Development and Validation of Interpersonal Relationship Measurement Scale at Workplace

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Abstract

Purpose- The paper aims to develop and validate a scale measuring interpersonal relationships among employees of an organization, notably the service sector.

Design/methodology/approach- A sample of 250 employees in the first stage and 421 employees in the second stage were selected and purposive sampling was employed to validate the scale. The scale was refined using exploratory factor analysis in the first stage and in the second stage, it was refined through measurement model evaluation in PLS-SEM.

Findings- The results reveal that the scale cleared all the psychometric properties required for confirming the application of the tool at second order in a remarkable manner, where Cronbach's alpha value of the scale was 0.934 and composite reliability ranged between 0.893 to 0.937.

Practical implications- Current literature is flooded with articles describing marital relations, social relations in general and the relationship between leader and member in an organization, but the relationship between employees within an organization has received scanty attention and particularly in the service sector.

Originality/value- Current research contributes in a theoretical and practical manner in understanding interpersonal relationships and some of its attributes. It mainly contributes to developing and validating the scale at second order in the service sector, which evaluates interpersonal regard, mutual acceptance and upliftment, mutual trust and workplace harmony.

Key Words:-Interpersonal Relationship, Scale Development, Scale Validation, Measurement Scale, Exploratory Factor Analysis, Confirmatory Factor Analysis, PLS-SEM

Introduction

Relationship means bonding or an emotional tie between two or more people. Relationships are the means of survival for the human being. These relations play an important role in not only personal life but also are equally vital in the workplace. Social interactions are predominant characteristics of human beings, which is why no individual for long can stay at a workplace being attached merely to salary, position and status. Compassion in such interactions improves the performance of employees, reducing their stress in the service sector, as asserted by Eldor (2018). These social interactions enable employees to fulfill the needs of social affiliation, thus creating mutual relationships irrespective of the settings where the relationship develops (i.e. formal or informal settings). These mutual relationships have always been an intriguing abstraction for a researcher. As such, they have been defined in numerous ways. Grace, King& Iacono (2017) asserts that mutual relationships at work are the extent to which internal customers perceive the value of interpersonal relationships with their internal colleagues.

Healthy interpersonal relationships at work is manifested by trust, respect, acceptance, understanding and empathy for each other, as conferred by Kripa kumar (2015). Relationships value to an employee to such an extent that as an individual, an employee thinks of his work more in terms of the interactions and feelings he exchanges with his colleagues. Employees tend to pay more attention to their interpersonal incompatibilities and the experience of a loss of social associations at work results in poor concentration and focus (Bouckenooghe, De Clercq& Deprez, 2014).

In order to understand the value of harmonious interpersonal relationships, it is important to understand the side effects, an organization might have to bear in case of the conflicting interpersonal relationship as detailed in a report by Advisory, Conciliation and Arbitration Service(ACAS). In its report released in May 2021, it asserts that conflict in the workplace costs employers around £30 billion a year, where about half a million employees resign every year due to conflict and unresolved disagreements and complaints in relationships at work. Relationship conflict in the workplace roots in consequences that are highly negative for individuals and organizations like an increase in anxiety, stress and poor task performance as asserted by De Wit,Greer& Jehn (2012). Relational conflicts result in the weak performance of the team of employees in service sector, admitted by Van Woerkom & Van Engen (2009). Relationship conflict grounds a withdrawal behavior among the employees from the workplace, physically or psychologically (Van der Kam, Janssen, Van der Vegt, & Stoker, 2014).

Thus, it's rightly stated by Consiglio, (2014) that healthy relationships at work are of significant value for the smooth functioning of the organization. A healthy and

balanced relationship at the workplace motivates an employee to perform to his full capacity, increases job retention, increases satisfaction, and builds a contented and happy employee and thus creating a congenial ambience. Carmeli, Brueller& Dutton (2009) affirm that people at work, surrounded by quality interpersonal relationships feel valued, connected and psychologically safe, which in turn contributes to their greater learning and better organizational functioning.

Suffocation whether in the environment or in relationship will only aggravate the side effects for the organization as interpersonal conflict in the workplace harms employee well-being and promotes knowledge concealed among the employees (Losada-Otálora, Peña-García & Sánchez, 2020) and increases employee turnover as well. As researched, among the factors contributing to the retention of employees, significant ones are the relationships among peers, between employees and their managers, as contended by Korsakienė, Stankevičienė, Šimelytė, & Talačkienė(2015). Relational conflict with coworkers is on one side socially damaging and on the other negatively impacts employees work performance (Kacmar, Bachrach, Harris, & Noble, 2012; Van der Kam et al., 2014). A contented, motivated and happy employee produces more and becomes an asset to the organization. National Business Research Institute (NBRI) reported in 2019 that when a worker develops meaningful relations in the workplace, the satisfaction level of an employee jumps to 50 percent. As organizations are working on more team-based structures, the relationships between employees and their coworkers have become the focus point, as stated by Kim & Qu (2020). Hence, it is the responsibility of every organization to make efforts for a stronger tie between employees.

