

**SOME CORRELATES OF BLOOD PRESSURE:
EVIDENCE BASED ON RECENT LITERATURE**

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ABSTRACT

In an effort to evaluate the relationship of certain variables, viz., age, sex, heredity, weight, build, geography, race, socio-economic status, dietary habits, psychological factors and blood glucose with blood pressure levels; available recent literature has been reviewed. Reasonably, sufficient evidence exists to support that these variables may be significant blood pressure correlates.

High blood pressure (B.P.) is an important cause of decrease in life expectancy and health. Many studies have tried to elucidate. Factors contributing to variations in B.P. levels within and between population groups. Several personal, social and environmental factors are generally known to contribute toward these differences and it is now believed that a multitude of various correlative factors and interactions thereof are responsible for the diversity in systolic as well as diastolic levels².

Despite several studies, the relative and precise contribution of these factors is not yet clearly understood. This is because the findings of workers are dissimilar and, at times even contradictory. In order to evaluate the relative importance of different factors that have been studied in different populations, a review of the recent literature appears desirable. The present paper is an attempt in this direction.

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Blood Pressure Correlates

Before taking up the factors one by one, it must be stressed that they do not act independently. Rather, they operate in unison; every factor being affected by every other and all of them together in determining the resultant B.P. levels. The subject matter has, therefore, been discussed under individual sub-headings for the sake of convenience in the discussion.

Age: The relationship between age and blood pressure has been under study since long. Significant rise in systolic as well as diastolic levels with increasing age has been reported by many authors³⁻¹⁶. The relationship seems to be stronger in older persons than in younger ones for systolic rather than for diastolic levels^{3, 4,7,10,13,14,16}. Moreover, the variability in the B.P. levels, especially for systolic increased considerably with advancing age^{13, 17}.

It must, however, be emphasized that the reported changes with age have -not, generally, been derived from observations on the same individuals as they get older. Rather, most of the studies have been cross-sectional, examining several persons at a point of time. It is quite conceivable that data from such surveys would understate the rise of B.P. with age since young hypertensive usually does not live long. On the other hand, arm girth tends to increase with age, thus, falsely giving rise to higher B.P. readings on indirect measurements, thereby exaggerating the rise of B.P. with age.

Contrary findings have also been reported and the discussion by McKeon reflects the uncertainty regarding the contribution of age¹⁸. Norman-Taylor and Rees did not find any rise of B.P. with age¹⁹. Similar observations have also been made by some other workers as well²⁰⁻²³. Curiously enough, Misra *et al.* Reported a reverse relationship of B.P. with age in case of female medical students²³.

In a longitudinal study of Welsh miners, Miall and Lovell demonstrated that the rise in B.P. levels was related more to the previous levels than to age²⁴. They found that higher the B.P. of an individual, greater was the rise with time. They concluded that adolescents with relatively higher B.P. levels for their age would be prone to become real hypertensive sooner than their coevals.

A close scrutiny of the studies, thus, does not establish that B.P. rises with age in every person or even in a majority of them. An average increase could be due to increasing pressures in only a proportion of the population. It may be concluded that B.P. levels generally increase with age and that an elevated level at any age adumbrates a further rise with time.

Sex: Blood pressure levels have been shown to differ in both the sexes^{7, 9, 11, 16, 25-27}. Relatively, higher levels of systolic as well as diastolic B.P. have been observed in males than in females by Gordon for U.S. White adults and by Indrayan *et al*, for Indian urbanites^{25, 16}. Gordon found both pressures to be higher in males in younger ages³. At older age, however, a reverse trend was seen. Indrayan *et al*. Observed that the contribution of sex was more to systolic than to the diastolic levels⁸. Pickering showed that the curves for systolic pressures in the two sexes crossed one another between the ages 35-45 years, where after women's pressure showed a steeper rise²⁸.

Some other workers have, however, reported contrary findings^{9, 16, 27}. Beaglehole *et al*, found both pressures to be considerably higher in females than in males in the age-group 5-15 years⁹. U.S. Negro females aged 35 and over, had higher B.P. levels than their male counterparts²⁷. A cross-sectional study in an Indian rural adult population made similar observations, albeit in respect of systolic levels only¹⁶.

Considerable sex differences have also been noted while studying B.P. levels in relation to other variables. Indrayan *et al*. Showed that regression of both pressures on age for males were limited to linearity but for females, third degree polynomials were suitable⁶. Florey and Acheson, while studying eight variables in relation to B.P. levels of U.S. White and Negro adults, observed highest order of coefficients of determination (R^2) for both the sexes⁴. They noted that the coefficients were significantly higher in women than in men. Similarly, Miall *et al*, observed markedly higher correlation coefficients between weight and B.P. levels for women than men in the two populations studied by them²⁹.

It may 'be difficult to explain the observed differences

Between the two sexes. More planned and longitudinal studies with samples of sufficiently large sizes are required to elucidate this matter precisely.

Heredity: Genetic factors may play an important role in the determination of B.P. levels and have been suggested by many workers^{9, 30-37}. Statistical studies indicate that B.P. levels tend to rise earlier and to a greater degree in relatives of hypertensive population. In a study of 350 siblings of 178 hypertensives, Platt found a greater incidence of raised B.P. levels in siblings than in the general population³⁰. Familial aggregation between a child and its siblings and in parents has been shown to exist as early as two months of age³⁸. The degree of resemblance between proposition and first degree relatives is represented by correlation coefficients ranging from 0.16 to 0.34³⁴⁻³⁹, Biron reported such findings for natural but not for adopted children and concluded that aggregation of B.P. was largely due to heredity⁴⁰. Further, twin studies also lend support to the role of heredity⁴¹⁻⁴².

Pickering considers that B.P., like height and intelligence, is transmitted by multifactorial genesis²⁸. Piatt has questioned the validity of this conclusion³⁰. He showed that the B.P. measurements of the sibs of middle aged hypertensive showed a bimodal distribution. A similar bimodality was seen in the distribution of B.P. among the sons of parents who had died in middle life, contrasting sharply with the continuous distribution of pressures among the sons of parents who survived into old age. These findings suggest the existence of two populations, one of whom has inherited the tendency to high B.P. and another to which it has not been transmitted.

The above observations would suggest that B.P. is affected by environment as well as heredity. The observed family aggregations could not have been only due to heredity since families share both - the genes and the environment²⁸. Variations in B.P. may be due to environmental factors which are non-familial, e.g. obesity, diet and the onus of physical work⁴³. The marked differences in the prevalence of hypertension among genetically similar populations exposed to different socio-economic conditions suggest that future research may reveal additional environmental factors and clarify their importance *vis-a-vis* that of heredity⁴³.

Weight: Weight has widely been regarded as a correlative factor of B.P. Considerable rise in B.P. levels with increase in weight has been reported by several workers^{4,12, 15,16,29,45-49}. Florey and Acheson presented significantly positive correlations of weight with systolic as well as diastolic levels for U.S. Negro and White adults⁴. Similar findings have been reported by Miall *et al.* and Srivastava *et al.* from South Wales and India respectively^{29, 15}.

Richard besides presenting simple correlation coefficients between weight and B.P. gave partial correlations keeping age and fat body mass (F.B.M.) constant. He found both simple and partial correlation coefficients to be significant. Srivastava *et al.* Presented percentiles as well as full distribution curves in addition to linear regressions of both pressures on weight⁴⁹. They found that for a difference in weight of 10 kgs., systolic and diastolic levels, on an average, differed by 2.7 mm. Hg. and 2.4 mm. Hg. respectively for males and by 1.5 mm. Hg. and 0.6 mm. Hg. respectively for females. Further, both the pressures in males and the diastolic pressure in females had significant correlations with weight when the effects of build and height had been eliminated.

Epidemiological investigations have also indicated a relation between gain in weight and rise in blood pressure⁵¹. Conversely, weight reduction has been found to be accompanied by a fall in arterial pressure. Ashley and Kannel found that changes in B.P. levels over the time were more closely related to relative gain in weight than to the actual weight. This may explain the stronger weight - B.P. correlation in younger age-group because younger over-weight individuals must have gained weight rather rapidly⁴⁷.

Much more needs to be learnt about the weight phenomenon since it offers a potential approach to the prevention and management of hypertension. Weight is not an exclusively dietary consideration as heredity and exercise contribute significantly. One would agree with the recommendation of the WHO that community-based experiments on primary prevention of hypertension by diet and weight control should be initiated⁵⁴.

Build: Body build seems to play a considerable role in the variations of B.P. levels. Many studies have recorded

Increase in B.P. Levels with increasing bulkiness of physique^{4-7, 20, 55}. However, because of varied indices for the determination of build, adopted in different studies, their correlations with B.P. cannot be compared directly. Thus, weight-height Index, Quetelet Index and Ponderal Index have all been used^{5,16,29,55,15,4,29}. Nevertheless, irrespective of the indices employed, B.P. levels increased with the quantum of the former, indicating a positive relation between build and B.P. levels.

Indrayan *et al*, categorised respondents into three types: ectomorph, mesomorph and endomorph - on the basis of visual impression and studied B.P. levels in relation to this categorization^{7,8}. They noted a significant rise in both the pressures as they proceeded from ectomorphs to endomorphs. Further, out of 5 correlative factors considered, build was second and third highest contributor to systolic and diastolic pressures, being responsible for 3.05 and 2.16 per cent of the total sum of squares respectively. Further, support to the above observations is lent by the higher incidence of illnesses commonly associated with hypertension like diabetes mellitus and coronary heart disease amongst endomorphs³⁹.

In view of inaccurate measurement of build and rather small and non-random samples studied, however, not much credence can be placed upon these observations. Moreover, the effect of endomorphy *per se* cannot be separated from those of diet, weight and socio-economic status etc., since endomorphs have been found to be fond of food and inclined to eat too much^{56,57}.

There is often a strong correlation between build and weight⁵⁸. The relation of B.P. levels and obesity, generally measured by weight-height Indices is also a well documented fact⁵. It has been concluded that studies not showing such correlations were of groups in which either the body size was narrow or in whom hypertension was rare⁴⁷. The positive correlation of bulkiness with hypertension has been found to be true for all ages and sexes and in such diverse populations as Framingham, Wales and Tecumseh^{60, 29, 33}.

It has been recognised clinically; however, that many obese persons have normal B.P. White indicated that it was not the fat content but the overall body bulk that accounted for the correlation⁶¹. There are still others who believe

That obesity has no relation with B.P.⁶². A rather more realistic view would be that obesity and hypertension might both be because of a third, hitherto unrecognized underlying factor⁶³.

Geography and Race: Country to country, place to place, and race to race, differences have also been studied and it has been demonstrated that race and nationality affect B.P. levels²¹, 64. How *throne et al.* studied B.P. levels in a Scottish Island and in two other samples from the mainland⁶⁵. It was seen that, above the age of 30 years, both systolic and diastolic pressures were higher in Islanders than in the mainlanders.

Higher B.P. levels for both sexes have been reported in American Negroes than in Whites¹¹, 25. The mean difference between the races was approximately 5 mm. Hg for both - systolic and diastolic pressures. However, these differences could very well have resulted, at least in part, from an artifact in the examination process. It is conceivable that the examination situation generally presents a greater stress for Negro examinees, either because of difference in social status or because of the fact that medical procedures are rather less familiar to the average Negro examinee.

