Workplace well-being in Sri Lankan IT industry

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***Abstract*—This paper discusses and analyses the dimensions that affect the well-being of a workplace. For this organizations related to the IT sector in Sri Lanka are selected. A survey based on the questionnaire is conducted by selecting random employees in random IT organizations. This survey collected some personal information and information that are related to the workplace. Based on the sample result, it analyses and inference the whole Sri Lankan IT sector and compares it with other research papers.**

Keywords—well-being, IPWW

I. Introduction

Well, being a worker is very important and it helps them to face daily challenges and maintain a friendly environment in the workplace. This improves the productivity of individuals as well as the organization. There are multiple factors that affect the well-being of an organization and it depends on the social demographic and organization. This paper analyses the factors that affect workplace well-being.

The objective of the study is to measure the workplace well-being in Sri Lanka in the IT industry and get a comparison against other countries. During this study, we research employees' social-demographic factors and analyze how it affects workplace well-being.

Data collected for this research and this report itself can be accessed publicly from this github link.

II. Literature review

There is a research paper[1] on analyzing relationships between transformational leadership (TL), autonomy support management behaviors, and employees' psychological health. They have used 512 Canadian works and assessed their immediate leaders' level of TL. Also, they assessed participants' own psychological well-being and burnout at work. So in that research, they have identified that TL is related to the employee's psychological well-being and burnout. Also, they mentioned that managers' leadership and behaviors predict employees' psychological well-being at work more than employee burnout. Also, they are stating that managers with high TL make employees happier and less burned out. So which indicate that it can be considered as a new variable to measure employers' well-being

There is another research[2] on positive psychology-based employee well-being and they are stating that 14.7% of the employees have a major depressive disorder. They are highlighting it is important to invest in the positive well-being of their employees. Happy employees are healthier and perform well in the organization. The cost-effective approach they are suggesting is a training-based methodology for employees to get positive mental health. So in this paper, they are describing a design of a well-being program and evaluating it to improve strengths, positive thought, and behavioral capacities to enhance the happiness and well-being of employees.

III. Methodology

A. Conceptual Framework

It is identified that the following variables are related to the social demographic and used as the initial set of variables.

Age
Gender
monthly salary
Highest level of Education
Number of working experiences
COVID-19 inflected status
Travel distance from home to workplace
Type of the traveling model
Industry
Type of current working arrangement
Employment
Division
Marital status
Working hours

B. Operationalization of the variables

Variable	Data types	Possible values
Age	numerical discrete	
Gender	Categorical nominal data	1 or 0
Marital status	Categorical nominal data	Married Not Married
Monthly salary	Categorical ordinal data	50000-75000 75000-100000 etc
Highest level of Education	Categorical nominal data	Diploma, BSc, MSc, Ph.D., etc
Working experiences	Categorical ordinal data	1-2, 3-5, 5-10, 10-15, more than 10
COVID-19 inflected status	Categorical nominal data	
Travel distance	Categorical ordinal data	Less than 10 KM Between 10 - 20 Between 20 - 40 Between 40 - 60 More than 60
traveling mode	Categorical nominal data	Public transport Personal vehicle Walking Office transport
Industry	Categorical nominal data	IT/Finance/ Retail / Manufacturing / Consultation/ Other
Type of current working arrangement	Categorical nominal data	Physical Online Work shift
Employment	Categorical nominal data	Contract Permeant Consultant
Division	Categorical nominal data	RnD Dev ops Sales Marketing Other
Working hours	Categorical ordinal data	Less than 7 7-9 9-12 More than 12

C. Target population / Sample / Sample Size / Sampling method

This research targets the employees in the IT industry in Sri Lanka. The population of the data will be the employees and can have employees with different levels of subfields.

The sample for the mentioned population is taken by identifying multiple organizations in Sri Lanka related to the IT industry. Employees of 5 different companies are selected to gather data and 50 employees are selected randomly. Employees are present in different roles in the organization and different departments of the organization.

Data will be gathered using a questionnaire and it will be distributed to employees in selected organizations.

