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RESEARCH ARTICLE

SOCIO- DEMOGRAPHIC PROFILE AND COST INCURRED BY THE PATIENTS ADMITTED UNDER AB-NHPM SCHEME AT A TERTIARY CARE HOSPITAL

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Abstract

Investmentinhealthcareisanecessarysocialinvestment. Ayushman Bharat Yojana- National Health Protection Scheme (AB-NHPM) inSeptember 2018 that was rolled out across all states/UTs in all districts of thecountry. The aim of this programme was to provide a service to create a healthyandcontentnewIndia.

Objectives: To determine the socio demographic profile of patients admitted under AB-NHPM and the cost incurred by these patients during a study period of one year from November 2019 to November 2020.

Methodology:Retrospectiveandprospectiveobservationalrecordstudywasconductedonpatients admitted under Ayushman Bharat category.

Results: Out of 1900 retrospective patients studied and 1433 prospective group of patients majorly people belonging to lower income groups,elderly and those belonging to rural areas availed the benefit.

Conclusion: Lot has been done and further more needs to be done to extend this scheme to cater to a wider range of ailments.

Introduction:-

The Indian health care system is characterized by high rates of privatization since1960s, with low penetration of voluntary and social health insurance schemes, anda high frequency of out of pocket paymentswith only around 15% of thecountry population covered by some degree of health insurance[1,2,3.] Investmentinhealthcareisanecessarysocialinvestmentsothat,despiteomnipresentdestitution,majorityofIndianscanrealizegoodhealthandcontribute vehemently to growing economy. Thus financing of healthcare is ofparamountimportancesoastodeliverqualityandaffordablehealthcareservicesin the country, thus different modes of patient financial assistance programmesshouldbeexplored.[4]

Ayushman Bharat Yojana- National Health Protection Scheme (AB-NHPM) inSeptember 2018 that was rolled out across all states/UTs in all districts of thecountry. The aim of this programme was to provide a service to create a healthyandcontentnewIndia.

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Objectives:-

1. TostudySocioeconomic,DemographicandDiseaseprofileofpatientsadmittedunderPradhanMantriJanArogyaYojana(PM-JAY)popularlyknownasAyushmanBharatScheme.
2. To study cost incurred on patients treated under Pradhan Mantri Jan ArogyaYojana(AyushmanBharatScheme).

Materials and Methods:-

Thisstudywascarriedoutatanapextertiary careinstituteofIndia which providesqualityhealthcaretothepatientsand isacenterforresearchandtrainingforthestudents.

StudySetting:
Thestudywascarriedoutatinthe WardsandAB-PMJAYoffice of this tertiary care hospital.

StudyDuration:
RetrospectivestudywasconductedforaperiodofsixmonthsfromJune2019tillDecember2018.Susequently, a prospectivestudywascarriedoutforaperiodofoneyearfromNovember2019tillNovember2020.

StudyDesign:
Retrospectiveandprospectiveobservationalrecordstudywasconductedonpatients admitted under Ayushman Bharat category. The study was done based ontheinterviewsofpatients(regardingtheirfamilyincome,educationalstatus)interviewofpatientattendantsandstudyofrecords.Italsoincludedtheobservations madebytheresearcher.

StudyTool:
In-patientcaserecordsofpatientsadmittedunderAyushmanBharatcategory.
InterviewsconductedonrelevantstakeholderswhichincludeAyushmanBharatofficestaffusingSemi–structuredquestionnaire.

Questionnaire
Telephonicinterviewofpatientsregardingfamilyincome,Educationalstatus.

InclusionCriteria:
1. PatientsadmittedunderAyushmanBharatcategorywhosehospitalstaywasmorethan24 hrswereincluded.
2. PatientsadmittedinDaycarewardunderAyushmanBharatcategoryforchemotherapyandhaemodialysis werealsoincludedinthestudy.

ExclusionCriteria:
1. Thosepatientswhohadgoldencardbutwereadmittedforinvestigationpurposeonly.
2. Allthosepatients who hadgolden cardbutvisitedhospitalonOPDbasis.

