Job Stress, Rewards and Turnover Intention among Sewing Machine Operators in a Predominantly Female Workforce: Evidence from Apparel Companies in Sri Lanka's Western Province

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ABSTRACT

Purpose: This study examines which workplace factors are associated with the intention to leave among sewing machine operators in Sri Lankan apparel companies, in a workforce that is predominantly female. It tests the roles of rewards and benefits, immediate supervisor support, work environment, training and career development opportunities, and job stress. Design/methodology/approach: A cross-sectional survey was administered to 113 sewing machine operators (67.3% women) employed in five apparel companies in the Western Province, selected by convenience sampling. A five-point Likert questionnaire in Sinhala measured each construct with five items. Data were analysed with Pearson correlation and multiple regression. Findings: Turnover intention was close to the scale midpoint ($M = 2.85$, $SD = 0.88$). Rewards and benefits ($r = -.33$), work environment ($r = -.31$) and training and development ($r = -.24$) were negatively correlated with turnover intention, and job stress was positively correlated ($r = .34$); supervisor support was not ($r = -.15$, $p = .107$). When all five factors were entered together ($R^2 = .20$, adjusted $R^2 = .17$), only job stress remained a significant predictor ($\beta = .26$, $p = .008$), while the other four did not, consistent with substantial overlap among them. Originality/value: The study tests five commonly proposed factors simultaneously in a post-crisis, female-majority operational workforce in the Western Province and shows that job stress is the factor that stands out. Practical implications: Retention efforts should address workload, targets and role pressures alongside pay and welfare. The non-probability sample and cross-sectional design limit generalisation and causal inference.

Keywords: turnover intention; job stress; rewards and benefits; female workforce; apparel industry; Sri Lanka; human resource management

INTRODUCTION

The apparel industry is one of the main contributors to Sri Lanka's economy. It accounts for about 6% of gross domestic product and more than 40% of export revenue (Sri Lanka Export Development Board, 2024). Some 300 manufacturers provide over 330,000 direct jobs (Export Development Board [EDB], 2021), equivalent to roughly 5% of the industrial workforce (Dheerasinghe, 2009). Production in the sector remains highly labour-intensive, so a firm's capacity to meet daily targets, ship orders on time and maintain quality depends on its sewing machine operators, the operational-level employees who carry out day-to-day production.

The loss of these employees is a persistent management problem. Turnover, the permanent withdrawal of employees from an organisation, carries direct costs such as recruitment, induction, training and overtime, and indirect costs such as lost productivity, missed deadlines, lost organisational knowledge, lower morale and reduced profit (Ongori, 2007). Rajapaksha (2015) identifies turnover as a main barrier to the success of Sri Lanka's garment industry. Preliminary information gathered by the researcher from human resource managers and operators in the Western Province indicated annual operator turnover of between 9% and 12% in four leading companies. The problem has sharpened since the country's economic crisis. Low-income workers have migrated abroad or moved to other industries in search of better living conditions, while apparel firms

have responded by relocating factories, reducing overtime and salaries, changing working hours and cutting welfare facilities such as transport and recreation. Operators who are already weighing their options are unlikely to stay long under such conditions.

The workforce affected is largely female. In the present sample, 67.3% of respondents were women, in line with the female majority reported in earlier Sri Lankan operator studies (Amarathunge, 2016). Research on turnover suggests that gender, family responsibilities and working conditions can interact in decisions to leave (Zhang, 2016). Understanding why operators intend to leave is therefore also a question about the management of a female-majority workforce in a major export industry.

Sri Lankan research has identified a long list of factors associated with operators' turnover intention, including pay and benefits, supervisor support, working conditions, training opportunities, workload and stress (Amarathunge, 2016; Liyanage et al., 2014; Rathnasooriya & Jayatilake, 2016). Three features of this literature motivate the present study. First, individual studies typically examine one or a few factors, so little is known about their relative importance when examined together. Second, the findings are mixed. For example, pay is reported as a significant determinant by some studies and as an insignificant or non-core factor by others (Amarathunge, 2016; Gamage, 2021; Rajapaksha, 2015; Rathnasooriya & Jayatilake, 2016). Third, these factors change with the economic and social context, and most earlier work covers the apparel industry nationally or a single firm rather than the Western Province, where many firms and trade zones are concentrated and where many workers who have migrated from other provinces are employed. Living costs, transport and lifestyle conditions there may differ from those elsewhere.

The focus on operators is deliberate. They form the base of the production hierarchy, they are the employees whose absence is felt most immediately on the production line, and their pay and conditions are the most exposed to the pressures that firms face during economic downturns. Turnover intention among this group is also a useful early-warning indicator for human resource managers, because it can be measured while operators are still employed and while corrective action is still possible. Studying it in a workforce where women predominate adds a further reason for attention: the conditions that make a job sustainable for operators are, in this industry, largely the conditions that determine the stability of many women's employment.

