MEDIATING AND MODERATING VARIABLES

This chapter assesses the role of mediating and moderating variables in MASP framework to test various hypotheses from indoor patients, outdoor patients and employees perspectives. A mediator or moderator is a third variable in the direct relationship between the variables that changes the association between an independent variable and an outcome variable (Baron & Kenny, 1986). Analysis of mediators and moderators in studies can provide information about why or how a direct association occurs between an independent variable and an outcome variable is influenced. Thus, both, mediator and moderator variables provide useful information about how, why, or when a phenomenon occurs.

7.1 MEDIATING VARIABLES IN MASP FRAMEWORK

A mediating variable is a variable that specifies how the association occurs between an independent variable and an outcome variable. A mediator effect is only tested when there is a significant direct effect between the independent variable and the outcome variable, but there is a possibility that a mediator variable conceptually occurs “between” the two variables.

Fig 7.1 : Mediator Effect

To test the mediation relationship Kelloway’s (1998) procedure (cited in Arnold et. al. 2007) and Huang, Cheng and Farn (2007) is followed. Three contrasting models viz fully mediated (Model 1), partially mediated (Model 2), and non mediated (Model 3) among
various service quality performance measure are created to support or refute mediating relationship. The chi-square differences was examined between the three contrast models for establishing the fully, partially or non mediating relationships. The moderating role of value, satisfaction and loyalty are discussed as under:

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<th>MODEL 1 – Fully Mediating</th>
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<td>IV → MV → OV</td>
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<th>MODEL 2 – Partially Mediating</th>
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<td>IV → MV → OV</td>
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<th>MODEL 3 – No Mediating</th>
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<td>IV → OV</td>
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Fig 7.2 : Models for Testing Mediating Variable

Note: IV = Independent Variable, MV = Mediating Variable, OV = Outcome Variable
7.1.1 Value

Researchers such as Kristensen, Juhl and Ostergaard (2001), Gallarza and Saura (2004), Hutchinson, Lai and Wang (2009) and Choi et al. (2005) support the mediating role of value in quality and satisfaction relationship. However these studies have not identified the nature of mediation that is whether value is playing fully or partial mediating role in relationship. Most recently Malik (2012) has established value as a partially mediating variable in the service quality and satisfaction in service sector. The role of value between quality and loyalty has been indirectly examined by number of researchers such as Lai, Griffin and Babin (2008) and Harris and Goode (2004) in service sectors. However these studies have not established whether value is a partial or fully mediating variable in relationship. Whereas Parasuraman and Grewal (2000) theorised that value plays a mediating role between the relationships. Lastly the mediating role of value between SQ and PIM could not be supported with research findings as such relationship has not been tested in the reviewed literature.

In the present study, value as a mediating variable shows different results across the three samples inpatients, outpatients and employees. It is accepted as partially mediating variable between service quality – satisfaction (Malik, 2012), service quality – loyalty (Parasuraman and Grewal, 2000), and service quality – perceived image, for the indoor patient samples and fully mediating variable between service quality – satisfaction (Kristensen, Juhl and Ostergaard, 2001), and service quality – perceived image, for outdoor patient samples and for service quality – loyalty (Choi et al. 2004), and service quality – perceived image also for employees sample. Hence the hypotheses 1a and 1b are partially accepted while 1c is fully accepted (Table 7.1).
7.1.2 Satisfaction

Satisfaction is found to be fully mediating between quality - loyalty but not mediating between value – loyalty for indoor patients while it is found to be act as a partial mediator between quality – loyalty and value – loyalty for outdoor and employees samples. Hence hypothesis 2a is accepted for all the three samples, whereas 2b is accepted for outdoor and employees samples and rejected for indoor sample (Table 7.2). Edward and Sahadev (2011) have supported partial mediating role of satisfaction between value and loyalty and fully mediating role between service quality and loyalty. The authors stated that service quality influences satisfaction and satisfaction experienced by users continuously leads to loyalty. Similarly they expressed that values has direct influence on loyalty as benefits received by users have direct influences on loyalty. In addition, value also affects satisfaction and which in turn affects loyalty. Further Ahmed, Razzaque and Ramzan (2011) also supported these relationships in employees settings.

7.1.3 Loyalty

Loyalty is established as a fully mediating variable between satisfaction - image, for patients’ samples while it is found to partially mediate the relationship in employees’ sample. However it is found to be playing non mediating role in service quality – image relationship, in all the three samples. Furthermore loyalty is playing a mixed type of role in value – image relationship. For instance, it is found to play no mediating role for indoor sample, fully mediating role for the outdoor samples and partial mediating role in employees sample. Thus study results support hypothesis 3c ( SAT – LOY - PIM) and negates hypothesis 3a ( SQ – LOY - PIM ) for all the three samples; while 3b (VAL – LOY - PIM) hypothesis is accepted for outdoor and employees sample and rejected for
indoor samples (Table 7.3). However, the nature of mediating role of loyalty between service quality - image, value - image, loyalty – image could not be identified in the reviewed literature.

### 7.2 MODERATING VARIABLES IN MASP FRAMEWORK

This section examines the role of demographic variables namely gender, age, income, education and profession as moderating variables in the MASP model. A moderating variable is an independent variable that affects the strength and/or direction of the association between another independent variable and an outcome variable.

