A STUDY AND ANALYSIS OF THE QUALITY OF LIFE OF INDUSTRIAL WORKERS IN SMALL SCALE INDUSTRIES IN A DEVELOPING NATION LIKE INDIA

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Abstract: It is a worldwide accepted fact that for the success of any industry a healthy co-ordination between man, material, money, machine and information is something which cannot be simply ignored. Driven by emotions, it's finally the human resource or the workers who are the most difficult to be handled. Previous research shows that a better Quality of life both at home as well as at workplace gives a greater sense of satisfaction. Happiness and a greater sense of satisfaction are often considered to be as an index or a measure of Quality of life of any individual. The Quality of life of industrial workers was evaluated by the data obtained from the responses from a questionnaire consisting of various questions related to the factors which determine its state. Study was conducted from a sample of industrial workers working in the various small and medium scale industries in the Indian state of Goa in the year 2012 while one of the authors was working on a project. A total of 79 workers out of 102 (78%) responded to scales that assessed their Quality of life. Then a model was proposed and was tested with Structural Equation Modeling (SEM) software AMOS for its validity.

Keywords: Quality of life (QOL), Economical well being (ECWB), Physical well being (PWB), Emotional well being (EWB), Social well being (SWB).

1. Introduction: Researchers and authors have given different definitions of QOL as per their point of views or perspectives. The development of measurement model of QOL includes six main aspects in life such as (1) Social well being, (2) Physical well being, (3) Psychological well being, (4) Cognitive well being, (5) Spiritual well-being and (6) Environmental well-being [1]. The larger parts of the indicators of quality of life theoretically can be classified into six main theory concepts: (a) Development of socio – economy, (b) Personal satisfaction, (c) Justice for the society, (d) Human development, (e) Sustainability and (f) Functionality [2]. Baker (2003) researched the impact of spirituality on quality of life [3]. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, and level of independence, social relationship, personal beliefs and their relationship to salient features of their environment [4]. Sheniz Moonie et. al. proposed a Model for QOL estimation with SEM in school Aged Children with Asthma [5]. J.P. Craiger et. al. developed a model for QOL of Navy personnel [6]. Ranti Wiliasih et. al. developed a model for relationship between QOL and regular Zakah exercise performed by Muslims worldwide. Zakah is the practice of giving offerings to the poor sections of the society. This research examined the relationship between the regular Zakah exercise and quality of life through altruism and spirituality as the intermediary variable [7]. Research evidence tells us that essential and critical human needs are only met through employment. These include tangible economic resources and security; the opportunity provided to develop life skills and a sense of worth; and respect from friends. The satisfaction of these needs is not only important for individuals but also for the health and wellbeing of society [8]. The social costs of insufficient or low quality employment involve diminished standards of living, devalued employee contribution to production, weakened social ties with the potential for increased social conflict, and the

economic costs of unused or underused human capacity [9]. Organizational arrangements can encourage learning and flexibility for competitive advantage [10]. The purpose of the study is to examine how economical well being (ECWB), physical well being (PWB), emotional well being (EWB) and social well being (SWB) contribute to QOL. Economic well being offers a holistic view of the contribution made by people, households, businesses and communities to a healthy economy and society. It allows this contribution to be described in terms of their output, their wages and profits. Physical well-being has to do with the physical health (i.e. the internal as well as external body safety). It involves not abusing with your body and seeking to exist in harmony with whatever body you have. EWB is not the absence of emotions, but it is one's ability to understand the value of emotions and use them to move their life forward in positive directions. Social Well-being is a state of affair to meet basic needs of the common people. SWB is a comprehensive status of a society which is away from any social threats such as lack of education, discrimination, civil war, social unrest etc. To this end, the study aimed to use Structural Equation Modeling to examine the fit of the proposed model for QOL. The overall question in this study was:

1. Does the proposed model fit the data?
   Hypothesis 1: The proposed model fits with the data.
2. How do ECWB, PWB, EWB and SWB contribute to QOL?
   Hypothesis 2: The domains like ECWB, PWB, EWB and SWB contribute positively to the overall QOL of an industrial worker.