In India, B.P. levels of Bengalis were found to be significantly higher, in both sexes, than those observed in a community of Uttar Pradesh^{10*13}. In a study of rural and urban females of Punjab, Kiel and Cowan claimed that the levels of both systolic and diastolic pressures were amongst the "lowest in the world"¹². On the other hand Sive *et al.* in a large population of Israeli men, consisting of six heterogeneous ethnic groups, failed to find any real difference in B.P. levels of different groups⁵. In making comparisons between areas/races, allowance must be made for the fact that there are differences in the distribution of the population by age and sex in different areas. Furthermore, the dietary habits, psychological stresses and, in a way, whole patterns of life vary from area to area and from race to race. *These facts may also explain the rural-urban differences in the same country as have been reported from Jamaica and India*⁶, 13,

Effects of cultural and geographical changes by way of

"Westernization", "urbanization" and migration have been studied in the recent past. In a study on Australian and Italian born subjects in Australia, Italians had lower B.P. levels compared to Australians of same age and sex^{63, 67}. Studies carried out in Israel revealed that European borns have higher pressures than African and Asian borns^{68, 69}. In another interesting report, Martcorena *et al.* observed that men born at sea level but residing at Laovoa, Peru (altitude 3759 m.), appeared to show an actual decline in both systolic and diastolic pressures on acquiring residence at high altitude⁷⁰.

It has been seen that populations living in small cohesive societies insulated from the changes occurring in modern technological countries have low B.P. levels which do not rise with age^{71, 72}. The people who have left such societies and have had prolonged contact with Western culture have higher B.P. levels and exhibit the familiar relationship between age and B.P. found in the Western populations⁴⁴.

Explanation for these observations, viz., low B.P. levels which do not rise with age in certain societies and the changes in pressures brought about by migration may easily be forwarded, if one accepts the effects of migration on B.P. The migrants have to face a change not only in their life style but also have to lead a more stressful life⁷³. In addition to this 'casual hypothesis, there is also the possibility that, as the majority of studies have been cross-sectional, part of the phenomenon may be due to combination of selective survival and selective migration - those with higher pressures dying early or migrating⁷⁴.

Socio-economy-G status: The assumption that persons from higher socio-economic status have raised B.P. levels has been examined empirically in different parts of the world^{7, 15, 16, 75, and 76}. Evidence for significant increase in B.P. levels with improving socio-economic status has been provided by Gordon and Indrayan *et al.*^{75, 7}. Indrayan *et al.* further observed that out of total contribution of 21.6 per cent and 15.3 per cent to systolic and diastolic sum of squares respectively, accrued by five variables including social status, the latter was the third highest (1.3%) contributor to systolic sum of squares and the second highest (5.0%) to the diastolic sum of squares.

There are, on the other hand, reports where socio-economic status did not appear to have any significant impact on B.P. levels^{15,16,40}. Lastly, there are studies in which there was an inverse relationship. Thus, the health and nutrition survey in USA revealed that B.P. levels went down significantly as the family income increased. This phenomenon was observed for White as well as for Negro populations.

It must be argued that socio-economic status is a dynamic conglomeration of several mutually interdependent and interacting factors. It involves income, educational status, socio-cultural and geographical mobility, life style, diet and psychological stress, to name only a few. Labarthe *et al.* in their study of the health effects of "westernization" in three populations in different parts of Palau in Carolinas observed that "modern" residents were taller, heavier and had higher B.P. levels than individuals living in the more isolated and traditional communities⁷⁶.

Dietary factors: Dietary habits are thought to have a relation with blood pressure levels. Intake of salt, fat, proteins and alcohol are presumably related with the patterns of B.P.²². Excessive salt intake has been observed to elevate blood pressure in experimental animals⁷⁷. Furthermore, restriction of salt in diet can relieve hypertension and is, in fact, a part of every prescription for the disease⁷⁸.

Epidemiological surveys on B.P. levels in several population groups showed a trend linking diets containing little meat and fish to low mean B.P. levels^{22, 80-83}. Greater consumption of animal products was noted in "high B.P. regions" in Japan⁷⁹. In two rural Japanese villages where 50 per cent and 100 per cent more animal proteins and fat, mainly from fish were eaten, the B.P. Levels and mortality rates from cardiovascular lesions were higher⁸⁰. Malhotra reported that railway clerks posted in South India consumed six times greater amount of meat and were found to have higher B.P. compared to their colleagues posted in the Northern part of the country²². On being transferred to North India, they switched over to North Indian diet and their B.P. came down to the levels prevailing there. Blood pressure levels and their rates of increase with age has been found to be considerably lower among vegetarians⁸¹⁻⁸⁴. In Kenyan nomads on a diet consisting of 92 per cent milk, B.P. was low and did not increase with age.

Bagchi and Indrayan and Indrayan *et al.*, on the other hand, did not find any significant difference between the B.P. levels of vegetarian and non-vegetarian Indian urbanites^{2, 8}. Some have been the observations in three New Hebrides Communities¹⁹. Florey *et al.* found that the B.P. levels of Guyanese adults increased with age despite the fact that their diet was predominantly vegetarian⁸⁶.

Diet of a person varies with his socio-economic status, race, geography and occupation; all of which may influence B.P. levels on their own. Further, cultural, socio-economic and occupational changes and migration; all usually bring about changes in dietary habits. It would, therefore, be difficult to isolate the exclusive effect of diet on B.P. Nevertheless, should diet prove to have some definite relation with B.P., it would greatly help in the prevention and management of hypertension.

Psychological factors: Essential hypertension has been grouped with the psychosomatic illnesses implying that psychological factors play an important role in the causation, perpetuation and aggravation of the condition^{87, 88}. It has been claimed that hypertension develops in persons possessing a specific personality or intra-psychic conflict between passive-dependent tendencies and aggressive impulses with repression of chronic anger^{89, 90}.

Kidson reported high scores of neuroticism in hypertensives⁹¹. It would be difficult to say as to whether the neuroticism was the cause of hypertension or merely the effect of knowledge of having raised B.P. on the part of the patient. To offset the whole thing, Madhukar *et al.* did not find any difference between the Eysenk's personality inventory scores of hypertensive and general population⁹². Sive *et al.* too, did not observe any relationship between anxiety index and B.P.⁵ This does not, however, mean that psychological factors are of no consequence for the pathogenesis, course and outcome of hypertension. A wide range of environmental stimuli engendering fear, anger and frustration may cause an elevation of B.P. Further, reduction of B.P. in hypertensive can occur in the setting of a good doctor-patient relationship or in psychotherapy⁹⁰. Recently, several studies have appeared showing that yogic exercises and relaxation therapy can

Reduce raised B.P. and the requirement of antihypertensive drugs significantly⁹³⁻⁹⁵.

Blood glucose: Florey and Acheson found a significant relationship between B.P. and blood glucose levels even after the effects of age, physique and race had been eliminated⁴. A positive and significant relationship between blood glucose level and B.P. has been corroborated by others as well^{96, 97}. The association between diabetes mellitus and hypertension is a well documented fact. Many factors seem to influence arterial pressure in established diabetics. Apart from the obvious and intermediate responses to blood volume changes due to osmotic diuresis resulting from internal water shifts in relation to changing plasma osmolality, there are long term factors like autonomic neuropathy or renal involvements which exert their influence. Insulin itself may affect B.P. levels⁹⁹. Furthermore, factors like age, weight, race and social status etc., which are known correlates of diabetes mellitus, must be controlled to exclude their possible roles in the relationship of B.P. levels with blood glucose.

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**A COMPARISON OF ORGANISATIONAL CLIMATES
OF PUBLIC AND PRIVATE HOSPITALS ABROAD**

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ABSTRACT

Are organizational climates in private hospitals compared to public hospitals more favorable to assess the differences motivational orientations perceived satisfaction with intrinsic aspects of the job professional commitment orientations and perceived organizational climates by the medical professionals senior administrative and professional nursing personnel are compared. All the groups in the public hospital tended to be higher in motivational orientations. On the other hand all the groups in private hospital showed higher satisfaction with intrinsic aspects of the job professional commitment orientations* and perceived favorableness of the organizational climate. The differences were found to be not significant.*

Previous research suggests that the public hospitals are different from private hospitals. There are six considerations that illuminate this difference: (1) There are role differences in the two types of hospitals. Whereas the public hospital serves an indigent population and often provides a setting for medical education, the private hospital is responsible to the medical needs of middle class patients and rarely becomes involved in substantial programmes for the training of medical students!; (2) The organizational structures of the private hospitals are more flexible and thus, tend to be more efficient as compared to the public hospitals because their structures are more directly enmeshed into the bureaucratic control of the government²; (3) The public hospitals exhibit a poorer financial image than do the private hospitals. The two main explanations for its poorer financial image are that the

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Public hospital receives inadequate funds from its tax support and has no available means for storing cash reserves to face future emergencies, 3; (4) There are staffing differences in the two types of hospitals. For both doctors and nurses, the public hospital generally experiences much greater personnel shortages than does the private hospital; (5) The populations served by the two hospitals are different, i.e. the indigent patients mostly go to the public hospitals whereas middle class patients going to the private hospitals; (6) The public hospital frequently possesses a medical school affiliation which present it with dilemma of facing a situation in which the hospital's primary goal of patient care often comes into conflict with the medical school's major objective of educating medical students.

Due to the above six major differences in the public and private hospitals; this study was designed to investigate differences in the organizational climates of the two types of institutions. More specifically, this study was designed to investigate the differences, if any, between public and privately-supported hospitals in the motivational orientations, perceived satisfaction with intrinsic aspects of the job, professional commitment orientations, and perceived organizational climates by the administrative, professional, and the professional Nursing personnel.

Methodology

The data was gathered as part of the consulting relationships with the two institutions. The measuring instruments were: job motivation, inventory, reactions to the job, reactions to the profession, and reactions to organizational behavior inventory.

Results

The major results of the study are shown in tables 1, 2, and 3. No significant differences were noted in the administrative, professional, and professional nursing personnel as to their motivational orientations, perceived satisfaction with intrinsic aspects of the job, professional commitment Orientations and perceived organizational climate. All the groups in the public hospital tended to be higher in motivational orientation. Perhaps working in a public hospital is an achievement for those who seek employment in that setting.

TABLE 1

SIGNIFICANCES* OF DIFFERENCES BETWEEN THE PUBLIC HOSPITALS AND THE PRIVATE HOSPITAL ON THE RESEARCH VARIABLES FOR THE COMBINED GROUPS AS WELL AS SUBGROUPS

Variable	<u>Public Hospital</u>			Private Hospital Z			
	N	Mean	S.D	Sig.	N	Mean	S.D. Score
<u>I. Growth Motivation</u>							
1. Combined groups	115	105.58	10.26	76	103.59	9.84	+1.342 N.S.
2. Administrative	32	109.31	9.95	27	106.48	10.48	+1.058 N.S.
3. Professional	34	105.76	7.72	7	105.71	8.49	+0.015 N.S.
4. Nursing	49	103.02	11.36	42	99.02	10.55	+1.74 N.S.
<u>II. Maintenance Motivation</u>							
1. Combined groups	115	95.40	11.67	76	97.97	11.22	-1.523 N.S.
2. Administrative	32	94.28	10.78	27	99.44	10.49	-1.859 N.S.
3. Professional	34	90.12	7.18	7	90.00	13.32	+0.021 N.S.
4. Nursing	49	99.80	13.19	42	107.17	9.85	-3.209 Sig.
<u>III. Reactions to Profession</u>							
1. Combined groups	115	40.64	6.28	76	41.58	6.15	-1.027 N.S.
2. Administrative	32	41.15	6.15	27	41.55	5.83	-0.256 N.S.
3. Professional	34	42.88	4.02	7	44.57	6.02	-0.711 N.S.
4. Nursing	49	38.75	7.13	42	38.88	6.59	-0.088 N.S.
<u>IV. Reactions to Job: Intrinsic</u>							
1. Combined groups	115	52.36	9.80	76	53.24	8.13	-0.674 N.S.
2. Administrative	32	56.00	8.97	27	58.04	9.52	-0.841 N.S.
3. Professional	34	55.59	6.43	7	55.71	4.13	-0.034 N.S.
4. Nursing	49	47.75	10.50	42	48.05	10.74	-0.131 N.S.
<u>V. Reactions to Organisational Climate</u>							
1. Combined groups	115	83.90	16.16	76	86.52	11.40	-1.310 N.S.
2. Administrative	32	87.37	12.54	27	89.03	13.31	-0.491 N.S.
3. Professional	34	91.85	12.45	7	92.00	4.53	-0.054 N.S.
4. Nursing	49	76.12	17.28	42	82.95	16.37	-1.935 N.S.

