CHAPTER –III

CONSTRUCTION OF WORKPLACE VIOLENCE SCALE

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3.1 Introduction

In the social sciences, scaling is the process of measuring or ordering entities with respect to quantitative attributes or traits. For example, a scaling technique might involve estimating individuals' levels of extraversion, or the perceived quality of products. Certain methods of scaling permit estimation of magnitudes on a continuum, while other methods provide only for relative ordering of the entities. The level of measurement is the type of data that is measured. A scale is used to indicate a measuring instrument and to indicate the systematized numerals of the measuring instrument. The word scale is sometimes used to refer to another composite measure, that of an index. It is also used interchangeably with index to refer to a multiple indicator measure in which the score of a person gives for each component indicator is used to provide a composite score for that person. In short, a scale is a set of symbols or numerals so constructed that the symbols or numerals can be assigned by rule to the individuals to whom the scale is applied. The Scales should be tested for reliability, generalizability, and validity. *Generalizability* is the ability to make inferences from a sample to the population, given the scale you have selected. *Reliability* is the extent to which a scale will produce consistent results. Test-retest reliability checks how similar the results are if the research is repeated under similar circumstances. Alternative forms reliability checks how similar the results are if the research is repeated using different forms of the scale. *Internal consistency reliability* checks how well the individual measures included in the scale are converted into a composite measure. Scales and indexes have to be validated. Internal validation checks the relation between the individual measures included in the scale, and the composite scale itself. External validation checks the

relation between the composite scale and other indicators of the variable, indicators not included in the scale.

In the social sciences, factor analytical methods are commonly used in the scale measurement in examining the structure of scales. Social science research generally creates scales as constructs by using several items in the questionnaire to capture the various aspects of a construct in order to detain its essence. Thus, the present section of the study intends to focus on the construction of workplace violence scale. To construct a scale for the workplace violence, the researcher had done many reviews of related literature to gain an insightful knowledge about the various parameters of workplace violence and its concomitants. The following section presents the reviews of literature done.

3.2 Review of Research

The following are the reviews of related literature done to construct the Workplace Violence scale.

A review of studies on workplace bullying

Mattice and Spitzberg (2007 found that Narcissism revealed a positive relationship with bullying. Narcissists were found to prefer indirect bullying tactics (such as withholding information that affects others' performance, ignoring others, spreading gossip, constantly reminding others of mistakes, ordering others to do work below their competence level, and excessively monitoring others' work) rather than direct tactics (such as making threats, shouting, persistently criticizing, or making false allegations). The research also revealed that narcissists are highly motivated to bully, and that to some extent, they are left with feelings of satisfaction after a bullying incident occurs.

Blando (2009) found out that almost 75% of employees surveyed had been affected by workplace bullying, whether as a target or a witness.

Mathisen, Einarsen and Mykletun (2011) found out that supervisor low on conscientiousness, high on neuroticism depicted high levels of exposure to stress and of exposure to workplace bullying. They further found out that an interaction between agreeableness and stress is related to bullying under low levels of stress. In addition, subordinates who perceived their supervisor as being low on agreeableness and high on introversion reported significantly more workplace bullying.

Lalluka,Rahkumen and Lhelma (2011) found out 5% of women and men reported being currently bullied. Additionally, 9% of women and 7% of men had frequently observed bullying at their workplace and reported that bullying was associated with sleep problems among women and men. The study concluded that Workplace bullying is associated with sleep problems

The Workplace Bullying Institute (2007) found out that women appear to be at greater risk of becoming a bullying target, as 57% of those who reported being targeted for abuse were women. Men are more likely to participate in aggressive bullying behaviour (60%), however when the bully is a woman her target is more likely to be a woman as well (71%).The NHIS-OHS confirms the previous finding, as higher prevalence rates for being threatened, bullied, or harassed were identified for women (9%) compared with men (7%).

According to the Workplace Bullying Institute (2007), race also may play a role in the experience of workplace bullying, the comparison of reported combined bullying (current + ever bullied) prevalence percentages reveals the pattern from most to least: Hispanics (52.1%),Blacks

(46%),Whites (33.5%),Asian (30.6%).The reported rates of witnessing bullying were:Asian (28.5%),Blacks (21.1%),Hispanics (14%),Whites (10.8%).A large number of studies (Lewis and Gunn, 2007) reveal that the white is significantly less likely to be bullied than any other ethnic minorities or races. In case of marital status, higher prevalence rates for experiencing a hostile work environment were identified for divorced or separated workers compared to married workers, widowed workers, and never married workers. The study also reveal that higher prevalence rates for experiencing a hostile work environment were identified for workers with only a high school diploma or GED and workers with some college education compared to workers with less than a high school education. Age also play a role in experiencing workplace bullying, the study further reveals that lower prevalence rates for experiencing a hostile work environment were identified for workers aged 65 and older compared to workers in other age groups. With respect to the age, conflict findings have been reported. However, in the study of Einarsen and Skogstad (1996), it indicates the older employees tend to be more likely to be bullied than the young ones. Among industry groups, workers with higher prevalence rates of a hostile work environment, compared to all adults employed at some time in the past 12 months (8%), were in Public Administration (16%) and Retail Trade industries (10%). Lower prevalence rates of a hostile work environment were reported among those working in Construction (5%); Finance and Insurance (5%); Manufacturing (5%); and Professional, Scientific, and Technical Services industries (6%).For occupational groups, workers in Protective Service reported a higher prevalence rate (25%) of hostile work environments compared to the prevalence rate for all adults employed at some time in the past 12 months. Workers in Community and Social Service occupations also experienced a relatively high rate (16%). Lower prevalence rates were