Several scholars and researchers have introduced theories and have developed tools to measure marital relations and the relationship between coworkers in context of leader and member exchange (LMX). There are innumerable studies on relations in general also, some of which are reviewed in the current study as well but the study of literature discloses that the relationship between employees within an organization has not been paid attention and particularly in the service sector. Interpersonal relationships become vital in the case of service sector because not only it deals with the public directly, but also the sector has some salient features attached to it such as intangibility, inseparability and heterogeneity which requires spontaneity in the delivery of services. These salient features require coordination among employees in terms of their work relationship. In a research on service sector employees, Kolawole (2019) recommended for maintaining a harmonious relationship, as unmanaged relational conflicts affect employees performance. Thus, the significance of employees' relationship in the workplace and the gap in literature paved a way for the development and validation of a scale to measure the interpersonal relationship quality among service sector employees. Current study

has focused mainly on insurance, banking, education and health industries, being the hub of most public dealings. The scales mentioned in the literature (shown in table 1) have focused on different cultural settings highlighting different forms of relationships in the workplace as well as social. The present scale validation is an attempt to quantify the measurement process of interpersonal relationships specifically related to the service sector in India, which is depicted as a collectivist culture in Hofstede's cultural dimensions that make the interpersonal relationships more intricate and important to understand. This validation of measurement will not only help the organizations to understand the status and condition of interpersonal relationships but will also help them to improve actively managing situations before they deteriorate and affect organizational performance.

Literature Review

Interpersonal Relationships

Relationships are a connection of interdependence based on trust and are bound to the premise that only with the cooperation of others, an individual can reach his goals, and similarly, applicable other way round that with the cooperation of the individual, others can reach their goals (Hardin, 2002; Loomis, 1959). Various studies have contributed to measuring the relationship quality in personal relations, social relations and very few focused on professional relations as shown in Table 1.

The literature has strengthened the priority of interpersonal relationship at work for better productivity of an employee and for the betterment of an organization as well. However, the literature has not spotlighted interpersonal relations specifically among employees and service sector. Thus, the objective of current study is to develop the interpersonal relationship scale particularly among employees of the service sector and validate it by assessing the psychometric properties of a scale.

Scale Development Process

Dimensions of Interpersonal Relationship Scale

With the aim to develop the scale, explaining the nature of relationships in the service sector, the study started from a scrutiny of major factors defining relationship, along with its applicability in the workspace. From an exhaustive and comprehensive revisit to literature and sorting the scale commonly followed (shown in Table 1) and looking at factors overlooked, we defined the items based on four major factors namely interpersonal regard, mutual acceptance and upliftment, mutual trust and workplace harmony (shown in Table 2)

Firstly, Interpersonal Regard (IPR) reflects understanding and accepting other person's perspective even if it mismatches with our own point of view and making them realize

that they are valuable. Respect involves treating each other with due regard for their individual feelings, wishes, and rights in an organization (Rudolph, Katz, Ruppel, & Zacher, 2020). Researchers affirm that respect as a cognitive element involves admiration, as an affective element constitutes positive feelings, and from the behavioral perspective includes honoring another in various ways (Hendrick, Hendrick& Logue, 2010). Albu (2017) emphasize that there is an indissoluble link between interpersonal respect and interpersonal relations and without interpersonal respect, the relationship between people can never exist. Various studies have investigated the dimension of respect extending the LMX theory like Porath (2014), in his study on around 20,000 employees concluded that in relationship, to get commitment and engagement from employees, a dimension of respect is significant to be considered by a leader. In line with the above research, Rego, Cunha, & Giustiniano (2021) argue that in a leader-member relation, a transparent and humble behavior of a leader is perceived as being respectful. Thus, Respect is a multidimensional construct, playing a major role in interpersonal relations (Hendrick et al., 2010) at work.

Secondly, Mutual Acceptance and Upliftment (MAU)reveals boosting every person in an organization based on their strengths and capabilities along with acknowledging them as they are, without any expectation from them to change. Hargreaves (2001) found in his investigation that for the teachers, appreciation, acknowledgment and social acceptance from their colleagues constitutes an emotional significant aspect of their relation. Supporting the above study, Johnson & Krijtenburg (2015) assert that with the relationship of upliftment in a group, relationships are underpinned. In a social relationship, the feelings of mutual acceptance from employees, the open and accepting social climate at work increases a person's feelings of self-worth (Rydstedt, Stansfeld,Head, & Woodley-Jones, 2012). In line with the above declaration by the author, Peyrat-Guillard & Glińska-Neweś in 2014 found that mutual acceptance significantly influences interpersonal relationships while along with this Gordon, Impett, Kogan, Oveis,& Keltner (2012) furthermore stamps that appreciation is a significant element for successfully maintaining the bonds in relationships and groups.

Thirdly, Mutual Trust (MUT)is the most significant attribute in any relationship. Mutual trust is an emotional connection built on the foundation of transparency in terms of intentions of people in a relationship. Trust is like cement in the building of relationship. Interpersonal trust defines the level of confidence that one has in another and is willing to act as per the words, actions and decisions of another (Kanawattanachai & Yoo, 2002). Trust entails honest and supportive relationships, contributing to a positive working environment (Moye, Henkin& Egley, 2005). Trust relates to an individual's own perceptions, values and emotions (Pastra, Koufopoulos, Skintzti, Johansson, & Samac, 2021). Watson, Scott, Bishop, & Turnbeaugh (2005)

found that trust in a supervisor resulted in a perception of a safe working environment among the workers. Thus, various studies have considered trust as a significant factor in measuring relationship (Dant et al., 2013; Fletcher et al., 2000; Garthoeffner et al., 1993; Kripakumar, 2015).