*Significant at the 05 level (two tailed, > 1.96)

TABLE 2

INTERCORRELATIONS AMONG VARIABLES FOR THE TOTAL GROUP OF THE PUBLIC HOSPITAL (N - 115)

	I	II	III	IV	V
I. Growth Motivation,	-	+.061	+ .223b	+.123	+.071
II. Maintenance Motivation		-	- .079	-.120	-.111
III. Reactions to Profession			-	+.408	+.198 ^b
IV. Reactions to Job: Intrinsic Aspects		-	+.377C		
V. Organisational Climate					-

Pearson-product moment coefficient of correlation Significant at the .05 level of confidence
Significant at the .01 level of confidence

TABLE 3

INTERCORRELATIONS AMONG VARIABLES FOR THE TOTAL GROUP OF THE PRIVATE HOSPITALS (N=76)

	I	II	III	IV	V
I. Growth Motivation	-	+.1806	+.2925 ^c	+.1554	-.0059
II. Maintenance Motivation		-	-.1681	-.1013	-.0385
III. Reactions to Profession			-	+.5318 ^c	+.4069 ^c
IV. Reactions to Job: Intrinsic Aspects			-	+.6766 ^c	
V. Organisational climate					-

^a Pearson-product moment coefficient of correlation

^b Significant at the .05 level of confidence

^c Significant at the .01 level of confidence

On the other hand, all the groups in the private hospital showed higher satisfaction with intrinsic aspects of the job, professional commitment orientations, and perceived favorableness of the organizational climate. The differences, as mentioned earlier, were not significant.

An examination of relationships among the variables for the two hospitals shows that individuals who tend to be high in their motivational orientations and show higher commitment to their professions also tend to show higher perceived satisfaction with intrinsic aspects of the job as well as perceive more favorably the organizational climate.

Discussion

While there are differences in the role, financial structure, staffing patterns, populations served, organizational structures, and medical school affiliation for medical education, this study showed that there were no significant differences in the motivational orientations, commitment to professions, perceived satisfaction with intrinsic aspects of the job, and perceived favorableness of the organizational climates by the administrative, professional, and professional nursing personnel of the public and private hospitals. Irrespective of the setting, this study confirmed the results of earlier studies in industrial organizations that perceived organizational climate and intrinsic aspects of the job satisfaction were influenced by one's motivational orientations and commitment to one's profession. Perhaps further studies with public and private hospitals in different States might show more significant differences in the organizational climates of the two types of institutions.

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**MORBIDITY PATTERN AMONGST RURAL PREGNANT
WOMEN IN ALWAR, RAJASTHAN - A COHORT STUDY**

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ABSTRACT

A cohort morbidity study involving 281 rural women (349 pregnancies) showed maternal mortality rate (MMR) to be 5.92 per thousand live-births abortion rate to be 28.65 per 1000 pregnancies and 29.56 per 1000 live-births. Still-birth ratio was found to be 2.96. The total pregnancy wastage was found to be 3.70 per cent. For one maternal, death, there were 60 episodes of sicknesses, out of which 16.5 sicknesses were related to pregnancy, child birth and puerperium. With increase in parity, morbidity incidence also increased having a positive correlation ($r = +0.63$). Sicknesses were found significantly more during the first trimester and the puerperium than during, the second and the third trimesters ($p < 0.05$). But Anova test did not show any difference in the mean duration of sicknesses during first, second and third trimesters and puerperium. Complications of pregnancy, child birth and puerperium were found the leading morbidity amongst the pregnant women.

In India, women of child bearing age (between 15-45 years of age) constitute 22 per cent of the population. The number of pregnancies can be judged from the fact that we have 104 million eligible couples and a birth rate around as. Total fertility rate (TME) for all women being 5,620 and total married fertility rate (TMFR) being 6,410 in 1969^{1,2}. Pregnancy constitutes a higher risk of morbidity and mortality due to associated physiological stress. This is more so in developing countries where the risk of dying as a result

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Of pregnancy is 10-20 times higher than that in the developed countries. Several studies on the specific problems of pregnancy like nutrition, anemia, diabetes, syphilis etc. have been made^{3, 4, 5, 6}. Most of these studies are hospital based. Very few longitudinal studies on the pattern of general morbidity amongst the rural pregnant women are available. A prospective cohort study was, therefore, undertaken involving 281 women (349 pregnancies) in a rural community of the Alwar district of Rajasthan and the findings are presented in this paper

Objectives

The objectives of the study were: (1) to find out the quantum of sickness load during the pregnancy and the puerperium, its pattern and relation to variables like parity, occupation, literacy etc., and (2) to elicit maternal mortality rate (MMR), abortion rates etc.

Materials and Methods

The study was a part of a longitudinal morbidity survey carried out in the village Baskripal nagar from October 1977, to the end of 1979. The village is situated about 45 km. north of Alwar town and is having a population around 3000. The primary health centre Baskripalnagar is also located in the same village. Records of pregnancy and its complications for those attending the maternity hospital at Alwar town were also analyzed. Morbidity survey was carried out by interviewing household members once in a month by suitably trained staff under proper medical supervision. Illness for the purpose of the present study has been defined as any ailment of pregnant women reported by her or by her family members or observed at the time of visit to the household. A spell of sickness was taken as a period during which the woman was sick on one day or each day of consecutive series of days. Sickness involving each pregnant woman was recorded in the proforma maintained for the purpose. Three hundred and forty-nine pregnancies in 281 women were observed through the pregnancy and the puerperium. Only those pregnancies which could be followed up throughout have been taken for analysis of the present study. Of the 281 women studied, 215 women were observed for one pregnancy, 64 women were observed for two pregnancies and two women were observed for three pregnancies.

Results and Discussion

Maternal Mortality, Morbidity, Abortion etc.: The observations on the cohort of 349 pregnancies during the three trimesters and the puerperium are shown in Table 1. The number of pregnancies just delivered women for observation during second and third trimesters and the puerperium were 342, 339 and 338 respectively. Two pregnant women died of PPH and the total live births of the cohort were 338. Maternal mortality rate (MMR) was 5.92 per 1000 live births. The MMR in India has declined from 20 in 1946 to an average of three in 19691. In contrast, the MMR in the developed countries is less than 0.5. It has been estimated that for every woman dying due to pregnancy or child birth, at least 20 suffer from ill-health due to pregnancy or puerperium. The present study showed that for one maternal death there were 60 episodes of sicknesses of which 16.5 sicknesses were related to pregnancy and puerperium. The rate of abortion per thousand pregnancies was 28.65 and per thousand live births was 29.56. Rao *et al.* found the rate of abortion per 1000 life time pregnancies and per 1000 live births to be 22.0 and 22.6 respectively in the rural community of Varanasi. The authors have further quoted that

TABLE 1

SHOWING THE PROGRESS OF THE COHORT OF 349 PREGNANCIES IN THE VILLAGE
BASKRIPALNAGAR

Trimester etc.	No. of nancies in the ning of: period	preg- etc. begin- the	Termination by		Total new sick- nesses recorded during the period	Sicknesses related to pregnancy or puerperium	
			Abortions	Death etc.		No.	Percentage to total sicknesses
First	349		7	0	44	13	29.55
Second	342		3	0	26	4	15.38
Third	339		1	(still birth) 1	29	7	24.14
Puerperium	338		0	1	17	9	52.94
Total	349		10+ 1 (Still birth)	2	116	33	28.45

(Cohort of 349 pregnancies)

the abortion rate per 1000 pregnancies had been found to be 41 in 1961. In a rural population of Mysore, and the Gokhale Institute of Politics and Economics, Poona reported 25 abortions per 1000 pregnancies in a study of six rural communities. In the present study, there were seven abortions out of 349 pregnancies during the first trimester. Thus, out of this cohort 342 pregnancies survived to start the second trimester and amongst them were 3 abortions. The abortion rate per 1000 pregnancies during the first and second trimesters was 20.06 and 8.77 respectively. Higher rate of abortion during the first trimester than during the second trimester has not been found to be statistically significant. There was one still birth giving the still birth ratio of 2.96. The total pregnancy wastage in terms of loss of foetus and mother was 3.70 per cent. A total of 116 new sicknesses were recorded amongst the 349 pregnancies. Four chronic illnesses were also recorded which were there before the start of pregnancy and which continued all through the pregnancy and the puerperium. Of these illnesses, 33 were related to pregnancy, child birth and puerperium. In this village it had been observed during the same period that 37.7 to 45.55 per cent of the people were falling sick annually. Women numbering 281 were observed for single pregnancy and 66 women were observed for two or more pregnancies during the period. Analysis of the sickness load amongst these two groups showed morbidity incidence to be 35.81 per cent and 29.10 per cent in the former and the later respectively. This difference has not been found to be statistically significant. In this study the interview was spaced for about four weeks and many illnesses were missed as the same could not be recalled by interviewees. Even in an advanced country it has been observed that if, the interview is held after four weeks the people can recall about 42 per cent of their illness. On analysis of the total load of sicknesses (old and new) during the first, second, third, trimesters and the puerperium, the same was found to be, 48, 32, 33 and 22 respectively. More sicknesses were found during the first trimester and the puerperium compared to the sicknesses found during the second and the third trimesters. The difference is statistically significant (p less than 0.05).

Parity and Morbidity

In all 46.99 per cent of the 349 pregnancies belonged to the first and second Para, 29.33 per cent belonged to the

Third and fourth Para Remaining 23.78 per cent were in the parity of five or more. Analysis of relationship between parity and morbidity incidence per cent is shown in Figure 1 and Table 2. It may be observed that the morbidity incidence rises with increased parity. The morbidity incidence amongst the first Para pregnant women was 14.29 per cent. The morbidity went up as the parity increased and it was 57.78 per cent amongst the women of *fifth Para*. Coefficient of correlation between these two variables was +0.63 indicating positive correlation. This correlation was highly significant ($p < 0.001$). Studies in India had shown direct relationship between incidence and severity of anemia on the one hand and the parity on the others.