2. Proposed Method: The main approach to collect information about QOL of workers in this study is based on the use of questionnaire (Appendix 1). The questionnaire was divided into 2 sections. The first section requested biographical information regarding gender, age, length of working experience, and marital status. The second edition consisted of 38 questions. Workers were asked to indicate the degree to which they found these aspects in their work (the 38 questions included the following: economic aspects, physical work environmental, work overload/time pressure etc.). All items had to be answered on 5 point Likert Scale. In general, to obtain the prompt and rapid responses, short questionnaire were used rather than having interview sessions. The participants in the present study were employed in several different industries and job positions. In total, 102 questionnaires were distributed to a total of five factories. A total of 79 workers filled out the questionnaire (response rate was 78 %). The sample included 71 males (89.87%) and 8 females (10.13%). Their ages ranged from 23 to 62 years. They were asked to answer all the items on 5 point Likert scale. The scale includes five items (1= not at all, 5= very much).

Hypothesized/Proposed Model: Structural Equation Model (SEM) is a comprehensive statistical approach to test hypothesis about relationship among latent and or observed variables. Proposed model (Figure 1) was built with AMOS 16.0. Each latent variable in the model was measured with observed variables.

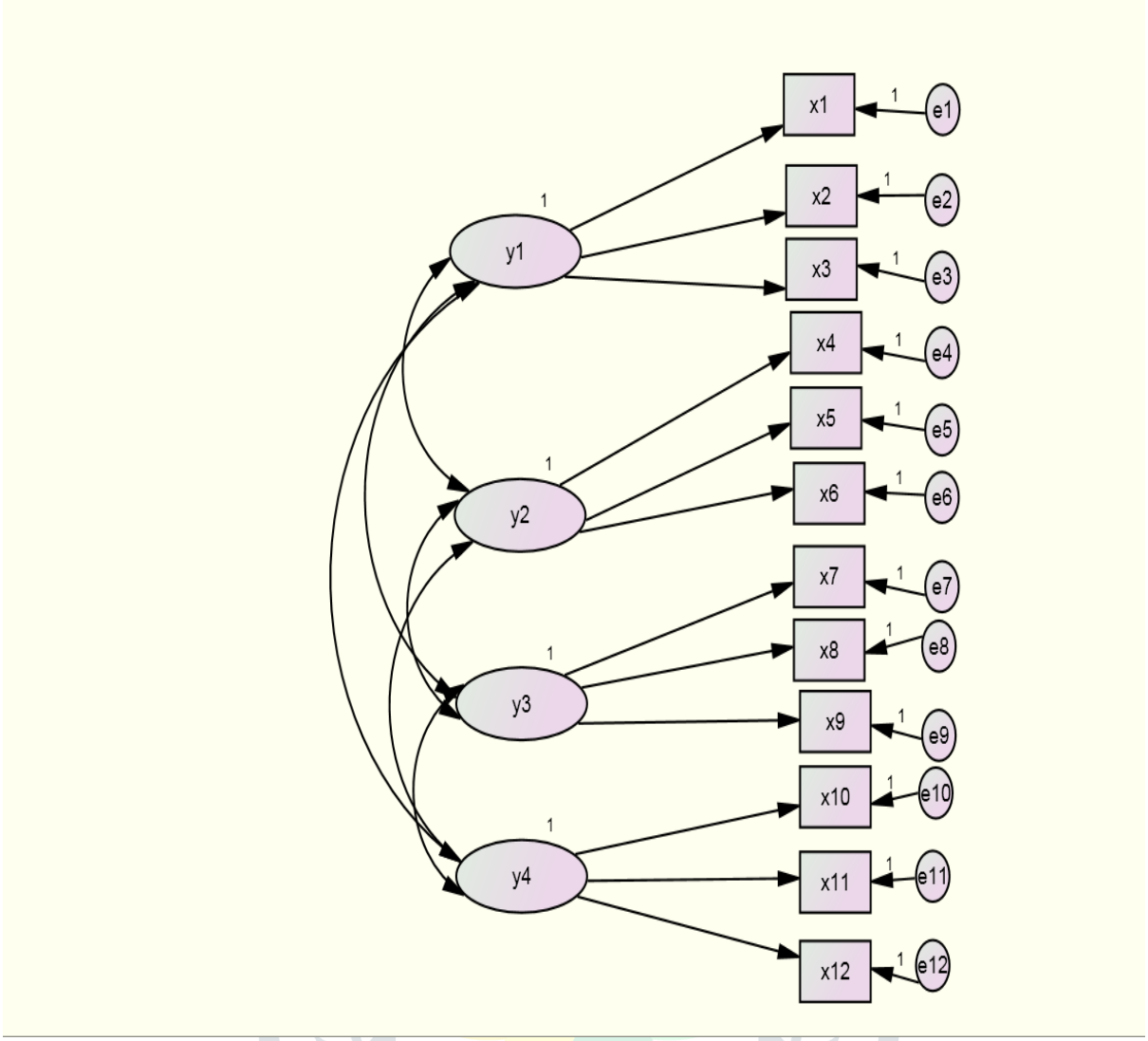

Figure 1: Proposed model

Measurement Model: The portion of the model that specifies how the observed variables depend on the unobserved or latent variables is called the measurement model. The current model has four distinct measurement sub models.