Required input data will be collected using a questionnaire and the questionnaire will be implemented using multiple questions. Questions are implemented using google forms and data will be recorded at the same time a user is submitted. Data will be stored in the google account, excel sheet for further processing.

Google form is a secure web application and data can be recorded and transferred securely. Data will also be stored in a secure google drive/sheet. The recorded data will not be published to any external parties and none of the respondents will be able to access this data.

The form is designed with multiple sections and uses the Index of Psychological Well-being at Work (IPWW) method to gather information. Employees' and employers' basic information are gathered in the initial section. It includes basic and personal information about the employee. IPWW contains the following set of questions and the answer will be ordinal value.

The IPWW questions are as follows and the answer would be a value between 0 to 5. The higher the value the more agreeable with the question.

1. Interpersonal Fit at Work
    a. I value the people I work with.
    b. I enjoy working with the people at my job.
    c. I get along well with the people at my job.
    d. I have a relationship of trust with the people at my job.
2. Thriving at work
    a. I find my job exciting.
    b. I like my job.
    c. I am proud of the job I have.
    d. I find meaning in my work.
3. Feeling of Competency at work
    a. I know I am capable of doing my job.
    b. I feel confident at work.
    c. I feel effective and competent in my work.
4. Perceived Recognition at work
    a. I feel that my work is recognized.
    b. I feel that my work efforts are appreciated.
    c. I feel that the people I work with recognize my abilities.
5. Desire for Involvement at work
    a. I want to take initiative in my work.

b. I care about the good functioning of my organization.
c. I want to contribute to achieving the goals of my organization.

D. Data Analysis

Collected data is taken from google drive where the destination is defined in the google form. Collected data then exported as CSV to download and process. A total of 48 responses were collected.

Collected data must be preprocessed before use to handle the outliers and errors. For this python panda library and manual correcting methods are used. Most of the questions were optional to answer and because of that the existence of values should be checked. Panda libraries supported this functionality and most of them were able to identify and fix manually.

Visual representation is used to analyze the data since it improves readability and is easy to compare. Google excel and python are used for most of the preprocessing and understanding of the data. Koolreport is used as the chart generating tool.

IV. Data Presentation & analysis

For the initial analysis IPWW method is used to analyze the user responses. For each criterion, average score values are calculated according to the IPWW method. Calculated average values are listed in TABLE I.

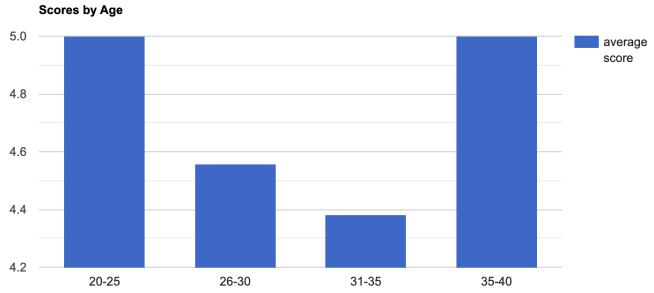
TABLE I. Table Type Styles

Dimension	Average Score
I value the people I work with.	4.688
I enjoy working with the people at my job.	4.577
I get along well with the people at my job.	4.555
I have a relationship of trust with the people at my job.	4.577
I find my job exciting.	4.2
I like my job.	4.4
I am proud of the job I have.	4.644
I find meaning in my work.	4.422
I know I am capable of doing my job.	4.622
I feel confident at work.	4.466
I feel effective and competent in my work.	4.444
I feel that my work is recognized.	4.422
I feel that my work efforts are appreciated.	4.377
I feel that the people I work with recognize my abilities.	4.444
I want to take initiative in my work.	4.466
I care about the good functioning of my organization.	4.733
I want to contribute to achieving the goals of my organization.	4.688

a.