This article reports a quantitative survey of sewing machine operators in apparel companies in the Western Province. It addresses three research questions:

(1) Which factors are associated with operators' intention to leave?
(2) What is the nature of the relationship between each factor and turnover intention?
(3) Which factors have the most significant impact when considered together?

The study contributes by testing five commonly proposed factors simultaneously on recent data from a female-majority operational workforce, by separating factors that are merely correlated with turnover intention from those that retain a unique association, and by drawing practical implications for human resource management. The article proceeds with a literature review and hypotheses, the method, the results, a discussion, implications, limitations and a conclusion.

LITERATURE REVIEW AND HYPOTHESES

Turnover intention and its costs

Turnover refers to the voluntary or involuntary movement of employees out of an organisation. Voluntary turnover is initiated by the employee, whereas involuntary turnover, such as dismissal, is initiated by the employer, and voluntary turnover is generally regarded as harder to predict and more damaging (Zhang, 2016). Some turnover is healthy, since it brings in new skills and ideas, but the loss of high-performing and experienced employees is costly. Turnover intention, an employee's conscious and deliberate willingness to leave the organisation, is widely studied because it is a proximal indicator of actual turnover. Meta-analytic evidence links intention to actual leaving (Tett & Meyer, 1993), and intention reflects employees' perceptions of staying or leaving (Cotton & Tuttle, 1986; Saeed et al., 2014). Studying intention therefore allows managers

to act before experienced operators have left.

Turnover is classified in several ways. It may be voluntary or involuntary, functional or dysfunctional, and avoidable or unavoidable. Functional turnover occurs when low-performing employees leave, and dysfunctional turnover when high performers leave, and the latter is the form that organisations most need to prevent (Belete, 2018; Zhang, 2016). Voluntary, dysfunctional and avoidable turnover is also the form most open to managerial influence, because it is driven by conditions inside the organisation that managers can change. The present study concerns this controllable form, namely operators' intention to leave voluntarily, which is shaped by how they experience their pay, supervision, working conditions, development prospects and workload. Intention is measured here as an attitude, a conscious willingness to leave, rather than as a behaviour.

The consequences of turnover are well documented. Replacement, recruitment and training costs reduce profitability, and departing skilled employees take human capital with them (Gamage, 2021; Ongori, 2007; Zhang, 2016). In a target-driven production environment, new operators are less efficient than experienced ones, so turnover disrupts the production flow and quality and places additional burdens on the remaining workforce.

Theoretical lens

Several theories have been used to explain turnover intention, including the theory of organisational equilibrium, Herzberg's two-factor theory and equity theory (Ngo-Henha, 2017). Herzberg's two-factor theory is particularly relevant to operational employees. It distinguishes motivators such as achievement, recognition, responsibility and advancement from hygiene factors such as salary, interpersonal relations, supervision, working conditions and company policy; when hygiene factors are inadequate, dissatisfaction rises and employees become receptive to leaving (Herzberg et al., 1959). Equity theory adds that perceived unfairness in rewards relative to others can prompt employees to look elsewhere. These perspectives point to rewards, supervision, working conditions and development opportunities as potential drivers of intention to leave. Job stress, which arises when job demands exceed the resources a person can mobilise, is a complementary demand-side factor that the hygiene-motivator distinction does not directly capture.

The theory of organisational equilibrium, regarded as the first formal theory of turnover, holds that the perceived desirability of movement and the perceived ease of movement determine an employee's equilibrium, with job satisfaction depending on compatibility with roles, relationships at work and self-image (Ngo-Henha, 2017). Applied to operators, the desirability of movement is likely to rise when pay, conditions or stress make the current job less attractive, and the ease of movement when alternative employers or migration opportunities exist, as they did in the Western Province during the crisis. Together these perspectives justify treating the five factors as simultaneous influences on the intention to leave, rather than as isolated causes.

Factors associated with turnover intention and hypotheses

Rewards and benefits

Rewards and benefits include the monetary, non-monetary and psychological returns an employee receives in exchange for work. Low-wage workers with limited benefits are reported to have little intention to stay (Shukla & Sinha, 2013), and dissatisfaction with rewards is associated with absenteeism, low commitment and turnover intention (Ali et al., 2016). Employees also compare their rewards with those of peers in similar jobs, and perceived mismatch prompts them to search for better-paying alternatives (Shukla & Sinha, 2013). Amarathunge (2016) found salary and benefits significantly related to operators' intention to leave and described financial rewards as the most prominent hygiene factor for operational employees. Gamage (2021) likewise found pay to be a major determinant. By contrast, Rathnasooriya and Jayatilake (2016) reported a negative but insignificant correlation, and Rajapaksha (2015) argued that pay is not a core factor. In the current economic context, with high inflation, rewards are likely to matter strongly to operators. We therefore hypothesise:

H1: Rewards and benefits are significantly related to turnover intention.