The measurement model is presented in Figure 2 below:

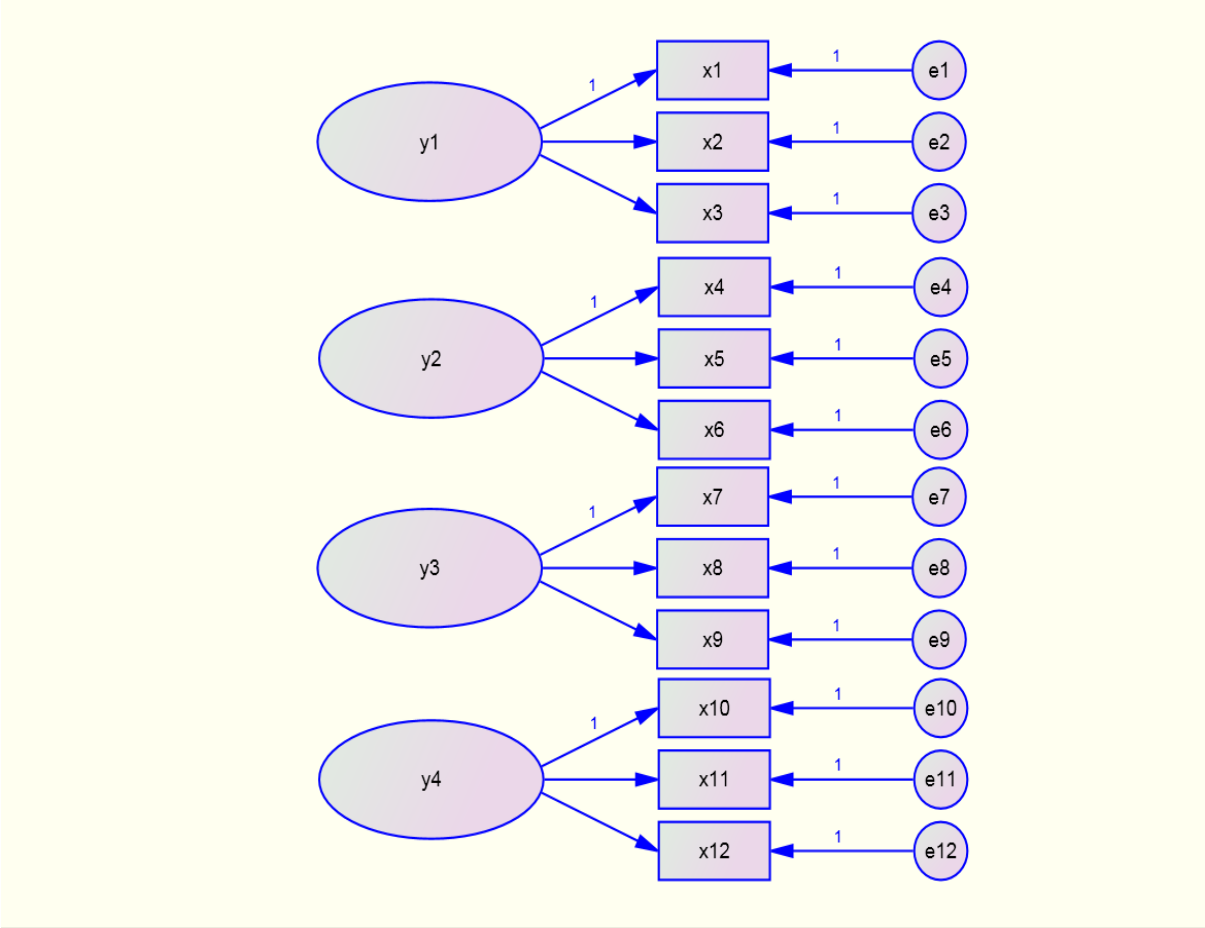

Figure 2: Measurement model

Structural Model

The portion of the model that specifies how the latent variables are related to each other is called the structural model. The structural model is presented in Figure 3 below.

