A Hierarchical-Subgrouping approach for the determination of significant moderators influencing the relationship between favourable Organizational Climate and Job Attitude

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Abstract:

This study seeks to contribute to a better understanding of the relationship between Organizational Climate and favourable employee commitment by an effort to determine the various moderators as a potential predictor through the Hierarchical Sub-group meta-analytic approach.Out of the ten moderators selected, eight moderators were found to be influencing majorly the said relationship. Gender, Age and Study Sample size exhibited very large influence in moderating the relationship. The findings have potential to affect how the Industrial Organization psychologist / HR managers / Consultants need to interpret the non-meta-analytic empirical studies before recommending the changes in the organization to increase the commitment levels in the Organizations.

Keywords:*Moderator, Meta-analysis, Hierarchical Sub-grouping method, favourable Organizational Climate, employee commitment*

Introduction

The use of meta-analysis as a mode for data synthesis has grown considerably in recent years, and has been also accepted for the testing of theories, the models proposed. In the beginning, around 1980s, the great challenge for meta-analysis was mere acceptance as it was always criticized for mixing apples with oranges and not combining similar studies instead mixing anything looking similar. After these earlier phases in growth, meta-analytic research focussed on to the estimation of mean effect sizes, the estimation of presence or absence of homogeneity of results thus making it more acceptable in its seriousness and approach to the field of data synthesis. Finally, all the efforts of meta-analysts started settling on testing hypotheses relating to structural equation models (Viswesvaran & Ones, 1995) and levels of analysis (Ostroff & Harrison, 1999). In particular moderator analysis, the reason, the mean effect size of the study varies substantially from study to study an important factor that diverts attention of the meta-analysts on finding out the reason for this variation, and so called moderators.

Moderator analysis asks the theoretically relevant question, How does one explain heterogeneous results? In the context of meta-analysis, a moderator variable is a systematic difference among studies under review that might explain differences in the strength or direction of observed relationships between the primary variables of interest. Under the rubric of both theory building and hypothesis testing, most contemporary meta-analytic studies include some investigation of the influence of theoretically relevant factors that might moderate the relationship between the constructs under investigation. Consequently, it is the focus of this article to conduct moderator analysis on the relationship between two variables chosen , namely favourable Organizational Climate and Organizational commitment.

Purpose And Hypothesis

The purpose of this study is to determine the moderators that influence the relationship between favourable Organizational climate and Organizational commitment. As the theories are well established, the only effort made is to present the results based on analysis and report it. Based on the proposed moderators most likely responsible for the variation across the studies, we propose the following hypotheses:-

H1: The relationship between favourable Organizational Climate and Commitment is significantly moderated by Publication Year.
H2: The relationship between favourable Organizational Climate and Commitment is significantly moderated by type of Publication.
H3: The relationship between favourable Organizational Climate is significantly moderated by length of studies.
H4: The relationship between favourable Organizational Climate and Commitment is significantly moderated by Gender of employees.
H5: The relationship between favourable Organizational Climate and Commitment is significantly moderated by tenure of employees
H6: The relationship between favourable Organizational Climate and Commitment is significantly moderated by educational background of employees.
H7: The relationship between favourable Organizational Climate and Commitment is significantly moderated by Age of employees.
H8: The relationship between favourable Organizational Climate and Commitment is significantly moderated by sample size of study.
H9: The relationship between favourable Organizational Climate and Commitment is significantly moderated by working status of employee
H10: The relationship between favourable Organizational Climate and Commitment is significantly moderated by type of Organization.

Methodology

How to spot the moderators

After the end of cumbersome process of meta-analysis, dur

ing the stage of interpreting the differences in variation in effect sizes, the idea hits on the reason of these variations. This marks the beginning of the search of moderator that may be involved in the study relationships. And it is also suggested by Glass (1981), that any meta-analysis should end with a search for moderator effects. To date, Glassian meta-analyses have focused on methodological differences across studies if they could be anchored with the responsibilities of variations in effect sizes or not. This requires for coding of study variables such as study's sample size, year of study, publication year, published or unpublished, longitudinal or cross-sectional study, employee job status, etc.