Immediate supervisor support

In apparel factories, first-level supervisors work closely with operators every day, set and monitor targets and shape the experience of the job. Supportive supervision is argued to motivate employees, improve satisfaction and reduce withdrawal (Iqbal et al., 2020; Shukla & Sinha, 2013). Amarathunge (2016) emphasises strong supervisor–employee relationships and open discussion of job-related issues, and Rathnasooriya and Jayatilake (2016) report that close support for newcomers is important to prevent frustration and exit. Liyanage et al. (2014) found supervisory support to be a significant predictor of turnover intention. Makhdoom (2017), however, found a weak effect of management support and suggested that employees may fear expressing displeasure towards managers. Because the evidence is split, we test the relationship rather than assume its direction:

H2: Immediate supervisor support is significantly related to turnover intention.

Work environment

The work environment comprises the tools, equipment, methods and physical and organisational arrangements surrounding the job. Employees tend to perform better and stay longer where conditions are comfortable, safe and clean (Rathnasooriya & Jayatilake, 2016; Zhang, 2016). Adverse perceived work conditions are positively associated with turnover intention (Nicolas et al., 2016), and employees in hazardous conditions are less inclined to stay. Makhdoom (2017), however, found only a small effect of the work environment. Given the physical demands of sewing work, we expect a relationship:

H3: The work environment is significantly related to turnover intention.

Training and career development opportunities

Training and development increase employees' skills, performance and commitment, and investment in them can signal continuity of employment (Kadiresan et al., 2015). Employees who see no route to advancement are more likely to leave (Shukla & Sinha, 2013), and Amarathunge (2016) found a strong relationship between development opportunities and intention to leave among operational employees. Makhdoom (2017) reported an insignificant association. In an industry where operators work to targets, access to skills development may be particularly valuable to less experienced employees. We hypothesise:

H4: Training and career development opportunities are significantly related to turnover intention.

Job stress

Job stress arises when job demands exceed a person's ability to cope, and it is associated with lower performance, lower satisfaction and commitment, and turnover intention. Sewwandi and Perera (2016) report that role conflict, work overload and role ambiguity increase job stress, and that job stress is positively related to turnover intention among Sri Lankan apparel employees. Liyanage et al. (2014) identified stress as a good predictor of turnover intention in a leading garment manufacturer. Nanayakkara and Chandrika (2018) reported a significant positive relationship between job stress and turnover intention among operational-level apparel employees, and identified work overload, low autonomy, role ambiguity, role conflict and unfair rewards as its main determinants. We therefore hypothesise:

H5: Job stress is significantly related to turnover intention.

The Sri Lankan apparel context and the research gap

Three characteristics of the Sri Lankan setting make the question timely. First, the industry is labour-sensitive. Operators achieve daily output targets, complete orders without delay and maintain quality, so their retention bears directly on competitiveness, and Dheerasinghe (2009) notes that the industry has long struggled to maintain the manpower it requires. Second, the economic crisis has altered working conditions. Factory

relocations, reduced overtime and salaries, changed working hours and reduced welfare facilities have coincided with the migration of low-income workers abroad and into other industries, so factors that were important before the crisis may no longer carry the same weight. Third, the Western Province hosts many of the country's apparel firms and trade zones and employs many workers who have migrated from other provinces, so living costs, transport and lifestyle may differ from those elsewhere.

The empirical literature on operators is substantial but fragmented. Rathnasooriya and Jayatilake (2016) found promotional opportunities, supervisor support, workload and working conditions to be significant for operational-level employees, whereas Amarathunge (2016) found salary and benefits, working conditions and training opportunities to be significant determinants in a single leading firm. These studies, and others cited above, examined a limited set of factors, covered the industry broadly or a single firm, and produced findings that differ on whether pay, supervisor support, work environment and training matter. Few of them test several factors simultaneously on recent data from the Western Province. This study therefore asks which of five commonly proposed factors retain an association with turnover intention when considered together, in a female-majority operator workforce, after the economic disruption of recent years.

CONCEPTUAL FRAMEWORK

Figure 1 summarises the framework. Rewards and benefits, supervisor support, work environment, and training and development are expected to relate negatively to turnover intention, because higher satisfaction with them should reduce the wish to leave, and job stress is expected to relate positively. The framework treats the five factors as simultaneous predictors, which allows the study to compare their relative contribution.

Figure 1 Conceptual Framework (Independent Variables → Dependent Variable)

Independent variables (hypothesis)	Expected direction	Dependent variable
Rewards and benefits (H1)	Negative	Turnover intention
Immediate supervisor support (H2)	Negative	Turnover intention
Work environment (H3)	Negative	Turnover intention
Training and career development opportunities (H4)	Negative	Turnover intention
Job stress (H5)	Positive	Turnover intention

METHOD

Research design

The study adopts a positivist philosophy and a deductive approach. Hypotheses derived from existing theory and research were tested using quantitative data. The design is descriptive–correlational and cross-sectional: data were gathered once, in a natural field setting with minimal researcher interference, using a survey strategy (Sekaran & Bougie, 2016). This design suits the aim of identifying relationships between workplace factors and turnover intention.