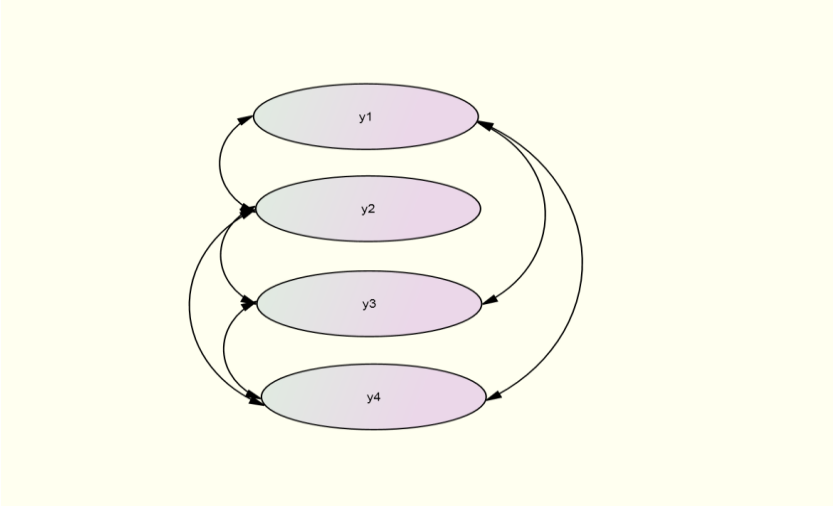

Figure 3 Structural Model

Following is the table which represents the terms associated with the notations used in the model (proposed, measurement and structural).

X1	Primary Needs
X2	Secondary Needs
X3	Future security
X4	Medical facilities
X5	Accidents during job
X6	Tiredness of job
X7	Stress
X8	Supervision
X9	Facilities
X10	Freedom
X11	Family life
X12	Communication
Y1	ECWB
Y2	PWB
Y3	EWB
Y4	SWB
e1 - e12	Errors

3. Analysis of Data: Raw data collected from different respondent by the questionnaire presented in Appendix 2.

Means and standard deviations calculated for ECWB are shown in table below:

Sr. No.	ECWB	Mean	Standard Deviation
1	Primary Needs	3.256	0.579
2	Secondary Needs	2.941	0.694
3	Future Security	2.715	0.654

Means and Standard deviations calculated for PWB is shown in table below:

	PWB	Mean	Standard Deviation
1	Medical facilities	3.228	0.534
2	Safety at work	3.389	0.7
3	Job related tiredness	3.006	0.452

Means and Standard deviations calculated for EWB is shown in table below:

	EWB	Mean	Standard Deviation
1	Stress	3.139	0.539
2	Supervision	2.994	0.919
3	Facilities	2.899	0.623

Means and Standard deviations calculated for SWB is shown in table below:

	SWB	Mean	Standard Deviation
1	Freedom	3.544	0.416
2	Family Life	3.753	0.693
3	Communication	3.285	0.56

The detailed statistical data about each of the question in the questionnaire is given in Appendix 3. The data was used to find the variances and covariance of the indicators. The model (Figure 4) is presented below to find the Variance-Covariance matrix.

