SUPPLEMENTARY INFORMATION

Table 1. Data charting table with detailed characteristics of included review studies (adapted from Peter, et al., 2020)

Author and Date	Citation	Study Design	Duration of study	Sample size	Age Range	Settings	Intervention	Objectives	Methods	Key findings	Limitations
Mebratie et al., 2019	18	Three rounds of household panel data.	March - April 2011; March - April 2012; March - April 2013	1632 households and 9455 individuals; 1599 households; 1583 households (86% of national population)	Households as unit of analysis	16 districts in Tigray, Amhara, Oromiya, SNNPR in Ehiopia (3 CBHI implementing district and 1 pilot district in each region)	CBHI scheme	Impact of Ethiopia's pilot community based health insurance scheme on utilization of modern healthcare, financial protection and the cost of care.	Three-period panel data, a health facility survey and qualitative data. Regression analysis, fixed effect model through propensity score matching (PSM)	Larger households with more educated household heads, of poorest quintiles and those withgood self-reported health status is more likely to enroll; Insurance scheme is associated with a 30–41% increase in utilization of outpatient care at public facilities, a 45–64% increase in the frequency of outpatient visits to public facilities, and a 56–87% decline in the cost per outpatient visit to public facilities.	-Bias due to time-varying unobserved factors.
Thuong NTT et al., 2020	19	Review data from two rounds of nationally, representative survey.	First round (2014); Second round (2016)	First: 9399 households 3130 communes; 9399 households. Second: 30,180 observations from 15,090 individuals.	Age group: < 30 years ; > 61 years.	Nationally representative survey including both rural and urban areas of Vietnam.	VHI and heavily subsidized health insurance (HSHI)	Impact of insurance program on the utlization of health care services and OOP in general and across different health care providers.	Difference in difference method with parallel trend assumption with PSM	VHI and HSHI programmes increased the incidence of outpatient and inpatient visits and the utilisation of medical services; HSHI reduced OOP by 24% for VHI participants and 15% for participants of HI for the poor.	Measurement errors in the VHLSS surveys; Econometric model mainly addressed the demand-side variables.

Chen H at al., 2022	20	Quasi-experimental study design	Four waves of China Health and Retirement Longitudinal Study (CHARLS) i.e., 2011, 2013, 2015 and 2018	2011 : 17596; 2013: 18455; 2015 : 20967; 2018: 20813.	Households as unit of analysis	Nationally representative surveys of China	Long term care insurance (LTCI)	To examine the policy treatment effect of LTCI on health care utilization and out-of-pocket health expenditure in China.	Propensity score matching with difference-in-difference approach	LTCI significantly reduced the number of outpatient visits by 0.322 times ($P < 0.05$), the number of hospitalizations by 0.158 times ($P< 0.01$) and the length of inpatient stay during last year by 1.441 days ($P<0.001$); LTCI significantly reduced the inpatient OOP during last year by 533.47 Yuan but did not show significant difference on outpatient OOP during last year with overall negative impact on the total OOP by 512.56 Yuan.	- Non-inclusion other cities which had residents under LTCI. - -Non - comparison of the intervention effects among different LTCI scheme designs.
Allen H et al., 2021	25	Comparative, cross-Sectional study	Data from: January 2014 to December 2015. Data analysis September 2018 to November 2020.	4091 medicaid and 4091 marketplace individuals i.e., total 8182	19 – 64 years	Health insurance through Colorado Medicaid or Colorado's state based Martket place, in three states of USA	Enrolment in either public (Medicaid) or private (Marketplace) health care insurance	To compare months of coverage, utilization, quality, and costs between low-income adults with Medicaid vs those with subsidized private (Marketplace) insurance.	Multivariate regression analysis with PSM and sensitivity analyses.	Private coverage was associated with fewer ED visits (mean, 0.36 [95%CI, 0.32-0.40] visits vs 0.56 [95%CI, 0.50-0.62] visits;) and more outpatient visits than Medicaid (mean, 2.22 visits vs 1.73 visits); No differences in ambulatory care hospitalizations were found; Total costs were 83%higher in private coverage (mean, $4553 vs $2484) owing almost entirely to higher prices, and out-of-pocket costs were 10 times higher (mean, $569 vs $45)	-Use of a single state in the US; Unmatched claims leading to introduced bias; limited information of race, thnicity, type of physicians etc.; Unmeasured confounding.

Kamat S et al., 2023	27	Cross sectional study	Analysis of 2017 data	1140 cancer survivors (weighted = 13.9 million)	18 years and above	Cancer survivors from publicly available MEPS data of US	Four insurance groups private, Medicare, Medicaid and uninsured.	To examine associations between health insurance and total direct health care expenditures and health care utilization among cancer survivors living in the US.	Anderson behavioural model of health care utilization was applied.Multivariable regression and calculation of adjusted incident rate ratios (AIRR)	As compared to the private group, the average annual expenditures for uninsured cancer survivors significantly lower and so was their health care utilization; Adjusted rates of ER visits for Medicaid were twice (AIRR:2.04) as compared to privately insured.	-Recall and reporting bias; differences in Medicaid eligibility and different classification schemes; difficulty in attribution; lack of emporal ordering; unmeasured confounders.
Chen S et al., 2022	24	Analysis of records of CHARLS 2018 data	One year, 2018 data analysis	15,936 participants from CHARLS	Middle aged and older adults in China	China	Urban employee health insurance (UEMI), New rural cooperative health insurance, urban resident health insurance and urban and rural health insurance	To explore the association of most recent various types of health insurance, healthcare utilization and costs among the middle-aged and older adults in China.	Summary statistics, two part model and binary logistic regression.Individual sample weights to produce population representative estimates.	Compared with uninsured, all types of health insurance especially UEMI, promoted hospital utilization rate (ranged from 8.6% to 12.2%) and reduced OOP costs (ranged from 64.9% to 123.6%), but had no significant association with total costs. Association of health insurance and outpatient care was less significant. When UEMI as reference, other types of insurance did not show a significant difference. Health insurance of any type could not reduce the risk of CHE.	Recall bias and measurement errors; No causal effects should be assumed; Influence of additional factors like severity of illness or patients' social settings not included in data.

