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ROLES OF EMOTIONAL INTELLIGENCE IN DETERMINING WORKPLACE ADVICE NETWORK CENTRALITY: BETWEENNESS AND CORENESS

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A R T I C L E I N F O

A B S T R A C T

Roles of emotional intelligence (EI) are explored in determining the centrality of actors in a workplace advice network (WAN) using two measures: betweenness and coreness. Data were collected from 329 respondents in 15 different service-sector organizations using a self-administered questionnaire with three sections: demographic, socio-metric and Wong and Law's (2002) scale for EI (WLEIS). The data validity and reliability were tested through factor analyses and Cronbach's alpha. Results indicated that EI significantly determined both betweenness and coreness centrality of actors in WAN. The analyses of the individual branches of EI including self-emotional appraisal (SEA), others' emotional appraisal (OEA), use of emotions (UOE) and the regulation (ROE) further disclosed that EI defined the structural centrality more than the operational or functional one in WANs. Furthermore, the social aspect of EI, as proposed by Goleman (1995), was more effective in influencing the WAN centrality than the personal intellect.

Disciplinary: Management Sciences (Human Resources Management), Psychological Sciences.

1. INTRODUCTION

Information sharing is an instrumental element for the effective working of any organization (Claro & Neto, 2009). When official channels fail to provide the exhaustive guidance, an informal workplace advice network (WAN), defined as "set of relationships over which right information, knowledge, guidance, direction, etc. flow in an organized setup" (Lazega et al., 2009), provides knowledge and information to helps people collaborate at work (Manuti et al., 2015). When a WAN comes into existence, some people in an organization tend to acquire prominently important

positions in advice network - a concept known as centrality. Locating and understanding those central people is of immense value as they control one of the important resources of organization, knowledge and as such become the hubs of influence, power, and performance (Ibarra & Andrews, 1993). In social networks research, there is an overstated focus on outcomes of centrality like performance, job satisfaction, etc. However, in the particular case of WAN, there is an absolute shortage of research that identifies why some individuals acquire central positions. In this article, we intend to explore if emotional intelligence (EI), as a psychological phenomenon, is a determinant of WAN centrality. Keeping in view the desirability and intelligence of individuals with greater EI, we propose that individuals with greater EI should acquire a more central position in a WAN.

2. LITERATURE REVIEW

2.1 WORKPLACE ADVICE NETWORK CENTRALITY

The workplace advice networks are formed when some actors seek information, knowledge instructions or directions from others who assume some formal or informal prominence due to their greater connectivity (Bapuji & Crossan, 2004; Lazega et al., 2009). As a result, WAN become highly centralized structures woven around some concept of status recognition. The notion of centrality fundamentally explains the flow of content, number and direction of relations, reachability, closeness and network structure (Hanneman & Riddle, 2005) and power or conversely constraint, an actor has in the network. In their studies, Kitsak et al. (2010) and Lu et al. (2015) have argued that network centrality is more important for the interconnectivity of nodes than the number of actors. Different centrality measures have been proposed in the literature of social networks that summarize network data which can then be used to reach certain analytical decisions about the role and prominence of actors in the network (Rombach et al., 2014).

Betweenness indicates high connectivity and reachability and facilitates a prompt sharing of the content within a network (Newman, 2010). Thus, betweenness accounts for greater operational power through an informal authority bestowed upon them due to their position in the network since many other ties pass through these gatekeepers. Yet another measure of the interconnectivity of the nodes can be used to map the density of the interconnectivity of nodes- coreness as against the sparse 'periphery' (Chelnokov & Zephyrova, 2006; Rombach et al., 2014). The core-periphery structure offers a physical classification of actors. The core of a network is a composite centrality measure of a network with the greatest ties among the nodes (Borgatti & Everett, 1999).

3. EMOTIONAL INTELLIGENCE

The theory of emotional intelligence was put forth by Goleman (1995 & 1998) twice as stronger as the intelligence quotient. There are several studies that have tested how EI can be an important element in determining individuals' performance (Law et al., 2004). Mayer et al. (1990) argued that EI can enhance several important attributes among individuals that make them capable to feel and show emotions, transfer emotions to thoughts, understand emotions and also regulate emotions in self and others. Based on this, Davies et al. (1998) put forth four branches of EI which include (1) self-emotional appraisal (SEA), (2) others' emotional appraisal (OEA), (3) the

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regulation (ROE) and use of emotions (UOE). Together, works of Cherniss and Goleman (2001) and Goleman (1995; 1998) suggest that these four constructs form two important categories of EI: personal and social. Personal emotional intelligence relates to how an individual understands and manages his own emotions for improved personal competence (Cherniss & Goleman, 2001).