Literacy, Occupation and Morbidity

A total of 96.56 per cent of the women studied belonged to the low socio-economic group and the remaining to the middle income group. None was in the higher income group. Of the 281 women (349 pregnancies) overall literacy was found to be 11.39 per cent (just literate 0.36%, primary 6.41%, middle 1.42% and secondary and above 3.20%). Pregnancy-wise literacy status was almost of the same order. Sickness was recorded in 26.82 and 34.08 per cent of pregnancies in

TABLE 2
SHOWING ANALYSIS OF RELATIONSHIP BETWEEN PARITY AND MORBIDITY
INCIDENCE (in percent)

Parity	Number of Pregnancies		New and old sickness	
	Total	%	Total	Morbidity incidence in %
1	91	26.07	13	14.29
2	73	20.92	22	30.14
3	54	15.48	19	35.19
4	48	13.75	21	43.75
5	45	12.89	26	57.78
6 & above	38	10.89	19	50.00
Total	349	100.0	120	34.38

GRAPH SHOWING POSITIVE CORRELATION BETWEEN
PARITY AND MORBIDITY

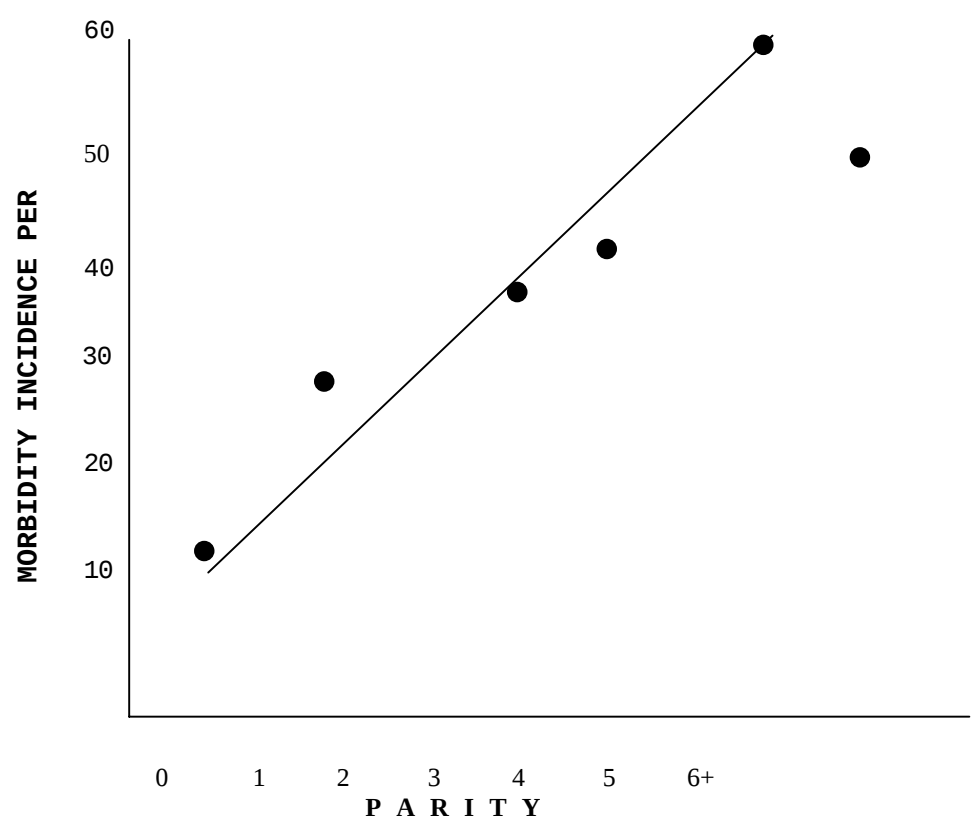


Figure 1

literate and illiterate respectively. - However, the difference was not found to be statistically significant. Of the 281 women (349 pregnancies) 97.14 per cent were house-wives (0.36% labour, 1.07% cultivators, 1.07% sweepers and 0.36% others). As the bulk of the pregnancies were amongst the housewives, comparative analysis of morbidity incidence amongst different occupational groups did not reveal anything.

The mean duration of sicknesses in days and standard error are shown in Table 3. The mean during the first, second and third trimesters, and the puerperium was 18.29, 24.88, 20.60 and 17.29 respectively. Anova test did not show any significant difference in the duration of sicknesses during the various periods of observation.

The diseases which have been observed amongst pregnant women during the different periods of pregnancy and puerperium are shown in Table 4. The diseases have been coded according to the international classification of diseases (9th revision). The first five leading causes of morbidity found in this study, in order of sequence, were the complications of pregnancy, child birth and puerperium, pyrexia of unknown origin, infective and parasitic diseases, and diseases of respiratory system, diseases of skin and sub-cutaneous tissue and the others.

TABLE 3

SHOWING MEAN DURATION OF SICKNESS IN DAYS AND STANDARD ERROR DURING DIFFERENT TRIMESTERS AND PUERPERIUM

Trimesters	Mean duration of Sickness in days	Standard error
First	18.29	3.77
Second	24.88	4.79
Third	20.60	5.17
Puerperium	17.29	3.36

TABLE 4

SHOWING DISEASES OBSERVED AMONGST PREGNANT WOMEN DURING PERIODS OF PREGNANCY

Diseases	First trimester		Second trimester		Third trimester		Puerperium		Total	
	Total new sicknesses	Proportional morbidity %	Total new sicknesses	Proportional morbidity %	Total new sicknesses	Proportional morbidity %	Total new sicknesses	Proportional morbidity %	Total new sicknesses	Proportional morbidity %
Complications of pregnancy, child birth and puerperium	13	29.55	4	15.38	7	24.14	9	52.94	33	28.45
Pyrexia of unknown origin	13	29.55	6	23.08	11	37.93	0	0	30	25.86
Infective and parasitic diseases	3	6.81	3	11.54	3	10.35	4	23.54	13	11.21
Diseases of respiratory system	2	4.55	3	11.54	4	13.79	0	0	9	7.76
Diseases of skin and subcutaneous tissue	6	13.64	1	3.85	0	0	2	11.76	9	7.76
Others	7	15.90	9	34.61	4	13.79	2	11.76	22	18.96
Total	44	100.00	26	100.00	29	100.00	17	100.00	116	100.00

Diseases Related to Pregnancy, Child Birth and Puerperium

This group was found to occupy the leading cause of morbidity accounting for 28.45 per cent of total new sicknesses. The proportional morbidity during first, second, third trimesters and the puerperium due to this cause was 29.55, 15.38, 24.14, 52.94 per cent respectively. Thus, the first and the last phases of this period experienced higher proportional morbidity on account of diseases related to pregnancy, child birth and puerperium (limit of statistical significant - $p < 0.05$). Abortions and still birth accounted for 9.4 per cent of total sicknesses and 33.3 per cent of diseases related to pregnancy, child birth and puerperium. Data from the district women hospital, Alwar during 1975-1978 showed that unspecified abortions accounted for 50.52 per cent of 5,534 admitted cases of sickness related to pregnancy, child birth and puerperium. Therefore, abortion leads the group of diseases related to pregnancy, child birth and puerperium both in the community and in the hospital. There were four cases of puerperal sepsis and one case of superficial thrombophlebitis, both accounting for 15.15 per cent of the complications of pregnancy, child birth and puerperium, and 1.43 per cent of total pregnancies. The district women hospital records showed that sepsis of child birth and puerperium accounted for 5.17 per cent of 5,534 admissions on account of complications of pregnancy etc., and 1.71 per cent of all pregnancies admitted in the hospital. There were four cases of haemorrhage (excluding -abortion) of pregnancy and puerperium amongst the pregnant women observed in the community.

Pyrexia of Unknown Origin

PUO was the second most common cause of morbidity accounting for 25.86 per cent of total sicknesses. The proportional morbidity varied between nil during puerperium to 37.93 per cent during the third trimester of pregnancy. Lack of diagnostic facilities in the rural area might be the cause of higher number of fever cases labelled as PUO.

Infective and Parasitic Diseases

This group of diseases was found next common, among others, accounting for 11.21 per cent of total illnesses during the pregnancy and the puerperium.

Diseases of Respiratory System and Skin and Sub-cutaneous Tissue

Each accounted for 7.76 per cent of total sicknesses during the period observed. Other diseases constituted 18.96 per cent of the total sicknesses.

Summary

A cohort morbidity study by monthly interview involving 281 pregnant women (349 pregnancies) in a rural community of district Alwar, Rajasthan State was undertaken to find out (a) the quantum of sicknesses load during the period of pregnancy and the puerperium and its relation to variables like parity, socio-economic status etc., (b) to elicit pattern of morbidity amongst them, and (c) to find out maternal mortality and abortion rates. MMR was found to be 5.92 per 1000 live births. The rate of abortions per 1000 pregnancies was 28.65 and per 1000 live births was 29.56. Still birth ratio was found to be 2.96. The total pregnancy wastage in terms of loss of fetus and mother was 3.70 per cent. New illnesses (116) were recorded during the period of pregnancy and the puerperium, of which 33 were related to pregnancy, child birth and puerperium. More illnesses were recorded during the first trimester and the puerperium than during second and third trimesters. The difference was found statistically significant. Morbidity incidence went up with the increase of parity. Co-efficient of correlation between those variables was found to be + 0.63 (Statistically significant $p < 0.001$). Mean duration of sicknesses in days was 18.29, 24.88, 20.60, 17.29 during first, second, third trimesters and the puerperium respectively. Anova test did not show any significant difference in the mean duration of sicknesses during the different periods. The first five leading causes of morbidity in order of sequence were complications of pregnancy, child birth and puerperium, pyrexia of unknown origin, infective and parasitic diseases (I), diseases of the respiratory system, and diseases of the skin and sub-cutaneous tissue.

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ASSESSMENT OF HOSPITAL SERVICES AND PATIENT REACTIONS

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ABSTRACT

This paper deals with the study of assessment of hospital services and patient reactions carried out amongst 473 respondents, both in-door (3 wards) and out-door patients in M.L.B. Medical College Hospital, Jhansi (Uttar Pradesh). The patients were from three wards medical, surgical and gynecological wards and consisted of 373 discharged and 100 out-door patients.

A hospital is an integral part of a social and medical organization to provide community with complete health care services, both, curative and preventive, and whose outpatient services reach out to the family in the home environment. Assessment of hospital services and reactions- of patients towards these services is an extremely difficult area yet there have been attempts to assess the hospital services and patient attitude towards services.

'Raphael'-in her study of ten British hospitals studied ward sanitary arrangements, meals, visiting ward time table activities and reception, information and care. Sequeria surveyed patient attitude towards medical treatment, management, doctors, nurses etc. Patients' reactions were not found to be favorable in areas of service, food, clothing, library and recreational facilities². Skipper Jr. studied patient's social obligation and found them varying with severity of illness, sex and varying with severity of illness, sex and educational level³. Peterson *et al.* found that the physician's personality and his bed-side manners were more valued than his professional knowledge. Millers study indicated that the patient expecting emotional support

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but receiving care emphasizing physical care were significantly more favorable than the patients expecting physical care but receiving care stressing emotional support.

Above studies are significant in their area of research. In the present study, however, ten areas have been taken up for consideration. These are: (i) patient knowledge about his disease; (ii) nursing services; (iii) ward services including diet; (iv) sanitary arrangements; (v) entertainment facilities; (vi) medical facilities; (vii) communication with doctors; (viii) availability of common drugs; (ix) transport facilities; and (x) experience without admission.

Materials and Methods

The study was carried out in M.L.B. Medical College Hospital, Jhansi (Uttar Pradesh) during the period January 1978 to July 1979. Three specialties: medical, surgical and gynecological were selected and among these three wards, one each from these specialties was taken. Besides, the study was also carried out among outdoor patients of these specialties. A total of 473 patients were interviewed; among these 373 were discharged patients from the wards and 100 were outdoor patients. A ten item schedule was administered which provided, three broad areas of favorable, unfavorable and neutral responses. Data were collected by the researchers assisted by social workers. In order to obtain the validity of the responses, all the items were scored. The following technique was used.