observed among Architecture and Engineering (4%), Computer and Mathematical (4%), Business and Financial Operations (5%), and Construction and Extraction (5%) occupations.

Liefooghe (2012), in his research notes that a lot of employees describe their organization as bully. It is not environmental factors facilitating the bullying but it is the bullying itself. Tremendous power imbalance enables company to "legitimately exercise" their power in the way of monitoring and controlling as bullying. The terms of the bullying "traditionally" implies to interpersonal relationship. Talking about bullying in interpersonal level is legitimate, but talking about the exploitation, justice and subjugation as bullying of organization would be "relatively ridiculous" or not taken as serious. Bullying is sometimes more than purely interpersonal issue.

Maarit V (2001) explains that being bullied at work can be classified as a significant source of social stress at work. Bullying or mobbing refers to situations in which someone is subjected to long-lasting, recurrent and serious negative or hostile acts or behaviours that are annoying and oppressing.

A review of studies on sexual harassment

Vaughana (1994) showed that in order to understand and to resolve the problem of sexual harassment in the workplace, the corporate world will have to relinquish some myths. Sexual harassment does not result from ignorance about fact or law. It is not merely a cultural, gender, or communication problem. It is a problem which will be resolved only when the corporate world recognizes that sexual harassment is a moral problem and provides moral education for employees. Until then, it will remain an explosive problem for communication specialists.

Schneider (1997) reveals that sexual harassment of women in workplace is very high in US. There has been a sharp rise in the number of harassment cases reported to the U.S. equal

employment opportunity commission (EEOC) in recent years. For sexual harassment alone, the number rose from 6883 in 1993 to 15618 in 1998.

A large scale German survey undertaken by the Federal Institute of occupational health and safety concluded that more than 9 out of 10 women have experience sexual harassment during their working lives (ILO, 1998).

The report of the study conducted by the gender study group of the University of Delhi (1996) revealed that in 1996, 91.7% of all inmates of women's hostels and 88.2% had faced sexual harassment on the road within the campus. Mostly, work place violence studies relate to the sexual harassment directly or indirectly. Moreover all those studies cover women as the sample given.

International Labour Organization (1992)found out that 15-30 percent of working women had been subjected to sexual harassment which varied from explicit demands for sexual inter course to offensive remarks. One out of the 12 women surveyed had to quit their job. Some of them were dismissed. The issue of sexual harassment has been in the forefront of western women's movements for equality and in the efforts to make educational institutions and workplaces safer.

Jacob (2004) reported that violence against women is often perpetrated by the very people who are supposed to protect them such as the members of the law enforcement and criminal justice system. Thousands of women held in custody are raped in the police detention centers worldwide. Between "1980-1990", there was an increase of nearly 74% in crimes against women. The National Crime Records Bureau of 1998 predicts that by 2010, the growth rate of crime against women would be higher than the population of growth rate.

In India, every 51 minutes, a woman is reported to be sexually harassed and every 26 minutes a women is sexually molested. The report of a study conducted by the gender study group of the University of Delhi showed that in 1996, 91.7% of all the inmates of women's hostels and 88.2% of all women day scholar had faced sexual harassment on the roads within the campus.

Chaudhari (1997) on "Sexual Harassment in the Public Places" among 103, The M.S.University of Baroda, Gujarat, girl students, reported that sexual abuse experience by 75% of the respondents even in their school age. Problem of sexual abuse is just not restricted to college premise, but hostelites are also under threat of sexual harassment. The problem faced by women hostel inmates in the university campus are all the more agonizing as the general perception in the campus is that they available simply because they live a away from home.

Coomaraswamy (1995) identified different kinds of violence against women on violence against women: Physical, sexual and psychological violence occurring in the family, including battering, sexual abuse of female children in the household, dowry related violence, marital rape, female genital mutilation and other traditional practices harmful to women, non-spousal violence and violence related to exploitation.

The Fourth Conference of Women, 1995 has defined violence against women as a physical act of aggression of one individual or group against another or others. Violence against women is any act of gender-based violence which results in, physical, sexual or arbitrary deprivation of liberty in public or private life and violation of human rights of women in situations of armed conflicts. (Conference on Women, Beijing, 1995 Country Report).