Two philosophical choices underpin the design. Ontologically, the study treats workplace factors and the intention to leave as measurable features of a reality that exists independently of the respondents (an objectivist position). Epistemologically, it assumes that valid knowledge is produced by applying scientific methods and existing theory to observable data (a positivist position) (Bryman & Bell, 2016). The deductive approach follows from these choices: hypotheses were derived from theory and prior studies and then tested against data, as in earlier Sri Lankan studies of operators' turnover intention (Amarathunge, 2016; Rathnasooriya & Jayatilake, 2016). The unit of analysis is the individual sewing machine operator.

Population, sample and procedure

The population comprises sewing machine operators working in apparel companies in the Western Province of Sri Lanka. Data were collected from operators in five apparel companies, with an equal share of respondents sought from each. Respondents were selected by convenience sampling, a non-probability method that was chosen because of time constraints and because access to operators in apparel firms is difficult to obtain. Both male and female operators were included. Questionnaires were administered in person, which allowed the researcher to clarify items. A total of 113 complete questionnaires were retained for analysis . Questionnaires that were not fully completed were excluded, and there were no missing values in the final data set.

Convenience sampling was used instead of probability sampling for reasons of time and access. It is a quick and efficient way to gather basic information, but it limits generalisability, a point taken up in Section 7. To limit the dominance of any one workplace, an equal share of respondents was sought from each company. The research problem was identified through preliminary discussions with a few human resource managers and operators in apparel companies in the Western Province, which indicated high operator turnover. These discussions informed the focus of the study but are not part of the data analysed here.

Instrument and measures

The questionnaire was prepared in Sinhala, the language most familiar to the respondents. It contained four demographic items (gender, age band, marital status and work experience band) and 30 attitude items, five for each of six constructs: turnover intention, rewards and benefits, immediate supervisor support, work environment, training and career development opportunities, and job stress. Items were rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree), and scores for each construct are the mean of its five items. Higher scores therefore indicate stronger turnover intention, greater satisfaction with rewards, supervisor support, the work environment and training, and greater job stress.

Questionnaires were chosen because they allow large quantities of quantitative data to be collected quickly and at lower cost than interviews or observation, and personal administration allowed the researcher to motivate respondents and clarify items so that they could be answered correctly (Sekaran & Bougie, 2016). Closed-ended items in simple language kept the instrument short and easy to complete. Secondary information from reports, articles and websites supplied context on the industry.

Validity and reliability

Construct adequacy was examined with the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity, and internal consistency with Cronbach's alpha. The KMO value for the full item set was .785 (Bartlett's $\chi^2(435) = 2157.47$, $p < .001$), and values for the individual constructs ranged from .74 to .87, with Bartlett's test significant in every case. Cronbach's alpha was .777 for all 30 items and ranged from .74 to .91 for the six constructs, above the conventional .70 threshold (Table 2).

Data analysis

Data were analysed in SPSS version 29. Descriptive statistics summarised the sample profile and the study variables. Normality was judged from skewness and kurtosis. Linearity between each predictor and turnover intention was examined with the ANOVA test of linearity, multicollinearity with tolerance and variance inflation factor (VIF) values, independence of residuals with the Durbin–Watson statistic, and homoscedasticity by inspecting residual plots. Pearson correlations (two-tailed) tested the hypotheses, and a multiple regression with all five predictors entered simultaneously tested their joint and unique associations with turnover intention. The significance level was .05.

Pearson's correlation was used because the study variables were approximately normally distributed, with skewness within ±1. Multiple regression was chosen to estimate the combined and unique association of the five predictors with turnover intention, which is the basis for answering the third research question. The regression assumptions reported in Section 4.3 were checked before the model was interpreted.

Ethical considerations

Participation was voluntary and respondents were informed of the purpose of the study and the identity of the researcher. The questionnaire used simple language and contained no sensitive questions. Company names and personal information are not disclosed, and the data were used only for research purposes and analysed without manipulation [add ethics committee approval or reference number, if applicable].

RESULTS

Sample profile

Table 1 profiles the 113 respondents. Women made up 67.3% of the sample (n = 76) and men 32.7% (n = 37). The workforce was young: 60.2% were aged 34 or under, with the largest single group aged 20 to 24 (31.0%), although 23.0% were aged 45 to 54. Respondents were almost evenly split between married (47.8%) and single (45.1%), and 45.1% had more than five years' experience as an operator while 17.7% had less than one year. There were no missing values, and a box plot showed no extreme outliers, only one possible outlier, which was retained.

Table 1 Profile of Respondents (N = 113)

Characteristic	Category	n	%
Gender	Female	76	67.3
	Male	37	32.7
Age (years)	15–19	7	6.2
	20–24	35	31.0
	25–34	26	23.0
	35–44	14	12.4
	45–54	26	23.0
	55 and over	5	4.4
Marital status	Married	54	47.8
	Single	51	45.1
	Separated	4	3.5
	Divorced	2	1.8
	Prefer not to say	2	1.8
Experience as operator	Less than 1 year	20	17.7
	1 to 3 years	25	22.1
	3 to 5 years	17	15.0
	More than 5 years	51	45.1

Note. Percentages may not sum to 100 because of rounding.