In the moderator analysis, the signs of having a potential moderators could be seen either in the form of either large differences in the mean effect size (correlation) between subsets, and/ or reduction in variance within subsets. If a meta-analysis is based on a large number of studies, then there is little sampling error in meta-analytic estimates. However, if it is based on only a small number of studies, then there will be sampling error in the meta-analytic estimates of means and standard deviations. This is called second order sampling error. In this study, identifying moderators requires the coding of potential moderator variables and then performing sub-group analyses. This study attempted to examine eleven potential moderators in this relationship observed.

According to Hunter et al. (1982), a large amount of unexplained variance among studies suggests the presence of potential moderator variables, and Hunter and Schmidt (1990) argue that when "residual" variance in effect sizes across studies is great, strong evidence exists for the existence of moderator variables. That is, if a large proportion of variance remains unexplained after correcting for statistical artifacts, then differences in correlations across studies may be due to one or more moderator variables. Consequently, since the ratio of unexplained variance was greater than 25% for the dependent variables an attempt was made to uncover potential moderators.

While a wide number of moderators could potentially influence the relationship between favourable Organizational Climate and Organizational commitment, studies that were utilized in conducting meta-analysis restricted the effort in picking the potential moderators.

Hunter et al. (2004) have suggested that 25% of the variance found across studies should be assumed to be caused by unquantifiable errors. This leaves 75% of the variance in effect sizes to be accounted for by statistical artifacts and substantive moderators.

Choosing the moderators

Once decision is made to conduct moderator analysis the next step is to decide which particular moderators to examine. The moderators that a meta-analyst might examine can be suggested by theoretical hypotheses about potentially important moderators, by methodological concerns or by experts opinions, the prevalent theoretically known moderators and also by the meta-analysts own curiosity. It is always better to adopt a researcher's perspective that first codes only those variables that have some theoretical backing or standing and have been known as potential moderators. And then code for those variables on specific curiosity of the researcher. A different approach will be to select all possible variables and test them in due course of analysis.

Coding studies for the moderators of interest

In this study, ten interventions or moderator variables were identified namely:

(1) Year of Publication (1980-90, 1990-2000, 2000-above),
(2) Type of publication (Journal. Thesis, Unpublished),
(3) Educational background of employee (Diploma, College, Master's degree or higher, Can't tell),
(4) Working status of employee (Full Time/ Part Time),
(5) Tenure of employee (1-5 years, 5-10 years, more than 10 years),
(6) Sample Size of the study (less than 30 , 30-400, more than 400),
(7) Length of study (cross sectional or longitudinal),
(8) Gender of employees in study (Majority of sampleUpto 95% Male, Upto 95% Female, Can't tell) (Upto 95% Male/ Female means that majority of participants in the study were majorly males/ females. This type of category is taken due to the lack of data in individual studies)
(9) Age of employee (<25, 25-35, 35-45, >45, can't tell),
(10) Type of Organization (Manufacturing / Service).

The Method

There are essentially four methods (Steel and Mueller 2002) available to deal with moderators that are correlated with the effect size: (1) Bivariate correlations, (2) Ordinary least squares (OLS) regression, (3) Weighted least squares (WLS) regression, (4) Hierarchical subgrouping (HS). Among these methods, there are unique advantages and disadvantages. But this study doesn't cover the differences between the four which is beyond the scope of the research paper, instead this study has utilized the fourth method, the hierarchical subgrouping (HS) method.

Firstly, the overall meta-analysis should be split into two subgroups based on the chosen moderator variable. A meta-analysis should be performed within each subgroup of studies. If the correlations of the two occupational subgroups differ in the predicted direction, this tends to confirm the predicted moderator variable.

