



The Effect of Incentive Management System on Turnover Rate, Job Satisfaction and Motivation of Medical Laboratory Technologists

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Abstract

Objectives: We investigated factors affecting turnover and assessed satisfaction with an existing Incentive Management System and to which extent it motivates employees. We also provide recommendations to improve the Incentive Management System.

Methods: A cross-sectional questionnaire study utilizing a convenience sample from of a population of 250 Medical Laboratory Technologists.

Findings: 100 medical laboratory technologists responded to the survey. We found discrepancy in wage allocation to be the most prominent factor affecting turnover intention with 51% strongly agreeing, followed by low incremental system with 48%. Other factors were: limited opportunities for promotion, insufficient allowances and benefits, and lack of continuing education and professional growth opportunities with 49%. 26% of respondents found lack of autonomy/independence to be a factor. Poor workgroup cohesion was least ranked (17%). 39% reported dissatisfaction with workload, 31% were dissatisfied with their provided allowance, with management support, and the working hours, and opportunities for promotion (44%). Opportunities for career growth and higher pay were highest ranked as incentives to remain, and additional vacation time and supportive colleagues to be the least relevant factors. There was a significant correlation between age and motivation levels ($r = 0.223$, $p = 0.026$).

Discussion and Conclusions: Burnout and turnover can be costly to healthcare organizations, due to the impact on productivity and healthcare quality. Human resource departments must ensure to not only attract skilled employees, but also influence their motivation and retention due to the impact on productivity and health care quality. Incentive management systems support practices to enhance skills, knowledge, abilities and retention rates for healthcare employees. Our study findings support the continued improvement of Incentive Management Systems within the healthcare organization to reduce turnover rates, maximize quality outcomes, and increase the levels of commitment and motivation of employees.

Keywords

incentives, management, retention, healthcare, employees, human resources, motivation, laboratory technologist

Introduction

Employee turnover in the healthcare sector affects quality and safety of services and can lead to unfavorable patient outcomes as well as reduce profitability.^{1,2} A survey in the United Kingdom found the cost of replacing employees to be significantly high.³ Understanding factors that may lead to turnover supports the development of strategies for retention.

Laboratory services are integral to all levels of healthcare organizations, and the role of a committed laboratory employee is critical. Medical laboratory technologists (MLTs) have

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special technical skills, as they handle delicate instruments and medical equipment to perform complex laboratory procedures to provide vital diagnostic evaluation and quality care to patients.^{2,4}

A study on the factors influencing the quality of laboratory service in public and private healthcare facilities in Ethiopia found that lack of reliability or poor medical laboratory services compromises quality of care and may lead to misdiagnosis or added financial expenditure.² Issues such as low motivation, inadequate equipment, poor communications, shortage of employees, and lack of internal quality control are cited as major barriers to quality laboratory services.⁵ Retention of highly skilled health care professionals such as MLTs requires effective management measures and continuous motivation.⁶

Management has a significant impact on the attitude of employees and how they build relationships within the organization.⁶ It is one of the factors that determines whether employees will remain with the organization or seek opportunities elsewhere. Healthcare organizations must understand the needs of their employees and put in place strategies to achieve them.

Organizations that offer strong benefits and incentives to employees reduce the likelihood of turnover by 26% and increase retention by 14%.^{3,7} It is in the interest of healthcare institutions to prevent excessive employee turnover, encourage retention, commitment, and loyalty to the organization, and improve job productivity and satisfaction. Organizations have a range of incentive programs they can implement to motivate their employees. Studies have shown that incentive programs, such as pay-for-performance (P4P) schemes, enhance motivation and retention. P4P is a value-based payment system that provides financial incentives based on the attainment of pre-set targets.⁸ P4P ties reimbursement to metric-driven outcomes, patient satisfaction, and proven best practices, aligning payment with quality and value of service. Studies have shown varying levels of effectiveness of this incentive method.⁸

The annual incentive plan is another type. This pay-plan rewards employees for accomplishing specific results at fixed intervals. This strategy ties expected performance outcomes to pre-defined results identified at the onset of the performance cycle.⁹ Another strategy is the spot reward system, which provides special contributions as they occur of a particular task or project. The other incentive program is discretionary bonus plan. This incentive plan involves giving of bonuses without any pre-determined formula. Under this strategy, the management determines the size of the bonus after a performance cycle.⁵