Descriptive statistics and measurement quality

Table 2 reports descriptive statistics for the six constructs. Mean turnover intention was 2.85 (SD = 0.88), slightly below the scale midpoint, indicating a moderate level of intention to leave with considerable variation between operators. Respondents were least satisfied with rewards and benefits (M = 2.94) and training and

development (M = 2.94), moderately satisfied with supervisor support (M = 3.12) and the work environment (M = 3.24), and reported job stress slightly above the midpoint (M = 3.27), the highest mean of the six constructs. Skewness values ranged from −.52 to .33 and kurtosis from −.68 to −.04, so the distributions were acceptably normal. Reliability and sampling adequacy were satisfactory for all constructs.

The standard deviations show that responses were most dispersed for turnover intention (SD = 0.88) and supervisor support (SD = 0.80) and least dispersed for the work environment (SD = 0.57). Operators therefore agreed more about their working conditions than about how strongly they wished to leave or how supportive their supervisors were.

Table 2 Descriptive Statistics, Distribution, Reliability and Sampling Adequacy of the Study Variables

Variable	M	SD	Skewness	Kurtosis	α	KMO
Turnover intention	2.85	0.88	.33	−.61	.89	.79
Rewards and benefits	2.94	0.73	−.40	−.68	.80	.74
Supervisor support	3.12	0.80	−.04	−.42	.91	.87
Work environment	3.24	0.57	−.52	−.04	.74	.74
Training and development	2.94	0.79	.05	−.29	.88	.81
Job stress	3.27	0.76	.24	−.44	.82	.78

Note. N = 113. Each construct was measured with five items on a five-point scale. KMO = Kaiser–Meyer–Olkin measure of sampling adequacy; Bartlett's test was significant ($p < .001$) for every construct.

Assumption checks

For rewards and benefits, work environment, training and development, and job stress, the linear component of the ANOVA linearity test was significant ($p < .01$ in each case) and deviation from linearity was not (p between .116 and .356), supporting linear models. For supervisor support, the linear component was not significant ($p = .077$) and deviation from linearity was significant ($p = .003$), so a linear specification describes this predictor poorly, and its results should be treated with caution. Tolerance values ranged from .57 to .85 and VIF values from 1.18 to 1.77, indicating no problematic multicollinearity, although the predictors were moderately intercorrelated (Table 3). The Durbin–Watson statistic was 1.66, consistent with independent errors, and residual plots showed no clear pattern.

Correlations and hypothesis tests

Table 3 shows the correlations. Turnover intention was negatively correlated with rewards and benefits ($r = −.33$, $p < .001$), work environment ($r = −.31$, $p = .001$) and training and development ($r = −.24$, $p = .010$), and positively correlated with job stress ($r = .34$, $p < .001$). Its correlation with supervisor support was negative but not significant ($r = −.15$, $p = .107$). H1, H3, H4 and H5 were therefore supported at the .05 level and H2 was not. The correlations were small to moderate in size. The predictors were also related to one another: rewards and benefits, supervisor support, work environment and training were positively intercorrelated (r = .29 to .51), and job stress was negatively correlated with rewards and benefits ($r = −.30$) and the work environment ($r = −.33$).

Table 3 Pearson Correlations among the Study Variables

Variable	1	2	3	4	5	6
1. Turnover intention	—					
2. Rewards and benefits	−.33***	—				

3. Supervisor support	−.15	.29**	—			
4. Work environment	−.31**	.49***	.51***	—		
5. Training and development	−.24*	.33***	.42***	.39***	—	
6. Job stress	.34***	−.30**	−.13	−.33***	−.03	—

Note. N = 113. Two-tailed tests. * p < .05. ** p < .01. *** p < .001.

Multiple regression

The regression model with all five predictors was significant, F(5, 107) = 5.48, p < .001, and explained 20.4% of the variance in turnover intention (adjusted R^2 = .17; Table 4). Job stress was the only significant predictor (β = .26, B = 0.30, p = .008): holding the other factors constant, a one-point higher job stress score was associated with a 0.30-point higher turnover intention score. Rewards and benefits (β = −.16, p = .128), training and development (β = −.16, p = .114), work environment (β = −.11, p = .323) and supervisor support (β = .05, p = .628) were not significant once the other factors were controlled. The 95% confidence intervals for rewards and benefits and for training and development extend only marginally past zero, which indicates that small to moderate negative associations cannot be ruled out.

A comparison of the correlations and the regression shows how much the predictors overlap. The squared correlations of the five factors with turnover intention sum to about 40% (.11 for rewards and benefits, .02 for supervisor support, .10 for work environment, .06 for training and development and .11 for job stress), twice the 20% of variance that the five factors explain jointly. Because the squared correlations count shared variance repeatedly, this gap is a direct indication that much of what each factor appears to explain is explained equally well by the others.