Lastly, the vital aspect of relationship at work is Workplace Harmony (WPH). Harmony at work means willful cooperation by an employee towards each member of an organization. In LMX theory, it has been described as a cooperative, understanding and accepting attitude between management and the workforce to accomplish their mutual benefit (Osad & Osas 2013). It is a condition of relative equilibrium achievement where the relationship between individuals and groups are cordial and productive (Adim & David, 2020). Konishi, Yahiro, Nakajima, & Ono (2009) interpret workplace harmony as goodness, peace and growth of all the members at work. Harmony among employees is characterized by Chin (2015) as gentle, humble, kind, cheerful interaction between the members in the workplace. Harmony among the group of members, expressed by being cooperative and having a feeling of belongingness despite of diverse social and individual characteristics is an ambient relationship quality of team members, as contended by Chen, Ünal, Leung, & Xin (2016). Literature portrays that harmony in the workplace substantiates a cordial interpersonal relationship, however, the scales reviewed in the current study do not measure it for understanding the quality of interpersonal relationships. This was an evident lacuna in interpersonal relationship measurement. The current study fabricates the four crucial dimensions (interpersonal regard, mutual acceptance and upliftment, mutual trust and workplace harmony) together to understand and measure interpersonal relationships.

Scale Development Procedure

Items were framed based on literature, authors' mutual discussion, experts' recommendation and considering the advice of scholars in the academic field. Responses were collected through a questionnaire on a 5-point Likert scale, in which 1 represents "Never" to 5 represents "Always", where the higher the score, the better is the relationship, while the negatively worded statements were coded reversely. As recommended by various researchers like Lloret-Segura, Ferreres-Traver, Hernández-Baeza, & Tomás-Marco (2014), both types of analysis i.e. exploratory factor analysis (EFA) and confirmatory factor analysis(CFA) were carried out consecutively. The sample was collected in two stages, where in the first stage the sample was used for conducting a pilot study, which was analyzed through EFA using SPSS version 23. In the second stage, the sample collected was employed to confirm the factor structure through CFA (Hair, Black, Babin, Anderson, & Tatham, 2006). The reliability and validity of a scale was confirmed at first order and second order level with reflective indicators, using Smart PLS. The idea behind it was to get a better picture of the

scale and enhance its significance for further researches in this domain. The sample collected in the first stage was not undertaken in the second stage of the survey. The final instrument resulted after confirming the factors as shown in Appendix at last.

Item pool and Content validity

Initially, with reflective indicators, a pool of 50 items representing the measurement of the interpersonal relationships in the workplace was organized randomly. Source of such item collection was discussed with the subject experts, some academic scholars and a meticulous review of literature. Thus, considering the workplace applicability of the statements and definition of the construct and on the suggestion of experts, some of the items that represented very similar meanings were removed and a few items were reframed before reaching the final scale to be undertaken for the survey. Their recommendations and suggestions were incorporated in the final scale considered to run EFA for further refining the scale. Finally, a total of 22 statements were carried out further for the study. This process ensured the content validity of the scale for further analysis.

Pilot Study

The scale refined through experts' advice was divided into 2 parts, where the first part included the demographic profile of the employees and the latter constituted the survey of opinion of employees in the context of interpersonal relationships in their workplace. Purposive sampling method was employed to collect the data. 310 questionnaires were distributed in the first stage of data collection among service sector employees belonging to insurance, banking, education and health industry in different cities of North India and NCR. Out of 280 received responses, 265 of them were retainedbeing complete without any missing responses. The data was further refined by screening the univariate outliers through Boxplot, Z- score and Mahalanobis respectively. Of those received data, the responses from 15 respondents were removed due to the unengaged responses and the outliers. With regard to the sample size, the rule of thumb of 1:10 is recommended as the desired sample size (Hair et al., 2006). Thus, the sample of 250 meets the requirement for the pilot testing with 22items.

Descriptive Analysis

All values of skewness and kurtosis were within the range (skewness between -0.064 and 0.697 and kurtosis between -1.206 and 0.491), which ensures that there is no significant deviation of data from normality (Kline, 1998). Data was checked for multicollinearity using three criteria of VIF value, tolerance limit and correlation value. The tolerance limit for all items, being greater than 0.10 and all VIF measures less than 5approves the non-issue of multicollinearity (shown in Table 3). Correlation

values were significant at p<0.01 and all figures were below the threshold value of .08, which further stamps that there is no issue of multicollinearity in the data.

Reliability Analysis

Further refining the scale, the reliability analysis of the scale was undertaken to confirm the level of association between the attributes (Hair, Black, Babin, & Anderson, 2010). As the alpha must range between 0.70 to 0.95, Chronbach alpha for the full scale came out to be 0.934 in the present study, which crossed the minimum cut off value of 0.70 remarkably, as recommended by Nunnally (1978). Chronbach alpha values for individual factors are above 0.7 and the communality value of every statement is above 0.5, indicating higher reliability of the scale (shown in Table 3). Along with this, none of the construct had less than three items as Costello & Osborne (2005) avers the construct with less than three items as unstable and weak.

Results of EFA

To ensure that data is qualified for EFA, the sample adequacy of the data was tested through the Kaiser–Meyer–Olkin (KMO) test and Bartlett's test of sphericity respectively. The KMO value came to 0.90 upon analysis, where the value above 0.7 is considered acceptable (Tabachnick & Fidell, 2001). The Chi-square value of Bartlett's test of sphericity was significant at p<0.5.

Further, one of the items with a value of communality lower than 0.5 was removed, as it is recommended to consider a minimum value of 0.5 (Hair et al., 2006). We retained a number of factors based on the Eigen value equal to 1 or above, as per the latent root criterion suggested by Hair et al., (2006). Moreover, as per the recommendations of Hair et al., (2006), a solution representing a minimum 60 percent of the total variance is considered as satisfactory to determine the factors, where the current scale explains 65.411 of the total variance, as shown in Table 3.