4. EI AND WAN CENTRALITY

There is a sheer lack of research of EI as a determinant of WAN centrality. Some studies, however, have generally found emotional intelligence related to social networks in some of the organizational outcomes. For example, Iruloh and Ukaegbu (2015) have empirically noticed a significant correlation between EI and the perceived social support among the youth. Also, Brackett et al. (2011) have highlighted some implications of EI on the success of individuals, groups and work in organizations. Besides, Lopes et al. (2004) have found that EI is positively associated with the desirability of social relationships. Ramachandran et al. (2011) have discovered that EI can affectively determine citizenship behavior in any workplace. Lopes et al. (2004) argued that individuals possessing greater EI can build better relationships with others and are often successful in the management of their impressions (Sancho et al., 2014). These findings imply that EI augments the formation of relations with others that are socially desirable. Thus, in the language of social networks, it can be suggested that EI positively affects an actor's social network ties and consequently position- coreness and betweenness. We thus hypothesize:

H_0: *EI determines network centrality (coreness or betweenness) of actors in the WANs.*

4.1 SELF-EMOTIONAL APPRAISAL (SEA)

The self-awareness of one's emotions refers to the ability to assess self emotions as a response the surroundings (Goleman, 1995; Davies et al., 1998). The self-awareness, thus, is a fundamental aspect of building personal competence and ability (Davies et al., 1998). SEA can exclusively be attributed to PEI (Goleman, 1998; Law et al., 2004) as it relates entirely to PEI in terms of one's personal emotions, strengths and limitations. Theoretically, as advice-sharing is knowledge-based, personal intellectual competence should attract advice seekers (Borgatti et al., 2009) resulting in the generation of WAN. The individuals with greater SEA exhibit better personal performance and competence (Goleman, 1995) and thus should attract other actors in WAN to form ties. This should, in principle, improve their centrality which is affected by the number of ties (Hanneman & Riddle, 2005). Thus, it is hypothesizing that SEA improves actor's betweenness and coreness in WANs.

H_{01}:   *SEA positively determines centrality (coreness or betweenness) of actors in WAN.*

4.2 OTHERS-EMOTIONAL APPRAISAL (OEA)

The second component of EI is understanding of others' emotions (Davies et al., 1998). Goleman (1995) showing the social awareness of people around. OEA can be associated with social awareness based on empathy, service orientation and overall organizational awareness (Cherniss & Goleman, 2001). OEA makes individuals popular among others and creates a stress-free interactional environment (Gardner & Stough, 2002; Sancho et al., 2014). This desirability may also be alternated for the notion of 'homophily' in social networks which can be defined in terms of relationships formed due to similar geographical locations, age, religion, shared beliefs. The

common thread running across all relationships based on homophily is the mutual understanding among all actors. Theoretically, McPherson et al. (2001) have considered homophily as the basic organizing principle, we thus expect that this sense of the homophily caused by OEA should generate a larger number of relations and consequently improve WAN centrality. We can, therefore, hypothesize:

H_{02}:   *OEA positively affects position (coreness or betweenness) of actors in WAN.*

4.3   USE OF EMOTIONS (UOE)

Having conceptualized that the awareness of self and others' emotions can affect WAN centrality, it is consequential to recognize that better use of emotions would result in greater workplace benefits. WLEIS measures UOE with items relating to goal accomplishment, self-confidence, self-motivation and encouragement (Law et al., 2004; Wong & Law, 2002) which suggest personal achievement in the form of improved performance and organizational prominence. So, this PEI oriented construct gives rise to status recognition to actors with greater UOE and relevant theory suggests that status affects actors' position (Brand et al., 2015; Long et al., 2013; Lazega et al., 2009; Loeb & Rawling, 2011). Evidence in support of advice network centrality being affected by status recognition has also been reported in some previous studies (Lazega et al., 2009; Nebus, 2006). Thus, UOE should harness greater centrality in the WAN and affect WAN coreness and betweenness.