Table 4 Multiple Regression Predicting Turnover Intention

Predictor	**B**	**SE B**	**β**	**t**	**p**	**95% CI [LL, UL]**
Constant	3.36	0.69		4.87	< .001	[1.99, 4.73]
Rewards and benefits	−0.19	0.12	−.16	−1.54	.128	[−0.43, 0.06]
Supervisor support	0.06	0.12	.05	0.49	.628	[−0.17, 0.28]
Work environment	−0.18	0.18	−.11	−0.99	.323	[−0.52, 0.17]
Training and development	−0.18	0.11	−.16	−1.59	.114	[−0.40, 0.04]
Job stress	0.30	0.11	.26	2.73	.008	[0.08, 0.51]

Note. N = 113. R = .45, R^2 = .20, adjusted R^2 = .17, F(5, 107) = 5.48, p < .001; Durbin–Watson = 1.66. Confidence intervals were computed from B and SE B with 107 degrees of freedom.

Descriptive comparison by gender

Because women formed the majority of the sample, mean scores were also compared by gender (Table 5). Men reported higher turnover intention (M = 3.01) than women (M = 2.78). Women reported higher supervisor support (M = 3.25 vs. 2.86) and higher training and development satisfaction (M = 3.12 vs. 2.56) than men, whereas the two groups reported very similar rewards and benefits, work environment and job stress scores. These comparisons are descriptive. Significance tests of the differences and gender-specific regressions were not reported, so the differences should not be treated as established.

Table 5 Mean Scores by Gender (Descriptive)

Variable	Men (n = 37)	Women (n = 76)	Difference (men − women)
Turnover intention	3.01	2.78	0.23
Rewards and benefits	2.98	2.92	0.06
Supervisor support	2.86	3.25	−0.39
Work environment	3.25	3.24	0.01
Training and development	2.56	3.12	−0.56
Job stress	3.31	3.25	0.06

Note. Values are mean scale scores. No significance tests are reported.

Summary of hypothesis tests

Table 6 brings the correlation and regression results together. In answer to the first research question, five factors were identified from the literature and tested. In answer to the second, rewards and benefits, work environment and training and development were negatively related to turnover intention; job stress was positively related, and supervisor support was not related to it. In answer to the third, job stress was the only factor with a significant unique association when all five were considered together.

Table 6 Summary of Hypothesis Tests

Hypothesis	Relationship tested	r	p	Correlation result	Regression result
H1	Rewards and benefits and turnover intention	−.33	< .001	Supported	Not significant (p = .128)
H2	Supervisor support and turnover intention	−.15	.107	Not supported	Not significant (p = .628)
H3	Work environment and turnover intention	−.31	.001	Supported	Not significant (p = .323)
H4	Training and development and turnover intention	−.24	.010	Supported	Not significant (p = .114)
H5	Job stress and turnover intention	.34	< .001	Supported	Significant (p = .008)

Note. N = 113. Correlation results are two-tailed Pearson tests at the .05 level.

DISCUSSION

Job stress is the factor that stands out

The clearest finding is that job stress was the only factor that remained a significant predictor of turnover intention when all five factors were considered together. It also had the highest mean among the six constructs and a positive correlation with turnover intention of similar size to those of the other factors. This accords with Sri Lankan studies that identify stress as a predictor of turnover intention among apparel employees (Liyanage et al., 2014; Nanayakkara & Chandrika, 2018; Sewwandi & Perera, 2016).

Those studies attribute stress to work overload, role conflict, role ambiguity, low autonomy and perceived

unfairness of rewards, which are plausible features of a target-driven sewing line where output is monitored closely and shortfalls are visible. The present data do not identify the sources of stress, so this explanation remains an inference.

The result also shows the value of testing factors together. Considered one at a time, four of the five factors were related to turnover intention, which would suggest that almost any improvement in working life might help. The regression suggests a more selective picture: stress retained a unique association even after the correlated influence of rewards, work environment and training was accounted for.

The model should be read in proportion. An R^2 of .20 means that about four-fifths of the variance in turnover intention is not explained by these five factors, and a standardised coefficient of .26 for job stress represents a modest effect. Other influences, including personal and family circumstances, alternative job opportunities, opportunities to migrate and organisational factors that were not measured, are likely to matter. The model is nevertheless informative about priorities, because it identifies the factor whose association is least easily explained by the others.

Rewards and benefits, work environment and training: related but not independent

Rewards and benefits, work environment and training and development were each negatively correlated with turnover intention, as hypothesised, but none had a significant unique association in the regression. A likely reason is overlap. These constructs were moderately intercorrelated (r = .33 to .49), and job stress was itself negatively correlated with rewards and the work environment. Operators who are satisfied with pay are also likely to be satisfied with their conditions and development opportunities, so the shared variance is difficult to attribute to any single factor in a sample of 113. The confidence intervals for rewards and for training and development extend only slightly above zero, and the sample is small, so the results do not show that these factors are unimportant. They show that, given the others, their unique contribution is not clearly distinguishable from zero in these data.

