Supplementary Table 1. Search strategy for selection of eligible studies to be included in the systematic review

S. No.	Database	Search terms	Number of studies identified
1	PubMed	(((“cancer” OR “Carcinoma” OR “Malignancy” OR “Malignancies” OR “Malignant neoplasms” OR “malignant neoplasm”) AND (“health expenditure” OR “direct expenditure” OR “out-of-pocket expenditure” OR “out-of-pocket payments” OR “out-of-pocket costs” OR “out-of-pocket spending” OR “out-of-pocket expenses” OR “indirect expenditure” OR “economic burden of disease” OR “cost of illness”)) AND (("2011/01/01"[Date - Publication] : "2020/07/01"[Date - Publication]))	2928
2	Embase	('malignant neoplasm' OR 'cancer therapy') AND ('out of pocket expenditure' OR 'out of pocket payment' OR 'out of pocket spending' OR 'out of pocket cost' OR 'health care cost' OR 'cost of illness') AND ('financial distress' OR 'economic burden')	187
3	Scopus	(“cancer” OR "Neoplasms" OR "Neoplasm") AND ("Out-of-pocket expenditure" OR "Health Expenditure" OR "Catastrophic Health Expenditure") Further limited to publication year 2011 to 2020 and published in India	6492

Supplementary Table 2. Characteristics of the individual studies included in the systematic review

Article reference	Publication year	Study Design	Location	Study setting	Period of Surveillance	Sample size	Reported cancer type
NSSO, 2020	2020	Cross-sectional, survey	India	Community-based	2017-2018	11,112	Unspecified
Dinesh et al, 2019	2019	Cross-sectional, survey	South India (Kerala)	Community-based	2018	235	Unspecified
Sangar et al, 2019	2019	Secondary analysis	India	Community-based	2014	318	Unspecified
Alexander et al, 2019	2019	Prospective study	South India (Karnataka)	Hospital-based	2008-2017	378	Breast cancer
Chauhan et al, 2019	2019	Prospective cohort study	North India (Chandigarh)	Hospital-based	2017	410	Head and neck cancer
Selvaraj et al, 2018	2018	Secondary analysis	India	Community-based	2014	318	Unspecified

Supplementary Table 2 continued…..

Kastor and Mohanty, 2018	2018	Secondary analysis	India	Community-based,	2014	318	Unspecified
Basavaiah et al, 2018	2018	Prospective study	West India (Maharashtra)	Hospital-based	2014	98	Pancreatic cancer
Rajpal et al, 2018	2018	Secondary analysis	India	Community-based	2014	318	Unspecified
Kastor and Mohanty, 2018	2018	Secondary analysis	India	Community-based	1995-2014	177	Unspecified
Kaur et al, 2018	2017	Cross-sectional	North India (Chandigarh)	Hospital-based	2015-2016	31	Multiple myeloma
Joseph and Gupta, 2016	2016	Cross-sectional	South India (Karnataka)	Hospital-based	2012	8	Unspecified
Tripathy et al, 2016	2016	Secondary analysis	India	Community-based	2014	318	Unspecified
Jain and Mukharjee, 2016	2016	Cross-sectional	North India (Punjab)	Community-based	2012-2013	221	Breast cancer
NSSO, 2014	2014	Cross-sectional	India	Community-based	2014	318	Unspecified

Supplementary Table 2 continued…..

Joe, 2015	2014	Secondary analysis	India	Community-based	2004	978	Unspecified
Goyal et al, 2014	2014	Cross-sectional	North India (Delhi)	Hospital-based	2011-2012	100	Oral cancer
Batra et al, 2014	2014	Cohort study	East zone (Odisha)	Hospital-based	2004-2007	204	Multiple*
Wani et al, 2013	2013	Prospective study	North India (Jammu & Kashmir)	Hospital-based	2010-2011	275	Unspecified
Nair et al, 2013	2013	Cross-sectional	Multiple (Kerala, Maharashtra, Rajasthan, West Bengal,Mizoram)	Hospital-based	2011	508	Unspecified
Mahal et al, 2013	2013	Secondary analysis	India	Community-based	2004	978	Unspecified
Pakseresht et al, 2011	2011	Prospective study	North India (Delhi)	Hospital-based	2006-2007	103	Breast cancer
Mukopadhyay et al, 2011	2011	Prospective study	North India (Delhi)	Hospital-based	2006-2007	432	Head and neck, cervical and breast cancer

**Multiple cancers included cancers specific to females (breast and cervical), males (penile), and those that occur in both males and females (head and neck, brain, bone, urinary, gastro-intestinal, liver and lung cancer).*