Patientsadmittedfororgantransplantationwereexcluded,astheywerenotincludedinthepack

Themethodologywhichwasadoptedtoattaintherequiredobjectivesisasfollows:-

Objective-1
To study socioeconomic, demographic and disease profile of patients admittedunderAyushmanBharatscheme.

Retrospective study of six months was carried out from June 2019 till December2018. Patient's identification and some background information like age, gender,golden card number, residential address, literacy level, socio-economic status wasrecorded from the case files available in the Ayushman Bharat office and MRDsection. The study population included all the patients admitted under AyushmanBharatcategoryduringtheabovementionedperiod.

Prospective study of oneyear from November 2019 till November 2020 wascarried out by study of daily records available in wards, Ayushman Bharat

officeandMRDsection.Patientselectionwasdonebyenrolling30%ofthetotalnumber of patients admitted per day with the help of simple random samplingbased on a pilot study.All the relevant data about the Ayushman Bharat categorypatientsadmittedindifferentwardswascollectedandanalysed.

Objective-2
TostudycostincurredonpatientstreatedunderAyushmanBharatscheme.

RetrospectivestudyofsixmonthsfromJune2019tillDecember2018wasconducted. It included review of previous records related to costs incurred onpatient treatment priorto hospitalisation, hospitalisation expensesand 15 daysposthospitalisation.Study populationforretrospectivestudy includedallthepatients admitted under Ayushman Bharat category during the above mentionedperiod. During retrospective study HBP 1.0 was prevalent, so during this studyperiodHBP1.0wasapplied.

ProspectivestudyofoneyearfromNovember2019tillNovember2020wascarried out. Patient selection was be done by enrolling 30% of the total number ofpatients admitted per day with the help of simple random sampling based on apilot study. Patient's hospital stay charges, investigation costs, emergency drugcounter charges, sales drug counter charges, medicine charges including outsideapproved sources was collected on daily basis by visiting wards and AyushmanBharat office. During our prospective study, major period of study was coveredunderHBP2.0sothishealthbenefitpackagewasappliedtoourresults.

Results and Observations:-

Objective:-

Tostudysocioeconomic,demographicanddiseasesprofileofpatientsadmittedunderAyushmanBharatscheme.

Retrospectivestudy:
Atotalof1900patientswerestudiedfromJune2019tillDecember2018.

Table1:- Age distributionofstudypatients.

	Frequency(n=1900)	Percentage
<18years	350	18.5%
18-40years	400	21.0%
40-60years	550	28.9%
>60	600	31.6%
Total	**1900**	**100.0%**

Table2:- Genderwise distributionof studypatients.

Gender	Frequency(n=1900)	Percentage
Male	1050	55.3%
Female	850	44.7%
Total	**1900**	**100.0%**

Table3:-Educationalstatusofstudypatients.

Education	Frequency(n=1900)	Percentage
Illiterate	1100	57.8%
Matriculate	500	26.4%
Graduate	200	10.5%
Postgraduate	100	5.3%
Total	**1900**	**100.0%**

Table4:- Residentialstatusofstudypatients.

Residentialstatus	Frequency(n=1900)	Percentage
Rural	1320	69.5%
Urban	580	30.5%
Total	1900	100.0%

Table5:- Occupationstatusofstudypatient.

Occupation	Frequency(n=1900)	Percentage
Selfemployed	1100	57.8%
Governmentservice	800	42.2%
Total	**1900**	**100.0%**

Table6:- Socioeconomicstatusof studypatient.

Socioeconomicstatus	Frequency(n=1900)	Percentage
Upperclass	0	0%
Uppermiddleclass	0	0%
Lowermiddleclass	260	13.6%
Lowerclass	1640	86.4%
Total	**1900**	**100.0%**

Table7:- Departmentwisedistributionofcases.

Department	Frequency(n=1433)	Percentage
Cardiology	180	12.6%
CVTS	75	5.3%
Nephrology	200	13.9%
MedicalOncology	300	20.9%
Medicine	200	13.9%
Others	478	33.4%
Total	**1433**	**100.0%**

Average cost of expenditure spend on patients admitted under ABPMJAY in RupeesRetrospectiveStudy:Sample Size1900Patients

Objective 2: To study cost incurred on patients treated under Ayushman Bharat Scheme

Table8:- ShowingTable 8:Costincurredonpatientstreatment duringRetrospectivestudy (inINR).