From the review of literature, it can be concluded that bullying at workplace, aggressive bahaviour, sexual harassment, humiliation and other psychological violence like withholding information, ignoring others, spreading gossip, constantly reminding others of mistakes, ordering others to do work below their competence level, and excessively monitoring others' work, making threats, shouting, persistently criticizing, or making false allegations etc. are the common forms of violence prevailing at the workplace and it tremendously affects the performance behaviour of the employees.

3.3 Objectives

On the basis of the review of literature, the following objectives are drawn:

- To develop a scale on workplace violence following the steps of item writing.
- To validate the workplace violence parameters by correlating with different areas as suggested in the review of literature.
- To establish the face validity by giving to the subject experts.
- To subject the items to factorial analysis, in order to attain item reduction and come up with meaningful factor structure within the scale.

3.4 Method

3.4.1 Procedure

- Based on the open ended questionnaire, construction of the scale was carried out to measure workplace violence and in order to standardize, it was subjected to item analysis.
- With the identified parameters of the workplace violence, the items were written in the Likert type scale format.

- The face validity was established by giving to the subject experts.
- Subject experts were asked to give feedback on the basis of the clarity of items, ambiguity, communicability and readability of the items.
- The formulated items were given to five subject experts for their feedback. On the basis of the feedback of the subject experts, 92 items got reduced to 62. These 62 items were subjected to factorial analysis.

3.5 Operational Definitions

The starting point for creating any summated scale is its conceptual definition. The conceptual definition specifies the theoretical basis for the summated scale by defining the concept being represented in terms applicable to the research context. In academic research, theoretical definitions are based on prior research that defines the character and nature of a concept. The following are the conceptual definitions of the measures used in the construction of the workplace violence scale:

Validity is the extent to which a scale or set of measures accurately represents the concept of interest. It deals with the ability of test scores to predict human behaviour either with the help of other test scores, observable behaviour or other accomplishments. The validity of a test is determined by finding the correlation between the test and some independent criterion. The other forms of validity are as follows:

- *Content Validity* is the assessment of the correspondence of the variables to be included in a summated scale and its conceptual definition. This form of validity also known as *Face Validity* which subjectively assesses the correspondence between the individual items and the concept through ratings by expert judges, pretests with multiple

subpopulations or other means. The objective is to ensure that the selection of scale items extends past just empirical issues to also include theoretical and practical considerations.

- *Discriminant validity* is the degree to which two conceptually similar concepts are distinct. The empirical test is again the correlation among measures, but this time the summated scale is correlated with a similar, but conceptually distinct measure.
- *Criterion-related Validity* is studied by comparing test or scale scores with one or more external variables or criteria known or believed to measure the attribute under study. . The criterion is defined as an external and independent measure of essentially the same variables that the test claims so. There are two types of criterion–related validity: predictive validity and concurrent validity.

  The word prediction is usually associated with the future. This is unfortunate because in science, prediction does not necessarily mean forecast. One predicts from an independent variable to a dependent variable. One predicts the existence or non-existence of a relation; one even predicts something that happened in the past. This broad meaning of prediction is the one intended here. In any case, criterion-related validity is characterized by prediction to an outside criterion and by checking a measuring instrument either now or in the future, against some outcomes or measures. In a sense, all tests are predictive; they predict a certain kind of outcome, some present or future state of affairs. In *predictive validity*, a test is correlated against the criterion to be made available sometimes in the future. On the other hand, in concurrent validity, the test is correlated with a criterion which is available at the present time.

  In short, criterion-related validity is ordinarily associated with practical problems and outcomes.

Reliability is an assessment of the degree of consistency between multiple measurements of a variable. One form of reliability is test-retest, by which consistency is measured between the responses for an individual in two points in time. A second and more commonly used measure of reliability is *Internal Consistency*, which applies to the consistency among the variables in a summated scale. The rationale for internal consistency is that the individual items or indicators of the scale should all be measuring the same construct and thus be highly intercorrelated.

- *Cronbach's Alpha:* the reliability coefficient that assesses the consistency of the entire scale is the *Cronbach's Alpha,* being the most widely used measure. The generally agrees upon lower limit for *Cronbach's Alpha* is .70, although it may decrease to .60 in exploratory research. One issue in assessing *Cronbach's Alpha* is its positive relationship to the number of items in the scale. Because increasing the number of items, even with the same degree of inter-correlation, will increase the reliability value, researchers must place more stringent requirements for scales with large number of items.

Likert Scale: A Likert scale is a psychometric scale commonly involved in research that employs questionnaires. It is the most widely used approach to scaling responses in survey research, such that the term is often used interchangeably with *rating scale*, or more accurately the Likert-type scale. Likert developed a different method for the construction of the attitude scale, known as method of summated ratings. The scale is named after its inventor, Psychologist Rensis Likert. When responding to a Likert questionnaire item, respondents specify their level of agreement or disagreement on a symmetric agree-disagree scale for a series of statements. Thus, the range captures the intensity of their feelings for a given item. A scale can be created as the simple sum of questionnaire responses over the full range of the scale. In so doing, Likert scaling assumes that distances on each item are equal.