Furthermore, to get a better picture of items explaining a particular factor, varimax orthogonal rotation was used. In the rotated solution, items loaded sufficiently against one factor, with each value of loading above 0.5and there was no issue of cross-loadings. In the rotated solution, items significantly loaded on four factors, which were labeled based on their interpretation as: The first factor (mutual acceptance and upliftment) including six items, the second factor (mutual trust) containing four items, the third factor (workplace harmony) covering seven items and the fourth factor (interpersonal regard) consisting four items (Table 3).

CFA

To confirm the factor structure and the validity of a scale, another round of data collection commenced. A sample of 421 was extracted, excluding the outliers,

unengaged responses, missing responses and those who misfit with the required sample, from the total data received of 500. The sample size met the recommended ratio of 1:10 (Hair et al.*,* 2006) for confirming the scale of 21 items.

Descriptive Analysis of Final Data Collection

The study has covered insurance, banking, education and health industry representing the most considerable portion of the service sector. For the data collection, a questionnaire was distributed to service sector employees from various cities of North India and NCR. Respondents were accessed through direct contact, mail and social networking sites like LinkedIn. The respondents were filtered based on experience level and those with less than a year of experience were excluded from the study. The demographic profile of employees varied in gender, age, marital status, work experience and industry. With regard to gender, over half of the respondents were male (79.33 percent) and 20.67 percent female. The respondents' age group includes 20-30 years (26.12 percent), 31-40 years (40.86 per cent), 41 and above years (33.02 percent). Considering respondents' work experience, 28.50 percent of the respondents had more than fifteen years of work experience, which is a major portion of the study. In total, the sample covered educated and experienced employees, adding to the authenticity of the data (shown in Table 4)

Common Method Variance (CMV)

Before moving ahead, ensuring the data to be free from biasness, CMV was considered indispensable. The Harman single-factor test was applied to address this issue (Podsakoff,MacKenzie, Lee, & Podsakoff, 2003). As per the technique, the biasness in the data exists if one factor in the scale explains the majority of the total variance. As per the analysis, the variance explained by all factors was47.65, which is below 50 percent of the variance and thus CMV was not a trouble in this study and it clears the way to evaluate the measurement model.

Measurement Model Specification

The scale was validated using structural equations of variance with partial least squares (PLS) to evaluate the scale in first order and hierarchical order. The advantage of PLS SEM in its suitability for exploratory research (Hair, Hult, Ringle, & Sarstedt, 2017), ability to handle complex models with many constructs in a structural model (Akter, Fosso, & Dewan, 2017) and its applicability for both normal and non-normal data led to using the Smart PLS 3 software (Ringle,Wende,& Becker, 2015) for the current scale validation. The repeated indicator approach was used to compute the validity of the scale (shown in Figure 1). Considering the criteria given by Jarvis, MacKenzie, & Podsakoff (2003), it was ensured that all dimensions together in a scale are reflective in nature like the dimensions were the result of construct and removal of any item

didn't change the meaning of construct. Along with this, theories and literature also convey the reflective nature of construct with its 4 dimensions.

Construct Reliability and Validity

The CFA results disclosed that all items in the first-order model cleared the threshold value of 0.70 for the outer loadings, (Hairet al., 2017). VIF (variance inflation factor) values less than 0.5, as shown in Table 5, shows that there is no issue of multicollinearity in the dataset. Moreover, the measures of construct validity and reliability which includes, Chronbach alpha (CA), rho, composite reliability (CR), average variance extracted (AVE), exceeded the cut-off values of 0.70 for CA, rho, CR and 0.50 for AVEin all constructs (Hair et al., 2017). Thus, convergent validity was ensured. Figure 2 represents the outer loading of items of the constructs.

Discriminant Validity

Furthermore, the discriminant validity was also assessed by applying both the criteria of Fornell and Larcker (1981) and Henseler, Ringle, & Sarstedt (2015) HTMT method. In Fornell and Larcker's criterion, correlation value between the constructs and the square root of the AVE for that construct was compared. Table 6 shows that the scale ensures the discriminant validity, where the diagonal values representing the square root of AVE exceeds the inter-correlation of the construct with other constructs.

Considering the HTMT method, all HTMT values were less than the recommended value of 0.85, as shown in Table 7, which ensures that the constructs convey different dimensions of a variable and are conceptually different, approving further the discriminant validity at the constructs level, (Henseler et al., 2015).

Psychometric Properties of the Second-Order Measures

Additionally, the study also verified the reliability and validity of the scale at the second order, as shown in Table 8. The study demonstrated that the factor loading for the second order surpassed the suggested value of 0.70 (Carmines &Zeller, 1979; Mohammad, Quoquab, Mohd Makhbul, & Ramayah, 2016), representing the power of association between first and higher order construct. In addition, the Cronbach'sα, rho value, CR, and AVE of the second order were above the recommended values, supporting their liability and validity of higher-order measures (Hair et al., 2017). The results confirmed the reflective-reflective second order scale of interpersonal relationships. Thus, the findings ensure that the 21 items, in a group of four factors (IPR, MAU, MUT, WPH) are statistically and sufficiently reliable and valid to measure interpersonal relationships at work.

Table 8 here

Discussion and Conclusion

The current study develops and validates an instrument measuring interpersonal relationships in the workplace. The study asserts the significance of interpersonal relations at work, as the conflict in relations hampers the performance of an employee, which in turn affects organizational performance. Tafvelin, Keisu, & Kvist (2020) also established through their research in a service sector, relationship conflict affects well-being of employees negatively, pointing to the need to pay attention to the relationships at work. Seeking the significance of relationship quality at work, especially in the service sector, the current study has focused on studying interpersonal relationships among employees of the service sector. The scale developed in the present study incorporates the important dimensions measuring the quality of relationship among employees.