Disease/surgeries	*HospitalStay*	*Investigationcharges*	*Drugsandconsumables*			*Outofpocketexpenditure*	AveragePackageAmount
			Hospital pharmacy	*Empanelled pharmacy*	*Cath lab*		
CKD/ESRD	12 81	45 06	5 0 8 2	18 44 1	Nil	246 1	26849
Solidorganmalignancies	20 52	15 06 7	1 2 0 5 1	34 02 2	Nil	502 2	58170
Leukemia	21 09	12 00	8 4	23 08	Nil	211 1	43584

		5	5 6	9			
Myocardialinfarction	5 5 0	27 41	1 5 6 2	1 2 9 7	60 48 4	213 4	64500
Heartblock	2 4 5	32 05	1 2 3 2	4 0 2 8	12 03 34	401 5	125029
Valvularabnormalities	12 47	52 40	6 3 4 0	85 23 8	Nil	237 0	95695
Medicalemergencies	1 5 0	21 55	2 1 0 7	4 2 8 2	Nil	204 1	6653
GeneralSurgeries	3 9 0	23 42	5 4 3 2	14 05 2	Nil	150 2	20714
CongenitalAnomalies	2 5 0	23 00	8 4 1 2	32 34 5	Nil	306 2	40245
PediatricAbdominal Surgeries	7 8 0	11 29	5 4 3 2	14 05 2	Nil	321 1	18182
EDH/SDH/SAH	3 6 0	32 40	5 2 0	61 08 4	Nil	266 1	62543
Others	5 0 0	22 08	2 5 6 6	75 59 1	Nil	323 9	77626

ProspectiveStudy:Sample Size1433 Patients

Table9:- ShowingCostincurredonpatientstreatmentduringProspectivestudy (inINR).

Disease/surgeries	HospitalStay	Investigationcharges	Drugsandconsumables			Outofpocket expenditure	AveragePackageAmount
			Hospital pharmacy	Empanelled pharmacy	Cath lab		
CKD/ESRD	2 3 4 3	4506	9 8 4 5	3 4 2 5 6	N i l	45 29	46421
Solidorganma	3	27598	2	6	N	98	110726

lignancies	986		10003	80004	il	65	
Leukemia	4876	25134	15300	49023	Nil	4980	89353
Myocardialinfarction	930	1966	34000	22297	65400	5134	73993
Heartblock	245	3205	12320	40200	160682	4255	165129
Valvularabnormalities	2893	6239	69288	89231	Nil	4508	100873
MedicalEmergencies	950	2681	28446	44491	Nil	2844	8124
PediatricAbdominal surgeries	1707	5121	82311	12964	Nil	8521	19502
Congenital`Anomalies	750	3378	92665	36496	Nil	3612	46277
GeneralSurgeries	1520	4314	48644	89336	Nil	6270	13364
EDH/SDH/SAH	25000	4089	978	660007	Nil	4862	68712
Others	1650	2904	45488	79037	Nil	4724	83415

Discussion:-

In the current scenario,when the discussion of `how' to achieve UHC is the focus of attention, this studyattempts at encapsulating the existing evidence.[5,6]Our study is amongst thepioneer comprehensive reviews which focus on publicly financed health insuranceprogrammeinIndia.

The aim of the present study was to study the socio demographic, disease profileunderAyushmanBharatYojana(PM-JAY)inourInstitute.Itwasfoundthatthere is a positive affirmation that the utilization of hospital care services hasimprovedsincetheinceptionofthePM-JAYscheme.Asithadbeenobservedthat more number of cases/procedures were done after initiation of AyushmanBharat Yojana. For example in cardiology department more procedures like PCI,PPMplacementshavebeenperformed.

The result and observations of the study have been exhibited as tables and graphsandare discussed asfollows:

To study socioeconomic demographic and disease profile of the patients admittedunderAyushmanBharatscheme.