	<u>Type of response</u>	<u>Score</u>
1.	Negative	-1 -2 -3
2.	Positive	+1 +2 +3
3.	Neutral	0

Results and Discussion

Patient's knowledge about his disease: Patients in large majority did not know about their disease and neither were told by their attending doctors. It was observed, however, that educated and young patients had better knowledge about their disease in comparison to illiterate and old people. Patient's knowledge of his diagnosis and treatment was found to be negligible which can be attributed to the

fact, that telling patient about his disease is still controversial.

Nursing services: Majority of the patients (89.48%) were not favorably disposed towards nursing services. Common nature of the complaints was that nurses took long time to patients call and services rendered by them were not satisfactory. This can be attributed to the reason that hospital had limited strength of nurses which was due to no availability of trained nurses (Table 1).

TABLE 1
PATIENT RESPONSE ON EACH ITEM

Items	Favorable	Unfavorable	Total
1. Patient knowledge about his disease	23.80 (5.03)	449.20 (94.97)	473
2. Nursing services	49.75 (10.52)	423.25 (89.48)	473
3. Ward services including diet	333.37 (70.44)	139.63 (29.56)	473
4. Sanitation	136.50 (28.66)	336.50 (71.14)	473
5. Entertainment	209.25 (44.25)	263.75 (55.75)	473
6. Medical facilities	238.56 (50.49)	234.44 (49.51)	473
7. Communication with doctors	312.20 (66.07)	160.80 (33.93)	473
8. Availability of common drugs	190.00 (40.27)	283.00 (59.71)	473
9. Transport facilities	263.75 (55.75)	209.25 (44.25)	473
10 Experience without admission	362.00 (76.58)	111.00 (23.42)	473
- No neutral responses were recorded by the respondents -			

Ward services including diet: A majority of patients (70.44%) found ward services and diet arrangement satisfactory.

Sanitation: Majority of the patients (71.14%) did not have better image about cleanliness in the hospital including bed and linen. They found that in comparison to wards, toilets were not clean and sweepers did not seem to be very much co-operative. Patients also opined that- civic sense was also lacking among admitted patients and their relatives. This lack of satisfaction towards sanitation in the wards can also be attributed to meagre strength of the sweepers. But, patients had sympathy and appreciations for sweepers in view of the nature of work they were doing.

Entertainment facilities: As regards entertainment facilities, 55.75 per cent patient felt that these were not available while a sizeable number of patients (44.25%) did not see its relevance in hospital situation. However, common need was felt for newspapers, magazines and indoor games like carom or playing cards etc. among educated patients. Education appeared to be positively correlated with more demand for entertainment facilities.

Medical facilities: Medical facilities available in the hospital and doctor's cooperation were found to be satisfactory by 50.49 per cent of the total cases. While 49.51 per cent were not favorably disposed towards this area.

Communication with doctors: Majority of the patients (66.07%) found communication with doctors highly satisfactory. No difficulty was experienced in communication by the patients, and doctors had enough time to communicate with patients.

Availability of common drugs: This was a highly dissatisfied area where majority, 59.71 per cent, complained regarding non-availability of common drugs and they were often asked to purchase, which they did after reluctance because they consider it the responsibility of hospital to provide common drugs.

Transport facilities: This specific question was asked In view of the location of the hospital which is situated 6 kilometers away from the city. Majority of the patients 55.75 per cent found the services convenient., But, they felt a strong need to increase the fleet of the buses.

Experience without admission: Majority, 76.58 per cent of the patients found their experience as outdoor patients more satisfying. They were properly examined by the doctors and they got. all possible help during their period of illness. The remaining few patients complained about nonavailability of consultants in their days In outdoor patient department. Again, a majority of them were satisfied with the services rendered by outdoor patient departments in the hospital.

Image of the hospital: Most patients seem to be satisfied with various services rendered by the hospital. Table 2 shows the responses of. patients regarding hospital image.

From the Table 2 it is evident that majority, 40.17 per cent found the image of the hospital good, followed by 27.48 per cent who found it average.

TABLE 2
PATIENTS IMAGE OF THE HOSPITAL

	Hospital image	Number	Percentage
1.	Excellent	103	21.78
2.	Good	190	40.17
3.	Average	130	27.48
4.	Below average	34	7.19
5.	Not satisfactory	16	3.38
	Total	473	100.00

Summary and Conclusions

This study did not bring out the relationship between variables like age, sex, and education and patient positive or negative reactions. Unfavorable reactions were observed in the areas like patient knowledge about his disease, nursing services, sanitation entertainment facilities and availability of common drugs in the hospital. Favorable reactions were found regarding ward services including diet, medical facilities, communication with doctors and transport facilities. However, overall experience as outdoor patient was found to be highly satisfactory. Hospital image was found to be satisfactory but no significant difference was observed amongst the patient of three specialties which were studied. Significant difference was found between indoor and outdoor patients. Indoor patients were less satisfied in certain areas in comparison outdoor patients. Visitors also had complaints towards the behavior of ward boys and sweepers. For improving the image of the hospital, patients felt that more facilities are needed in terms of more drugs and equipment. Public relation or social service work should be started by the trained social workers. A complaint cell should also be established in the hospital and prompt remedial measures should be taken in case of complaints from the patient. More liberalized medical care services should be provided to the poor patients at State expenses.

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CONCEPTUAL FRAMEWORK OF PLANNING A PEOPLE ORIENTED HOSPITAL AND PERIPHERAL HEALTH MAINTENANCE SERVICES

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ABSTRACT

For development of a people-oriented hospital and primary Care facilities in its peripheral health maintenance services, a rethinking of the planning concepts of the roles attributes and various components viz. user, provider, institutional, social and financial control is required. The emphasis in discussion of the various elements of the planning process is on need-orientation for the rural disadvantaged and availability of limited resources.

In spite of promises of the Indian political system to make available benefits of hospital and its peripheral health maintenance services to the inarticulate vast rural proportion of the community, the old colonial tradition of having an urban, curative, and privileged class orientation of these services has been perpetuated. The oft-quoted recommendations of the Bhole Committee got considerably diluted and there was inordinate delay in implementing even those diluted versions of the recommendations in a fragmentary and disjointed pattern - in the form of mass campaigns, basic health services, multipurpose and community health workers and practice of indigenous system of medicine. Paradoxically the changes in the value-orientation of the health personnel, in the institution for education and training of health manpower, in the approach to research-efforts which should have been forerunners to shape and harness the medical technology to the interests of the people - were utterly neglected¹. On the contrary, the medical education system of the

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Country made spectacular progress remaining heavily oriented to the conditions of industrialized countries, with emphasis on highly sophisticated curative practices, alongwith all their paraphernalia of superspecialisation. As a corollary, there is total submission to the overt or covert dictates of the drug and medical equipment industry in shaping the hospital and its peripheral health maintenance services. The following are some of the manifestations of the problems thereof:

- a. maldistribution with concentration in towns and cities;
- b. underutilisation of local or district hospitals and overutilisation of regional, provincial and national hospitals;
- c. increasing cost with undue glamorisation for managing rare disease entities;
- d. inadequate understanding of distribution and determinants of (i) common health problems and (ii) non-use of the existing hospital and its peripheral health maintenance facilities;
- e. plural ownership with absent or inadequate coordination;
- f. inefficient operation of referral system;
- g. relatively low hospital bed/population ratio; and
- h. austere entry points and intrasystemic diverse delivery levels in the hospitals with virtual absence of 'holistic' and 'humanistic' medicine.

In this perspective it is intended to discuss a way of evolving a planning mechanism for a hospital with primary care facilities in its peripheral health maintenance services adapted to the needs of the 'common man': (a) roles and attributes of a hospital and its peripheral health maintenance services; (b) its components; and (c) planning process including functional programming, evaluation of the plan, procurement and tendering, cost control, construction, and commissioning of a hospital and primary care facilities in its peripheral health maintenance services.

Role and attributes: The hospital and its peripheral health maintenance services do play a pivotal role in the entire health delivery system with ultimate concern for the total health status of the people by fulfilment of its functions of: (a) postponement of premature death; (b) avoidance or mitigation of unnecessary disability; (c) prevention or cure of specific disease at primary, secondary, tertiary levels; (d) relief of discomfort; (e) amelioration of consumption and deficit of health and hospital care facilities, and dissatisfaction thereof; and (f) functioning as a base for support of primary care facilities through community health workers in its peripheral health maintenance service -for their training, referral services and research efforts.

To perform efficiently and effectively the aforesaid functions, the attributes that are essential are:

- a. **Accessibility:** In order to meet the total health needs at a point of time, comprehensive range of personnel and facilities in the hospital and its peripheral health maintenance services must be accessible to the common people who are most vulnerable and in need of maximum and immediate attention. This is possible either (a) directly or (b) through the local community health worker, who will have a central relationship on a continuing and organised basis with them and can arrange supply of the appropriate care and services to meet the needs without any geographical, cultural, functional or financial barriers,. Besides primary care at the community level, vulnerable groups requiring more complex care at other levels of health care or the hospital would not be deprived of such facilities.
- b. **Quality:** This implies the most appropriate application of upto-date knowledge, equipment and techniques available to health sciences including scientifically sound and acceptable indigenous, system through organised social mechanisms even when most people of its target group are critically not aware of the minimum essential components of hospital's services and primary care facilities for achieving agreed degree of excellence for a particular health problem. There should be no dearth of drugs for common ailments in the primary care facilities. These should

be simply and clearly labeled, carry clear instructions and be safe for community health workers to use till such time he/she is to turn for help to more highly trained staff or higher levels of care.,

- c. **Continuity:** 'Holistic', 'Humanistic' health care with continuing relationships ranging from episodic individual contact to positive involvement of the community so that ultimately a self-reliant, endogenous, and in harmony with community factors extraneous to health care system proper, rather than disabling and dependent attitude towards drug consumption and hospitals* curative intervention, develops in people. With more cures and more medicines, people should not be pushed to be 'More Sick'. It is now universally accepted that not only fewer drugs are necessary than the number available in the market in all parts of the country, most of the common ailments are curable/controllable with adequate continuity of care through safer and simpler health practices and curative measures.
- d. **Efficiency:** With judicious mix and economical use of resources as per the nature of prevailing health problems and needs, values and priorities, the Endeavour of the hospital and primary care facilities in its peripheral health maintenance services will be to increase the productive lifetime and improve quality of life of manageable target groups. The abstract criteria could be: (i) democratic centralism and active community involvement; (ii) planning and economics with application of social systems analysis, design skills, and systems and management techniques; (iii) coordination and integration of health related activities, both intra-and-extramural; (iv) preventive orientation and health education; (v) unity of theory and practice; and (vi) physicians' and other functionaries' awareness of their relevant roles towards attainment of the ultimate goal of the hospital and primary care facilities in its peripheral health maintenance services.

Components: Five components, namely user, provider, institutional, social and financial control, need intensive

consideration for social relevance of specific care facilities and Services to be provided, and formulation of organizational structure, staffing pattern and operating dynamics.

User: People who are exposed to greater risks of health with low *per capita* income, low educational level, poor housing and overcrowding, and continuing faith in folk or magico-religious medicines are also those who have less access to hospital care or primary care facilities in its peripheral health maintenance services. Their access is often governed preponderantly with the necessity for maintenance of working power or in other words bread-earning capacity when actually ill and thus, completely incapacitated. Similarly, the quality of care available from the hospital and its peripheral health maintenance services functionaries is often influenced by the nature of the socio economic system, including class and hierarchical stratification prevalent in the catchment area. Besides primary care, the pressing needs for most of them are improvements in consumption deficit, environment, prevention of communicable and nutritional deficiency diseases, maternal and child care, and fertility regulation. Meeting of these priority needs for alleviation of psycho-social and sufferings of vulnerable common people at large would generate in them through social justice an attitude of self-confidence, boosting up their emotional participation in social and economic endeavours of the community.