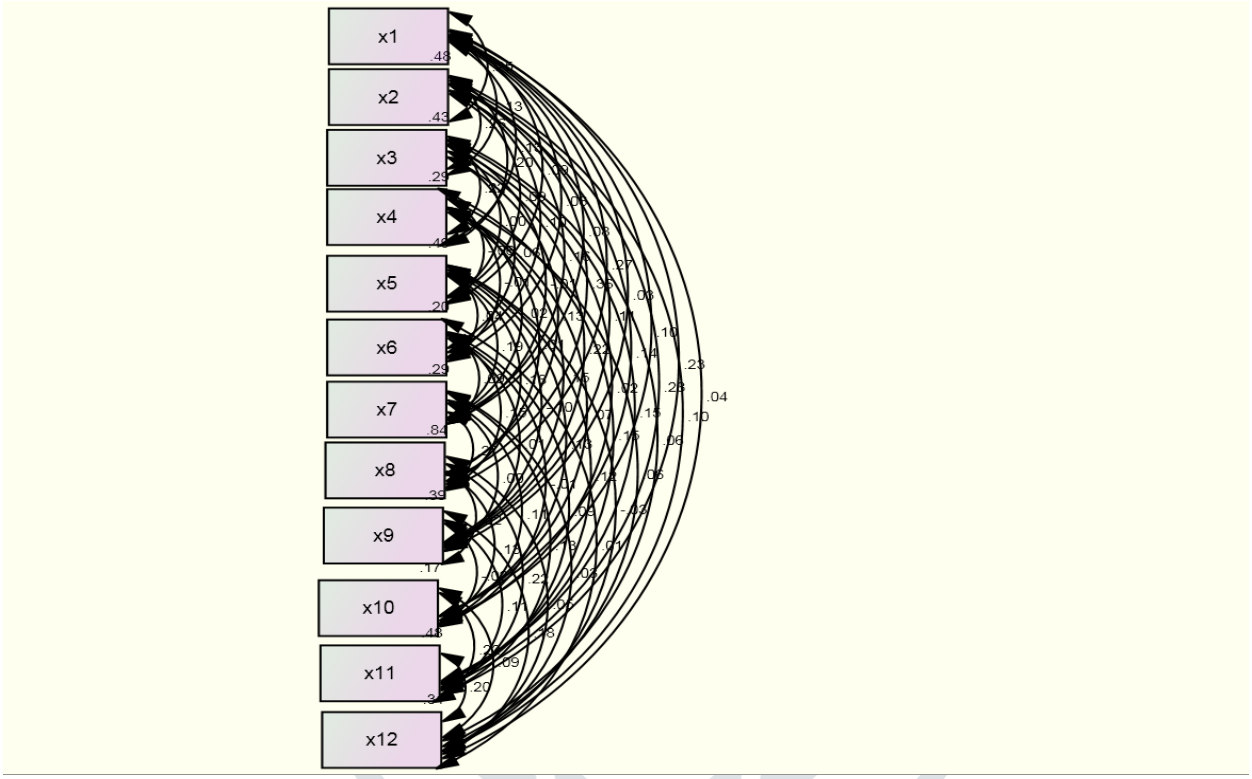

Figure 4: Path diagram to find means, variance and covariance

Results obtained by AMOS software for the diagram shown above is given in Appendix 4. The Variance-Covariance matrix so obtained is given in Appendix 5.

4. Result and Findings: The hypothesized model was tested using the variance-covariance matrix and the result obtained in various tables (Appendix 6) with graphical output (Figure 5) is presented below:

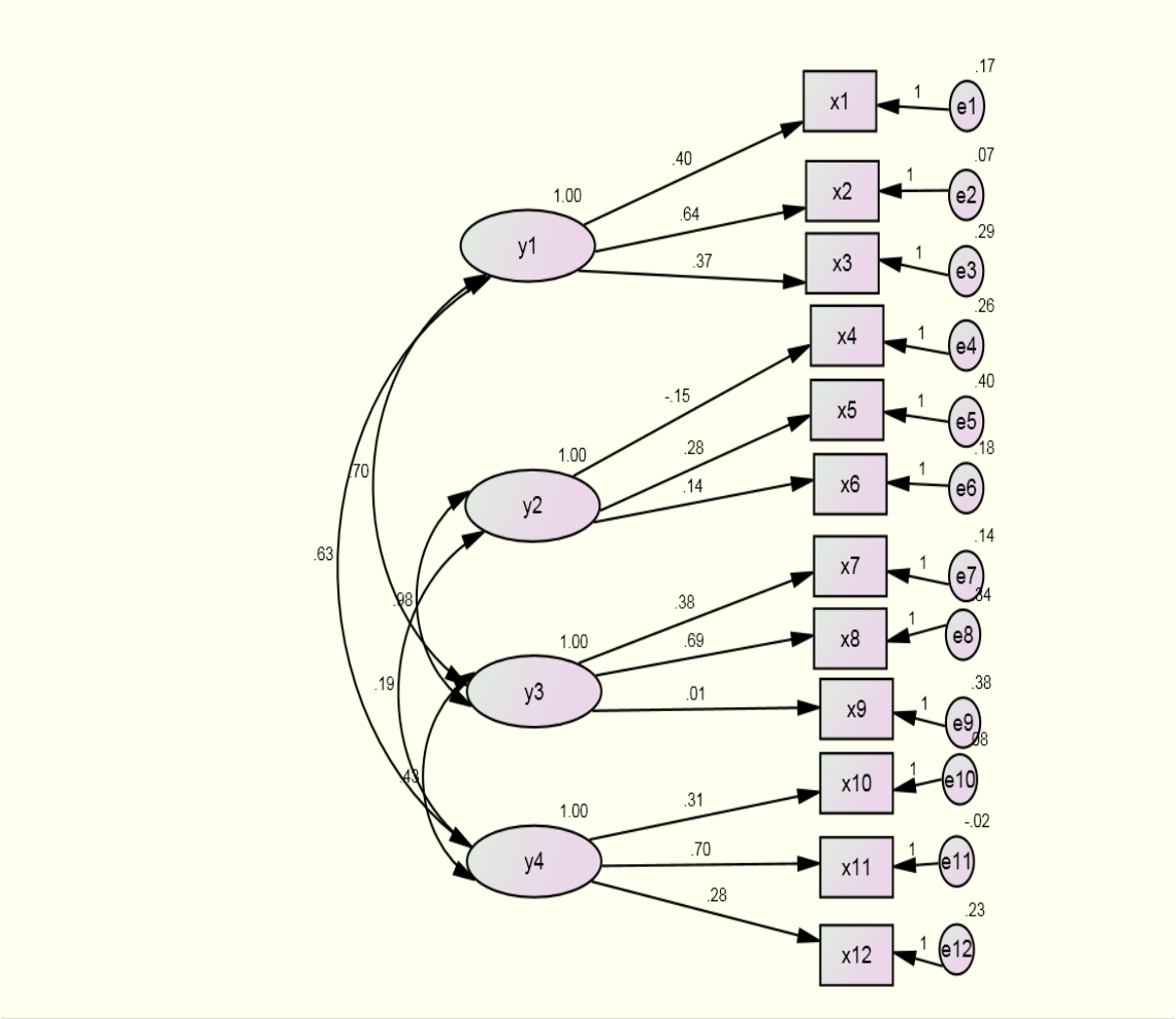

Figure 5: Graphical output of model fit.

Model fit summary as obtained is presented below in table.

Model Fit Summary **GFI**

Model	RMR	GFI	AGFI	PGFI
Default model	.072	**.685**	.498	.430
Saturated model	.000	1.000		
Independence model	.128	.421	.315	.356

The graphical output of the model shown above in which circles (or ellipses) represent unobserved/latent variables, squares (or rectangles) represent observed variables and single arrows represent the impact of one variable on another, e1 to e 12 enclosed in a circle indicate error representing measurement error. The single – headed arrows represent linear dependencies. The numeric values located with single-arrows is an estimate of standardized regression weight (standardized maximum likelihood parameter). The estimates of

standardized regression weight from errors to variables (e 1 to e 12) were removed in the path diagram in order to clear the relationship among variables.

From the above tables, the goodness of fit between the data and the model was found to be GFI=0.685 which shows that there is a poor fit between the model and the data. Initially it was found that the model so proposed was not fitting with the data. The data so obtained was not showing any interdependence between ECWB and PWB. Then, the model was modified to make better fit by trial and error approach based on some logical reasoning.

Initially it was assumed that one observed variable had an impact on only one unobserved variable and the error in one observation was not influencing the other observed variables. The model was modified based on the thought that its quite likely that a single observed variable can influence more than one unobserved variable at the same time, for example, earlier we assumed that the variable named "family life' was related with only SWB but with our logical reasoning it was felt that the family life has an influence on EWB also and the same was the case with other observed variables (e.g. fulfillment of primary needs has an impact on both ECWB as well as SWB). And when we linked one observed variable with more than one unobserved variable we found that the GFI started improving considerably. We also felt that the error with one observed variable can influence the other observed variables too and this fact was given due consideration while modifying the model. After modifying and getting the final model (Figure 6) the goodness of fit index, GFI = 0.81 was found which shows that now there is good fit between the model and the data i.e. the data positively supports the model as shown below in the table.

Model Fit Summary GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.064	**.804**	.453	.288
Saturated model	.000	1.000		
Independence model	.128	.421	.315	.356

The results of the study are partly a confirmation of hypothesis. The detailed results are given in Appendix 7. This result positively supports our findings that the QOL of the industrial workers has four ideal domains i.e. ECWB, PWB, EWB and SWB.