H_{03}:   *UOE positively affects position (coreness or betweenness) of actors in WAN.*

4.4   REGULATIONS OF EMOTIONS (ROE)

Being more like an SEI component, ROE is a circumstantial capability that works in the stressful conditions through maintenance of the one's emotional equilibrium. ROE serves as an impulse to manage one's situational emotions such as handling work-related temper, control of the anger and negative emotions (Law et al., 2004; Wong & Law, 2002). Such emotional control in the face of stressful circumstances enriches one's social desirability through the comfort of interaction with them, which in itself is a sense of homophily. So, as McPherson et al., (2001) have considered homophily to be an important determinant of socialization and relationship forming, we suggest that UOE should improve WAN centrality.

H_{04}:   *ROE positively affects position (coreness or betweenness) of actors in WAN.*

5.   METHODOLOGY

This study had a quantitative design that explored the relationship between four branches of EI: SEA, OEA, UOE and ROE; and two measures of WAN centrality: betweenness and coreness. The data were collected from several different service sector organizations with a size of around 20 to 25 employees including schools, independent sections, and branches of large firms like banks, universities, government sector organizations and NGOs. We ensured that these groups were formally created keeping in view some organizational purpose and acted somehow independent of other sections and branches of the parent organization. The group size was ensured to remain in the range of 20-25 in order to control the effect of group size and to facilitate the collection of sociometric data that required a 100% response rate. A total of 15 groups were surveyed and 329 responses could actually be recorded.

5.1 INSTRUMENT

Employing the survey method, we developed a questionnaire with three sections. The first section asked questions relating to gender, education and job experience. The second section collected advice network data using a sociometric matrix. The third section collected data pertaining to EI using a 16-item questionnaire. The sociometric matrix made use of the 'name generation technique' which involved two stages of data collection. At the first stage, the names of every employee in the group within the organization were obtained and were used to develop the matrix for WAN data in the questionnaire. In the second stage, the matrix was distributed as a part of the overall questionnaire. Respondents marked only those names they informally sought advice from. To measure EI, Wong and Law's (2002) EI scale was used.

5.2 ANALYSES OF DATA

The data collected from respondents in different service sector organizations were first fed into UCINET 6 separately for each of 15 organizations and branches and the software calculated the values of betweenness and coreness from the data provided for every actor in each organization. The entire data from 15 service sector organizations for every actor were combined in SPSS® alongside the demographic and the EI data collected using WLEIS. The total responses reached a number of 329 on which the statistical analyses were done. For the overall role of EI in determining WAN centrality measures of betweenness and coreness, an independent hierarchical regression analysis was run in SPS®22 controlling education and job experience. Whereas, AMOS 22 was used to test the model of SEA, OEA, UOE and ROE affecting WAN betweenness and coreness while the effects of education and job experience were controlled.

5.3 DATA SCREENING, CLEANING, AND TRANSFORMATION

Following the data screening and transforming approach suggested by Tabachnick and Fidell, (1989; p.746), we ascertained that there were no missing values in our data through a case-wise screening. Responses were monitored for low standard deviations to look after unengaged responses. No missing data or unengaged responses were found. Boxplots were used to highlight any outliers in other variables and no significant outliers were detected. Data were normalized using the two-step approach of normalization (Templeton, 2011) in SPSS®23. The two-step normalization is of advantage insomuch as it does not assume any specific distribution or skewness, as well as this method, does not involve the issue of non-positive values. Q–Q (quantile-quantile) Plots showed that the data had become normally distributed after the two-step transformation.

5.4 TESTING ASSUMPTIONS OF LINEARITY AND MULTICOLLINEARITY

In order to check our data for linearity, we plotted all the independent variables (SEA, OEA, UOE, and ROE) against the dependent variables (closeness and coreness) in SPSS®23. In addition, we also used curve estimation to confirm that the relationships were linear. We also estimated linearity between betweenness as independent variables (IVs) and coreness as dependent variables (DVs). On the other hand, multicollinearity was detected using the variance inflation factor (VIF) in SPSS 23. In order to detect multicollinearity in the dataset, we analyzed all the relationships between independent variables to look for values of VIF being greater than 5 (Maddala & Lahiri, 2009).