The study scrutinized what constitutes cordial relationships from the dimensions obtained after a rigorous review of literature, pilot testing, and expert's valuable suggestions, which were conceptualized as 4 dimensions that are interpersonal regard, mutual acceptance and upliftment, mutual trust and workplace harmony. Initially the scale was operationalized with 50 items, which was later reduced to 22 items after removing statements considered non-significant in the research area as per the experts and those which were not clear or not applicable in the workplace. In the first stage of data collection, 250 employees responded accurately out of the total distributed questionnaires of 310, while in the second stage a sample of 421 responses were clearly obtained after removing the outliers, unengaged responses from the collected data of 500. The study has proposed interpersonal relationship as a hierarchical measurement tool with four core dimensions (IPR, MAU, MUT, WPH). The data passed through various levels of validation like reliability analysis, EFA and CFA supported the second order, hierarchical, reflective nature of 21 items interpersonal relationship scale.

In the first stage of the pilot study, the scale was refined through factor analysis. The internal reliability of the scale assessed through Cronbach's alpha was 0.934, demonstrating solid internal consistency within all dimensions. The extracted factors through varimax rotation explained 65.4per cent of the variance, where one item was removed from the final scale owing to weak factor loading. In the second stage, the sample collected was tested for confirming the factors. In CFA results, the dimension MAU, with a path coefficient of 0.909 emerged as a major component explaining interpersonal relationships, whereas IPR had the lowest outer loading of 0.75 while the path coefficient value of other dimensions lay in between. The reliability, construct validity and discriminant validity of the constructs were checked. In the first and higher order, alpha value, factor loadings, AVE, CR excellently surpassed all criteria of the psychometric properties required for validation. Fornell-Larcker

and HTMT criterion ensured the discriminant nature of constructs and that the items considered in the study are valid. Thus, the result shows that the scale has exhibited firm validity and reliability. Finally, the findings confirm that all four dimensions collectively explain interpersonal relationships as a higher-order reflective construct, where every dimension suggested in the study is a significant measure of interpersonal relationships in the workplace.

Implications

As per the author's knowledge, this is the first attempt in the development and validation of an interpersonal relationship scale at higher order to assess the interpersonal relationship quality of employees in service sector. Thus, enabling the authors to dilute the level of abstractions of the concept of interpersonal relationship and measure it more precisely. Factors like workplace harmony, mutual acceptance and upliftment have received limited attention in the literature exploring interpersonal relations, which the current study has covered. The scale will help organizations to measure the quality of interpersonal relationship in terms of workplace harmony, mutual acceptance and upliftment, which will enable organizations to understand the interpersonal relationship among employees in more precise ways, thus helping them in coordinating their efforts in the areas which lacks in maintaining quality interpersonal relationships.

The study suggests the organizations to promote employees to work collectively with a feeling of belongingness to get better output from employees and maintain harmony at work. As organizations invest in other assets, similarly an investment in employees, who are its real asset, is required by organizing social events for employees and encouraging employees to work in teams. Apart from the basic pay, rewarding employees based on their cooperation and their conduct with colleagues in the workplace might polish up relationship quality among employees. By making such efforts, an organization can act as a mediator in maintaining healthy relations among employees and reduce its expenses caused by workplace conflict as mentioned in the report by ACAS in May, 2021. This research significantly contributes to the literature on professional relationship and particularly in the service sector as per our knowledge. Its primary contribution is the development and validation of the instrument in the context of employees in the service sector. The scale evaluated as higher order reflective construct will contribute to conducting empirical studies based on relationship quality of employees in the workplace, not only limiting the service sector. Furthermore, the methodological framework applied in the study can provide an additional direction for potential studies aiming to develop and validate a new scale.

Limitations and Future Research Recommendations

There are certain gaps, which are the scope for further research in this area. Firstly, the study covered primarily employees of insurance, banking, education and health industry and to generalize any scale it should be validated through various studies at various levels. Therefore, the scale can be tested in other industries of service sector like telecom, IT. Further, study is limited to North Indian employees and NCR of India, which can also be explored by covering a wider area. Moreover, to gain a better understanding of relationships pattern, a longitudinal study can be conducted in the future at varied point of time.

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Author	Target population	Construct or items undertaken	Analysis
Brown & Sullivan 1979	96 graduate level students	(24 items) inner self, self disclosure, reaching out to others, resourcefulness, empathy, helping relationship skills	Face validity was ensured and the scale was validated using exploratory factor analysis (EFA).
Scandura & Graen (1984)	83 computer operators	(7 items) items relating to understanding, satisfaction, confidence	Internal consistency measured as alpha was 0.86 and after 6 months in retest, it was found as 0.84.
Garthoeffner et al., (1993)	421 undergraduates	(52 items) trust, self-disclosure, genuineness, empathy, comfort, communication	Factors were extracted from 52 items through EFA and total reliability of the scale was 0.95.
Liden & Maslyn (1998)	302 students and 249 employees	(11 items) affect, loyalty, contribution, and professional respect	Alpha reliability of the scale dimensions ranged from 0.60-0.92, while the overall alpha of the scale was 0.89. EFA and CFA was employed to ensure convergent and discriminant validity.