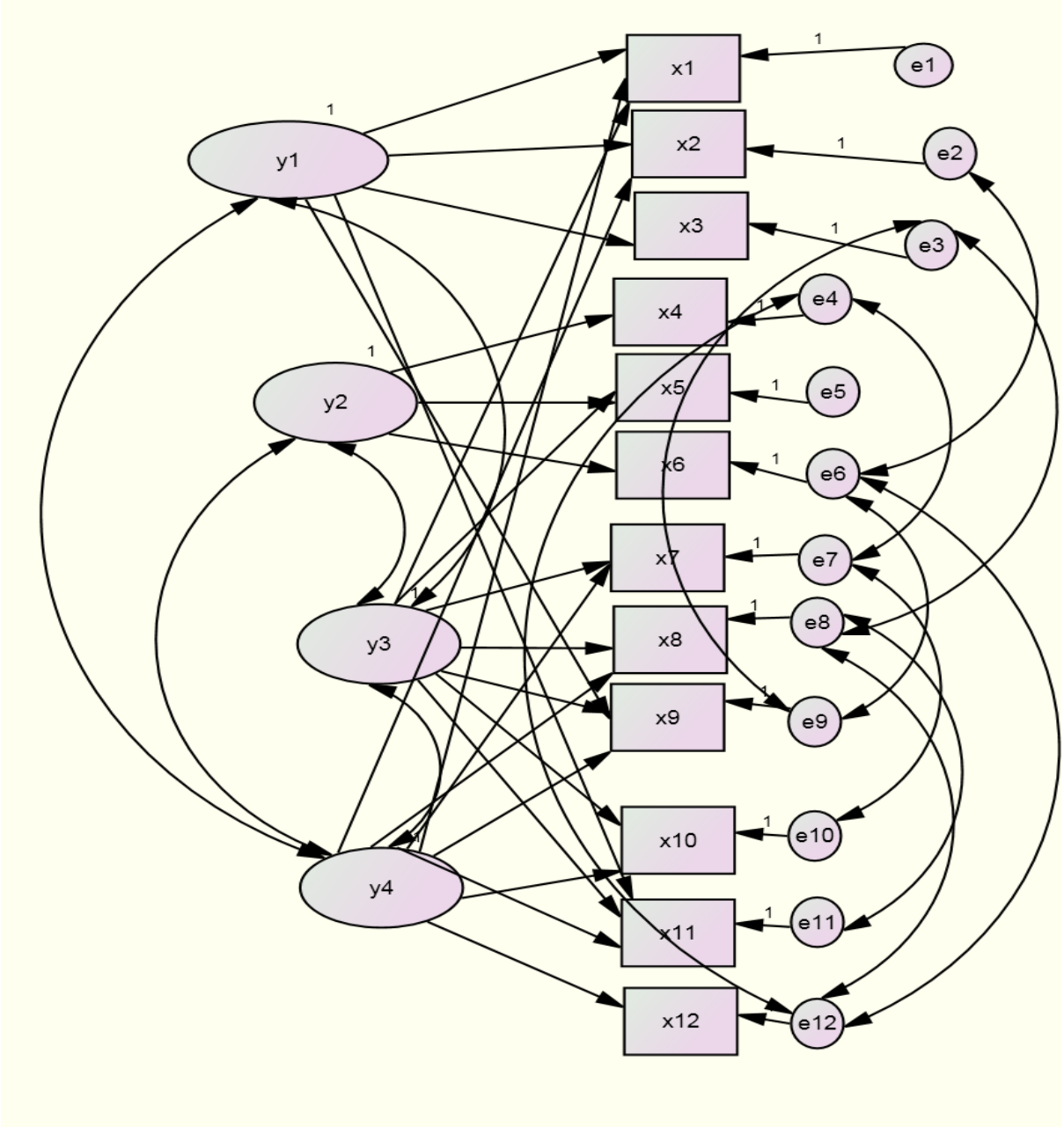

Figure 6: Final model after modification.

The graphical output of model fit for the final model is shown below in Figure 7:

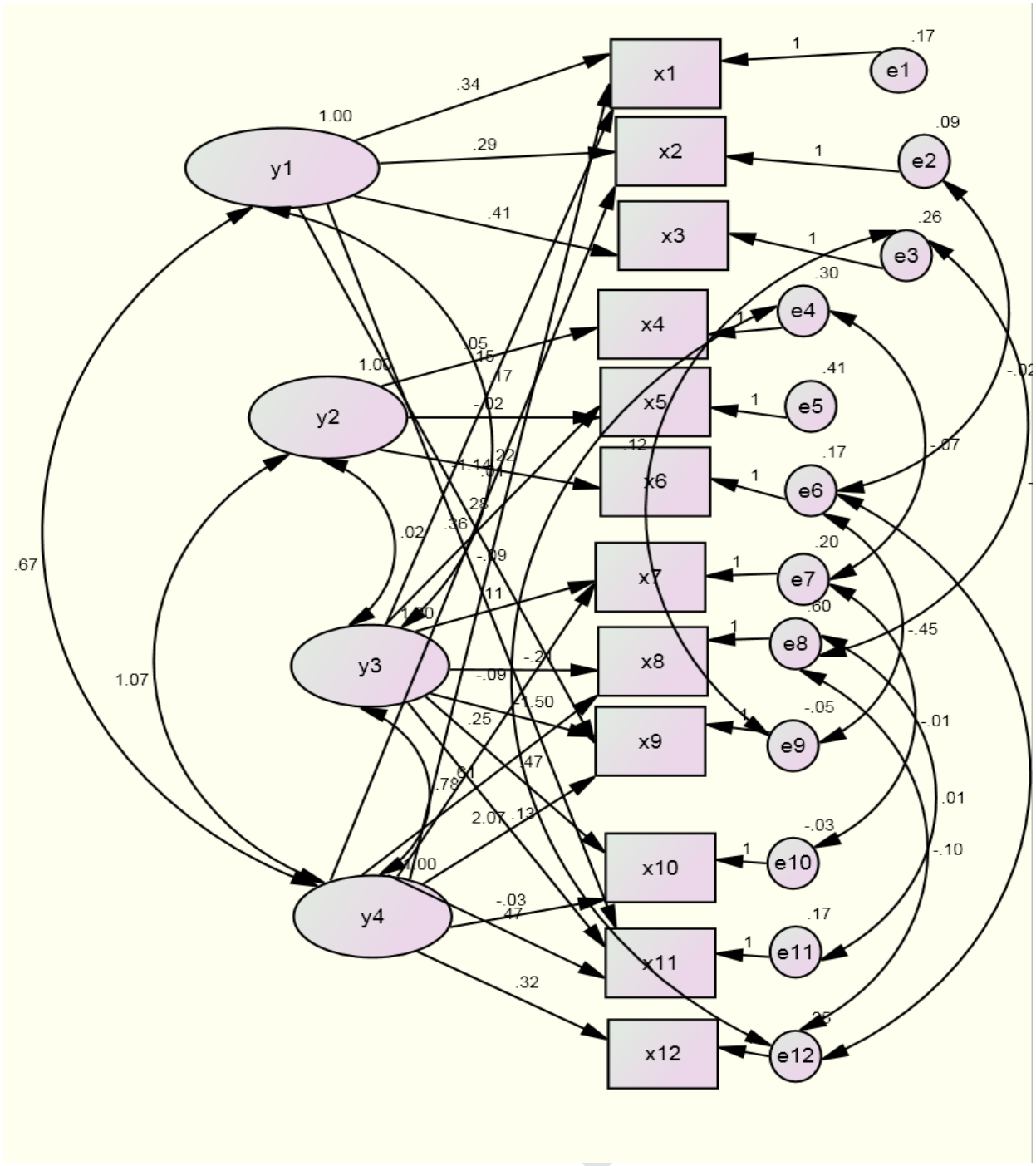

Figure 7: Graphical output of model fit for final model.

5. Conclusion: The main objectives of the present study were to identify main domains of QOL as well as examining the relationship between them. The present study has shown that the overall QOL level among industrial workers is good in the present study. Although the present study has indicated that the QOL among industrial workers is still good in general, but worker's stress is a profound problem that must be attended to and concerned if the quality and productivity of industry is not to be undermined. In this study, we tested positively the hypothesis that (1) the proposed model fits with the data and (2) ECWB, PWB, EWB and SWB are the major domains of QOL.

6. Limitations and Future Research: A more geographically diversified sample of workers should be used, since the sourcing strategies can vary significantly across the states. The sample size should be increased in further studies, to improve the broader acceptability of the results. The use of single informants is a potential source of bias. Accordingly, further studies considering multiple informants should be carried out. The data need to be taken out from cottage industries, high-level industries etc. Also, it should be scrutinized separately for male-females, technical – non-technical, young-aged workers etc. the length of working experience may also be considered while analyzing and testing the model. This will help in finding the exact areas which contribute to the QOL of workers. More indicators can be identified which may have some direct effect on QOL

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