Importantly, "*All items are assumed to be replications of each other or in other words items are considered to be parallel instruments*".

The main steps involved in Likert's method may be summarized as mentioned below:

- A large number of multiple choice type statements usually with five alternatives such as strongly agree, agree, undecided, disagree and strongly disagree concerning the object of attitude are collected by the investigator.
- Such statements are administered to a group of subjects who respond to each item by indicating which of the given five alternatives they agree with.
- Every responded item is scored with different weights. The weight ranges from 5 to 1.
- After the weight has been given to items, a total score for each subject is found by adding the weights earned by him on each item. Thus his total score is obtained after the weights are summated over all the statements.
- Finally, the selection of items is done through the procedure of item analysis. In the method of summated ratings, it is customary to select 20-25 statements, which constitute the final attitude scale.

Principal Component Analysis (PCA): Principal Component Analysis is a variable reduction procedure. It is useful when they obtained data on a number of variables, possibly a large number of variables, and believe that there is some redundancy in those variables. In this case, redundancy means that some of the variables are correlated with one another, possibly because they are measuring the same construct. Principal component analysis (PCA) is a statistical procedure that uses an orthogonal (orthogonal means unrelated) transformation, to convert a set of observations of possibly correlated variables into a set of values of linearly

uncorrelated variables called **principal components**. PCA was invented in 1901 by Karl Pearson. PCA can be done by Eigenvalue decomposition of a data covariance or correlation matrix or singular value decomposition of a data matrix, usually after mean centering (and normalizing or using Z-scores) the data matrix for each attribute. The results of a PCA are usually discussed in terms of component scores, sometimes called factor scores (the transformed variable values corresponding to a particular data point), and loadings (the weight by which each standardized original variable should be multiplied to get the component score).

The number of principal components is less than or equal to the number of original variables. This transformation is defined in such a way that the first principal component has the largest possible variance (that is, accounts for as much of the variability in the data as possible), and each succeeding component in turn has the highest variance possible under the constraint that it is orthogonal to (i.e., uncorrelated with) the preceding components. Principal components are guaranteed to be independent if the data set is jointly normally distributed. PCA is sensitive to the relative scaling of the original variables.

PCA is the simplest of the true eigenvector-based multivariate analyses. Often, its operation can be thought of as revealing the internal structure of the data in a way that best explains the variance in the data. If a multivariate dataset is visualized as a set of coordinates in a high-dimensional data space (1 axis per variable), PCA can supply the user with a lower-dimensional picture, a projection or "shadow" of this object when viewed from its (in some sense; see below) most informative viewpoint. This is done by using only the first few principal components so that the dimensionality of the transformed data is reduced.

PCA is closely related to factor analysis. Factor analysis typically incorporates more domain specific assumptions about the underlying structure and solves eigenvectors of a slightly different matrix.

VARIMAX Rotation: It was suggested by Henry Felix Kaiser in 1958, it is a popular scheme for orthogonal rotation (where all factors remain uncorrelated with one another).

In statistics, a VARIMAX rotation is used to simplify the expression of a particular sub-space in terms of just a few major items each. The actual coordinate system is unchanged; it is the orthogonal basis that is being rotated to align with those coordinates. The sub-space found with principal component analysis or factor analysis is expressed as a dense basis with many non-zero weights which makes it hard to interpret. VARIMAX is so called because it maximizes the sum of the variances of the squared loadings (squared correlations between variables and factors). Preserving orthogonality requires that it is a rotation that leaves the sub-space invariant. Intuitively, this is achieved if, (a) any given variable has a high loading on a single factor but near-zero loadings on the remaining factors and if (b) any given factor is constituted by only a few variables with very high loadings on this factor while the remaining variables have near-zero loadings on this factor. If these conditions hold, the factor loading matrix is said to have "simple structure," and VARIMAX rotation brings the loading matrix closer to such simple structure (as much as the data allow). From the perspective of individuals measured on the variables, VARIMAX seeks a basis that most economically represents each individual—that is, each individual can be well described by a linear combination of only a few basic functions.

Factorial Analysis: Factorial Analysis is a statistical method used to describe variability among observed, correlated variables in terms of a potentially lower number of unobserved variables called factors. The term factor analysis was first introduced by Thurstone, 1931. It originated in

psychometrics and is used in behavioural sciences, social sciences and other applied sciences that deal with large quantities of data. The main applications of factor analytic techniques are: (1) to reduce the number of variables and (2) to detect structure in the relationship between variables, that is to classify variables. Therefore, factor analysis is applied as a data reduction or structure detection method. It is a statistical approach that can be used to analyze large number of interrelated variables and to categorize these variables using their common aspects. There are two main types of factor analysis. They are:

- Principal Component Analysis- this method provides a unique solution so that the original data can be reconstructed from the results. Thus, this method not only provides a solution but also works the other way round, i.e. provides data from the solution. The solution generated includes as many factors as there are variables.
- Common Factor Analysis- this technique uses an estimate of common difference or variance among the original variables to generate the solution. Due to this, the number of factors will always be less than the number of original factors. So, factor analysis actually refers to common factor analysis.