In the retrospective study, it is found that out of total 1900 beneficiaries, 1050(55.3%) were males, and 850 (44.7%) were females. In prospective study out oftotal1433beneficiaries876(61.2%)weremalesand557(38.8%)werefemales.InarecentstudyconductedbySukhvinderKa ur(etal.)in2019regardingAyushmanBharatScheme,itwasfoundthatpre-authorisationclaimsforallpackages show a male (51.5%) predominance.[7]

It was found that the maximum number of beneficiarieswere in the age group of >60Years (31.6%), followed by those in the age group of40-60 years (28.9%). The minimum number of beneficiaries were in the age groupof <18years (18.5%).Alsoit was found that maximum numberof beneficiaries were in age group of >60 years (38.4%) followed by those in theage group of 41-60years (34.8%). The minimum number of beneficiaries was intheagegroupof<18years(9.2%).

Thepresentstudyhadmajorityofpatientsfromruralareas(69.5%inretrospective study and 59.8% in prospective study). Kesavan Sreekantan Nair etal[8]in their study observed that 60% of patients are from rural areas. In the present study majority of patients were illiterate (57.8% in retrospective and48.8%inprospectivestudy)followedbymatriculate(26.4%inretrospectivestudy)andgraduate(26.4%inprospectivestud y).Theminimumnumberofpatientswerepostgraduates(5.3%inretrospectiveand6.9%inprospective study)

Inthepresentstudymajority ofpatients(86.4%inretrospectiveand71.3%inprospective)belongedtolowerclass.Majority of patients (57.8% in retrospective and 54.5% inprospectivestudy)wereself-employed.(18.5% in retrospective and 20.9% in prospective study) caseswerefrommedicaloncologydepartment.LeastnumberofcaseswerefromDepartment ofCVTS(7.8%inretrospectiveand5.3%in prospective study).

Tostudycostincurredonpatients treatedunderAyushmanBharatScheme.

Chronic Kidney disease: During Retrospective study it was observed that onan average cost of hospital stay for CKD patients was Rs.1281, Investigationcharges were Rs.4506, drug and consumables were Rs.23523. In addition to itOOP expenditure was Rs.2461. According to Health benefit package 1.0 CKDpatientsreceivesatotalbenefitofRs.35,000,whileinprospectivestudyaverage cost of hospital stay for CKD patients was Rs.2343, Investigationcharges were Rs.4506.Drug and consumables were Rs.44101. In addition to itOOP expenditure was Rs.4529.According to Health benefit package 2.0 CKDpatientsreceivesatotalbenefitofRs.40,000.

Solid organ Malignancies:

During Retrospective study it was observed that anaverage cost of hospital stay for Solid organ malignancy patients was Rs.2052,Investigation charges were Rs.15067. Drug and consumables were Rs.36,073.In addition to it OOP expenditure was Rs.5022. According to Health benefitpackage1.0SolidorganMalignanciespatientsreceivesatotalbenefitofRs.80,000. while in prospective study average cost of hospital stay for Solidorgan malignancy patients was Rs.3986, Investigation charges were Rs.27598,drug and consumables were Rs.89007. In addition to it OOP expenditure wasRs.9865. According to Health benefit package 2.0 solid organ malignancypatientsreceivesatotalbenefitofRs.85,000.

Leukaemia:

Itwasobservedthatanaveragecostof hospital stay for Leukaemia patients was Rs.2109, Investigation chargeswereRs.12005,drugandconsumableswereRs.31545.InadditiontoitOOPexpenditure was Rs.2111, According to Health benefit package 1.0 leukaemiapatients receive a total benefit of Rs.80,000.while in prospective study averagecost of hospital stay for leukaemia patients was Rs.4876, Investigation chargeswere Rs.25134. Drug and

consumables were Rs.64323. In addition to it OOPexpenditure was Rs.4980.According to Health benefit package 2.0 leukaemiapatientsreceiveatotalbenefitofRs.90,000.