6. RESULTS OF STUDY

6.1 EXPLORATORY FACTOR ANALYSIS (EFA)

The solution explained 60.277% of the total variance. KMO was 0.66 (*p< 0.001*) which was acceptable (Field, 2005). The solution produced four orthogonal factors that conformed to the theory strictly. All of the factor loadings were above 0.55 and considering the sample size of 319, the loadings were fairly acceptable (Guadagnoli & Velicer, 1988). The average factor loadings for each latent variable neared 0.7, which yet indicated that the overall solution was good. As Costello and Osborne (2005) have suggested that in social sciences it is difficult to achieve commonalities that are high (0.8 or greater), they rather fall somewhere between 0.4-0.7 in most cases. Hatcher (1994) and Tabachnick and Fidell (2001) advocate that this problem can be handled with sufficiently large sample sizes; Hatcher (1994) thus suggests a sample size is sufficiently large with as many as 100 cases.

So, 0.40 is an acceptable value for commonalities in the case of Likert Scale data provided the sample size is fairly large (Hatcher, 1994). Similarly, Tabachnick & Fidell (2001) recommend that commonalities even as low as 0.3 are enough evidence to justify FA if the sample size is large. So, as the sample size is sufficiently large, we concede the results of the exploratory factor analysis being fairly acceptable. The Cronbach's alphas for all the latent factors exceed 0.7 which are acceptable (Goerge & Mallery, 2003; Kline, 2000). The non-redundant residuals of the reproduced correlation matrix fall below .5 (32%) indicating that this EFA model is a good fit (Yong & Pearce, 2013). We established that the factor structure of the EI scale has both convergent as well as discriminant validity. The overall loadings of all items in each of the four factors were greater than 0.5 indicating convergent validity of the scale. Similarly, there was no cross-loading between two different factors that exceeded 0.3 confirming divergent validity as in Table 1 (John & Martinez, 2000).

Table 1: Exploratory Factor Analysis: Rotated Matrix Scores and Communalities

|	OEA	UOE	SEA	ROE	Communalities
Alpha	0.744	0.789	0.8	0.711	
EI_1			.898		0.808
EI_2			.843		0.720
EI_3			.662		0.450
EI_4			.595		0.374
EI_5	.925				0.879
EI_6	.581				0.380
EI_7	.725				0.569
EI_8	.837				0.720
EI_9		.660			0.446
EI_10		.716			0.568
EI_11		.834			0.738
EI_12		.892			0.846
EI_13				.670	0.513
EI_14				.701	0.553
EI_15				.755	0.589
EI_16				.684	0.491

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization. Rotation converged in five iterations.

6.2 CONFIRMATORY FACTOR ANALYSIS

AMOS 23 was used to develop and analyze the confirmatory factor analysis of the four factors

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extracted in the EFA. The mode returned high goodness of fit indices (CMIN/DF (χ^2/df) = 2,015, Comparative Fit Index (CFI) = 0.957, Goodness of Fit (GFI) = 0.936, Adjust Goodness of Fit Index (AGFI) = 0.903, Root Mean Square Error of Approximation (RMSEA) = 0.056). The results confirm the strong goodness of fit and a valid model.
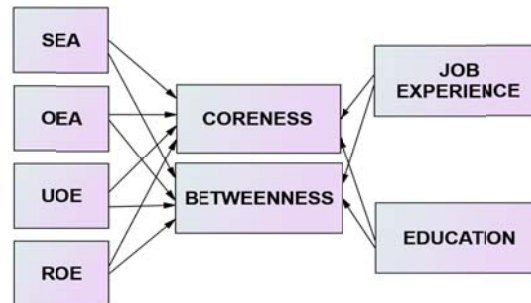

Figure 1: Model fit Statistics for the SEM model.

Using the SEM model, we tested if four factors, as extracted in exploratory factor analysis and confirmed in the CFA, have any role in determining WAN centrality constructs of betweenness and coreness. Figure 1 shows that education and job experience were used as control variables, as these two might affect the centrality of WAN. The model fit was very good with CMIN/DF =1.87 (P=0.44), CFI = .986, RMSEA .052 and PCLOSE= 0.425. Control variables, education and age, do not confound relationship with neither of the WAN constructs of betweenness and coreness as their regression weights are insignificant for both education (R^2 (betweenness) = 1.333; p=.053 and R^2 (coreness) = 0.17; p=.064) and job experience (R^2 (betweenness) = 0.494; p=.358 and R^2 (coreness) = -.57; p=.054). In order to confirm any traces of confounding in the model by education and job experience, we also employed hierarchical regression analysis. The two control variables became insignificant in the overall model for both betweenness and coreness as DVs and SEA, OEA, UOE, ROE, education and job experience as IVs as shown in Figure 2.

