante inclusion criteria: "(1) age between 20 and 70 years (**n=9** excluded), (2) on hemodialysis for at least 3 months or longer, (3) be in clinically stable condition based on documented patient history, (4) be ambulant, and (5) be literate" (p. 6). Exclusion criteria: "(1) evident cerebrovascular disease, (2) major psychiatric illness" (**n=4**), "(3) major visual or hearing impairment" (**n=2**), "(4) unstable coronary heart disease, (5) uncontrolled hypertension during the previous 3 months, (6) collagen vascular disease or vasculitis, and (7) use of glucocorticoids or other medications, which might have affected the neurocognitive function during the previous 3 months" (**n=12**), "coexisting medical problems: dementia" (**n=2**), "angina pectoris" (**n=2**), "systemic lupus erythematous" (**n=1**), "parkinsonism" (**n=1**)" (p. 6).	Methods.	CNS disease/psychiatric condition, Language difficulties, Non-CNS medical problem/comorbidity, Proven dementia/cognitive impairment, Visual/hearing impairment.

#	Authors	CT measures	Sample n (net)[a]	Sample N (gross)[b]	Indications of missing data and/or exclusion criteria	Section	Derived exclusion categories
37	Seliger et al. [47]	3MSE.	3568	3660 (elderly)	**n=52**: "did not complete 3MSE" (p. 1905). **n=31**: "did not have a SCr measurement before MRI imaging "; **n=9**: "had other missing baseline data" (p. 1906). Ex ante inclusion criteria: "Eligible subjects were non-institutionalized, not wheel-chair-dependent at home, did not require a proxy for consent, and were expected to remain in their local region for at least 3 yr" (p. 1904).	Materials and methods, Results.	Motor condition, Non-CNS medical problem/comorbidity, Technical problems/unavailable data.
38	Williams et al. [48]	Dodrill Stroop, RAVLT, K-BIT.	30 (HD=20, PD=10)	(-)	Ex ante inclusion criteria: "[…] patients with ESRD aged 18 years and older; completion of at least 3 months of maintenance dialysis therapy before study entry; all hemodialysis and CAPD participants were required to have stable urea clearance with a Kt/V greater than 2.0, respectively; and a hematocrit greater than 30% for at least 3 months." (p. 706). Ex ante exclusion criteria: "[…] patients on the earliest hemodialysis shift of the day or with a history of alcoholism, brain injury, dementia, or psychosis were not considered for participation" (p. 706). "All patients received preliminary auditory and visual acuity screens, along with a screen for color blindness" (p. 706).	Methods.	CNS disease/psychiatric condition, Proven dementia/cognitive impairment, Visual/hearing impairment.

Note. [a]Net study sample as indicated by authors; in case of longitudinal studies, the baseline sample size is quoted if indicated; [b]Total gross sample size at baseline; if not indicated in original article, the number of indicated ex post exclusions and/or missing data was added to study sample; (-)=no indications about missing data; [c]Derived exclusion categories found within each study are only counted once for the total cohort. [d]n=3 "declined to perform the second testing" (p. 2). [e]"Individuals in this group who moved out of New York State (**n=137**) be excluded and an additional **319** participants were lost to follow-up" (p. 1811). [f]Net=gross, since missing data is reported as particular missing scores in tests or incomplete cognitive testing, and not as excluded number of patients in general. [g]"we were able to follow 67.7% (n=1,563) of them […] Among those 1,563 participants, **59** died before the second visit" (p. 118). [h]**n=80:** "were not eligible for follow-up examination (29 persons died before their first follow-up and 51 had not yet reached their first follow-up). Of 899 who were eligible for follow-up examination, **13** had missing follow-up" (p. 921); [i]**n=2**: "underwent baseline tests only and are therefore not included in the final results. Of these two, one patient withdrew consent for testing after the 6-month period on NHD [Nocturnal daily Hemodialysis], whereas the other decided not to proceed to home nocturnal dialysis because of personal circumstances" (p. 957). [j]did not receive kidney transplant. HD=Hemodialysis; PD=Peritoneal Dialysis; NTX=Kidney Transplantation; CKD=Chronic Kidney Disease; ESRD=End-Stage Renal Disease. AVLT=Auditory-Verbal Learning Test; BADS=Behavioral Assessment of Dysexecutive Syndrome; BCSE=Brief Cognitive Status Exam; BNT=Boston Naming Test; BTT=Block-Tapping-Test; BVMT-R=Brief Visuospatial Memory Test – Revised; BVRT=Benton Visual Retention Test; CIT=Cognitive Impairment Test; COWA=Controlled Oral Word Association; COWAT=Controlled Oral Word Association Test; CVLT-II=California Verbal Learning Test – Second Edition; CSI'D= Community Screening Interview for Dementia; D-KEFS=Delis-Kaplan Executive Function System; DCS=Diagnosticum für Cerebralschädigung [Diagnosticum of Cerebral Damage]; DSB=Digit Span Backward; ETS kit=Educational testing service kit of factor-referenced cognitive tests; FWIT=Farbe-Wort-Interferenztest [Colour-Word-Interference Test]; GP=Grooved Pegboard; H-RNTB=Halstead-Reitan Neuropsychological Test Battery; HVLT=Hopkins Verbal Learning Test; HVLT-R=Hopkins Verbal Learning Test – Revised; HVOT=Hooper Visual Organization Test; K-BIT=Kaufman Brief Intelligence Test; KDQOL-CF=Kidney Disease Quality of Life – Cognitive Function; LPS = Leistungsprüfsystem [Performance Test System]; MAT=Mental Alternation Test; MMSE=Mini Mental State Examination; MMST=Mini-Mental-Status-Test; MCGCF=Medical College of Georgia Complex Figures; MoCA= Montreal Cognitive Assessment; NAART=North American Adult Reading Test; PAOF=Patient's Assessment of Own Functioning; RAVLT=Rey Auditory-Verbal Learning Test; RBMT=Rivermead Behavioural Memory Test; RBANS=Repeatable Battery for the Assessment of Neuropsychological Status; RCF=Rey Complex Figure Test; RCFT=Rey-Osterrieth Complex Figure Test; RWT=Regensburger Wortflüssigkeitstest [Regensburger Word Fluency Test]; SDLT=Serial Digit Learning Test; SDST=Symbol Digit Substitution Test; SRTT=Simple Reaction Time Task; SDMT=Symbol Digit Modalities Test; TAP=Tests of Attentional Performance; TMT A+B/Trail A/Trail B=Trail Making Test Version A+B; VLMT=Verbaler Lern- und Merkfähigkeitstest [Verbal Learning and Memory Test]; VOSP= Visual Object and Space Perception; WAIS=Wechsler Adult Intelligence Scale; WAIS III=Wechsler Adult Intelligence Scale – Third Edition; WAIS-R-PL=Wechsler Adult Intelligence Scale – Revised – Polish Adaptation; WIE=Wechsler Intelligenztest für Erwachsene [Wechsler Adult Intelligence Scale]; WMS-R=Wechsler Memory Scale – Revised; WMS-III=Wechsler Memory Scale – Third Edition; 3MS(E)=Modified Mini-Mental State Examination; 15-WT A+B=15 Words Test Version A+B.

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