The Incentive Management System (IMS) is an administration strategy that has been identified as a model for increasing motivation and employee's retention, and the focus of this current study.⁸ These incentive strategies have the potential to enhance employee skills and knowledge and fulfill their intrinsic and extrinsic needs. They also cultivate a favorable working environment for employees with measures such as reasonable payments, job security, work autonomy, flexible schedules, recognition of work, and support for career development.^{5,6}

There is a strong relationship between motivation, job satisfaction, and performance.^{5,6} Bohm et al (2012)¹⁰ explored the relevance of Maslow's Needs Theory and Herzberg's Two Factors Theory in motivating healthcare employees. According to Maslow, employees feel motivated when their psychological needs are met. Herzberg's Two Factors Theory suggests hygiene factors such as job security, compensation, working conditions, quality of management, relationships in the workplace cause dissatisfaction if absent. Job-related factors such as recognition, achievement, responsibility, opportunities for growth, and advancement are motivators, and can increase satisfaction.¹¹ Healthcare managers should seek to provide sufficient hygiene factors and increase the motivators for their healthcare employees. It is necessary to satisfy employees' lower order needs and offer opportunities to fulfill higher order needs such as self-esteem and self-actualization needs.¹¹

Intrinsic aspects, such as autonomy, competence, and relatedness are vital. Autonomy ensures that employees have a sense of freedom and engage in personally meaningful behaviors without coercion. Competence is having confidence in one's capability and actions and the potential to achieve expected outcomes. Relatedness means feeling reciprocally respected and developing connections where one feels cared for. Teamwork is a tool for enhancing motivation and retention, by encouraging an inclusive decision-making process, effective conflict management providing employees with independence, autonomy, and freedom, increasing their sense of organizational citizenship.^{5,6,12}

Employees who feel recognized tend to be more committed, continue to work hard and put forward effort to achieve the set objectives of the organization.¹³ Recognizing employees' efforts and achievement through issuing certificates of recognition and appreciation or offering verbal praise in the presence of other employees on the team or in the department considerably motivates employees and reduces turnover intentions.¹⁴

Pay is one of the extrinsic rewards linked with motivating employees and affects their likelihood of staying with the organization.¹⁵ Heightened dissatisfaction with salary or pay scale is associated with higher incidences of turnover¹⁶ and as competitiveness in business operations increases, employees are exposed to a broader pool of employers in their fields, which may lead to increased turnover.¹⁷ Monetary reward tends to be the most widely practiced method for motivation and stimulates employees to remain at work and increase productivity.^{18,19} Organizations must remunerate their employees in a timely manner to allow them to meet their personal financial goals, however some employees may value non-financial rewards such as recognition, feedback, and prospects for career progression as well.^{5,20}

Educational levels are used to measure competency and allocate promotions, and as such employees with lower levels of education combined with a lack of opportunities to access this tend to be less motivated, and the ability to work toward the attainment of a higher education level as supported by the organization is satisfying.¹² Lack of opportunities for growth in an organization can be a factor for turnover.²¹ Organizations

providing career development opportunities such as promotion increase job satisfaction and thereby retention of top talent and skills.²¹

Flexible work hours influence motivation and retention by allowing employees to balance between personal life and work demands.⁶ Long working hours reduces productivity and overall job satisfaction and can increase turnover intentions.^{16,22}

Flexibility also revolves around workload and should involve assigning of tasks that an employee is able to complete on time and requires the involvement of employees in decision making to find ways of helping them perform their tasks with ease.²² Organizations can increase flexibility by redesigning routines to allow employees to leave early or work fewer hours in certain cases.

External motivations potentially undermine intrinsic motivation by crowding-out effects on professional values.^{18,19} As such, an incentive scheme such as the IMS should endeavor to strike a balance between extrinsic and intrinsic aspects for motivation.

As part of the Kingdom of Saudi Arabia's National Transformation Plan and the Vision 2030, healthcare employment policies, labor regulations, and educational or training programs or career development and capacity building are areas for development toward achieving this vision.^{6,15} The current healthcare business environment, calls for the use of incentives in retaining employees. This depends on the type of healthcare facility and whether it is in the public or private sector and is currently under review as part of the National Transformation Plan and the movement toward the privatization of healthcare.^{15,23}

Aims

The aim of this study was assess the applications of the IMS and the turnover rate among MLTs at King Abdulaziz Medical City (KAMC) to highlight their needs, levels of motivation and job satisfaction. The findings will support the development of the incentive system and reduce turnover rates, maximize quality outcomes, and ensure commitment and motivation of employees.