Fletcher et al., (2000)	300 students	(18 items) satisfaction, commitment, intimacy, trust, passion, and love	The scale was confirmed through confirmatory factor analysis at first and second order. Chronbach alpha of different factors ranged between 0.74-0.96 in both the studies.
Bernerth et al., (2007)	499 employees	(8 items) items relating to give and take nature of relationship	Reliability alpha value of the scale was 0.92. The scale met the conditions of content, convergent and discriminant validity.
Carmeli et al., (2009)	212 part-time students	(20 items) emotional carrying capacity, tensility, connectivity, positive regard and mutuality	Reliability value of the constructs ranged from 0.72-0.85. Model was found to be fit at second order using Amos.
Dearing& Steadman (2011)	248 people within age group of 18 to 60	(31 items) receptive traits, core traits, complimentary traits	Face validity was checked with the assistance of five experts. Reliability and validity was checked through exploratory factor analysis. Chronbach alpha of 0.92 was reported across all dimensions of the scale.
Dant et al., (2013)	225 franchisees	(23 items) trust, commitment, relationship satisfaction	CFA of the scale was checked at higher order. Convergent and discriminant validity was assessed. Composite reliabilty of the scale ranged between 0.974-0.989
Kripakumar (2015)	500 public and private sector employees	(91 items) physical, psychological, social	Reliability score of the scale was 0.953. Content validity, face validity and construct validity of the scale was ensured.
Grace et al., (2017)	436 people working in service firms	(4 items) items relating to social attachment of internal customers with each other	Measurement model was tested through CFA, using AMOS. Reliabilityof the scale was reported as 0.84. Convergent and discriminant validitywas established in the study.

Chonody et al., (2018)	8132 people in relationship	(9 items) items relating to satisfaction, commitment, enjoyment	EFA was employed and factor structure was confirmed through CFA. All together EFA and CFA calculated the total reliability of the scale in alpha as 0.891
Weerasinghe & Batagoda (2018)	160 employees of apparel industry	Organizational citizenship behavior (6 items) perceived organizational support (7 items) and organizational commitment (6items)	Chronbach alpha for the scale was 0.824. Content validity was ensured based on literature.
Kim & Qu (2020)	460 frontline employees	Customer employee exchange (4 items) leader member exchange (5 items) coworker exchange (5 items)	Chronbach alpha reliability value lied between 0.877 to 0.908. Convergent and discriminant validity was evaluated in the study through CFA.
Wang et al., (2021)	149 firms	IR among managers (2items), IR among employees (2items)	Chrobach alpha value for the scale lied between 0.93-0.96. The scale clearly met the convergent and discriminant validity.

Table 1: Review of Various Scales Measuring Interpersonal Relationship

S. No.	Dimensions	No. of items	Items adapted Sources
	Interpersonal Regard	4	Kripakumar (2015), Dearing and Steadman (2011), Carmeli et al., (2009)
	Mutual Acceptance and Upliftment	6	Kripakumar (2015), Dearing and Steadman (2011), Grace et al., (2017), Carmeliet al., (2009)
	Mutual Trust	4	Kripakumar (2015), Bernerth et al., (2007)
	Workplace Harmony	7	Weerasinghe and Batagoda (2018), Kripakumar (2015), Garthoeffner et al., 1993, Carmeli et al., (2009)

Table 2: Item Development

KMO	0.90						
Bertlett'stestofSphericity		3104.640 (sig.0.000,df210)					
		Extracted Factors and loadings[i]				Collinearity Statistics	
Item Codes	Full set of Statements	Factor1 (MAU)	Factor2 (MUT)	Factor 3 (WPH)	Factor 4 (IPR)	Communalities	Tolerance	VIF
MAU2	My colleagues help me in identifying my strength and capabilities.	0.863				0.812	.263	3.800
MAU4	My staff members are supportive and help me to progress.	0.784				0.767	0.292	3.429
MAU6	My colleagues listen to my ideas patiently.	0.767				0.710	0.352	2.842
MAU5	I enjoy being with my colleagues.	0.683				0.708	0.327	3.062
MAU3	My colleagues appreciate me for the good work done.	0.676				0.679	0.333	3.006
MAU1	My colleagues listen empathetically to solve my grievances or problems.	0.651				0.595	0.445	2.245
MUT2	My staff members are honest and I can trust them completely.		0.778			0.772	0.343	2.914
MUT1	When working in a team, colleagues help each other to complete the task.		0.699			0.737	0.337	2.967
MUT3	The staff members are friendly and approachable.		0.659			0.726	0.339	2.949

Code	Statement							
MUT4	My colleagues are not trustworthy.		0.631			0.755	0.286	3.502
WPH5	My colleagues try to take my advantage in job-related matters.			0.720		0.661	0.476	2.100
WPH6	My colleagues are jealous of my achievements and try to find fault in my work.			0..694		0.637	0.430	2.326
WPH2	My colleagues try to conceal some important information from me.			0.664		0.601	0.499	2.003
WPH3	While I approach my colleagues for some help, they try to ignore.			0.644		0.576	0.532	1.879
WPH1	My staff members misinterpret me.			0.573		0.543	0.567	1.765
WPH7	My colleagues highlight my weaknesses.			0.554		0.556	0.694	1.441
WPH4	The staff members do not have a harmonious relationship with each other.			0.511		0.512	0.505	1.980
IPR3	My colleagues share their knowledge openly to me.				0.733	0.611	0.610	1.638
IPR1	My colleagues criticize me in my absence.				0.702	0.670	0.527	1.899
IPR4	My staff members on realizing their mistake admit it immediately.				0.679	0.502	0.697	1.435

IPR2	Employees respect my values and accept me with it.				0.590	0.606	0.532	1.879
Sum of squares (Eigen value)		9.411	1.864	1.366	1.095			
% of variance explained		22.223	17.347	13.892	11.949			
Cumulative variance		22.223	39.570	53.462	65.411			
Cronbach's α		0.916	0.895	0.838	0.719			

Method of Extraction: Principal Component Analysis (PCA); Rotation Method: Varimax.