First, we generated meta-analytic data sets obtained from the study (Arora, 2010) for the relationship between favourable Organizational climate and commitment (case 1). Second, we divided the data sets based on the potential moderators by regrouping the studies accordingly. All identified studies were then examined in terms of the selected ten potential moderators: (a) Year of Publication (1980-90, 1990-2000, 2000-above),(b) Type of publication (Journal. Thesis, Unpublished),(c) Educational background of employee (Diploma, College, Master's degree or higher, Can't tell),(d)

Working status of employee (Full Time/ Part Time), (e)Tenure of employee (1-5 years, 5-10 years, more than 10 years), (f) Sample Size of the study (less than 30 , 30-400, more than 400), (g) Length of study (cross sectional or longitudinal), (h) Gender of employees in study (Upto 95% Male, Upto 95% Female, Can't tell), (i) Age of employee (<25, 25-35, 35-45, >45, can't tell), (j) Type of Organization (Manufacturing / Service).

The difference in analysis for moderator from the summary effect size is that we divide the data in sub-groups and do all the calculations as done above for each sub group so as to get individual data of heterogeneity i.e. Q values, I2 values, T2value. This signifies the addition of all individual values of Q for each sub-group to one variable Qwithin. Qwithin tells us that the variance within groups is significant or not.

$$Q^*_{within} = \sum_{j=1}^{p} Q^*_j$$

Further,

$$Q^*_{bet} = Q^* - Q^*_{within}$$

Qbet tells us that the difference between groups is statistically significant or not. The p- value is computed using 'Q' and ' df ' as two parameters. This is done for both fixed effect model and random effect model and presented for interpretation. To find a pooled estimate of T2 for each sub-group we use the following formula

$$T^2_{within} = \frac{\sum_{j=1}^{p} Q_j - \sum_{j=1}^{p} df_j}{\sum_{j=1}^{p} C_j}$$

The proportion of Variance Estimate

To find the proportion of variance of sub-groups, we used the index R2 which is defined as the ration of explained variance to total variance. The value of R2 ranges from 0 to 1 (0% to 100%). Any extreme value is set to 0 or 1.

$$R^2 = 1 - \left(\frac{T^2_{unexplained}}{T^2_{total}} \right)$$

For each relevant moderator and its sub-categories, we were able to generate the results as presented in the next result section.

Results And Analysis

In addition to summarizing the domain of research to a mean effect size datapoint, measuring publication bias existence statistically, an effective meta-analysis also attempts to find moderator variables. Moderator variables are those that may account for significant variability in effect size & they moderate the relationship between the dependent and independent variables, here Organization Climate w.r.t. Employee Commitment, Job Satisfaction and Turnover Intentions respectively. In this study, ten interventions or moderator variables were identified a priori namely:

(1) Year of Publication,
(2) Type of publication,
(3) Educational background of employee,
(4) Working status of employee,
(5) Tenure of employee,
(6) Sample Size of the study,
(7) Length of study,
(8) Gender of employee,
(9) Age of employee,
(10) Type of Organization.

The adoption of these 10 interventions for the Ist case (favourable Organizational Climate & Commitment) depends on the availability of sufficient data individually for each major category of moderator to interpret and analyze. In all , eleven moderator were selected for 6 cases (Arora, 2010). But in the Case 1, the eleventh moderator, Nationality of participants, has to be dropped due to the scarcity of data. The dropped variable is different in different in 6 cases actually done in the main study (Arora, 2010). Sometimes, the need arises to merge two sub-categories of moderator into one for one or more major category studied. The effects of selected Moderators "Sub-Groups (SG)" and the Sub-Group Meta data are discussed below.

The Summary of Meta-analysis

	Fixed Effect Model	Random Effect Model
Mean Effect Size	0.515	0.569
Lower Limit	0.509	0.531
Upper Limit	0.521	0.617
Sample Size	53865	53865
No of Studies	89	89
Q	2067.644	112.142

Table: 1.0

Table 1.0 represents the final summary table of the meta-analysis procedures of combining all the studies included into one effect size and the confidence intervals. It was then the search for moderators began and the results of each sub-group is presented next.