These findings help to reconcile the mixed Sri Lankan evidence. Amarathunge (2016) and Gamage (2021) found rewards to be an important determinant, whereas Rathnasooriya and Jayatilake (2016) found a negative but insignificant relationship and Rajapaksha (2015) argued that pay is not core. Differences in which other factors are measured, in samples and in economic circumstances could produce such variation. In the present study, rewards and benefits and training and development had the lowest satisfaction means (both 2.94), which is consistent with the argument that operators, whose needs are largely basic, place weight on pay in a period of high inflation. Herzberg's two-factor theory treats such hygiene factors as sources of dissatisfaction rather than motivation (Herzberg et al., 1959), and Maslow's account of motivation would likewise predict that lower-level needs dominate when living costs rise (Maslow, 1943). The regression result nevertheless indicates that, in this sample, such explanations should be treated as plausible rather than demonstrated.

The two remaining factors can be considered separately. The negative correlation between the work environment and turnover intention (r = −.31) is consistent with research linking poor physical conditions to the wish to leave (Nicolas et al., 2016; Rathnasooriya & Jayatilake, 2016; Zhang, 2016). However, the work environment received a relatively favourable mean (3.24) with the least variation among respondents. Where conditions are broadly acceptable and similar across workers, they may discriminate less between operators who intend to leave and those who do not, which may partly explain why the work environment did not retain a unique association.

Training and development had one of the two lowest means (2.94) and the weakest of the four significant correlations (r = −.24). Prior evidence is divided: Amarathunge (2016) reported a strong relationship, whereas Makhdoom (2017) reported an insignificant one. Because operators work to targets set by their managers, and the respondents were relatively young and, for many, relatively inexperienced, access to skills development may matter for reaching those targets and for progressing in the job. The present data suggest that this concern is real but, once pay, conditions and stress are accounted for, not an independent driver of intention to leave. Longitudinal data on whether training predicts retention would be a stronger test.

A further qualification concerns how rewards were measured. Rewards and benefits were defined to include all monetary and non-monetary rewards that operators receive, so intrinsic elements such as recognition and appreciation are mixed with extrinsic ones such as salary, bonuses and conditions, a distinction drawn in earlier work (Ali et al., 2016). A single composite cannot show whether pay specifically, or the wider pattern of recognition and benefits, accounts for the correlation with turnover intention. Separating these components would help to show which parts of the reward package matter for retention.

Supervisor support

Supervisor support was unrelated to turnover intention in the correlation analysis and in the regression, which contrasts with studies that found supportive supervision to reduce turnover intention (Iqbal et al., 2020; Liyanage et al., 2014). It is consistent with Makhdoom (2017), who found little effect of management support and suggested that employees may be reluctant to voice dissatisfaction with managers. A similar reluctance could affect how operators answered the supervisor items, although the survey did not test this. Two further considerations apply. Supervisor support was strongly correlated with the work environment ($r = .51$), so its influence may be absorbed by broader perceptions of the workplace, and the linearity test indicated that a linear specification fitted this variable poorly. The null result should therefore not be taken as evidence that supervision is irrelevant to retention in the apparel sector.

Operators' concerns about supervision may also be bound up with the way targets are managed. In apparel factories, supervisors monitor performance closely and are responsible for ensuring that targets are met. A supervisor can therefore be a source of support and a source of pressure at the same time, which would blur the relationship between supervisor support and intention to leave. The study did not measure supervisory pressure separately, so this remains a question for future work.

A female-majority workforce

Women were two-thirds of the sample. The descriptive comparison suggests that men reported somewhat higher turnover intention than women, in line with the finding reported for Sri Lankan operators by Amarathunge (2016) and in contrast with Zhang (2016), who reported higher turnover among women and linked it to caring and family duties. The group differences in perceived supervisor support and training were large in magnitude (0.39 and 0.56 scale points), but they were not tested, and the study cannot tell whether they reflect differences in treatment, in expectations or in the composition of the male and female subsamples. A cultural explanation, such as women being more accepting of limited support, is possible but speculative. What the data do show is that job stress and rewards were reported at very similar levels by men and women, which implies that stress is not a concern limited to one gender. Because women constitute most of the operator workforce, retention measures designed for operators are, in practice, measures for a female-majority workforce, and the question of whether the drivers of intention differ by gender merits dedicated investigation.

Context: economic pressure and the Western Province

The findings need to be read against the setting. Sri Lanka's economic crisis has been accompanied by high inflation, reduced overtime and welfare provision, and a trend towards migration, and rewards and benefits and training were the factors operators rated lowest. This pattern is compatible with the view that pay-related concerns are salient to operational employees at this time, even though the regression did not isolate rewards as a unique predictor. The study did not measure cost of living or migration intentions, so these links are interpretive. The results also pertain to the Western Province, where the concentration of firms offers operators alternative employers and where living costs and transport conditions may differ from those elsewhere. The mixed evidence from earlier Sri Lankan studies suggests that the relative importance of turnover drivers is context-dependent, which is a reason to re-estimate such models periodically rather than assume that earlier findings still hold.