Atake, EH et al., 2020	26	Cross sectional study - analysis of household survey data	Survey: May 2016	1180 insured households i.e. 36, 490, 264, 84 and 306 households	Age of household head ranged from 15 years to more than or equal to 60 years	Lome-Commune region which has five districts of Togo, sub - Saharan Africa.	Five groups: self care/traditional healing, referral hopsital, district hospital, peripheral health unit and private health center.	To examine whether the utilization of health services, choice of provider and financial protection due to health insurance differ significantly between groups with private and public health insurance.	Modified cluster sampling. Regression analyses using nested logit model.	Households with public insurance spent a monthly average USD 552.37 compared to USD 425.82 for those with private insurance; Households with private insurance are more likely to use PHCs and RHs; Reasons for not using health centers among households with public insurance were out-of-pocket payments (49.19%), waiting time (36.80%), and distance (36.76%); CHEs does not vary significantly by type of insurance; Elderly individuals avoid using private health centers and referral hospitals due to the high cost.	-Focus on single region. -Lack of information. - Bias due to self-reported data. -Lack of temporal sequence
Sriram S et al., 2020	21	Cross sectional survey	Data from the national survey of 2014	36,480 rural and 29,452 urban households with total 335,499	Age groups: 0 - 18 years (reference); 19 to 40 years; 41 - 60 years; 61 -80 years and older than 80 years.	Individuals in all the 36 states of India.	Enrolment under Public Health Insurance Programs for the poor.	To assess difference in hospitalization and OOP health expenditure between the enrolled and not-enrolled groups under Public Health Insurance Programs for the Poor	Propensity score matching; Binary logistic regression model, Tobit model, and a Two-part model	Higher odds of incidence of hospitalization among insured; No effect of enrollment on length of hospitalization and inpatient out-of-pocket health expenditures; Chronic illness, household size, and age of the individual had significant effects on hospitalization incidence; Days of hospital stay, education and age of patient, using a private hospital for treatment, admission in a paying ward, and having some specific comorbidities had significant positive effect on out-of-pocket costs.	Use of secondary data; Cross sectional nature of the data thus, no causal inferences; Survey data was collected only from population with normal/legal residence.

Kwon KN et al., 2023	23	Cross sectional study with analysis of national level data	Data from 2016 - 2018 Korea Health Panel Survey	Total: 38074 person years: 12,701 in 2016, 12,692 in 2017, and 12,681 in 2018.	Adults aged 19 and older	Korea Health Panel Survey from 2016 to 2018	Enrolment in supplemental private health insurance	Examination of how private health insurance enrollment affects medical expenditure and health service utilization.	Quantile regression and quantile count regression using PSM	Private insurance had a greater effect on the lower quantiles of the conditional distribution of outpatient costs indicating that moral hazard was potentially present in costs that were likely to treat mild disease or medical checkups; PHI has greater effect on higher quantiles of inpatient care utilization.	Complete matching not possible; temporality could not be ascertained; type of PHI enrollment was not considered.
Khan JAM et al., 2020	22	Quasi-experimental study using a case-comparison design.	Survey was conducted from April to June 2014	Total 1292 households; 646 insured and 646 uninsured households.	All age groups as unit of analysis was households.	CBHI scheme piloted in seven unions in Chandpur Sadar Upazila, Bangladesh	Community based health insurance (CBHI)	To estimate the effect of the CBHI scheme on the magnitude of OOP payments for the healthcare of the informal workers and their dependents.	Random sampling; PSM; two-part regression model	Insured individuals were 1.43 times more likely to spend for services from medical trained providers and their OOP payments were significantly less, by 6.40%, compared with uninsured individuals; Along with enrolment in the CBHI, marital status, occupation, education and asset quintile influenced the OOP payments for utilizing services; No significant difference was found in the OOP payments for healthcare utilization from all kind of providers, including the non-trained ones.	Possibility of seasonal variation in OOP payments of health care; potential for recall bias due to use of a self-reported questionnaire; interviewer bias.

Table 2. Preferred reporting items for systematic reviews and meta-analyses extension for scoping reviews (prisma-scr) checklist

SECTION	ITEM	PRISMA-SCR CHECKLIST ITEM	Page No.
Title	1	Identify the report as a scoping review.	1
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	1
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	2
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	2
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	-
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	3
Information sources	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	3
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	8
Selection of sources of evidence	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	3-4
Data charting process	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	4
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	3-4
Critical appraisal of individual sources of evidence	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	--
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	3-5
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	10
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	Supplementary file