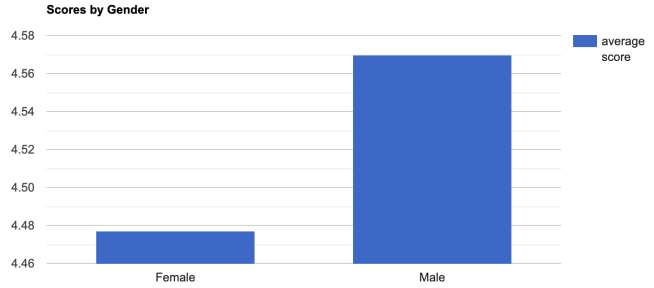
For the visual analysis, different dimensions are used assuming those attributes will indicate the well-being of the workplace.

A. Score value based on age



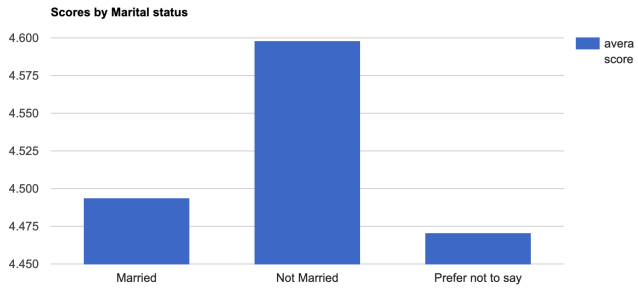
According to this chart, employees aged 20 to 25 and 35 to 40 have the highest score value. And the age range from 31 to 35 has the lowest score values. Employees in the range of 20 to 25 might be most probably interns and fresh graduates. Since they are new to the organization they might feel positive attitudes towards the organization. But when considering the age range 35 to 40, they are the employees, with the highest experience. Also most probably those are the employees that are more stable in the organization and employment. Hence most of the employees in this range might have a positive attitude toward the organization's culture. But employees between 26 to 35 have some low score values and those 31-35 have the lowest score values. The age range 31 to 35 might have some family commitment and goal that still needs to be achieved. Due that such employees might expect more from the organization and which can lead to less positive attitudes toward the organization's well-being factors.

B. Score values based on gender



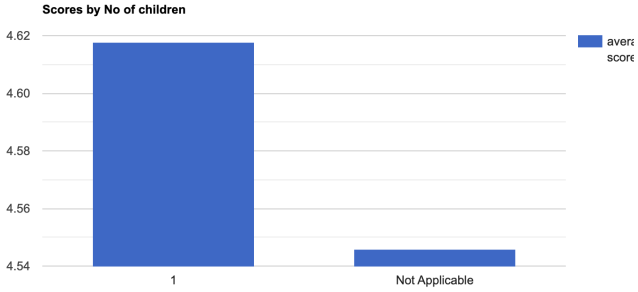
This is another important analysis in a typical workplace. According to this male has a higher positive score value than female. There can be multiple situations to have this kind of result. Even though the difference is very less still this difference can be identifiable. Sometimes work-life imbalance can cause negative score values in female employees. Also, there can be some social issues in an organization, and the organization's culture may affect the negative score. But this is an indication that female employees are more likely to have negative score values than males.

C. Score value by marital state



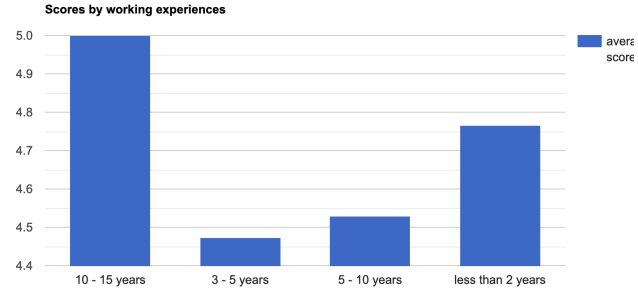
This is another important analysis in a typical workplace that might help to analyze workplace well-being. According to this, as we expect married people have fewer numbers of score values. Again this might be due to the employee's work-life imbalance and family commitment. Ideally married employees are older than unmarried people, hence we can observe the same analysis as age-based analysis. Also, there is another set of employees who do not prefer to say their marital status and look like they have the lowest score values. There can be some employees with different marital statuses that do not belong to married or unmarried. Hence in a workplace, there are employees other than married/unmarried who can affect the well-being of an organization due to the attitude they are having.