IMPLICATIONS

The findings suggest that managers seeking to retain operators should prioritise reducing job stress, while

treating rewards, the work environment and employee development as complementary interventions. This requires reviewing daily production targets and workloads, clarifying roles and responsibilities, and minimising conflicting demands, supported by a diagnostic assessment of the main sources of stress on each production line. Furthermore, organisations should ensure that remuneration and incentives reflect prevailing cost-of-living pressures while maintaining non-financial benefits such as meals, transport and health facilities. Supervisors should adopt a supportive approach towards newcomers who struggle to meet targets, recognise good performance and encourage employee participation rather than relying on punitive measures. Maintaining safe and comfortable working conditions, including adequate lighting, ventilation, sanitary facilities and occupational health and safety provisions, is equally important. Finally, organisations should invest in practical skills development and establish visible career progression opportunities, particularly for less experienced operators who reported relatively low satisfaction with training opportunities.

Given that job stress emerged as the only robust predictor of turnover intention, organisations should adopt a systematic approach of measuring, acting and re-measuring. Periodic surveys assessing job stress and turnover intention across production lines and under different supervisors should be conducted alongside the monitoring of actual employee turnover. Such an approach would enable managers to identify areas where workplace pressures are concentrated, evaluate whether interventions such as adjusting production targets and staffing arrangements effectively reduce stress, and assess whether improvements in employee well-being translate into lower turnover intention and actual employee departures. Moreover, continuous monitoring would generate longitudinal evidence to complement the present cross-sectional findings and provide a stronger basis for evaluating the effectiveness of employee retention initiatives.

LIMITATIONS AND FUTURE RESEARCH

Several limitations apply. The sample was obtained by convenience sampling from five companies in one province and comprised 113 operators, so the findings cannot be generalised to all operators or to other regions, and some firms were reluctant to allow access to their employees. The cross-sectional design supports associations, not causal claims, and turnover intention is not actual turnover. All data came from self-reported questionnaires, which are subject to common-method bias and social desirability, particularly where operators may be cautious about criticising supervisors. The model included only five of the many factors proposed in the literature and did not control for demographic variables such as age, marital status or experience, which are known to relate to turnover. The predictors were moderately correlated, which limits the ability to separate their unique effects in a small sample. The linearity assumption was not met for supervisor support. The gender comparisons are descriptive and were not tested. Finally, the sources and validation of the measurement scales need fuller documentation.

The preliminary turnover figures that motivated the study come from company information and interviews and were not independently verified. With 113 cases and five predictors, the study has adequate power to detect moderate effects but limited power to detect small unique effects, so non-significant coefficients should be interpreted with the confidence intervals in mind rather than as evidence of no effect. The survey was administered at a single point in time during a period of economic change, and the results may not hold as conditions evolve.

Several hypotheses were tested without adjustment for multiple comparisons, so borderline results, such as the correlation of training and development with turnover intention ($p = .010$), should be interpreted cautiously.

Future research could use probability or stratified sampling across several provinces and firm types and a larger sample, follow operators over time and relate intentions to actual leaving, and control for demographic characteristics. Gender-specific analyses, or gender as a moderator, would test whether the drivers of turnover intention differ for women and men, and studies focused on women operators could examine the roles of family responsibilities, transport and safety. Researchers could also examine mediators such as job satisfaction and commitment, additional factors such as organisational justice and cost of living, and use qualitative methods to identify what causes stress on the production floor.

CONCLUSION

This study examined five workplace factors in relation to turnover intention among sewing machine operators in apparel companies in Sri Lanka's Western Province, a workforce in which women are the majority. Rewards and benefits, work environment and training and development were each associated with lower turnover intention, job stress with higher turnover intention, and supervisor support was unrelated. When the factors were considered together, only job stress remained a significant predictor. The central message for managers is that retention strategies for operators should treat job stress as a priority, alongside fair rewards and a supportive work environment, rather than relying on pay alone. Because the sample was small, non-random and drawn from one province, the findings should be treated as indicative and tested in larger, more representative and longitudinal studies, including studies that examine whether the drivers of turnover differ for the women who form most of this workforce.

Three contributions follow. First, the study provides recent evidence from the Western Province on the relative importance of five factors that earlier Sri Lankan studies examined separately. Second, it shows that correlation and unique association can diverge: pay, conditions and training were related to turnover intention but overlapped with one another, whereas stress stood apart. Third, it highlights a female-majority operational workforce as a distinct and under-studied group in the management of apparel firms, and it identifies the question of gender differences in the drivers of turnover as a priority for future research.

Declarations

Consent to participate: Participation was voluntary and respondents were informed of the study's purpose.

Use of AI tools: Claude was used for language editing

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