Note: (i) Factor loading > 0.5 is acceptable (Hair et al., 2006) and variables have been assorted based on loadings on each factor(ii) Alpha value 0.70 or more are acceptable (Nunnally, 1978); (iii) Item has beendeleted based on low factor loadings (Hair et al., 2006).

Source: Authors' calculations.

Table 3: Exploratory Factor Analysis

Profile	Description	Frequency	Percent (%)
Gender	Male	334	79.33
	Female	87	20.67
	TOTAL	**421**	**100**
Age	20-30 years	110	26.12
	31-40years	172	40.86
	41 and above years	139	33.02
	TOTAL	**421**	**100**
Marital Status	Married	322	76.48
	Unmarried	99	23.52
	TOTAL	**421**	**100**
Work Experience	1-5	110	26.13
	5-10 years	113	26.84
	10-15 years	78	18.53
	above 15years	120	28.50
	TOTAL	**421**	**100**
Industry	Insurance	126	29.93
	Banking	135	32.07
	Education	105	24.94
	Health	55	13.06
	TOTAL	**421**	**100**

Table 4: Demographics of Participants

Con-struct	Items	Load-ings	VIF	CA>0.70	RHO>0.70	CR>0.70	AVE>0.50
IPR	IPR1	0.814	1.828	0.840	0.846	0.893	0.676
	IPR2	0.816	1.784				
	IPR3	0.852	1.968				
	IPR4	0.805	1.841				
MAU	MAU1	0.824	2.362	0.919	0.919	0.937	0.711
	MAU2	0.846	2.587				
	MAU3	0.852	2.543				
	MAU4	0.866	2.796				
	MAU5	0.82	2.235				
	MAU6	0.851	2.577				
MUT	MUT1	0.864	2.327	0.878	0.880	0.916	0.732
	MUT2	0.857	2.467				
	MUT3	0.851	2.171				
	MUT4	0.85	2.293				
WPH	WPH1	0.743	1.846	0.903	0.906	0.923	0.633
	WPH2	0.877	3.015				
	WPH3	0.768	1.892				
	WPH4	0.784	1.994				
	WPH5	0.807	2.415				
	WPH6	0.846	2.775				
	WPH7	0.736	1.815				

Note: CFA: confirmatory factor analysis; CR: composite reliability; AVE: average variance extracted.

Source: Authors' calculations.

Table5: Psychometric properties for first order constructs

	Interpersonal Regard	Mutual Acceptance and Upliftment	Mutual Trust	Workplace Harmony
Interpersonal Regard	**0.822**			
Mutual Acceptance and Upliftment	0.553	**0.843**		
Mutual Trust	0.615	0.743	**0.856**	
Workplace Harmony	0.477	0.767	0.654	**0.796**

Source: Authors' calculations.

Table 6: Assessment of Discriminant validity using Fornell and Larcker (1981)

	Interpersonal Regard	Mutual Acceptance and Upliftment	Mutual Trust	Workplace Harmony
Interpersonal Regard				
Mutual Acceptance and Upliftment	0.623			
Mutual Trust	0.712	0.821		
Workplace Harmony	0.541	0.841	0.728	

Note: Diagonal values are the square root of AVE while off-diagonal calculates the correlation between constructs.

Source: Authors' calculations.

Table 7: Discriminant validity by HTMT method (Heterotrait–Monotrait ratio analysis)

Construct	Dimensions	Outer Loading	CA>0.70	RHO>0.70	CR>0.70	AVE>0.50
Interpersonal Relationship	IPR	0.75	0.874	0.885	0.914	0.728
	MAU	0.909				
	MUT	0.885				
	WPH	0.861				

Source: Authors' calculations.

Table 8: Assessment of the Second-Order Measurement Model

APPENDIX

Latent variable	Indicator	Statements
IPR	IPR1	My colleagues criticize me in my absence.
	IPR2	Employees respect my values and accept me with it.
	IPR3	My colleagues share their knowledge openly to me.
	IPR4	My staff members on realizing their mistake admit it immediately.
MAU	MAU1	My colleagues listen empathetically to solve my grievances or problems.
	MAU2	My colleagues help me in identifying my strength and capabilities.
	MAU3	My colleagues appreciate me for the good work done.
	MAU4	My staff members are supportive and help me to progress.
	MAU5	I enjoy being with my colleagues.
	MAU6	My colleagues listen to my ideas patiently.

MUT	MUT1	When working in a team, colleagues help each other to complete the task.
	MUT2	My staff members are honest and I can trust them completely.
	MUT3	The staff members are friendly and approachable.
	MUT4	My colleagues are not trustworthy.
WPH	WPH1	My staff members misinterpret me.
	WPH2	My colleagues try to conceal some important information from me.
	WPH3	While I approach my colleagues for some help, they try to ignore.
	WPH4	The staff members do not have a harmonious relationship with each other.
	WPH5	My colleagues try to take my advantage in job-related matters.
	WPH6	My colleagues are jealous of my achievements and try to find fault in my work.
	WPH7	My colleagues highlight my weaknesses.