Supplementary Table 3. Quality assessment of the studies included in the systematic review

		Questions from AXIS tool																				
Article reference	**Publication year**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**Score**	**Quality**
NSSO, 2020	2020	1	1	1	1	1	1	0*	1	1	0	1	0	0*	0*	1	1	1	0	1	1	14	Moderate
Dinesh et al, 2019	2019	1	1	1	1	1	0	1	0	1	0	0	0	1	1	1	1	1	0	0	1	13	Moderate
Sangar et al, 2019	2019	1	1	1	1	1	1	-	1	1	0	1	1	-	-	1	1	1	1	1	1	16	High
Alexander et al, 2019	2019	1	1	1	1	1	0	0*	1	0	0	1	1	0*	1	1	1	1	0	1	1	14	Moderate
Chauhan et al, 2019	2019	1	1	0	1	1	0	1	0	1	1	1	1	1	0*	1	1	1	0	1	1	15	Moderate
Selvaraj et al, 2018	2018	1	1	0	1	1	1	-	1	1	1	1	1	-	-	1	0	0	1	0	1	13	Moderate
Kastor and Mohanty, 2018	2018	1	1	1	1	1	1	-	0	1	1	1	1	-	-	1	1	1	1	0	1	15	High
Basavaiah et al, 2018	2018	1	1	1	1	1	0	0*	0	1	1	1	1	0*	0*	1	1	1	1	1	1	15	Moderate
Rajpal et al, 2018	2018	1	1	1	1	1	1	-	0	1	0	1	1	-	-	1	1	1	1	1	1	15	High
Kastor and Mohanty, 2018	2018	0	1	0	1	1	1	-	0	1	0	0	1	-	-	1	1	0	0	0	1	9	Satisfactory

Supplementary Table 3 continued….

Kaur et al, 2018	2017	1	1	1	1	1	0	0*	1	1	1	1	1	0*	0*	1	1	1	0	1	1	15	Moderate
Joseph and Gupta, 2016	2016	1	1	1	1	0	0	0*	0	1	1	1	0	0*	0*	1	1	1	1	1	1	13	Moderate
Tripathy et al, 2016	2016	1	1	0	1	1	1	-	1	1	0	1	1	-	-	1	1	1	0	1	1	14	High
Jain and Mukharjee, 2016	2014	1	1	1	1	1	1	1	1	1	0	1	0	0	1	1	1	1	0	1	1	16	High
NSSO, 2014	2016	1	1	1	1	1	1	0*	1	1	1	1	1	0*	0*	1	1	1	1	1	1	17	High
Joe, 2015	2014	1	1	0	1	0	1	-	0	1	0	1	1	-	-	1	1	1	1	1	1	13	Moderate
Goyal et al, 2014	2014	1	1	1	1	0	0	0*	0	0*	0	0	0	0*	0*	1	1	1	1	0	1	9	Satisfactory
Batra et al, 2014	2014	1	1	1	1	1	0	0*	1	0	0	1	1	0*	0*	1	1	1	1	1	1	14	Moderate
Wani et al, 2013	2013	1	1	1	1	1	0	0*	1	0	0	1	1	0*	0*	0	1	1	0	1	1	12	Moderate
Nair et al, 2013	2013	1	1	0	1	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	16	High
Mahal et al, 2013	2013	1	1	0	1	1	1	-	1	1	1	1	1	-	-	1	1	0	1	0	1	14	High
Pakseresht et al, 2011	2011	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	0	1	17	High
Mukopadhyay et al, 2011	2011	1	1	1	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	1	1	16	High

1=Yes; 0=No; 0*=Don’t know (For Q 13, 1=No, 0=Yes)

Supplementary Table 4. Risk of bias assessment of the studies included in the systematic review