![Diagram of Moderating Variables in MASP Framework](image)

**Fig. 7.3 : Moderating Variables in MASP FRAMEWORK**

The moderator interacts with the independent variable of interest so that the independent variable's association with the outcome variable is stronger or weaker at different levels of the moderator variable. The presence/ absence, significance and magnitude of...
moderating variable is examined through three steps (Walsh, Evanschitzky and Wunderlich, 2008 and Huang, Cheng and Farn, 2007). In the first step, two models (Figure 7.4) that is, unconstrained model (all paths are allowed to freely vary) and constrained model (paths examined among the service performance were constrained fixed to be equal). And, later insignificant relationships in both the two models were identified and based on chi – square differences and degree of freedom estimated, the acceptance and rejection of the models was done. The presence of moderating factor is established if the empirical fit of unconstrained model is better than the constrained model. In step two, the significance of moderating variable is examined using a series of comparisons between unconstrained model and constrained model with respect to different paths. To establish the significance each relationship was constrained step by step to examine the fitness of the model. The significance of moderating variable in each relationship is established if unconstrained model is identified as better fit in comparison to constrained model. In the last step to examine magnitude of the moderation effect, the change in the variance explained was examined between unconstrained and constrained models. Any increase in the squared multiple correlation (SMC) corresponding to the change in the Chi – square difference was examined to establish the moderating magnitude strength. The moderating effect of gender, education, income and profession is discussed as under.
Unconstrained Model

SQ → VAL → SAT → LOY → IMAGE

Constrained Model

SQ → VAL → SAT → LOY → IMAGE

Fig 7.4: Unconstrained Model and Constrained Model

Note: SQ = Service Quality, VAL = Value, SAT = Satisfaction, LOY = Loyalty
7.2.1 Gender

The moderating effect of gender (male/ female) was found to be significant in all the three samples outpatients, inpatient and employees (Table 7.4 a) but is found to be different for different relationships. Hence hypothesis 4 a is partially accepted. Gender is found to play key role in two relationships that is service quality – value and loyalty – image, which are accepted in all the three samples. Whereas loyalty – image relationship is not found to be moderated by gender in all the three samples. Rest other relationships are invariably accepted in outdoor, indoor and employees samples.

7.2.2 Age

The hypothesis 4b, age as a moderating variable in MASP framework, is partially accepted in all the three samples. Among the nine relationships, only two (service quality – value, service quality - satisfaction) are found to be moderated while loyalty – image is not at all moderated by the age in all the three samples (Table 7.4 b). Rest all relationships among service performance measures are found to be affected differently across three samples.

7.2.2 Education

The moderating effect of education, based on three classes namely graduate (G), undergraduate (UG) and illiterate (IL) is partially accepted (hypothesis 4b) for different relationships of the MASP framework in the patients and employees samples (Table 7.4 c). Only two relationships that is service quality – value and value – satisfaction are found to be supported for all the three educational groups in the indoor and outdoor samples.
7.2.3 **Income**

The study results partially accept hypothesis 4c, relating with the moderating role of income in the varied service performance relationships (Table 7.4 d). Four relationships which include service quality – value, value – satisfaction, satisfaction – loyalty, loyalty – image are found to be significant. And three relationships (service quality – loyalty, service quality – image, value - image) are established as totally insignificant in the patient’s sample.

7.2.5 **Profession**

The profession is found to play moderating role in four relationships which include service quality – loyalty, service quality - satisfaction, loyalty – image and service quality – value in the indoor sample and moderates service quality – value, value – satisfaction, satisfaction – loyalty and service quality – image relationships in outdoor sample. The results support well established service quality - value relationship in both outpatient and inpatient samples. While value - loyalty and value - image are found to be insignificant in the two samples (Table 7.4 e).

7.3 **CONCLUSION**

The hypotheses results established presence of some significant mediating and moderating relationships among service performance measures healthcare sector. Among the varied relationships tested for mediation, consumer perceived value acts as a mediating variable between SQ – CS and SQ – PIM; consumer satisfaction plays mediating role between SQ - CL and consumer loyalty is found to play a mediating role between CS – PIM. On the other hand consumer loyalty is not playing any mediation role
between SQ – PIM. The results suggest that this might be because of the absence of mediation of value and satisfaction variables, (which are found to play robust role in the aforesaid relationships) in the SQ – PIM relationship for patient samples. Further in employees sample, employees perceived value is playing a strong mediating role between SQ – EL and SQ – PIM, while employees satisfaction is found to play partial mediating role between SQ – CL and EPV – CL and employee advocacy/ loyalty is also seen as partial mediator between EPV – PIM and ES – PIM.

The study establishes moderating role of demographic characteristics namely gender, age, education, income and profession in MASP framework. The moderated relationships is accepted in patients sample for SQ – CPV, CS - CL and CL – PIM (gender), SQ – CPV, SQ – CS (age), SQ – CPV, CPV - CS (education), SQ – CPV, CPV – CS, CS – CL, CL-PIM (income), SQ – CPV (profession). Overall, the commonly accepted moderated relationships under different demographic groups are found to be SQ – CPV and CS – CL only. Further in employees sample, service quality is a significant indicator in the MASP framework as gender and age are found to moderate all service quality relationships which include SQ – EPV, SQ – ES, SQ – EL and SQ – PIM.