6.3 RESULTS OF THE REGRESSION ANALYSES

A prior hierarchical regression analysis was run between total EI and WAN betweenness and coreness in SPSS®22 independent of four constructs. This was to mitigate the issue of multicollinearity since overall EI which is the total of four branches can affect our SEM model for its intercorrelation with SEA, OEA, UOE and ROE (Farrar & Glauber, 1967). Results suggested that EI significantly determined betweenness (R^2= 0.029; F= 9.744, p = 0.002; β= 0.261*); the effects of education and job experience were fairly controlled in this EI-betweenness relationship (Edu: β= 0.100, p= .058 and job experience: β= 0.062, p= .237). Similarly, the relationship between EI and WAN coreness was also statistically significant (R^2= 0.633, p = 0.000, β= 0.778*); the effects of education and job experience were not found to be confounding the EI-betweenness relationship (Edu: β= 0.022, p= .508 and job experience: β= 0.-.129, p= .052). Thus, we retain H_0 that EI determines network centrality. The R^2s, βs and the *p* values for both betweenness and coreness centrality measures, we conclude that EI has a more profound effect on coreness rather than betweenness.
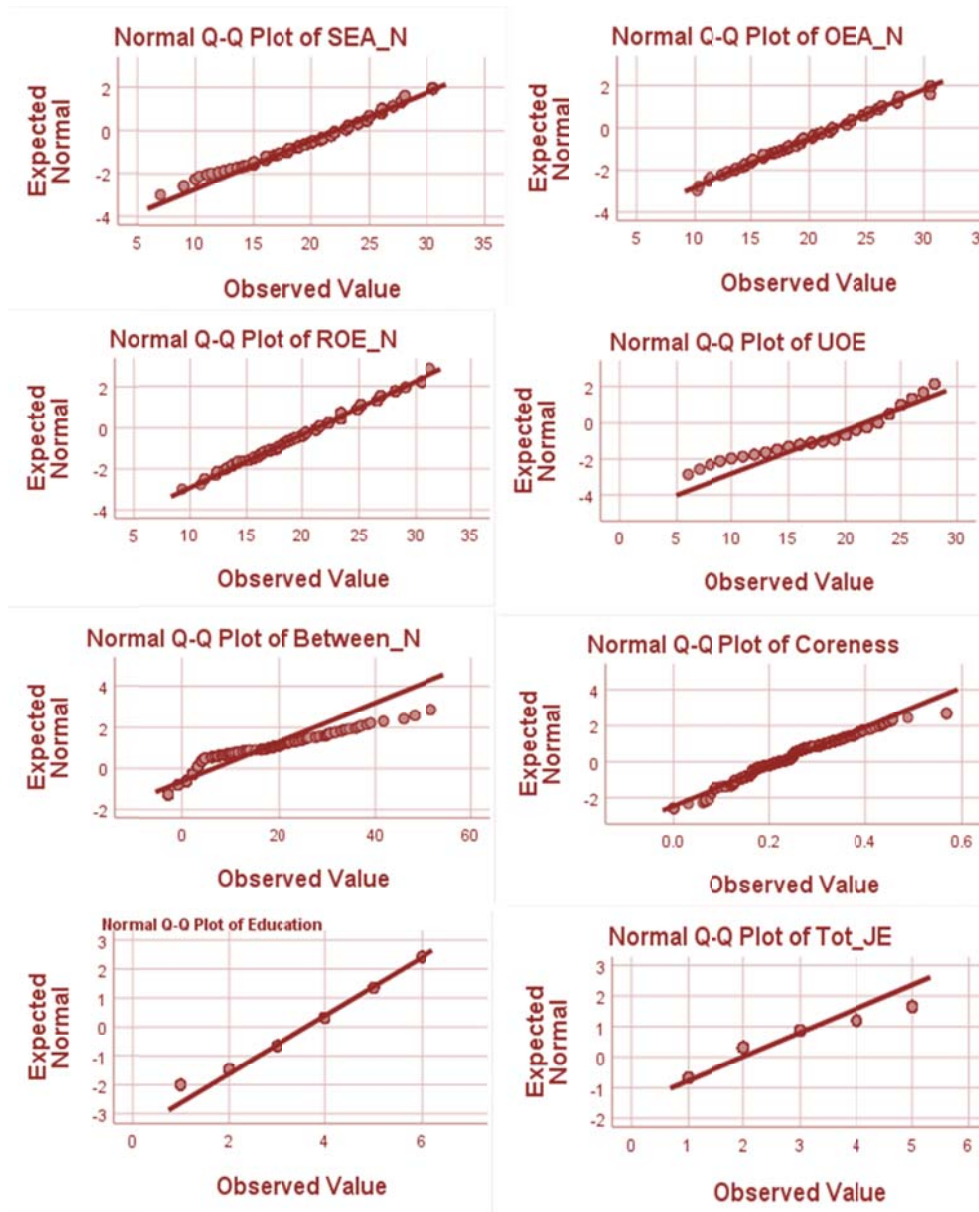
Figure 2: Normal Q-Q plots of the variables in the data.