	Risk of bias assessment questions from AXIS tool					
Article reference	**6**	**7**	**9**	**13**	**14**	**15**
NSSO, 2020	Low risk	Unclear risk	Low risk	Unclear risk	Unclear risk	Low risk
Dinesh et al, 2019	High risk	Low risk	Low risk	Low risk	Low risk	Low risk
Sangar et al, 2019	Low risk	-	Low risk	-	-	Low risk
Alexander et al, 2019	High risk	Unclear risk	High risk	Unclear risk	Low risk	Low risk
Chauhan et al, 2019	High risk	Low risk	Low risk	Low risk	Unclear risk	Low risk
Selvaraj et al, 2018	Low risk	-	Low risk	-	-	Low risk
Kastor and Mohanty, 2018	Low risk	-	Low risk	-	-	Low risk
Basavaiah et al, 2018	High risk	Unclear risk	Low risk	Unclear risk	Unclear risk	Low risk
Rajpal et al, 2018	Low risk	-	Low risk	-	-	Low risk
Kastor and Mohanty, 2018	Low risk	-	Low risk	-	-	Low risk
Kaur et al, 2018	High risk	Unclear risk	Low risk	Unclear risk	Unclear risk	Low risk
Joseph and Gupta, 2016	High risk	Unclear risk	Low risk	Unclear risk	Unclear risk	Low risk
Tripathy et al, 2016	Low risk	-	Low risk	-	-	Low risk
Jain and Mukharjee, 2016	Low risk	Low risk	Low risk	High risk	Low risk	Low risk
NSSO, 2014	Low risk	Unclear risk	Low risk	Unclear risk	Unclear risk	Low risk
Joe, 2015	Low risk	-	Low risk	-	-	Low risk
Goyal et al, 2014	High risk	Unclear risk	Unclear risk	Unclear risk	Unclear risk	Low risk
Supplementary table 4 continued…..						
Batra et al, 2014	High risk	Unclear risk	High risk	Unclear risk	Unclear risk	Low risk
Wani et al, 2013	High risk	Unclear risk	High risk	Unclear risk	Unclear risk	High risk
Nair et al, 2013	High risk	Low risk	Low risk	Low risk	Low risk	Low risk

Supplementary Table 4 continued…

Mahal et al, 2013	Low risk	-	Low risk	-	-	Low risk
Pakseresht et al, 2011	Low risk	High risk	Low risk	Low risk	Low risk	Low risk
Mukopadhyay et al, 2011	Low risk	High risk	Low risk	High risk	High risk	Low risk

Supplementary Table 5. Reported OOPE incurred on cancer treatment care in India

Reference article	Sample size	OOPE reported in the studies (INR)		OOPE calculated for the baseline year 2020 [INR (USD)]	
		Mean OOPE	SD	Mean OOPE	SD
Direct OOPE for inpatient cancer care					
NSSO, 2020	8925	61216	183.65	75689.09 (3998.79)	207.33 (10.95)
NSSO, 2014	293	56712	-	70120.22 (3704.58)	-
Selvaraj et al, 2018	293	60648	-	74986.80 (3204.14)	-
Kastor and Mohanty, 2018	293	57232	66159	70763.17 (3738.54)	81800.75 (4321.68)
Basavaiah et al, 2018	98	286001.88	-	353620.33 (18682.39)	-
Kastor and Mohanty, 2018	177	4092.16	-	14438.57 (762.82)	-
Kaur et al, 2018	31	235500	190002.04	284688.06 (15040.58)	229687.1 (12134.78)
Joseph and Gupta, 2016	8	14687.5	1973.5	19925.98 (1052.73)	2677.37 (141.45)
Jain and Mukherjee, 2016	221	373935	-	507303.56 (26801.75)	-
Goyal et al, 2014	100	146092.78	37325.77	198198.58 (10471.18)	50638.47 (2675.32)
Wani et al, 2013	275	2226.2	812.24	3430.85 (181.26)	1251.76 (66.13)
Mahal et al, 2013	947	5311	4956.47	12061.32 (637.22)	11256.18 (594.68)
Direct OOPE on outpatient cancer care					
NSSO, 2020	2187	2869	196.77	3238.92 (171.12)	222.14 (11.74)
NSSO, 2014	25	2755.5	-	3406.97	-

Supplementary Table 5 continued…

Selvaraj et al, 2018	25	61452	-	6331.74 (334.52)	-
Kaur et al, 2018	31	62275	60959.49	75282.16 (3977.29)	73691.89 (3893.27)
Mahal et al, 2013	31	118.33	121.06	268.73 (14.20)	274.93 (14.53)
Total direct OOPE on inpatient and outpatient cancer care					
NSSO, 2020	11112	49698	186.31	56105.95 (2964.18)	210.33 (11.11)
NSSO, 2014	318	54636.75	-	67554.33 (3569.02)	-
Sangar et al, 2019	235	34378	62289	37242.05 (1967.56)	67478.33 (3565)
Chauhan et al, 2019	410	37845	25646	45749.55 (2417.03)	31002.59 (1637.92)
Batra et al, 2014	204	59099	-	134214.25 (7090.78)	-
Mukopadhyay et al, 2011	432	14031	-	28724.35 (1517.56)	-
Indirect OOPE incurred on cancer care					
NSSO, 2020	11112	117	-	132.09 (6.98)	-
Dinesh et al, 2019	235	2587.33	10377.38	2802.88 (148.08)	11241.92 (593.93)
Chauhan et al, 2019	410	18588	702.17	20984.69 (1108.56)	792.71 (41.88)
Jain and Mukherjee, 2016	221	97712.70	-	132563 (7003.54)	-
Nair et al, 2013	508	18165.00	-	26599.01 (1405.27)	-