Myocardial Infarction:
During Retrospective study it was observed that anaverage cost of hospital stay for Myocardial Infarction patients was Rs.550,Investigation charges were Rs.2741, drug and consumables were Rs.63343. Inaddition to it OOP expenditure was Rs.2134, According to Health benefitpackage 1.0 Myocardial patients receives a total benefit of Rs.60,000(singlestent) and 1,10000 (double chamber)while in prospective study average cost ofhospitalstayforMyocardialInfarctionpatientswasRs.930,Investigationcharges were Rs.1966, drug and consumables were Rs.65400.In addition to itOOPexpenditurewasRs.5134.AccordingtoHealthbenefitpackage2.0Myocardialpatients receives a totalbenefit ofRs.70,000(single stent) and1,20000(doublechamber).

Heart Block:
An average costof hospital stay for Heart Block patients was Rs.245, Investigation chargeswere Rs.3205, drug and consumables were Rs.125594. In addition to it OOPexpenditure was Rs.4015, According to Health benefit package 1.0 heart blockpatientsonanaveragereceiveatotalbenefitofRs.1,15000whileinprospectivestudyaveragecostofhospitalstayforheartblockpatientswas

Rs.245,InvestigationchargeswereRs.3205,drugandconsumableswereRs.165934. In addition to itOOP expenditure wasRs.4255.According toHealth benefit package 2.0 heart block patients on an average receive a totalbenefitofRs.1,25000.

Valvular Abnormalities during Retrospective study it was observed that anaveragecostofhospitalstay forpatientswithvalvularabnormalitieswasRs.1247,InvestigationchargeswereRs.5240.DrugandconsumableswereRs.91578.In addition to it OOP expenditure was Rs.2370, According to Healthbenefit package 1.0 patients with valvular abnormalities on an average receivea total benefit of Rs.100000.while in prospective study average cost of hospitalstayforpatientswithvalvularabnormalitieswasRs.2893,Investigationcharges were Rs.6239, drug and consumables were Rs.96159. In addition to itOOP expenditure was Rs.4508. It was also found that the HBP rates for valvereplacementsurgeryareappropriatetotheexpenditureincurredoninvestigations, hospital charges, medicines, consumables and implants by thehospital. Similar results were also reported in a study conducted by ShankarPrinja (et al.) in 2019 regarding the costing of valvular heart diseaseat aTertiary care Hospital in North India, which supports the HBP rates of thevalvereplacementsurgeryusingmechanicalandbio-prostheticvalvesinAyushman Bharat.HBPs are planned to cover highly prevalent diseases andthealiments,whichconstituteahugeamountofOOPE(outofpocketexpenditure).[9]

According to Health benefit package 2.0 patients with valvular abnormalitiesonanaveragereceiveatotalbenefitofRs.150000.

Medical Emergencies:
AveragecostofhospitalstayforpatientswithmedicalemergencieswasRs.150,InvestigationchargeswereRs.2155,drugandconsumableswereRs.6389. In addition to it OOP expenditure was Rs.2041, According to Healthbenefit package 1.0 patients with medical emergencies receive an average totalbenefit of Rs.11,000. while in prospective study average cost of hospital stayfor patients with medical emergencies was Rs.950, Investigation charges wereRs.2681. Drug and consumables were Rs.7337.In addition to it OOP (out ofpocket expenditure) expenditure was Rs.2844. According to Health benefitpackage 2.0 patients with medical emergencies receive an average total benefitofRs.15,000.

Congenital Abnormalities:
It was observed that anaverage cost of hospital stay for patients with Congenital abnormalities wasRs.250,InvestigationchargeswereRs.2300,drugandconsumableswereRs.40757. In addition to it OOP (out of pocket expenditure) was Rs.3062,According to Health benefit package 1.0 patients with congenital anomaliesreceiveanaveragetotalbenefitofRs.60,000,whileinprospectivestudyaverage cost of hospital stay for patients with congenital abnormalities wasRs.750,InvestigationchargeswereRs.3378,drugandconsumableswereRs.46121.InadditiontoitOOPexpenditurewas

Rs.3612.Accordingto

Healthbenefitpackage2.0patientswithcongenitalanomaliesreceiveanaveragetotalbenefit ofRs.70,000.