The main uses of factor analysis can be summarized as below:

- Identification of underlying factors- the aspects common to many variables can be identified and the variables can be clustered into homogenous sets. Thus, new sets of variables can be created. This allows us to gain insight into categories.
- Screening of variables- it helps us to identify groupings so that we can select one variable to represent many.

In short, factor analysis is a useful tool for investigating variable relationships for complex concepts such as psychological scales. It allows researchers to investigate concepts that are not easily measured directly by collapsing a large number of variables into a few interpretable underlying factors.

Eigenvalues: Eigenvalues are a special set of scalars associated with linear systems of equations (i.e. matrix equation) that are sometimes also known as characteristic roots, characteristics values, proper values or latent roots. The eigenvalue for a given factor reflects the variance in all the variables, which is account for by that factor. A factor's eigenvalue may be computed as the sum of its squared factor loadings for all the variables. The ratio of eigenvalues is the ration of explanatory importance of the factors with respect to the variables. If a factor has a low eigenvalue, then it is contributing little to the explanation of variance in the variables and may be ignored. It should be noted that the eigenvalues associated with the unrotated and rotated solution will differ, though their total will be the same.

Factor Loading: It is a term used primarily within the process of factor analysis; it is the correlational relationship between the manifest and latent variables in the experiment. They are also called component loadings in PCA (principal Component Analysis)and are the correlation co-efficients between the cases(rows) and factors (columns).Analogous to Pearson's r, the squared factor loading is the percent of variance in that indicator variable explained by the factor. To get the percent of variance in all the variables accounted for by each other, add the sum of the squared factor loadings for that factor (column) and divide by the number of variables. It should be noted that the number of variables equals the sum of their variances as the variance of a standardized variable is 1. This is the same as dividing the factor's eigenvalue by the number of variables.

3.6 Results

The result of the present section of the study is divided in two phases:

- Establishing the Face Validity:

For establishing the face validity of the items, the items were written in the Likert type format. The response alternatives range from 1 (very often) to 5 (never).The constructed items were given to five subject experts for face validity and were asked to give comments and feedback on the basis of item clarity, communicability and readability. With the suggestions from the subject experts, the items were modified. Initially there were 92 items but it got reduced to 62. Those 30 items were decided to reject as the items were vague and ambiguous. Thus, through this process, the face validity of the items was established.

- Factorial Analysis

In this phase the 62 items which were retained, after the face validity, was subjected to Factorial analysis to condense in a smaller set of components. When the items were subjected to Principal component Analysis with VARIMAX rotation, altogether five factors emerged (*refer table 3.1*). These five factors together explained cumulative variance of 75.52% and the maximum iterations for convergence were limited to 25. It is decided to consider factor with Eigen values more than one because using the Eigenvalues for establishing a cutoff is most reliable when the variables is between 20 and 50. If the number of variables is less than 20, there is tendency for this method to extract a conservative number of factors whereas, if more than 50 variables are involved, it is not uncommon for too many factors to be extracted. The items, factor

loading along with their Eigenvalues are as given in the table 3.2. The rotated factor matrix were interpreted by the researcher by examining the factor matrix of loadings, identifying the highest loading for each variable, assessing communalities of the variables and lastly by labeling the factors. The obtained factors were labeled, in which all variables have a significant loading on a factor, intuitively by the researcher on its appropriateness for representing the underlying dimensions of a particular factor. This procedure is followed for each extracted factor. The final result is labeled that represents each of the derived factors as accurately as possible. After going through the identified components on the items, few items were found which are not meaningfully associated with the other factors. For example, when most of the items in factor 1 either described humiliation or sexual harassment, it is found out that item no. 28 doesn't fall into the category. Although, item 28 has got the highest loading in the first component (0.809), it does not meaningfully gel with the other items in the factor. Thus, the researcher decided to drop item no. 28. Item 21, 28, 30,38,39,40 and 62 didn't significantly load to any of the factors and thus was rejected. The factors that are finally identified through factor analysis seem to align with the existing classification of workplace violence as indicated in the earlier research. They are:

Factor 1: Discrimination & Sexual Harassment

Factor 2: Actively Hostile Behaviour

Factor 3: Illegitimate Pressure

Factor 4: Humiliation

Factor 5: Workplace Bullying

Table 3.1 *Items, factor loading and Eigen values on workplace violence parameters*