Provider: The discretionary actions of the providers of the hospital and its peripheral health maintenance services determine sometimes to their own advantage and convenience the mix of options to be offered to the target group patient after his or her contact with or entry into the health care system or the hospital. Complete ignorance of the vulnerable common man as to hazards associated with variations in providers' competence or preference need be guarded by institutional ethics and regulating mechanism both in and out of the hospital. The effects of open and easy access to any physician, generalist, specialist or consultant in a hospital, in contrast to a system where the flow through primary care to the entry points in the hospital or to the highest consultant is regulated by formal or informal means on utilisation pattern by the most vulnerable common people of the programme of activities for health is required to be

Observed carefully. To what extent (a) in the hospital *inclusiveness of primary care and minor treatments* through physicians' clinical services with compact 'package' deliveries of drugs, laboratory and x-ray investigation, (b) ratio or balance between community health worker, primary care physicians, and highly qualified specialists, (c) prescription and communication patterns of the community health workers, physicians, and specialists, and many other provider-characteristics need be modified suitably for creating a humane milieu which will reduce the bottlenecks and barriers for the deprived and oppressed sections of the population in utilising various hospital and primary care facilities of its health maintenance services. The health professionals need be convinced and persuaded that the aim is not to make them relinquish medical sophistication but gaining health responsibilities in a spirit counter to prevalent social inequality of using narrow curative technologies for the benefit of the privileged few.

Institutional For the hospital and its peripheral health maintenance services to assume- the responsibility of health care delivery and health maintenance for. a defined manageable target group population in its entirety, dissolution of traditional organizational chart showing spans of control and hierarchial lines of communication, into a •flexible organisation with grouping of functionaries according to the tasks to be performed, coordinating a variety of simultaneous efforts and endeavours, would be necessary. The internal attributes of the hospital and primary care facilities in its peripheral health maintenance service viz. (a) manpower and facilities, (b) organisation and structure, (c) operational interactions between various resource components, their external relationships, their connections and control, and (d) interface with vulnerable common man as user, need adaptation towards (i) changing societal value for health, (ii) distributional responsibility based on equity, and (iii) maximizing benefits to collective rather than individual• The way in which the physicians, the nurses, community health workers and other categories are organised/balanced or work together with mutual understanding and interdependence will be more important than their total numbers for meeting the needs of the deprived and oppressed people whom they serve. Similarly, the way the hospital functions as a base of support for primary care facilities in its peripheral health maintenance services agencies like

Dispensaries, polyclinics, rural health centres, community health workers and so on in its outreaches will be of vital importance. Since the health problems to be handled will be on a wider scale than the intra-hospital clinical problems of seriously ill, the range, of services provided will have to be correspondingly wider *e.g.* logistics supports in supplying pesticides, drugs, sanitary and medical equipment; liaison and intervention in collaboration with other sectors of social and economic development; transportation of patients to and from referral services; continuing training, guidance and supervision of community health workers and so on.

Social control: Depending on the political system, social services like hospitals and primary care facilities in its peripheral health maintenance services become either socialised or subject to governmental regulation as a sort of public utility, and the activities of the health professionals, para and non-professionals are increasingly challenged, scrutinised or controlled. Society's critical views about the equity, effectiveness and efficiency of its contemporary hospital and primary care facilities of its peripheral health maintenance services are the usual stimuli for governing the relationships between the people and the professionals, para and non-professionals. Just as the economic development and scientific progress are the major determinants of operating dynamics of these health delivery services so are the societal values, which are codified into goals, priorities and standards. If the health problems due to population growth, communicable diseases, malnutrition and environmental sanitation, are to be negotiated through the hospitals and primary care facilities in its peripheral health maintenance services for the poor and disadvantaged sections of the society, political will to change from the existing *modus operandi* of expensive tertiary treatment of illness of a handful of economically solvent individuals on intermittent curative basis to the strategy of promotion of health on a continuous and pervasive basis for the maximum number of disadvantaged, socially deprived rural population, will be imperative. These socially controlled reforms will not ignore the demand for curative care but bring a balance between measures to treat diseases and the same to control its incidence. To that end, the prospective hospitals and primary care facilities in its peripheral health maintenance services need be developed as close to those being served as possible with perfect sensing arrangements for measurements

Of geographic scatter and of peoples new needs, demands and revisions with time and socio-economic development. The hospital and primary health care plans will, thus, dovetail into socio-economic plans with preferential allocation of resources to primary care facilities in the peripheral health maintenance services. With a view to improve inconsistency with the social philosophy, an evaluative dialogue among all involved will have to be programmed from the very beginning to review the progress, relevance of the activities, efficiency and effectiveness of the activities in reducing specific illness conditions or improving health situations in the target groups, and impact thereof, in their overall socio-economic development.

Financial: To achieve better health care in hospitals and primary care facilities in its peripheral health maintenance services for manageable target group of deprived and disadvantaged sections of the community within limited financial resources, the prerequisites are:

- a. Adequate consideration of various facets of future functional programming with engineering and architectural planning, *e.g.* (i) the number of vulnerable people to be served; (ii) where are they (iii) how are their numbers changing, (iv) to what extent their health needs are currently being met? (v) What changes are likely to be in their demand for medical care both in scope and quality?
- b. The capacity of the accommodation planned or built for change and extension, and possibility for alternative uses, relevance and mobility of drugs, equipment and staff.
- c. A beginning from what can really be achieved from operational and economic point of view with clear concept that primary care facilities do not imply the cheapest form of health care for the poor through bare minimum off financial and technical Support.

The 'limited resources' for optical utilisation calls for:

- a. any new facility only when it is not possible to meet the particular requirement within existing ones, that

also not as an isolated entity but as part of overall hospital or primary health care plan;

- b. the existing facilities, particularly buildings/hutments, should be utilised as far as possible even if, useful life time has been surpassed; they can be modernised or rebuilt partially or totally by phases;
- c. as many rooms/cubicles as possible should be multi-functional and their utilisation left to the operational management;
- d. if the climatic conditions permit, available outdoor spaces should be used as far as possible;
- e. all activities which do not necessarily have to be handled by academically fully trained professionals should be delegated to para or non-professionals and even to appropriately oriented family members;
- f. careful and vigilant avoidance of duplication of services when the patient is transferred or referred from one type of care to another e.g. primary care of outreaches to intra-hospital tertiary care;
- g. extension of primary and outpatient cares and integrated multidisciplinary curative treatment with greater penetration by the ideas and criteria of promotive, preventive and rehabilitative medicine; and
- h. unsparing stoppage of public subsidy for the hospital and primary care facilities of peripheral health maintenance services consumed by the affluent groups; redeployment of, thus, effected budgetary savings for extension to outreaches of the hospital taking cognizance of the fact that (i) fall-off in primary care facilities and hospital outdoor attendances due to distances is more rapid than that for use of the hospital inpatient facilities, (ii) services in the hospital with specialist attention are often used by status conscious people and their ability to pay can subsidise wider community needs.

Process of planning: After establishing these conceptual premises, the process of planning is discussed in subsequent para.

Statistics needed: Population characteristics (at ten years interval) and projections of the people, especially vulnerable groups in need of maximum and immediate attention is required, breaking it down by age and by sex, and including social, economic and morbidity information. Information should also be available on climatic variations and on availability of material and manpower resources. If there are existing health facilities, information on an annual basis for the past ten years and for the past year on a monthly basis to unfold any variations due to seasonal or natural calamity factors (drought, flood, earthquake and so on) should be documented so that future projections can be made taking these factors which may influence such projections. These statistics should include (i) number of visits to all types of available health facilities including indigenous system of medicines, (ii) number of emergency treatments, (iii) number of available hospital beds, (iv) inpatient admissions into or discharges from hospitals by diagnosis, (v) patient days in hospitals by same categories, (vi) births - domiciliary and institutional, (vii) surgical procedures (major and minor), (viii) x-ray procedures by type, (ix) laboratory procedures, (x) other diagnostic and treatment procedures by type. Regarding use of folk or indigenous systems of medicine and non use of existing health facilities, household survey would be required for realistic assessment of the total volume of the service that would be required, when these users of folk or indigenous systems of medicine or non users are stimulated to change their health behavior and they would need modern medicine from hospital/ primary care from its peripheral health maintenance services.

Functional programming: It is now pertinent to develop in detail the functional programming to set forth clearly the needs to be fulfilled, the specific services to be provided, the organisational structure and staffing pattern and the proposed operational policies and procedures. /Some of the main considerations will be:

- i. summary of the facilities in every service area with sufficient information so that the logic for every detail-programming is in evidence;
- ii. Description of primary care facilities in the peripheral health maintenance and other ambulant and out-patient services;

- iii. Inpatient nursing units - maternity, pediatrics, surgical, orthopedic, medical and others;
- iv. Diagnostic and treatment services including all or some of the following depending on the level of care to be provided: surgery, obstetrical delivery, radiology, clinical laboratories and pathology, physical medicine, rehabilitation etc.
- V. supply services - Pharmacy, CSSD, medical equipment, laundry, purchasing, storage, and dietary;
- vi. administrative and general services - hospital and nursing administration, admission, medical records, referral methods, public relations and public spaces, information, services and communication facilities;
- vii. Maintenance and engineering services - housekeeping, workshops and engineering stores and offices;
- viii. Educational services - public health education programme, and medical, Para-medical and community, health worker training and retraining programme;
- ix. land requirement and site development - site zoning; establishing a land-bank for future growth; main circulation and utility arteries; separation of traffics - referrals from peripheral health maintenance services, direct OPD, casualty and emergency, pedestrian, vehicular, load carrying, visitors etc.;
- x. hygiene arrangements; separating movements of clean and dirty items for prevention of cross-infection; disposing foul wastes without risk of environmental pollution; providing facilities for segregation and isolation;
- xi. Orientation of the buildings and climate - buildings facing north or south with long sidewalls generally provide most comfortable orientation in tropical climates of India;
- xii. scale and character of buildings - low building/ hutments for primary care facilities, OPD services and health activities which are likely to expand, and

tall buildings for inpatient wards where units are repetitive and where sanitary services and means of circulation can be concentrated and movement distances minimised, are advocated keeping in mind that on first contact the patients should have a feeling of assurance that they will get adequate care and sympathy by the latent impact on their minds of the low buildings/hutments; and

- xiii. master plan - accepts that the hub of the health care system is primary care facilities in the peripheral health/maintenance - services of the hospital and around it are arranged the other levels of the system whose activities converge on primary care in order to support it and enable it to provide needed health care on a continuing basis; indicates realistic, physical, and functional outlines of different elements and suggests directions and possibilities of growth and development. Besides showing interrelationships of and between various zones of activities and arteries of circulation and referral traffic, it will also indicate how the community needs will be met through joint efforts from other sectors within the available financial and manpower resources.

In practice there may be several levels of functional programming. The first of these will be an outline programme or a long-range plan written in a 'brief form as the basis for the community leaders, bio-medical engineers, and architects as a comprehensive guide for stages of development and commensurate architectural and engineering design programme. A better method would be to let the community leaders, a formally trained hospital administrator, a community physician, an experienced bio-medical engineer and a hospital architect to do this task and have it vetted by the professionals of repute and inter-sectoral planners with managerial competence. Next, the functional programme of a specific facility, building or department will include considerable detailed information about: (a) position of the facility, building/department in the health delivery organization and their physical location in the master plan; (b) functions, working methods, and other requirements; (c) dimensioning data and regulating; or control mechanism for every activities to be undertaken; (d) linkage with and

referral to facilities, services and other departments; (e) number of community health workers, staff members, family relations, and trainees; and (f) schedule of accommodation - list of rooms with fixtures and equipments, groupings of facilities, net areas.