D. Score value based on the no of children



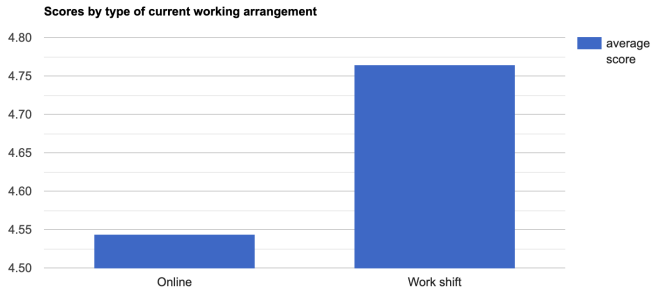
In this analysis, we assume that the number of children or having a child might affect the well-being of a workplace. But according to this result looks this is not the case. In this analysis there is no one with more than 1 child. If we were able to collect more data samples this result might be changed. But based on this, employees with one child have higher score values than employees without children. But when we analyzed the raw data we noticed that we had only a few samples having one child. Here not applicable is choosing most of the unmarried employees. Hence it is very difficult to analyze this data and get some useful information out of this data.

E. Score value by working experience



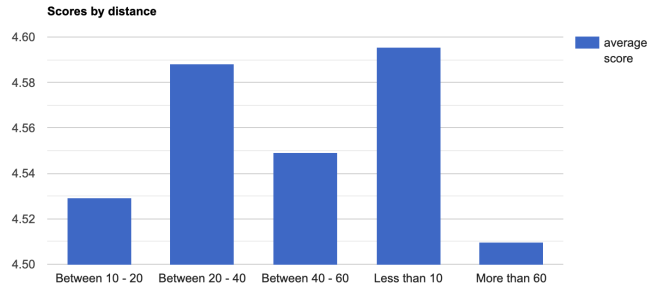
When analyzing the work experience identified this pattern. This is also something similar to the age-wise analysis. But if you cheek further this might be a more drill-down analysis of the age-wise analysis. In this case employees with the highest work experience give more positive score values. And employees with 3-5 years of experience give the lowest score values. This might be the same reason we have discussed in previous charts. Most of the time employees with the highest work experience might have already settled and more stable employees. But Employees having 3-5 experiences may still be acquiring experiences and need extra effort to get them. But employees with less than 2 years might be new employees or interns. So according to this organization with high work experience employees give high well-being scores.

F. Score value by type of current working arrangement



This analysis is based on the current working mode in Sri Lanka. Due to the covid pandemic, most of Sri Lanka's IT employees are allowed work from home or remote locations. Samples collected from employees had only two working modes and those are online/remote mode or shift mode. In this case, people doing work shifts have higher score values than the online mode. But most of the employees who work shifts were working in Dev-Ops, support, or digital operation-related roles. Those people might have a good work-life balance due to the given working hours. But other RnD employees most of the time work online mode and their working hours are varying. Hence they might have given negative feedback and caused the score values to be reduced. So based on this analysis, the way employees work affects directly to the workplace's well-being. The score value can be increased further by proper working hour arrangement. Also, the online mode can cause different mental health issues and it might directly cause these less score values. Having a physical working environment at least periodically can increase the score values.

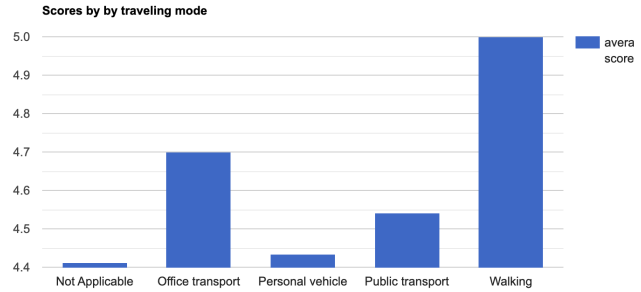
G. Score value by distance to the workplace



This chart explains how workplace well-being depends on the traveling distance. As you can observe, employees who travel more than 60km per day have the lowest score level. Employees who travel less than 10km have the highest score values. This indicates that traveling distance

directly affects workplace well-being. This describes the typical traveling issues in Sri Lanka. Because people who have to travel long distances might have different transportation problems and time management issues. Because of that employees might expect more from their leaders and organizations. Also, they need extra help to continue their day-to-day work.