1. Mean Effect Sizes in Sub Group: Publication Year (Moderator 1)

Included in the first moderator was 'publication year' such as 1980-90, 1990-2000 and 2000-Above. The mean effect sizes and confidence intervals were obtained for each sub-category of the Publication year. Table1.1 & Table 1.2 presents the mean effect sizes and confidence intervals for different Publication year for both fixed effect and random effect model respectively. As the table shows, all the three sub-categories consistently produced strong effect size for the outcome

(range from 0.542 to 0.706 for fixed effect and 0.548 to 0.62 for random effect), and were significantly different from zero. The Q statistics for favourable climate and Commitment were still found having significant heterogeneity. The effect sizes for in the random model analysis have majorly decreased except the category of 2000-above where it seems to grow in minor portions. Moreover, the confidence intervals also have increased in random model results signifying fewer precisions.

SUBGROUP	80-90	90-2000	2000-ABOVE
Y	0.706*	0.636	0.542
LL_Y	0.671	0.616	0.532
UL_Y	0.742	0.655	0.552
Q	150.6	609.2	1174

Table 1.1(Fixed Effect Model-Year of Publication)

	Summary Effect Size	80-90	90-2000	2000-ABOVE
Y	0.574	0.625*	0.624	0.548
LI_y*	0.531	0.365	0.525	0.502
UI_y*	0.617	0.885	0.727	0.595
Q*	112.142	2.627	22.997	86.101

Table 1.2 (Random Effect Model-Year of Publication)

2. Mean Effect Sizes in Sub Group: Type of Journal (Moderator 2)

Included in the second moderator was 'type of publication' such as Unpublished Journal, thesis or Journal (online and a hard-copy-Journal). The mean effect sizes and confidence intervals were obtained for each sub-category of the type of Publication. Table1.3 and Table 1.4 presents the mean effect sizes and confidence intervals for both models. As the table shows, all the three sub-categories consistently produced strong effect size for the outcome (range from 0.43 to 0.579), and were significantly different from zero as visible in the

confidence Intervals data signifying.

SUBGROUP	UNPUBLISHED	THESIS	JOURNAL
Y	0.464	0.43	0.579*
LL_Y	0.423	0.384	0.57
UL_Y	0.504	0.477	0.587
Q	34.29	6.96	1967

Table: 1.3: Fixed Effect Model-Type of Publication

SUBGROUP	Summary Effect Size	UNPUBLISHED	THESIS	JOURNAL
Y	0.574	0.559	0.403	0.582*
LI_y*	0.531	0.399	0.317	0.537
UI_y*	0.617	0.719	0.491	0.628
Q*	112.142	2.587	3.824	103.099

Table: 1.4: Random Effect Model-Type of Publication

Effect Sizes in Sub Group: Length of study (Moderator 3)

Table 1.5 and 1.6 presents the mean effect sizes and confidence intervals for each outcome at different length of study for both the models of analysis. The mean effect sizes for both sub-categories were positive and the 95% confidence intervals did not include zero. Further, both Q statistic, were statistically significant. These significant Q statistics indicated that there was systematic variability among the length of study. Specifically, the mean effect sizes for both outcomes showed that there is not much difference whether the study is studied longitudinally or cross-sectionally in fixed effect model. In random effect the cross sectional effect size is more than the Longitudinal studies signifying more strong relationship with former than latter w.r.t. the major relationship studied (i.e. favourable climate and Commitment).The effect size for cross sectional length of study and the confidence intervals increased while the Longitudinal length of study decreased in Random model of analysis.

SUBGROUP	LONGITUDINAL	CROSS-SECTIONAL
Y	0.561	0.571*
LL_Y	0.537	0.562
UL_Y	0.585	0.58
Q	198.1	1869

Table: 1.5: Fixed Effect Model-Length of Study

SUBGROUP	Summary Effect Size	LONGITUDINAL	CROSS-SECTIONAL
Y	0.574	0.552	0.577*
LI_y*	0.531	0.435	0.53
UI_y*	0.617	0.667	0.623
Q*	112.142	9.3687	99.578

Table: 1.6: Random Effect Model-Length of Study

4. Mean Effect Sizes in Sub Group: Gender (Moderator 4)

Table 1.7 and 1.8 shows the mean effect sizes and confidence intervals for each outcome at different gender of study respondents i.e employees. The mean effect sizes for all three sub-categories were positive and the 95% confidence intervals did not include zero. Further, both Q statistic, were statistically significant in fixed effect model and it got reduced in the random effect model results. These residual Q statistic

in random effect model indicated that there was still some systematic variability among the study. Specifically, the mean effect sizes for both outcomes showed that male sample prefer favourable climate (excluding unknown gender results) as a benchmark for their commitment level as compared to the female counterparts. The similar trend for decrease in effect size estimate in random model was observed here too in both main categories, male and female gender while the unknown group was found to be on the higher side in the random effect model.

