A STUDY OF WAITING AND SERVICE COSTS OF A MULTIPLE SERVER QUEUEING MODEL IN A SPECIALIST HOSPITAL: IMS & SUM HOSPITAL

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ABSTRACT
The effect of queueing in relation to the time spent by patients to access clinical services is increasingly becoming a major source of concern to most health care providers. This is because keeping patients waiting too long could result to cost to them (waiting cost). Providing too much service capacity to operate a system involves excessive cost. But not providing enough service capacity results in excessive waiting time and cost. In this study, the queueing characteristics at the specialist clinic of the IMS & SUM Hospital, Kalinga Nagar, Bhubaneswar, Odisha, India was analysed by using a multiple server queueing model and the waiting and service costs determined with a view to determining the optimal service level. Data for this study was collected at the specialist clinic for four weeks through observations, interviews and by administrating questionnaires. The data was analysed by using SPSS-20 software as well as descriptive analysis. The results of the analysis showed that average queue length, waiting time of patients as well as overutilization of doctors at the clinic could be reduced at an optimal server level of higher number of doctors and at a minimum total cost at against the present server level with high total cost which include waiting and service costs. This model can also be used by decision and other policy makers to solve other multi server queueing problems.

KEYWORDS: Service cost, servers, utilization factor, waiting costs.