Supplementary Table 6. Proportion of individuals facing CHE due to OOPE incurred on cancer treatment in India

Reference article	Cut off point for CHE	Reported proportion of households with CHE
Sangar et al, 2019	10% of TCE	30% (20-40%)
Chauhan et al, 2019	40% of NCE	34%
Kastor and Mohanty, 2018	10% of TCE	79%
Basavaiah et al, 2018	10% of TCE	76.50%
	10% of TCE	36.3% (public facility); 63.8% (private facility)
	20% of TCE	33.7% (public facility); 61.6% (private facility)
Rajpal et al, 2018	40% of TCE	28% (public facility); 58.2% (private facility)
Jain and Mukherjee, 2016	40% of TCE	84%

Modified AXIS tool

Introduction

1 Were the aims/objectives of the study clear?

i) Yes (1 point)
ii) No (0 point)
iii) Don't know (0 point)

Methods

2 Was the study design appropriate for the stated aim(s)?

i) Yes (1 point)
ii) No (0 point)
iii) Don't know (0 point)

3 Was the sample size justified?

i) Yes (1 point)
ii) No (0 point)
iii) Don't know (0 point)

4 Was the target/reference population/cohort/cases/controls clearly defined? (Is it clear who the research was about?)

i) Yes (1 point)
ii) No (0 point)
iii) Don't know (0 point)

5 Was the sample frame taken from an appropriate population base so that it closely represented the target/reference population under investigation?

i) Yes (1 point)
ii) No (0 point)
iii) Don't know (0 point)

6 Was the selection process likely to select subjects/participants that were representative of the target/reference population under investigation?

i) Yes (1 point)
ii) No (0 point)
iii) Don't know (0 point)

7 Were measures undertaken to address and categorise non-responders?

i) Yes (1 point)
ii) No (0 point)
iii) Don't know (0 point)

8 Were the risk factors and outcome variables measured appropriate to the aims of the study? Does the study include measurement of OOPE or CHE or describes modes of distress financing?

i) Yes (1 point)
ii) No (0 point)
iii) Don't know (0 point)

9 Were the risk factor and outcome variables measured correctly using instruments/measurements that had been trialled, piloted or published previously?

i) Yes (1 point)

ii) No (0 point)
iii) Don't know (0 point)

10 Is it clear what was used to determined statistical significance and/or precision estimates? (eg, p values, CIs)

i) Yes (1 point)
ii) No (0 point)
iii) Don't know (0 point)

11 Were the methods (including statistical methods) sufficiently described to enable them to be repeated?

i) Yes (1 point)
ii) No (0 point)
iii) Don't know (0 point)

Results

12 Were the basic data adequately described?

i) Yes (1 point)
ii) No (0 point)
iii) Don't know (0 point)

13 Does the response rate raise concerns about non-response bias?

i) Yes (0 point)
ii) No (1 point)
iii) Don't know (0 point)

14 If appropriate, was information about non-responders described?

i) Yes (1 point)
ii) No (0 point)
iii) Don't know (0 point)

15 Were the results internally consistent?

i) Yes (1 point)
ii) No (0 point)
iii) Don't know (0 point)

16 Were the results for the analyses described in the methods, presented?

i) Yes (1 point)
ii) No (0 point)
iii) Don't know (0 point)

Discussion

17 Were the authors' discussions and conclusions justified by the results?

i) Yes (1 point)
ii) No (0 point)
iii) Don't know (0 point)

18 Were the limitations of the study discussed?

i) Yes (1 point)
ii) No (0 point)
iii) Don't know (0 point)

Other

19 Were there any funding sources or conflicts of interest that may affect the authors' interpretation of the results?

i) Yes (0 point)
ii) No (1 point)
iii) Don't know (0 point)

20 Was ethical approval or consent of participants attained?

i) Yes (1 point)
ii) No (0 point)
iii) Don't know (0 point)

Total Points = 20
High quality = 16-20 or ≥80%
Moderate quality = 12-15 or 60-75%
Satisfactory = <12 points or <60%