SUBGROUP	Upto50-95% Male	Upto 50-95% Female	CAN'T TELL
Y	0.589*	0.533	0.606**
LL_Y	0.576	0.52	0.583
UL_Y	0.602	0.545	0.629

Table: 1.7: Fixed Effect Model-Gender

	SUMMARY	Upto 95% Male	Upto 50-95% Female	CAN'T TELL
Y	0.574	0.569*	0.521	0.631**
LI_y*	0.531	0.512	0.452	0.471
UI_y*	0.617	0.625	0.59	0.791
Q*	112.142	45.393	26.833	17.763

Table: 1.8: Random Effect Model-Gender

5. Mean Effect Sizes in Sub Group: Tenure (Moderator 5)

Table 1.9 and 1.10 illustrates the mean effect sizes and confidence intervals for each outcome at different tenure levels for both the models fixed and random respectively. The mean effect sizes for four sub-categories were positive and the 95% confidence intervals did not include zero. Further, both Q statistic, are also statistically significant more in fixed model while less in random effect due to data segregation in different sub-groups. These residual Q statistics indicated that there was some systematic variability still remaining among the tenure of sample respondents. Specifically, the mean effect sizes for employees having tenure 5-10 years showed more strong response for the desire of favourable climate as compared to the other counterparts in their reactions towards commitment levels.

SUBGROUP	1-5 year	5-10year	>10 year	CAN'T TELL
Y	0.519	0.663*	0.514	0.418
LL_Y	0.503	0.648	0.499	0.377
UL_Y	0.536	0.678	0.529	0.46
Q	324.8	1102	257.1	7.519

Table: 1.9: Fixed Effect Model-Tenure

	Summary Effect Size	1-5 year	5-10 year	>10year	Can't tell
Y	0.574	0.535	0.617*	0.519	0.414
LI_y*	0.531	0.464	0.532	0.456	0.353
UI_y*	0.617	0.605	0.702	0.582	0.475
Q*	112.142	31.487	39.037	25.782	3.737

Table: 1.10: Random Effect Model-Tenure

6. Mean Effect Sizes in Sub Group: Educational Background (Moderator 6)

Table 1.11 and 1.12 explains the mean effect sizes and confidence intervals for each outcome at different education levels of employees who were the unit level of analysis for each study collected. The mean effect sizes for the four sub-categories were positive and the 95% confidence intervals did not include zero. Further, both Q statistics, were also found highly statistically significant in fixed effect model while less in random effect model. Specifically, the mean effect sizes for employees having minimum college or master's degree there is not much difference between both of them in terms of their response to the relationship studied. In terms of Cohen's criteria, all are strong parameters. The residual heterogeneity shows some influence of factors not covered by the categories chosen here.

SUBGROUP	College	Diploma	Masters & higher	Can't tell
Y	0.578*	0.481	0.577	0.574
LL_Y	0.567	0.452	0.557	0.552
UL_Y	0.589	0.511	0.597	0.596
Q	1492	92.24	351.1	93.87

Table: 1.11: Fixed Effect Model-Educational Background of Respondents

	Summary effect size	College	Diploma	Masters & higher	Can't tell
Y	0.574	0.587*	0.471	0.570	0.66**
LI_y*	0.531	0.525	0.387	0.466	0.544
UI_y*	0.617	0.65	0.554	0.675	0.776
Q*	112.142	57.153	11.189	20.750	12.068

Table: 1.12: Random Effect Model- Educational Background of Respondents

7. Mean Effect Sizes in Sub Group: Age (Moderator 7)

Table 1.13 and 1.14 represents the mean effect sizes and confidence intervals for each outcome at different age levels of employees in the study for fixed and random model respectively. The mean effect sizes for

five sub-categories were positive and the 95% confidence intervals did not include zero. Further, both Q statistics, were statistically significant. Specifically, the mean effect sizes for age <25 showed very strong response for the relationship (0.743) in fixed effect while (0.681) for random effect model. The increase in effect size was found in two sub-categories namely 25-35 year and Can't tell while other categories were found decreasing in the random effect model results. Confidence intervals ranges increased in random model results too.