Factor	Factor name	Item no.	Items	Factor loading	Eigen values
1	**Discrimination & Harassment**	46	When at work, how often has anybody touched you in a way that makes you uncomfortable?	0.672	38.872
		47	How often has anybody made unwanted attempts to draw you into a discussion of sexual matters at work?	0.755	
		48	At your workplace, how often has anybody stared at you with lustful eyes which made you uncomfortable?	0.738	
		49	How often has anybody made sexual jokes or remarks when at work?	0.727	
		50	How often has anybody displayed offensive visual material to you when at work?	0.709	
		51	How often has anybody tried to harass you sexually at work?	0.730	
		52	How often have you been forced to provide sexual services in return of favors to you at work?	0.766	
		53	How often has anybody made deliberate unwanted physical contact when at work?	0.739	
		54	How often has anybody made an obscene gesture in front of you at work?	0.746	
		55	How often has anybody passed racially explicit jokes or remarks at work?	0.765	
		56	How often has anybody	0.779	

			discriminated you on the ground of religion/race/creed/caste at work?		
		57	How often have you been disrespected on the ground of religion/race/creed/caste at work?	0.771	
		58	How often has anybody isolated you on the ground of your belief systems at work?	0.603	
		59	How often has anybody undermined you on the ground of your religion/race/creed/caste at work?	0.730	
		60	How often have you been criticized publicly on the ground of your religion /race/creed/caste background at work?	0.740	
		61	How often have you been snubbed saying that you are immature?	0.645	
2	**Actively hostile behaviour**	4	How often have you been physically attacked at work?	0.708	3.009
		5	How often have you been threatened with physical harm at work?	0.734	
		6	How often have you been threatened to beat you at work?	0.758	
		7	How often has anybody intentionally given you incorrect or misleading information about the job while at work?	0.637	
		8	How often have you been threatened to be harmed at workplace?	0.689	

		9	How often has anybody intentionally spread rumours about you at work?	0.528	
		10	How often have been hitted by sharp or deadly weapons when at work?	0.713	
		11	How often has anybody used physical force to do something against your will at work?	0.718	
		12	How often has anybody scratched you when at work?	0.698	
		13	How often has anybody wounded or battered you at work?	0.708	
		14	How often has anybody pulled or pushed you when at work?	0.670	
		15	How often has anybody thrown objects at you while at work?	0.663	
		16	How often have you been kicked company's property?	0.566	
		17	How often have you been given scaring posture/gesture at work?	0.527	
		18	How often have you been given threatening look when at work?	0.617	
		19	How often has anybody threatened you through unwelcome telephone calls or e-mails at work?	0.637	
		20	How often has anybody threatened you by showing clenched fist when at work?	0.562	
3	**Illegitimate**	22	How often has anybody unduly pressurized you to achieve target at work?	0.653	

	pressure	23	How often have you been allotted long working hours at work?	0.697	2.330
		24	How often has anybody generated false information about you at work?	0.581	
		25	How often has anybody given you work which is not the part of your job role at your work place?	0.784	
		26	How often have you been given transfer to the unwanted place without consulting you?	0.561	
		27	How often have you been tortured mentally at work?	0.698	
		29	How often have you been declined to be provided with information at your work place?	0.607	
		31	How often have you been criticized in public at work?	0.658	
		32	How often have you been threatened by your superior with damaging consequences at work?	0.660	
		33	How often has anybody ridiculed your feelings and thoughts at work?	0.568	
		34	How often has anybody persistently disapproved your work efforts while at work?	0.536	
		35	How often has anybody yelled at you in front of others to make you feel humiliated?	0.628	
		36	How often have you been given sarcastic remark at work?	0.637	
		37	How often your views and ideas have been trivialized at	0.600	

			the workplace?		
4	**Humiliation**	41	How often has anybody passed derogatory remark to you at workplace?	0.561	1.391
		42	How often have you been given offensive message/remark at work?	0.666	
		43	How often has anybody used bad language to you when at work?	0.649	
		44	How often have you been publicly embarrassed when at work?	0.604	
		45	How often has your co-worker intentionally made you feel incompetent at workplace?	0.613	
5	**Bullying**	1	How often has anybody made insulting or disrespectful remarks to you when at work?	0.806	1.218
		2	How often have you been pushed or grabbed at work?	0.786	
		3	How often has anybody intentionally belittling you or your opinions at workplace?	0.709	

The above questionnaires are now considered as final questionnaire for analysis purpose.

The above table 3.1 presents those items which significantly load to the factors (such as workplace bullying, actively hostile behaviour, humiliation, illegitimate pressure and discrimination & sexual harassment) and those factors which doesn't significantly load to any of the factors and was rejected. As seen in the above table 3.2, the latent roots or Eigenvalues was found out to be greater than 1 and it signifies that they are significant. The cumulative variance

of 75.52 per cent is explained by the five factors. *The percentage of variance criterion* is an approach based on achieving a specified cumulative percentage of total variance extracted by successive factors. The purpose is to ensure practical significance for the derived factors by ensuring that they explain at least a specified amount of variance. No absolute threshold has been adopted for applications. However, in the natural sciences the factoring procedure usually should not be stopped until the extracted factors account for at least 95 percent of the variance or until the last factors accounts for only a small portion (less than 5 percent). In contrast, in the social sciences, where information is often less precise, it is not uncommon to consider a solution that accounts for 60 percent of the total variance as satisfactory. Although, all factors contain at least some unique variance, the proportion of unique variance is substantially higher in later than in earlier factors.

