Assessing the standards of observational studies using the "CoCoPop" guidelines

CoCoPop – **Co**ndition, **Co**ntext and **Po**pulation (full explanation available at the manual as follows: https://wiki.jbi.global/display/MANUAL/5.5+Conducting+and+reporting+systematic+reviews+of+prevalence+and+incidence+data)

The acronym CoCoPop, roughly similar to the acronyms PICO (Population [or Patient], Intervention, Comparison and Outcome) and PEO (Population, Exposure and Outcome) and their relative checklists and guidelines has been largely used in systematic reviews and meta-analysis. Despite their similar purposes, each one of them (PICO, PEO and CoCoPop) has been tailored vis-à-vis the specific structure and design of the different studies under review.

CoCoPop should be used in tandem with bibliographic search and may help the authors to find an optimal definition of the keywords to be searched. It also helps the authors to better define their research question, as well as to guide the formulation of improved searching syntaxes.

CoCoPop has been used in systematic reviews and meta-analysis on prevalence or incidence of given medical conditions/infections/events, in cases where there are no additional interventions or comparisons (Munn et al., 2018; Pollock & Berge, 2018). This is precisely the case of our study. Our common ground is the fact ALL patients under analysis have been in haemodialysis.

Patients with any severe medical condition, as is the case of people with chronic kidney disease, usually take different medicines and may need additional interventions, such as rehydration. Notwithstanding, there is no clear association of such procedures and hepatitis C. None of the papers reviewed by our group mentioned such procedures or have made any attempt to control their findings for putative risks associated with them. For the sake of our study, haemodialysis is an inclusion criterion and no additional intervention was included in the analysis, both due to the absence of any empirical information or insights from the literature.

Research question: *What is prevalence of the infection by Hepatitis C in haemodialysis patients in Brazil?*

Table WA 3.1. Components of the research question, according to CoCoPop

Description	Abreviation	Components
Condition	Co	Infection by HCV and Hepatitis C
Context	Co	Haemodialysis in Brazil (1945-2019) and infection by HCV/Hepatitis C
Population	Pop	Haemodialysis patients in Brazilian healthcare units, independent of gender or age

Table WA 3.2. Applying CoCoPop to the search strategy

Population	Context Year	Context Hemodialysis	Context Infection	Context Country	Condition
Haemodialysis patients in Brazilian healthcare units, independent of gender or age.	1945 to 2019	Hemodialysis; Hemodiálise; hemodiálises; Diálise; Diálisis; Dialysis	Prevalence; Prevalência; Prevalencia; Soroprevalência; seroprevalence; Incidence; Incidência; Taxa; tasa; rate	Brazil; Brasileiro; Brasileira; Brazilian; Acre; Alagoas; Amapá; Amazonas; Bahia; Ceará; "Distrito Federal"; "Espírito Santo"; Goiás; Maranhão; "Mato Grosso"; "Mato Grosso do Sul"; "Minas Gerais"; Pará;	"Hepatitis C"; HCV; "Hepatite C"; VHC; "doença hepática"; "enfermedad del hígado"; "liver disease"

				Paraíba; Paraná; Pernambuco; Piauí; “Rio de Janeiro”; “Rio Grande do Norte”; “Rio Grande do Sul”; Rondônia; Roraima; “Santa Catarina”; “São Paulo”; Sergipe; Tocantins	