SUBGROUP	Can't Tell	>45 year	<25 year	25-35 year	35-45 year
Y	0.598	0.606	0.743*	0.531	0.564
LL_Y	0.576	0.57	0.712	0.517	0.549
UL_Y	0.619	0.642	0.775	0.545	0.578
Q	160.9	126.8	215	491.3	848.3

Table: 1.13: Fixed Effect Model- Age of Employees

	Summary Effect Size	Can't Tell	>45 year	<25 year	25-35 year	35-45 year
Y	0.574	0.699	0.597	0.681*	0.548	0.538
LI_y*	0.531	0.557	0.449	0.517	0.478	0.466
UI_y*	0.617	0.840	0.746	0.846	0.619	0.61
Q*	112.142	13.835	6.803	8.13	38.818	32.573

Table: 1.14: Random Effect Model- Age of Employees

8. Mean Effect Sizes in Sub Group: Sample Size (Moderator 8)

Table 1.15 and 1.16 illustrates the mean effect sizes and confidence intervals for each outcome at different Sample Sizes in both the levels of analysis. The >400 category sees a slight rise in effect size estimate for random model while other have dropped to lower values as compared to fixed effect model results. The mean effect sizes for three sub-categories were positive and the 95% confidence intervals did not include zero. Further, both Q statistic, were mode statistically significant in fixed while less in random model. These significant Q statistics indicated that there was systematic variability among the sample sizes. Specifically, the mean effect sizes for sample sizes <30 year showed extreme response (0.938 for fixed effect while 0.930 for random effect) unlike a healthy average response of other sample sizes.

SUBGROUP	< 30	30-400	>400
Y	0.938*	0.581	0.535
LL_Y	0.903	0.563	0.525
UL_Y	0.973	0.599	0.545
Q	3.545	685.3	905.9

Table: 1.15: Fixed Effect Model- Sample Size of the study

	Summary Effect Size	<30	30-400	400 & ABOVE
Y	0.574	0.930*	0.577	0.539
LI_y*	0.531	0.877	0.512	0.483
UI_y*	0.617	0.983	0.642	0.595
Q*	112.142	2.819	55.772	43.963

Table: 1.16: Random Effect Model- Sample Size of the Study

9. Mean Effect Sizes in Sub Group: Employee work type (Moderator 9)

Table 1.17 and 1.18 presents the mean effect sizes and confidence intervals for each outcome for different Employee work status(Full time/ Part Time) in both the types of models. The mean effect sizes for three sub-categories were positive and the 95% confidence intervals did not include zero. Further, both Q statistic, were statistically significant. Specifically, the mean effect sizes for Full Time employees showed stronger response (0.594 for fixed effect while 09.592 for random effect).

SUBGROUP	Full Time & Part Time	Full Time	Can't Tell
Y	0.541	0.594*	0.483
LL_Y	0.519	0.584	0.462
UL_Y	0.563	0.604	0.505
Q	105.9	1676	194.9

Table: 1.17: Fixed Effect Model- Work Type

	Summary Effect Size	FT & PT	FT	Can't Tell
Y	0.574	0.522	0.592*	0.512
LI_y*	0.531	0.402	0.539	0.415
UI_y*	0.617	0.642	0.645	0.609
Q*	112.142	12.543	76.152	16.256