Results of the SEM model indicated that some of the four factors of EI had significant effect on WAN betweenness and coreness. As with SEA, the construct significantly determined WAN betweenness (R^2= 0.217; β=0.683; p = 0.000); relationship amid SEA and coreness, nonetheless, was not significant (R^2= 0.011; β=0.004; p = 0.673). Regression weights for OEA were significant for both betweenness (R^2= 0.143; β=0.463; p = 0.012) and coreness (R^2= 0.415; β=0.141; p = 0.000). On contrary, weights for UOE were not significant for betweenness (R^2= 0.061; β=0.198; p = 0.264) but for coreness they were statistically significant (R^2= 0.217; β=0.094; p = 0.000). In case of ROE the case was significant for both betweenness (R^2= 0.127; β=0.385; p = 0.027) and coreness (R^2= 0.482; β=0.153; p = 0.000). As it could be noticed from the R^2 that overall effects of EI and four constructs were greater on coreness than they were on betweenness. Table 2 shows the results of hypotheses testing based on the above-mentioned results.

Table 2: Summary of the hypothesis testing

Hypotheses	Statements	Betweenness	Coreness	Overall Centrality
H0	EI determines network centrality (coreness or betweenness) of actors in the WANs.	Retained	Retained	Retained
H01	SEA positively determines centrality (coreness or betweenness) of actors in WAN.	Retained	Rejected	Partly
H02	OEA positively affects position (coreness or betweenness) of actors in WAN.	Retained	Retained	Retained
H03	UOE positively affects position (coreness or betweenness) of actors in WAN.	Rejected	Retained	Partly
H04	ROE positively affects position (coreness or betweenness) of actors in WAN.	Retained	Retained	Retained

7. DISCUSSION

7.1 HYPOTHESIS H_0

Our analyses show that EI does determine the centrality of actors in WANs. As centrality is a gauge of the workplace influence and power (Ibarra & Andrews, 1993), individuals with better EI assume central positions in a WAN and consequently enjoy an informally influential status in an organization. As centrality signifies that an actor has many ties in a network, our findings also conform to the idea that EI nourishes citizenship behavior (Ramachandran et al., 2011). There can be certain other EI-related reasons that improve individual WAN centrality include better impress management (Lazega et al., 2004) over control of ones' negative emotions and exhibition of the positive ones (Brackett et al., 2011) and also superior problem-solving ability (Deniz, 2013). This personal emotional control and intellectual preeminence, in turn, improve the desirability of link with them in WAN. In simple words, this means that individuals with greater EI not enjoy prominence and influence due to better betweenness in a WAN (Freeman, 1997; Newman, 2010) but also a socially attractive and homophilous position in the network (Borgatti & Everett, 1999; Newman, 2010). Thus, other actors turn to them for advice not only but enjoy this relationship with them. However, R^2 for coreness is greater than that for betweenness, suggesting the influence of EI is felt more on the desirability of actors rather than their prominence.

7.2 HYPOTHESIS H_{01}

Our second hypothesis included the effects of SEA on WAN centrality measures of coreness and betweenness. In the case of betweenness, we retain our null hypothesis that SEA determines WAN betweenness. Whereas, we reject the hypothesis that SEA affects WAN coreness. Keeping in view that betweenness is a centrality measure related to geodesic distance-shortest path from one node to another- through which information flows (Freeman, 1997; Newman, 2010), it primarily relates to the flow of advice in WAN. In this sense, it is a measure of connectivity reflecting the prominence of an actor across the flow of advice in the network (Brandes, 2001). In simpler words, it tells that when advice sharing takes place in WAN, individuals with better betweenness are more frequently approached. As a result, betweenness can be assumed to be a functional measure of centrality. Contrary to betweenness, coreness is structural phenomenon that refers to a physical distribution of actors within a network into two distinctive subgroups: a well-connected core of actors and a periphery of sparsely and relatively disconnected individuals in the Euclidean space (Borgatti & Everett, 1999; Newman, 2010) - sometimes into third division of semi-periphery.