While doing the factorial analysis, scree plot was also presented to check the authenticity of the factor with its Eigenvalues. The *scree test* is used to identify the optimum number of factors that can be extracted before the amount of unique variance begins to dominate the common variance structure. The scree test is derived by plotting the latent roots against the number of factors in their order of extraction, and the shape of the resulting curve is used to evaluate the cutoff point.

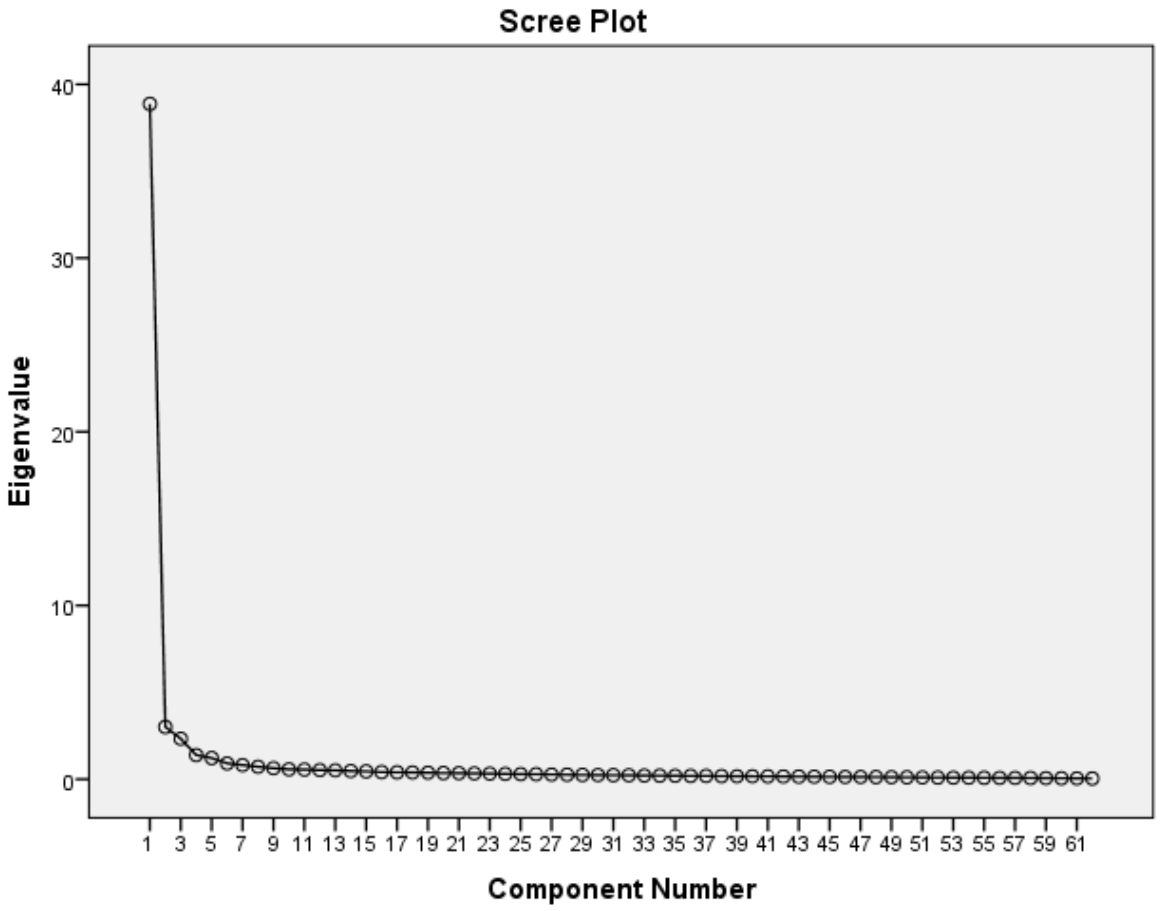

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Figure 1 Eigenvalue Plot for Scree test criterion

After referring to the scree plot in the above figure 1, it is decided that the five factors are valid. It is seen in the figure 1 that, it plots the first 5 factors extracted in the study. Starting from the first factor, the plot slopes steeply downward initially and then slowly becomes an approximately horizontal line. The point at which the curve first begins to straighten out is considered to indicate the maximum number of factors to extract. In the present case, the first 5 factors would qualify. Beyond 5, too large a proportion of unique variance would be included; thus these factors would not be acceptable.

In practice, most researchers seldom use a single criterion in determining how many factors to extract. Instead, they initially use a criterion such as latent root as a guideline for the first attempt at interpretation. Care has to be taken while selecting the final set of factors because there are negative consequences for selecting either too many or few factors to represent the data. If too few factors are used, then the correct structure is not revealed and important dimensions may be omitted. If too many factors are retained, then the interpretation becomes more difficult when the results are rotated.