Table: 1.18: Random Effect Model- Work Type

10. Mean Effect Sizes in Sub Group: Type of Organization (Moderator 10)

Table 1.19 and 1.20 presents the mean effect sizes and confidence intervals for each outcome for different type of Organization i.e. Manufacturing, Service or Mixed. In both the models, the mean effect sizes for three sub-categories were found positive and the 95% confidence intervals in both models did not include zero signifying a relationship of high order at 95% of the times the study relationship is found. Further, both Q statistic, were statistically significant. Specifically, the mean effect sizes for studies done in Mixed Industry showed large effect size response (0.579) for fixed effect model while manufacturing based organization for random effect model. Service based Organizations also moved around this region of

impact i.e. effect size. In Manufacturing category of data, the effect size estimate has increase in random model of analysis while other 2 categories were found decreasing. The residual heterogeneity gives room for other categories to influence this relationship based on type of Organization.

SUBGROUP	Service	Manufacturing	Mixed
Y	0.574*	0.52	0.579**
LL_Y	0.564	0.492	0.553
UL_Y	0.583	0.548	0.605
Q	1706	258.9	89.54

Table: 1.19: Fixed Effect Model- Type of Organization

	Summary Effect Size	Service	Manufacturing	Mixed
Y	0.574	0.567	0.645*	0.527
LI_y*	0.531	0.517	0.509	0.43
UI_y*	0.617	0.618	0.781	0.623
Q*	112.142	78.959	15.396	9.882

Table: 1.20: Random Effect Model- Type of Organization

The summary of the above mentioned data is presented in the following Table 1.21.

SUB-GROUP	Range of correlation	Range of Confidence Interval
Year	High(Fixed) high(Random)	High (Fixed) Moderate to high(Random)
Type of Publication	High High	Moderate to High Moderate to High
Length of Study	High High	High High
Gender	High High	High High
Tenure	High High	Moderate to High Moderate to High
Education Background	High High	High Moderate to High
Age	High High	High Moderate to High
Sample Size	High High	High High
Work Type	High High	High High
Type of Organization	High High	High High

Table 1.21: Qualitative Summary of Moderators Influence on the Relationship

Discussion

Our moderator analysis suggests that which potential moderators are really highly influencing moderators and also among those sub-categories of potential ten moderators, which are more closely influencing the relationship between favourable Organizational climate and commitment.

In primary studies, a common approach to describing the impact of a covariate is to report the proportion of variance explained by that covariate. That index here in meta-analysis is R2, (variance between groups) which is defined as the ratio of explained variance to total variance.

The R2 index only makes sense if we are using a random-effects model, which allows us to think about explaining some of the between-studies variance. In fixed effect model it (between-studies variance) is set to zero. The value of R2 ranges from 0 to 100 and in cases the values goes to above the limits on either side it is either set to 0 or to 1 as the case applies signifying either no variance or very high variance.

Potential Moderators ($p < 0.05$)	R^2
Year of Publication	0.674
Type of Publication	0.747
Length of study	0.715
Gender	0.95
Tenure	0.866
Education	0.79
Age	0.793
Sample Size	0.849
Work Type	0.748
Organization Type	0.767

Table: 1.22

In Table 1.22, R2 is highest in the moderator Gender (95%). The other significant moderators were Tenure(86.6%), Education background(79%), Age(79.3%), Sample Size (84.9%), Organization type(76.7%), type of publication (75%), work type(75%), . This indicates that the above mentioned moderators (>75%) were able to explain the majority of variance observed in the studied and can be considered as significant moderators.

Further, in the table 1.22 , the not so significant moderator were Year of Publication (67.4%) and length of study(71.5%). This indicates that these mentioned moderators were not considered as the significant explanation for the variance observed in the studies and can be considered according to the rule of thumb of Hunter and Schmidt as insignificant moderators.

Now having known the major influencing moderators, the most influencing subcategories of these moderators have to be brought to light. Except the H1 and H3 the remaining 8 (H2, H4-H10) Hypothesis are found to be significantly influencing the relationship between favourable Organizational climate and commitment.