This will be the basis for entire design work by the architect, bio-medical engineer, professional and technical consultants, if any.

A more detailed development of the functional programme is carried out by bio-medical engineer and the architect in consultation with the health and hospital functionaries to develop: (a) all spaces to be provided in and outside the buildings/hutments; (b) net floor areas; (c) circulation spaces, service needs, allowance for the structure and cladding of the buildings/hutments; and (d) gross area and volume for more precise estimation of cost and timing required for construction and for guidance during execution.

Lastly, a detailed engineering and architectural programme for design-development using locally available material and resources is prepared with room data sheets for individual rooms/cubicles and for special type rooms. Room/ cubicle data sheets will provide information regarding particular requirements of hygiene, sound, safety as well as technical installation, medical equipment and furniture. The power requirement, quantum of water supply, engineering services for ventilation, air cooling/conditioning, sewage and disposal facilities, traction and movement facilities, residential and storage accommodation, essential shops/ trades, and provision of *dharmasala* for relatives and convalescents - all these need be considered in detail at this stage.

A small general hospital with primary care facilities in its peripheral health maintenance services capable of treating common ailments and providing integrated health services close to where most of the target group 'people live' may have:

- a. centres for primary care facilities in the outreaches of the hospital and in the hospital outpatients: department - polyclinics, specialist areas, preventive and promotive personal services, health educa-

tion and medical social work, and accident emergency and rehabilitative services;

- b. hospital inpatients department: general medical beds, general surgical beds, orthopedic beds, obstetric beds, paediatric beds, long stay unit, rehabilitation;
- c. adjunct facilities in the hospital: appropriate operating suite with provision of zoning into graded degree of sterility and positive pressure air-conditioning with adequate air changes and recovery area, delivery and labour rooms, laboratory and blood bank, x-ray, pharmacy;
- d. hospital logistics departments: food preparation and cooking, housekeeping, line, CSSD, stores, maintenance and engineering, transport, administration, records, mortuary and so on; and
- e. staff amenities and residential accommodation, and facilities for accompanying relatives.

Evaluation of the Plan: When the development of a comprehensive all pervasive health care plans is, thus, completed, there is a need to devote sometime for evaluation of the project before the decision to execute is taken with the following considerations:

- a. will it satisfy the REAL needs' of the disadvantaged people and common man?
- b. will there be efficient use of appropriate technology?
- c. can it be financed with enough possibilities of cost control?
- d. will the relevant staff be available? The test of relevance is the willingness of professionals and Para-professionals to empathise with target group having minimum dislocation and readjustment in their style and environment; and

- e. will it be possible to have innovations and flexibility reforms and extensions that its future activity will demand without undue conflicts, contradictions and costs?

Saying 'No' may be difficult, but if economic and appropriate functional viability is desirable, 'No' is a word to be used with as much emphasis as 'YES' in implementation of a hospital project and primary care facilities in its peripheral health maintenance services within limited resources.

Procurement and tendering: The procurement and tendering phase should now start to finalise execution in the most 'economic' way possible rather than sticking to 'the lowest' offer of price alone.

Cost control: It is a fact that final costs always exceed the original planning provisions. To attempt some way of cost control, it will be necessary to reduce: (a) basic costs (relating to market price of basic materials) and on costs (exterior conditions modifying the basic costs); (b) maintenance costs of accommodation, equipment and supplies ensuring a degree of uniformity; (c) rising on-costs due to change in time schedule; (d) rising costs due to inclusion of new concepts in planned activities under implementation or new facilities in accommodation already under construction; and (e) conflict or misunderstanding between project management, engineer, architect, suppliers and the executor.⁷

Construction. The success of the accommodation building phase depends on efficient coordination of all those who are involved in the process. A scheme for the same should include: (a) time tables for (i) trade sequences; (ii) duration of each operation; (iii) supply and delivery dates; and (b) methodology and criteria to provide for (i) periodical control of effectiveness; (ii) handling unexpected delays; and (iii) occasional course corrections.

It will not be inappropriate at this stage to emphasise that if the time taken by the bureaucracy of project management for sanction or approval is not shortened, the reductions to cost achieved by a careful and most economical approach to all the stages of planning, organising and implementing through dedicated efforts of planner, engineer, architect and the executor will not materialize.

Commissioning: Too often the planning and accommodation construction of hospital and its peripheral health maintenance services is seen as separate from what is to happen functionally when the accommodation is ready for functioning. For breathing of organizational life into the physical shell constructed, or team-spirit amongst the staff members recruited/mobilised, coordination of interdependent activities with maintenance of collective impetus will be required; hence a senior person capable of bearing in mind the strategies to be adopted to bring together all categories of functionaries to an accepted and effective mode of functioning without undue irritation and frustrations for delivery of efficient health care and cure activities in the hospital and in its peripheral health maintenance services as a whole and subservient to need-fulfillment of target group would have to be appointed as the executor right from the planning stage.

Conclusion

To conclude, it must be emphasized that one always learns much more from having to exercise extreme economy than from living in a state of plenty or overabundance. The accepted strategy to develop need-oriented, endogenous, self-reliant, ecologically sound hospital and primary care facilities in its peripheral health maintenance services for the disadvantaged, deprived and oppressed common people would be to:

- a. begin from where the target group vulnerable people are now living;
- b. build upon existing programmes of health delivery, if there are any;
- c. seek capacitating participation of these people to be served; and
- d. deliver a major portion of facilities and services at or near where these people are located by as many of the people themselves.

These challenges call for fortitude and a genuine commitment towards re-educating the diehard professional elites of expensive curative habits shifting their time old values and priorities.

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**EVALUATION OF MCH SERVICES INCLUDING FAMILY
WELFARE AT URBAN HEALTH TRAINING CENTRE
ADARSH NAGAR, JAIPUR**

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ABSTRACT

An evaluator study of MCH services including family welfare was carried out at Urban Health Training Centre (UHTC), Jaipur. During the study, 195 pregnant women were registered. Maximum cases i.e. 109 (55.89%) were registered during second trimester. The quality of both antenatal and post-natal care was satisfactory. All the women were given tablets of iron and folic acid during antenatal period. Medical Officer of UHTC played a very little role in delivery of MCH services. Regarding child health care, medical officer did not examine any child as a routine except when they came for treatment. There was poor coverage for registration of antenatal, postnatal, infant, toddlers and eligible couples. Records were not only incomplete but also poorly maintained.

Quantitative and qualitative evaluation of services rendered through unit of* health care delivery system has been a subject of importance for public health administration. Such evaluatory studies give an insight of working of the system and help in reorganizing the services for their better and effective utilisation. A few evaluatory studies have been carried out in the important field of maternity care and these mostly refer to the maternal and child welfare services rendered by primary health centre (PHC) in rural areas. Hence, this study has been undertaken in Urban Health Training Centre (UHTC), Jaipur with the following objectives:

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- a. To study the existing pattern of maternal and child health services including family planning at UHTC run by the Department of Preventive & Social Medicine(P&SM) .
- b. To evaluate services rendered by various categories of workers in relation to their job charts laid down by the Government in urban set up.
- c. To evaluate utilisation of maternal and child health (MCH) "Services by the local community.

Materials and Methods

The study was conducted at Urban Health Training Centre, Sindhi Colony, Adarsh Nagar, Jaipur to assess the quality and quantity of MCH and family planning services rendered through this centre. It is a field practice area of the Department of Preventive & Social Medicine, S.M.S. Medical College, and Jaipur.

The Urban Health Training Centre was selected for the reasons:

1. It is under the direct control of the department of preventive and social medicine.
2. It has a large component of staff in position looking after a limited population.
3. Being a training centre, it is expected that services rendered would be of better quality and serve to develop models to be emulated by other centres in the State.
4. It has been functioning for more than eight years and therefore, there was a positive need to do some introspection by looking at the services rendered during this period.

The available records at the centre were utilised to study the extent and methods of MCH and family planning services. The working of each category of staff medical as well as paramedical was evaluated by keeping their job charts as laid down by the Government. Following items were considered while carrying out the study such as: antenatal care

(ANC), post natal care (PNC), infant care, toddler care, school age child care, domiciliary care, family welfare services (fWS), nutritional services, collection of vital events and health education.

The work study method was used and each medical and paramedical worker was observed during working hours for a specific period of time. Proformae designed for them were filled in and analysed and time spent for each activity was noted during observational period. One medical officer of UHTC was observed for 12 working days while one Lady Health Visitor (LHV) and two Auxiliary Nurse Midwives (ANMs) of UHTC were observed for six days each.

Utilisation of MCH services by the local community was made by analysis of records of MCH and family planning.

Results

During the study, there were 195 pregnant women registered. Out of these 78 (40.0%) cases were registered during domiciliary visits and 117 (60.0%) were registered by clinic visits. A total of 24 (12.32%) cases were registered during first trimester of pregnancy, 109 (55.89%) during second and 62 (31.79%) during third trimester of pregnancy. In all, 11 (5.66%) cases were examined once during pregnancy, 37 (18.97%) twice, 38 (19.48%) thrice and 109 (55.89%) were examined more than three times during pregnancy.

It was observed that antenatal care rendered by LHV (Table 1) was satisfactory. She registered 17 cases during the study period. General examination for anaemia and abdominal examination were carried out in all the 17 (100.0%) women but signs of toxemia and attempts of hearing foetal heart sounds were not made. Weight, blood pressure and urine for albumin and sugar were checked in 15 (88.23%) cases. Blood haemoglobin was done in 17 (100.0%) cases. Nutritional supplements were given to all antenatal cases. Advice regarding family planning, child care, personal hygiene, preparation for labour and nutrition was given to 8 (47.05%), 5 (29.41%), 7 (41.17%), 7 (41.17%) and 9 (52.94%) women respectively.

There were two ANMs observed for six days each. They attended 22 antenatal cases. They recorded complaints in all

TABLE 1

PERFORMANCE IN RELATION TO ANTENATAL CARE BY LHV AND ANMs AT THE UHTC
(During Observation Period)

Items assessed	Antenatal cases examined by	
	LHV	ANMs
Total cases examined	17	22
Complaints Elicited	17 (100.00%)	22 (100.00%)
General Examination for:		
- Anaemia	17 (100.00%)	22 (100.00%)
- Other nutritional deficiency	0	1 (4.54%)
- Toxaemia of pregnancy	0	0
Abdominal Examination	17 (100.00%)	19 (86.36%)
Examination of Breast	0 (88.23%)	0
Examination of other systems	0 (88.23%)	0
Blood Pressure taken	15	7 (31.81%)
Weight Recorded	15	20 (90.90%)
Laboratory Investigations:		
- Urine for Alb. & Sugar	15 (88.23%)	00
- Blood for Haemoglobin %	17 (100.00%)	20 (90.90%)
- Other Tests	0	0
Immunization Against Tetanus	15 (88.23%)	0
Nutritional Supplement given: (Tab. Iron & Folic Acid)	17 (100.00%)	9 (40.90%)
Advice regarding:		
- Family Welfare	8 (47.05%)	6 (27.27%)
- Child Care	5 (29.41%)	0
- Personal hygiene	7 (41.17%)	5 (22.72%)
- Nutrition	9 (52.94%)	20 (90.90%)
Advice on preparing for labour	7 (41.17%)	0
Referred to Hospital/MCW	0	0

the cases (Table 2). General examination for anaemia was carried out in 22 (100.0%) cases. Weight recording, blood for haemoglobin, abdominal examination, blood pressure, nutritional supplement (Tab. iron and folic acid), advice regarding family welfare and personal hygiene were given to 20 (90.90%), 20 (90.90%), 19 (86.36%), 7 (31.81%), 9 (40.90%), 6 (27.27%) and 5 (22.72%) cases respectively.' In one case (4.54%) they examined signs of toxemia of pregnancy.