H. Score value by traveling mode



This chart explains how traveling mode affects workplace well-being. In this chart, the highest scorer is from employees who travel to the office by walking. On the other hand, employees who travel by their own vehicle and take public transport give low score values. This again explains the traveling issues in Sri Lanka. Employees who can walk to the office might have fewer issues because they can easily manage the time and can come and leave the office on time. Also, transportation-related expenses are minimal. Because of that, they may have not been looking for extra benefits from the organizations. But people who travel by public transport can have multiple issues. The bigger issue is time management and sometimes it takes a longer time to come to the office and return home. Because of this, they may be late to work or need to leave the premises early. This causes multiple work-related issues and they might need extra time to complete work. This is a bit similar to other employees who take personal vehicles. Even though they can leave at any time, it can cause traffic-related problems. So again they might face the same issues. Because of this, those factors might have affected the score values they have given. So this is also an indication that traveling mode has affected the well-being at the workplace.

I. Inference Data Analysis

When analyzing the above charts it is identified that the following dimensions have some impact on the workplace well-being index.

- Age
- Gender
- Marital status
- Distance to the workplace
- Traveling mode to the workplace
- Working experience
- Working mode

Some dimensions like traveling mode, working mode, and gender have some strong correlations. But didn't notice a considerable correlation in dimensions like the role of the employee, working hours, etc.

To get an understanding of the well-being index of the whole of Sri Lanka we calculated the average score values of the sample data set. The sample data set has 46 samples and its statistics are as below.

TABLE II.

Mean	4.549
Standard deviation	0.425

Confidential intervals for the population average score can be calculated using this equation

TABLE III.

CI = statistic ± Z* ✕ SE

TABLE IV.

SE = σ / √n

Based on this SE for this sample will be 0.425/√46 or 0.0626

Hence the 95% CI will be 4.549 ± 2 * 0.0626

So the population average score will lie between 4.4238 and 4.6742

V. Discussion & Conclusion

A. Summary of the findings

Based on the analysis on samples data we collected we noticed that dimensions like Age, Gender, Marital status, Distance to the workplace, Traveling mode to the workplace, Working experience, and Working mode has affected the well-being score of the workplace. So this indicated the Sri Lanka working environment and how employees work and come to the workplace affect their well-being score. But considering the IT sector in Sri Lanka, its score values lie within an expected range and this might be the relaxation of some of the rules like flexible hours and working mode.

The average score value of the sample set was identified as 4.549 with a standard deviation of 0.425. Based on this we can conclude that it is 95% confident that the well-being index of Sri Lanka's IT sector will lie between 4.4238 and 4.6742. This confidence interval or score value is greater than 4.4 and which is an acceptable value.

B. Comparison

Our analysis found that some of the dimensions have a positive correlation with well-being in the workplace. Different research has been conducted and has shown different results. Research [3] has been conducted targeting software engineers during the Covid-19 pandemic. They have used 192 employees who work remotely from Denmark, Germany, Sweden, etc. for this study. They have covered over 50 psychological, social, situational, and physiological factors that have previously been associated with well-being or productivity. Examples include anxiety, distractions, coping strategies, psychological and physical needs, office set-up, stress, and work motivation. Finally, they have concluded that working from home during this time doesn't affect the software engineers much.

Another research[4] has been conducted in Turkey among software engineering professionals during the Covid-19 pandemic. They were conducting mental well-being and work engagement. Then finding the

relationship between these variables when employees are working from home during this pandemic. They have found out that sleep quality, decision latitude, work-life balance, and exercise predict mental well-being. Also, they are claiming that the results they have identified can be used in the industry to improve workplace well-being among software professionals.

Another research [5] has been conducted in Malawi and they collected data from a sample size of 174 employees. They have identified that 25% of the employees have poor psychological well-being. According to their analysis, they are showing no association with sex, cadre, having dependents, supervision, perceived coworker support, satisfaction with the physical work environment, satisfaction with remuneration, and motivation.

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