Hypothesis	Significant Moderators	Fixed Effect Model	Random Effect Model
#2	Type of Publication	Journal (0.579)	Journal (0.582)
#4	Gender	Upto 95% Male (0.589)	Upto 95% Male (0.569)
#5	Tenure	5-10 year (0.663	5-10 year(0.617)
#6	Educational Background	College(0.578)	College(0.587)
#7	Age	<25(0.743)	<25(0.681)
#8	Sample Size of study	<30 (0.938)	<30 (0.930)
#9	Work Type	Full Time(0.594)	Full Time(0.592)
#10	Type of Organization	Service(0.574)	Manufacturing (0.645)

Table 1.23

Table 1.23 presents those sub-categories of those significant moderators that have influenced the most among sub-groups. This results makes sense also. The Journal sub-category influences the results the most thereby signifying the much accepted presence of Publication bias in the results, as the research papers gets published majorly if the results are highly significant else it becomes the part of file-drawer problem. Males categories in Gender highly influence the relationship between the Organizational climate and commitment. This is well according to the results of many studies too which empirically suggest the work life maladjustments of female employees and her incapacity to keep upto the job commitment and losing hold of it. The Tenure (5-10 years) category indicates that young employees with less experience are more committed to job as compared to the other category indicating their commitment levels. The educational background of being just a college graduate has shown to be of high commitment levels. This indicates that they either they might have less chances to grow academically and thus having reduced chances to seek more and try to show more commitment to the jobs and stick to it for more longer time. Age category of less than 25 years shows more commitment levels as compared to older groups. This seems to be in line with the results of tenure 5-10 years too thereby showing the same logic of less experience and thus gearing up and focus on more learning rather than switching jobs more frequently. Sample size in studies with <30 has shown more commitment levels than higher sample studies. This might be due to the reason of type of sector in which they are working, possibly service sector where number of employees are less and its common in similar types of companies thereby type of job are similar in other companies too. So point of switching jobs is not much worth, thereby expressing higher commitment levels in their companies. In work type sub-group, the Full time employees are more commitment to their jobs as compared to part time/ full time mix of employees. The latter category has higher chances of less commitment as this was a part of his nature of jobs and there are less chances of confirmation / contract in such nature of jobs. Hence the results. Finally, the type of Organization, service sector sub-category has shown more commitment in fixed effect model and manufacturing sector employees has shown more commitment in random effect model.

Limitations

Meta-analyses offer several benefits in moderator analysis, but they also have limitations too. First, the data is secondary in nature, and therefore, we cannot use information other than those presented in the studies. The studies range from 2009-1980 thereby widening the problems in the gap between the nature of respondents within this time frame. It is also difficult to confine the studies to a particular region of the location of author. The study analysis has to flow based on the availability of literature on published journals both online or in the libraries around. Further, the list of selected moderators will be limited due to the reason that very few studies will have the common moderators and thus only those moderators can be analysed which are commonly found in most of the literature collected.

Further, although there were a large number of studies investigating the variable like commitment and Organizational climate (about 200 and more were identified), were not published empirically and so could not be included to increase the study size in meta-analysis, thereby making it more reliable and minimizing the sampling errors and measurement errors. We recognize that the presented moderator analysis has a more exploratory perspective, i.e. the subgroups can be further categorized and can be analysed in further moderators. But due to shortage of studies in sub-groups forcing us to stop at that very point. Nevertheless, results from the moderator analysis can help researchers to design new studies that address the boundary conditions for the relationship.

Conclusion

Notwithstanding the presented limitations, the findings from this meta-analysis contribute to a greater understanding of the relationship between favourable Organizational Climate and organization commitment by (a) estimating its list of potential moderators to a certain degree of confidence levels and significance, (b) testing to what extent those moderators might influence these results, and (c) suggesting further research directions. The Hierarchical sub-

grouping method of moderator analysis should not be viewed as conclusive or as the best method but only as a methodological tool that makes a temporary "balance sheet" of the current state of affairs in a given domain of knowledge. Its main contribution is to help researchers to open the new door of research and help them gather courage toward still-unexplored questions.

In this spirit, we hope that the results reported by our meta-analysis provide HR managers and researchers with inspirations for designing new in-depth and extensive investigations that will keep advancing the organizational climate and job attitudes literature.

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