The three steps involved in the interpretation of the factors and the selection of the final factor solution are:

- First, the initial unrotated factor matrix is computed to assist in obtaining a preliminary indication of the number of factors to extract. The factor matrix contains factor loadings for each variable on each factor. Here, the term rotation means exactly what it implies. Specifically, the references axes of the factors are turned about the origin until some other position has been reached. As indicated earlier, unrotated factor solutions extract factors in the order of their importance.
- The second factor is defined as the factor loading and is the means of interpreting the role each variable plays in defining each factors. Factor loadings are the correlation of each variable and the factor. Loadings indicate the degree of correspondence between the variable and the factor, with higher loadings making the variable representative of the factor.

- In the third step, the researcher assessed the need to re-specify the factor model owing to the deletion of variables from the analysis and the need to extract a different number of factors

With the VARIMAX rotational approach, the maximum possible specification is reached if there are only 1s and 0s in a column. That is the VARIMAX method maximizes the sum of variances of required loadings of the factor matrix. VARIMAX seems to give a clearer separation of the factors. In general, the VARIMAX method has proved very successful as an analytic approach to obtaining an orthogonal rotation of factors.

To summarize the criteria for the significance of factor loadings, the following guidelines can be stated:

- The larger the sample size, the smaller the loading to be considered significant
- the larger the number of variables being analyzed, the smaller loading to be considered significant
- the larger the number of factors, the larger the size of the loading on later factors to be considered significant for interpretation

After the labeling of the factors that emerged after the VARIMAX rotation, the internal consistency was found out along with the work-life parameters or concomitants of workplace violence to find out the relationship with the workplace violence dimensions.

3.7 Discussions and Conclusions

Findings also aligned with the conceptual framework available for the earlier research. The major three forms of violence (Sokin, 1995) which have been studied are follows:

- Physical violence
- Psychological violence
- Sexual violence

Looking at the factors identified in the present study, it shows that the 5 factors can be roughly classified under the same categories.

a) **Physical violence** is an act of physical aggression where physical force is being used to make a person do something or go against that person's will. It includes hitting, slapping, punching, hitting with deadly weapon or objects etc. the factor which labeled as Actively Hostile Behaviour comes under the category of physical violence. It consists of item nos. 4 to 20.

- *Actively hostile behaviour includes shouting, yelling, threatening or frightening posture such as threatening eye contact, banging a table, throwing objects, and other physically abusive behaviour like wounding, battering, kicking, biting, punching, scratching, pushing, pulling clothes etc.*

b) **Psychological violence** is a systematic attempt to control another person's thinking and behaviour. It includes isolation, forced alcohol and drug abuse, brain washing, degradation, threats, verbal abuse, bullying, mobbing etc. The factor labeled as bullying, humiliation, illegitimate pressure are all under the category of psychological violence.

The items belonging to the factor, bullying, are from 1 to 3, and the items belonging to illegitimate pressure are from item no. 23 to 27 and item nos. 29, 31 to 37, the items belonging to humiliation include item no. 41 to 45.

- *Bullying refers to coercive, unethical activities which create an environment of fear through acts of cruelty, unfair criticism, warning, ridicule, insult, sarcasm, persistent disapproving or devaluation of a person's efforts, trivialization of views and opinions and unconfirmed claim of misconduct.*
- *Illegitimate pressure or the illegitimate exercise of power to achieve the objectives can take the form of unwanted communications and intrusions into a person's private life, occurring in person, via phone, mail or through an intermediary, or it can transpire internally and may relate to employment issues such as threatening loss of employment.*
- *Humiliation refers to all those offensive remarks or messages or other taunts, insult, using bad and snobbish language.*

c) **Sexual violence** is defined as any sexual act; attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic, or otherwise directed, against a person's sexuality using coercion, by any person regardless of their relationship to the victim in any setting, including but not limited to home and work. The factor labeled as discrimination and sexual harassment comes under the category of sexual violence. The items belonging to this factor includes item no. 46 to 61.

- *Sexual harassment is defined as unwelcome sexual advances, requests for sexual favors and other verbal or physical conduct of a sexual nature. Stares at bodily parts, lewd gestures, sexual innuendo, allusion or slur regarding an individual's private life, such as their sexual orientation, sexually specific jokes or remarks, deliberate touching of or brushing against another and the display of offensive material, sexual discrimination, sexual approach, sexual advancement, sexual attempt etc. sexual advances refers to an attempt to gain sexual favor (be it physical or long-term relationships) in the eyes of another.*

- *Discrimination or racial harassment is defined as non-injurious physical or verbal abuse which is racist in nature and disrespects the recipient's dignity. It may include unwelcome, unwanted or unsolicited racially explicit language, proposition and remarks regarding dress or general physical appearances or racially specific jokes or remarks.*

Thus, violence is the use of physical force to injure people or property. Violence may cause physical pain to those who experience it directly, as well as emotional distress to those who either experience or witness it. Individuals, families, schools, communities, society, and the environment all are harmed by violence.