Coreness is a relationship-based concept and lacks direction and flow (Hanneman & Riddle, 2005). We conclude that the SEA does not have an influence in affecting the structure of WAN.

7.3 HYPOTHESES H02

We accept the hypothesis that OEA affects WAN centrality through both the measures of betweenness and coreness. Continuing with our discussion of betweenness being a functionality measure and coreness a structural phenomenon, OEA influences both the functional flow of advice within a WAN and the structural distribution of actors within the network. This means that actors not only seek advice from those who understand their emotions but also are more connected to them. We can infer that as individuals with better OEA understand others' emotions well and care for them, others feel close to them in response. Resultantly, alongside the charisma of personal benevolence, the dogma of homophily plays its role and others tend to form ties with them due to personal likeness. In simple words, OEA nourishes a gregarious and enjoyable advice-seeking environment which is reflected in both betweenness and coreness of the WAN.

7.4 HYPOTHESIS H03

Unlike SEA and OEA, UOE affects structure rather than functionality as this branch of EI significantly determines WAN coreness but not betweenness. So, we retain the null hypothesis for coreness but reject the same for betweenness. In WLEIS, UOE can strictly be considered as a component of PEI relating to abilities like goal success, confidence, self-motivation, and self-encouragement (Law et al., 2004; Wong & Law, 2002). These capabilities hint upon improved organizational performance over others (Shamsuddin & Rahman, 2014; Rooy & Tiswesvaran, 2004). As UOE is not a branch of SEI as per WLEIS, we can suggest that it is the status recognition built through UOE and not homophily that lures others and affects the structure of WAN.

7.5 HYPOTHESIS H04

As the regression weights were statistically significant for both coreness and betweenness, we retain the null hypothesis that ROE determines WAN centrality. As ROE can conveniently be considered an SEI component which gives rise to situational competence and is also conducive to relationship building (Law et al., 2004; Wong & Law, 2002), it is the ease of interaction brought about by ROE that commits others to advice-sharing. So keeping in view the respective functional and structural demarcation of betweenness and coreness, we suggest that the social behavior of an individual with greater ROE results in structural bonding as well as advice sharing. Like OEA, ROE cultivates a fulfilling milieu for advice-seeking as is reflected in both of the centrality measures of WAN.

8. CONCLUSION

In this article, we explored how emotional intelligence determines the centrality of actors in a workplace advice network. Two centrality measures were adopted for this purpose: betweenness and coreness. Betweenness indicated the functional influence of actors over the transfer of advice; whereas, coreness showed the structural importance of actors within a WAN. Our initial analysis revealed that EI significantly determines both betweenness and coreness centrality of actors in WAN. The results indicated that EI defined the structural centrality more than the operational or functional one in WANs. This was because the overall R^2s for betweenness were lesser than those

for coreness. Where coreness is a structural concept of centrality and betweenness a determinant of the transfer of advice.

A further look into individual factors, SEA, OEA, UOE, and ROE disclosed that the personal dimensions of EI, SEA and UOE, determined one of centrality measures understudy but not the other. SEA significantly predicted betweenness but not coreness. On the other hand, UOE statistically significantly affected WAN coreness but not betweenness. Whereas, the social dimensions of EI determined both betweenness and coreness significantly. We were, consequently, able to conclude that it is the social aspect of EI that is more effective in influencing the WAN centrality rather than the personal ones and it is the element of homophily that defined the WAN centrality through the role of the personal intellect itself could not be denied. Nonetheless, this makes advice-sharing operationally ineffective. Our study focused only on the structural and operational measures of centrality. There is a need to know how EI affects the direction of the flow of advice in WANs. Thus, further research is suggested. Besides, one of the major limitations of the study was that two of the relationships were not linear and thus somehow affected the analysis in part.

9. DATA AND MATERIALS AVAILABILITY

Information relevant to this study is available by contacting the corresponding author.

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