Final Instrument (21 items) Interpersonal Relationship at Workplace
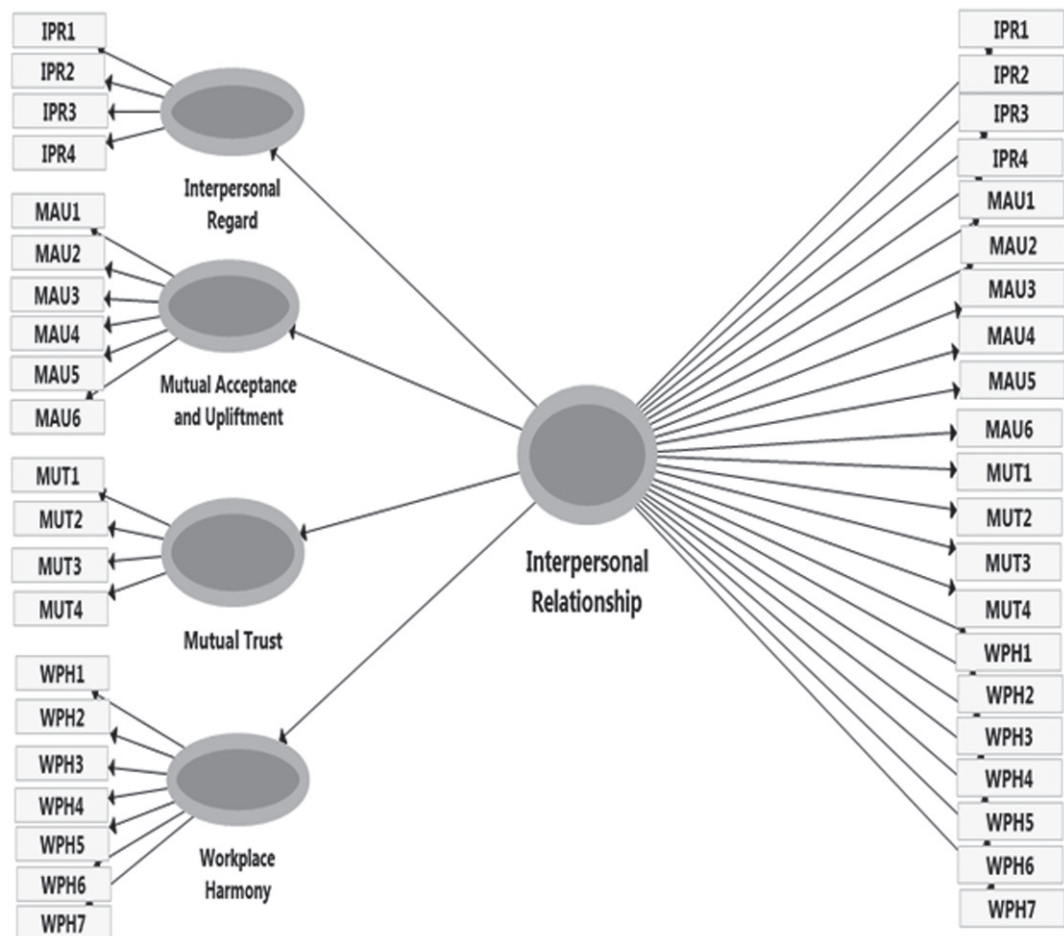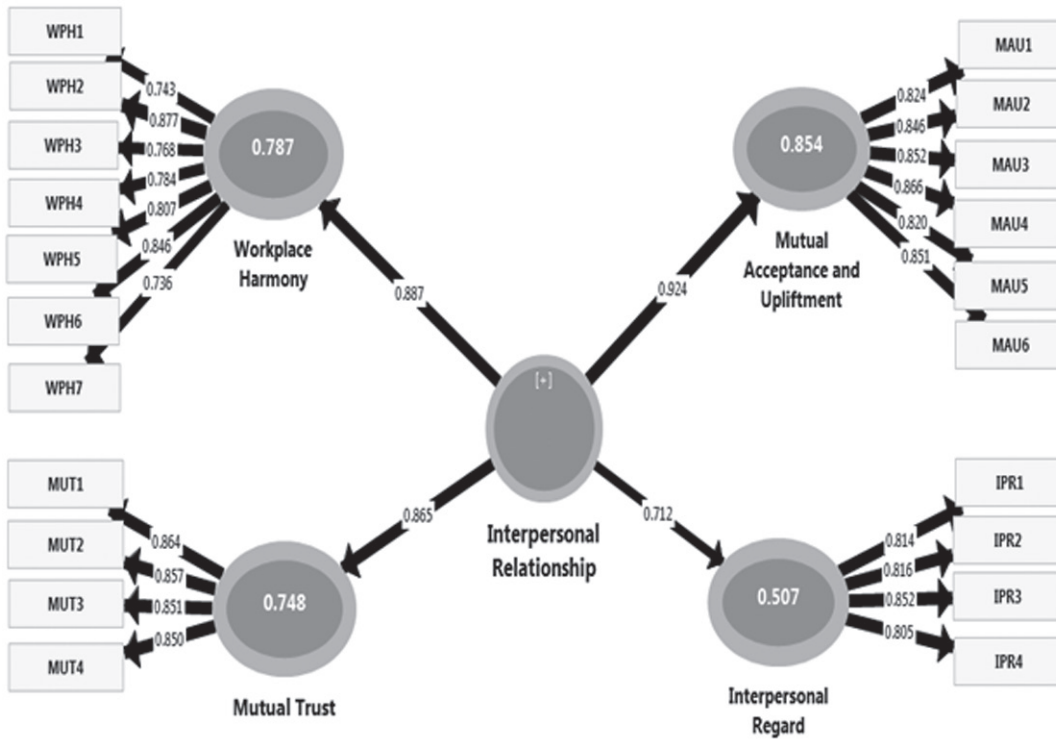

Figure 1: Structure of Measurement Model with Repeated Indicators

Figure 2: Measurement Model Loadings