EDH/SDH/SAH:
During Retrospective study it was observed that an averagecostofhospitalstayforpatientswithEDH/SDH/SAHwasRs.360,Investigation charges were Rs.3240, drug and consumables were Rs.61604. Inaddition to it OOP expenditure wasRs.2661, According to Health benefitpackage 1.0 for patients with EDH/SDH/SAH receive average total benefit ofRs.50,000. while in prospective study average cost of hospital stay for patientswith EDH/SDH/SAH was Rs.2500, Investigation charges were Rs.4089, drugandconsumableswereRs.66985.InadditiontoitOOP(outofpocketexpenditure)wasRs.4862.AccordingtoHealthbenefitpackage2.0forpatientswithEDH/SDH/SAHreceiveaveragetotalbenefitofRs.60,000.

General Surgeries:
AveragecostofhospitalstayforpatientswasRs.390,InvestigationchargeswereRs.2342,drugandconsumableswereRs.19484.InadditiontoitOOPexpenditure was Rs.1502, According to Health benefit package 1.0 for patientsundergoing general surgeries receive average total benefit of Rs.20,000, whilein prospective study average cost of hospital stay for patientswas Rs.1520,Investigation charges were Rs.4314, drug and consumables were Rs.13800. Inaddition to it OOP (out of pocket expenditure) was Rs.6270. According toHealth benefit package 2.0 for patients undergoing general surgeries receiveaveragetotalbenefit ofRs.25,000.

Pediatric Abdominal Surgeries:
During Retrospective study it was observedthatanaveragecostofhospitalstayforpatientsundergoingpediatricabdominalsurgerieswas Rs.780, Investigation chargeswere Rs.1129, drugandconsumableswereRs19484.InadditiontoitOOPexpenditurewasRs.3211, According to Health benefit package 1.0 for patients undergoingpediatric abdominal surgeries with receive average total benefit of Rs.25,000.whileinprospectivestudyaveragecostofhospitalstayforpatientsundergoing pediatric abdominal surgeries was Rs.1707, Investigation chargeswere Rs.5121,drug and consumables wereRs.21195.In addition to it OOP(outofpocketexpenditure)wasRs.8521.AccordingtoHealthbenefitpackage2.0forpatientsundergoingpediatricabdominalsurgerieswithreceiveaveragetotalbenefit ofRs.30,000.

In a study conducted by Narayanan Devadasan (et al.) in 2006 regarding twocommunity health insurance schemes in India providing hospitalisation expensesi.e., ACCORD in Tamil Naidu and SEWA in Gujarat, it was depicted that with theintroductionofcommunityhealthinsuranceschemes,67%and34%ofbeneficiaries did not have to pay any OOPE for their hospitalisation at ACCORDand SEWA respectively.[10]Reduction of OOPE and financial risk due to healthexpenditurebypoorandvulnerablepopulationisoneofthemainobjectivesof

Ayushman Bharat Scheme. Secondary and tertiary hospitalisation contributes toone-thirdof totalOOPE(outofpocketexpenditure)(NHSRC, 2016).[11]

The scheme has reduced the out of pocket expenditure, but has not been able tocompletely eliminate it. The patients are availing benefits as per the packages, andcrosssubsidiesarenotbeingprovidedreasonbeingthenumberofpatientscoveredunderthisschemeiswide-ranging.Moreoverthehospitalisboundtoclearthe allliabilities including thesalaryofthestaffemployees.

Conclusion:-

In tertiary care hospitals patients are sick with their illness complicated. Fortertiary care hospitals the (TAT) should be relaxed, as patients need time forfinal diagnosis. Period prior to definite package should be treated as medicalpackage.The package amount is too low for some procedure's and as such the basicconceptofthisschemeofcashlesstreatment is not achieved.Patientsundersurgicalpackageremainadmittedinhospitalforlongertimeand have to spend on their medical treatment after their surgical procedure'sarecompleted.Manyproceduresarenotincludedinthepackageswhichneedstobeupdated.

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