During the study period, there were 129 postnatal cases in the area. Most of the postnatal cases *i.e.* 64 (49.61%) were seen by LHV, then by medical officer, *i.e.* 33 (25.58%) and then 32 (24.81%) by the ANMs. Out of these 129 postnatal cases, 96 (74.42%) were registered at home during domiciliary visits by LHV and ANMs and 33 (25.58%) were seen by medical officer at the centre.

TABLE 2

PERFORMANCE OF SELECTED ITEMS RELATED TO POSTNATAL CARE BY THE LHV AND ANMS DURING THE OBSERVATIONAL PERIOD AT THE UHTC

Items Assessed	Postnatal mothers examined	
	LHV	ANMs
Total Post-natal mothers	2	8
Complaints Elicited	2 (100.00%)	8 (100.00%)
General Examination for:		
- Temperature	0	0
- Pulse	0	0
Nutritional Deficiency	0	0
Blood Pressure taken	0	0
Abdominal Examination of Ut.	1 (50.00%)	3 (37.50%)
Examination of lochia and breast	0	3 (37.50%)
Special Examination related to complaints	0	0
Examination of other systems	0	0
Nutritional supplements given	2 (100.00%)	8 (100.00%)
Advice regarding:		
- Baby Feeding	2 (100.00%)	8 (100.00%)
- Care of Baby	0	0
- Personal hygiene	2 (100.00%)	5 (62.50%)
- Breast feeding	0	0
- Family Planning	1 (50.00%)	2 (25.00%)
- Sanitation	0	0
- Nutrition of mother	2 (100.00%)	7 (87.50%)
- Referred to Hospital/MCW	0	0

The quality of work of LHV and ANMs in relation to post-natal care is shown in Table 2. Two postnatal cases were attended by LHV and she covered 22 houses during the observation period. No woman was examined physically. Abdominal examination was conducted in one (50.0%), lochia and breast examination were not done. She gave advice regarding baby feeding, personal hygiene and nutrition to 2 (100.0%) women in each case respectively. Advice on family welfare was given to one (50.0%) woman. No advice was given on care to baby, sanitation, breast feeding etc. The nutritional supplements were given to 2 (100.0%) women.

There were two ANMs observed during home visits. They visited 37 houses and saw 8 postnatal cases (PNC). They have examined abdomen, breast, and lochia of 3 (37.5%) women and gave nutritional supplement to 8 (100.0%) mothers. Advice regarding baby feeding, nutrition, personal hygiene and family planning was given to 8 (100.0%), 7 (87.5%), 5 (62.5%) and 2 (25.0%) mothers respectively. No advice regarding breast feeding was given.

During the period of study, 172 infants and 209 preschool age children were registered at UHTC. Out of 172 infants and 209 toddlers, 150 (87.21%) infants and 94 (44.97%) toddlers were registered during home visits, while 22 (12.79%) infants and 115 (55.03%) toddlers were registered at the centre.

It was observed that medical officer did not examine any child as a routine except when the child was brought to the centre for treatment of the ailment. As far as the quality of the performance of LHV and ANMs regarding child care is concerned (Table 3) the results showed that LHV visited 22 houses in a week. These households had nine infants, 14 pre-school children; school age children, however, were not present in the house during the study. In case of infants care, advice regarding feeding was given to mothers of all infants i.e. 9 (100.0%), weight was recorded in 6 (66.6%) infants, while detection of congenital anomaly, examination of cord and immunization (Smallpox, DPT and OPV) were done in 3 (33.3%) children each.

In case of preschool children, weight and height were recorded in all the cases. Out of 14 children, 4 (28.57%) were examined for malnutrition and advice on feeding was

TABLE 3
PERFORMANCE OF SELECTED ITEMS RELATED TO CHILD CARE BY LHV AND
ANM DURING OBSERVATION STUDY AT UHTC

Items Assessed	Infants examined during the domiciliary Visits by			
	LHV		ANMs	
	Number	Per cent	Number	Per cent
Total infants examined	9	100.00		100.00
INFANT CARE				
Detection of congenital anomaly	3	33.33	7	77.77
Examination of Abdominal cord (umbilical cord) Looking	3	33.33	8	88.88
for eye infection Looking	3	33.33	4	44.44
for jaundice Weight	2	22.22	2	22.22
Advice on feeding	6	66.66	3	33.33
Immunization	9	100.00	7	77.77
	3	33.33	1	11.11
PRE-SCHOOL CHILD CARE				100.00
Total Pre-School Children	14	100.00	11	100.00
Weight	14	100.00	10	90.90
Height	14	100.00	9	81.81
Examination for malnutrition	4	28.57	0	00.00
Immunization	6	42.85	0	00.00
Advice to mothers on feeding	14	100.00	2	18.18
Milestones	0	00.00	0	00.00
Nutritional supplements given	10	71.42	9	81.81
SCHOOL AGE CHILDREN CARE				
Total School Age Children Examined	0	00.00	0	00.00
Examination for early detection of defects	0	00.00	0	00.00
General examination for malnutrition	0	00.00	0	00.00
Examination for infectious diseases	0	00.00	0	00.00
Immunization status	0	00.00	0	00.00
Nutritional supplements given	0	00.00	0	00.00
	0	00.00	0	00.00

Given, 6 (42.8%) were immunized with smallpox, DPT, and OPV. Advice regarding feeding was given to the mothers of all the 14 children. No history of milestones was recorded. In all, 10 (71.4%) children were given nutritional supplements.

Similarly, two ANMs were observed for one week (Table 3) and they visited 37 houses. There were nine infants and 11 preschool children. Examination of umbilical cord, advice regarding feeding and detection of congenital anomaly were done in 8 (88.8%), 7 (77.7%) and 7 (77.7%) children respectively. Weight was recorded in 3 (33.3%) children. In preschool children, weight and height were recorded in 10 (90.9%) and 9 (81.8%) children respectively. Advice regarding feeding was given to mothers of 2 (18.2%) children. Nutritional supplements were given to 9 (81.8%) children.

There were 995 eligible couples in the UHTC area. Out of these, 23 were regular users of nirodh and seven women were taking oral pills regularly. During the observation period no tubectomy, vasectomy or IUD insertion was done. The family welfare work was very poor or almost nil, during the observation period.

As far as the utilisation of health services at UHTC are concerned, during 12 days observation, medical officer saw 231 new and 468 old patients. On an average, he spent 2.3 minutes and 0.43 minute on new and old patients respectively (Table 4). Of the new 231 patients, he heard the complaints

TABLE 4
PROCEDURES ADOPTED BY THE MEDICAL OFFICER WHILE EXAMINING THE PATIENTS AT UHTC

Procedures adopted by Medical Officer	Patients examined	
	Number	Per cent
Total patients	231	100.00
History Taking	231	100.00
Clinical Examination		
a. General	75	32.46
b. Examination of affected part	216	93.50
Pathological Examination	55	23.80
Advice for Pathological Examination		
a. Blood examination for Malaria Parasites	89	38.52
b. Sputum Examination for AFB	7	3.03
c. Stool Urine Examination and Blood for Haemoglobin % and DLC	67	29.00
Referred Cases to Hospital	6	2.59

in all the cases. In 216 (93.5%) cases examination of affected part or specific examination was done. In 75 (32.5%) cases general examination was done. Investigations were done in 55 (23.8%) cases. As far as the referral to hospital is concerned, the rate was 6 (2.6%) of outpatient attendance. In all, 89 (38.5%), 67 (29.0%) and only 7 (3.0%) cases were advised for blood for M.P., stool, urine and blood for haemoglobin and D.L.C. and sputum examination respectively.

Discussion

It was observed that in the 7,957 population at UHTC, there should be at least 215 ANC cases and 215 PNC cases but UHTC staff had registered only 195 ANC and 129 PNC cases. UHTC staff made 6-8 home and clinic visits to each case of ANC. At UHTC 119 doses of tetanus toxoid (2nd dose) were given to ANC cases as against 215.

Most of the ANCs at UHTC had been registered in second trimester of pregnancy (55.89%). Most of the cases (64.10%) were seen by LHVs and medical officer examined only 14.35% of cases. General physical examination and laboratory examinations were done at UHTC but the staff does not know the high risk cases and how to organise the plan to tackle such cases. Abdominal examination was carried out in all cases at the centre and only foetal parts were felt. No attempt was given to hear foetal heart sounds. Almost all women were given tablets iron and folic acid during domiciliary care.

Under postnatal care, 129 cases were registered at UHTC which shows a poor performance. Majority of the visits were conducted by the staff at home in the first week of delivery or after completion of 45 days of postnatal period. No physical examination was conducted in them. Abdominal examination was done in four women. Blood pressure was not checked in any of the cases, but nutritional supplements were given to almost all the cases at UHTC. Observations made by some authors are somewhat similar to present study; however, these do not deal much with the quality of maternal care.

Medical officer at UHTC was not taking any part in maternal care. He was only concerned with the sick patients. It is very essential that supervision and guidance should be given to these LHVs and ANMs to detect high risk mothers.

It was observed that out of total population of 7,957 at UHTC there should be at least 215 infants, 1,272 toddlers but the staff of UHTC registered 172 infants and 209 toddlers which is again a poor registration done by the staff.

The present study shows that the child care rendered at UHTC, both in quantity as well as in quality, is very poor. Medical officer does not play any role in the child care except the treatment of few sicknesses for which the child comes to him. Child care is totally left to the LHVs and ANMs, who are neither supervised nor guided in their performance in the clinic or in the field.

The quality of infant care as observed during the study of these auxiliaries showed that neither LHVs nor ANMs examine the children physically. Mothers are not advised regarding baby feeding; if at all it is done, it is done casually in few cases.

It was observed that at UHTC there should be 1,606 women in the reproductive age groups but only 995 were found entered in the eligible couple register which reflects poor performance regarding registration of eligible couples at the centre. These observations are almost similar to those obtained by another author².

The Medical Officer of UHTC spent 2.6 minutes per patient during OPD hours. Similar observations were made by some authors. Table 4 reveals that only 32.46 per cent of new patients and none of the old patients were subjected to physical examination by medical officer of UHTC. The investigations were done in 23.80 per cent of cases. In 38.52 per cent of cases, malaria parasite slides were taken and in 29.0 per cent of cases advice for stool, urine and blood examination was given. The medical officer of UHTC spent hardly 2-3 minutes in 15.58 per cent of cases. Few of the authors also made similar observations.

Careful review of UHTC revealed that the records were incomplete. No doubt family folders were being prepared but these were being maintained for 50 per cent of the total families in the area. After 1976, no entries had been made. Records for birth and death were not complete; similarly immunisation given was not entered. The other records were also not complete such as ANC, PNC, infant, toddlers,

Eligible couples register and no careful supervision was given to see that they are updated. Records were not only incomplete but also not properly maintained. Most of the staff could not list the total number of records maintained and the number of reports sent.

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