Table WA 3.3. Studies selected by the final search strategy, assessed by CoCoPop

Authors	Year publication	Year Study	Place in Brazil (Abb.)	Study Design	Performance and detail of HCV serological tests?	Probabilistic samples OR census approach?	Condition	Context	Population					Prevalence HCV	
									Pacients	Number patients	Average age	Male (%)	Blood transfusion	ELISA	PCR
Barbosa JR et al	2017	2014	CE	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys clinic	Haemodialysis	143	48.0	68.5	62.9	12.59	NA
Bessa et al	2009	2003	BA	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys clinic	Haemodialysis	241	NA	NA	NA	9.13	NA
Busek et al	2002	2000	MG	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys facilities	Haemodialysis	265	NA	NA	NA	22.64	NA
Callegaro et al	2006	2000	RS	Cohort retrospective	Yes	Yes	Chronic kidney disease in haemodialysis	Hospital	Haemodialysis	71	NA	NA	NA	21.13	16.90
Callegaro et al	2006	2006	RS	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Hospital	Haemodialysis	70	NA	NA	NA	10.00	2.86
Carneiro et al	2001	1998	GO	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys facilities	Haemodialysis	428	46.1	38.55	NA	43.22	24.77
Carneiro et al	2007	2002	GO	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys facilities	Haemodialysis	1095	49.3	59	82.24	16.44	10.96
Carneiro et al	2005	1993	GO	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys facilities	Haemodialysis	153	42.2	54.2	NA	28.20	NA
Carneiro et al	2005	1996	GO	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys facilities	Haemodialysis	282	43.3	55.7	NA	34.70	NA
Carneiro et al	2005	1999	GO	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys facilities	Haemodialysis	451	45.3	60.1	NA	37.80	NA
Carrilho et al	2004	1996	SC	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys facilities	Haemodialysis	813	47.1	57.1	64.94	33.95	21.03
Carvalho et al	1999	1998	PR	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys facilities	Haemodialysis	74	49.8	49	NA	39.19	27.03

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Choi et al	2003	2001	RS	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys facilities	Haemodialysis	47	50.35	65.96	NA	36.17	NA
Cordeiro. V.M et al	2018	2014	TO	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys clinic	Haemodialysis	394	53.4	58.6	76.3	2.80	NA
da Silva et al	2013	2009	RS	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys facilities	Haemodialysis	159	56.9	57.2	94.3	23.27	23.27
De Albuquerque et al	2005	2002	PE	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys facilities	Haemodialysis	250	46	58.8	64.4	8.40	7.60
de Medeiros et al	2004	1997	CE	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys clinic	Haemodialysis	746	43.5	60	90.69	52.28	NA
de Oliveira et al	2001	1992	RJ	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys facilities	Haemodialysis	125	NA	NA	NA	68.00	NA
Dotta et al	2003	2000	RS	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys facilities	Haemodialysis	128	56.55	56.25	52.34	31.25	NA
Florentino. G.S.A	2004	2002	PB	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys facilities	Haemodialysis	188	46.2	53.2	44.1	4.79	3.7
Fontenele et al	2015	2010	MA	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys facilities	Haemodialysis	301	49	57.8	32.9	4.98	4.65
Freitas et al	2008	2003	MS	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys facilities	Haemodialysis	163	48	59.5	80.37	11.66	7.36
Galperim et al	2010	2005	RS	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys clinic	Haemodialysis	325	54.4	58.2	76	32.92	20.92
Leão et al	2010	2007	MG	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys facilities	Haemodialysis	236	55.1	61.02	74.04	14.83	10.59
Maia et al	2009	2006	AM	Historical cohort	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialys is clinic	Haemodialysis	395	44	51.2	NA	13.92	NA

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Moreira et al	2003	1997	SP	Cross-sectional (baseline) and cohort	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialysis facilities	Haemodialysis	281	NA	NA	NA	11.74	8.19
Rodrigues de Freitas et al	2013	2011	PA	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialysis facilities	Chronic kidney disease in haemodialysis	798	49	65.9	NA	8.40	5.26
Santos & Souto	2007	2002	MT	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialysis facilities	Haemodialysis	433	50	61	84.1	16.86	NA
Santos. R.F.S. et al	2017	2011	BA	Cross-sectional nested with cohort	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialysis facilities	Haemodialysis	605	47.9	61.7	NA	3.14	NA
Silva et al	2006	2002	BA	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialysis facilities	Haemodialysis	1243	NA	NA	NA	10.46	7.40
Souza et al	2003	2001	TO	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialysis facility	Haemodialysis	100	47.6	62	96	13.00	11.00
Vidales-Braz et al	2015	2012	RS	Cross-sectional	Yes	Yes	Chronic kidney disease in haemodialysis	Haemodialysis facilities	Haemodialysis	287	NA	NA	NA	19.16	19.16

References:

Munn Z, Stern C, Aromataris E, Lockwood C, Jordan Zoe. What kind of systematic review should I conduct? A proposed typology and guidance for systematic reviewers in the medical and health sciences. BMC Medical Research Methodology (2018) 18:5, DOI 10.1186/s12874-017-0468-4

Pollock A, Berge E. How to do a systematic review. International Journal of Stroke, 2018, Vol. 13(2) 138–156, DOI: 10.1177/1747493017743796