Objectives. The study objectives were to:

- Investigate the factors affecting employee turnover
- Assess the satisfaction of employees with the IMS and to which extent this system motivates employees
- Develop recommendations to improve the IMS
- Explore the impact on employees to stay or leave the organization.

Materials and Methods

Study Setting

KAMC provides primary, secondary and tertiary service with a capacity of 1200 beds and approximately 3 million

outpatient visits a year. It has passed the requirements for accreditation under the Joint Commission International standards (JCI) with excellent performance and established itself as a center of excellence as it has the largest Emergency Care Center in the Middle East, a state of the art Hepatobiliary Sciences and Liver Transplant Center, a state of the art Cardiac facility, Dental Care Services Department with various specialties, Long Term and Extended Care Services for patients requiring long-term nursing care, and the recently commissioned Oncology Unit. The DPLM is a large and modern medical laboratory accredited by the Commission on Laboratory Accreditation of the College of American Pathologists (CAP) and the American Association of Blood Banks (AABB). The Department has maintained its CAP accreditation and JCI.

Population of Interest and Sample Size

We utilized a convenience sample of all MLTs working in the Department of Pathology and Laboratory Medicine (DPLM) at KAMC, Riyadh. The estimated sample population was 250 MLTs.

Study Design

The questions in the survey instrument were derived from an existing validated framework with permission 24. The types of questions used in the questionnaire were demographic, Likert scale, and checklist method. Section 1 included 9 demographic questions to help determine other factors that may influence the laboratory technician's answers, opinions, attitudes, and interests. Section 2 was Likert scale questions that included Part A to indicate reasons that may lead to turnover, and Part B to rate the extent employees are satisfied with their organization. Section 3 used a checklist method to indicate which strategy that motivate employees to remain in their current Job (see Appendix A).

Pilot Study (Validity and Reliability)

The researcher conducted an initial pilot study on $N = 30$ to test the study instrument prior to launching the formal study. The questionnaire was also distributed to a group of arbitrators in the same specialization and faculty employees to adjust the statements appropriateness and factors and test for reliability and validity.

The Pearson correlation coefficient was ($r = 0.867$) which is highly significant at the level ($0.01 > \alpha = 0.05$). The reliability of the questionnaire was calculated using Cronbach's alpha coefficient and was equal to (0.707) for the whole questionnaire and for the factors between (0.823, and 0.844) (see Table 1). Coefficients for all questions were between 0.685 and 0.722.

Table 1. Cronbach's Alpha of the Questionnaire Factors.

Factor	Cronbach's alpha (if item deleted)
Reason for Turnover	.823
Job Satisfaction	.844
Total	.707

Data Collection and Analysis

The researcher used a Google Form Survey link to collect responses for the study. The data obtained from the questionnaire were coded and entered into the database of Statistical Package Social Science Software (SPSS) for Windows Version 23 software. Descriptive analyses for summary frequencies, means, and standard deviations for each variable were calculated. Bivariate Pearson correlation coefficients (r) were calculated to explore the relationship between employee satisfaction and reasons that may lead them to leave. One-way ANOVA and Independent T-Test were used to examine the relationship between the demographic and outcome variables. Regression analysis was conducted for the purposes of assessing across all factors.

Ethical Considerations

The research study was approved by the ethical review board at KAMC on 23-10-2019 (ref. no. SP19-475-R). The study was conducted in accordance with the Declaration of Helsinki for Good Clinical Practices and in alignment with the protocol and most current revision. Responses from the study sample were obtained fully voluntarily through the online survey portal. No data was used for other purposes other than for this research study. The researchers maintained full confidentiality and anonymity of data as no other entities were provided access to information.

Results

Demographic Characteristics

40% of the 250 MLTs that were invited completed the survey ($n = 100$). The mean age was 32.68 years, with the majority being female (62.0%). Most of the respondents were Saudi (85.0%), compared to Non-Saudi (15.0%). Over half of the sample were married (56.0%) followed by those who were single (43.0%). 79% of respondents had a bachelor's degree and 21% had a master's degree level education (21.0%). The majority of respondents had 1-5 years of work experience (36.0%), followed by those with 6-10 years' experience (26.0%) and those with over 10 years' experience (28%). The most common working hour's system was a regular shift (9 hrs.), without weekends (42.0%) and almost half of the sample was earning between \$2933-\$4000 monthly (47.0%) (See Table 2).

Reasons for Turnover

51% of respondents strongly agreed that discrepancy in wage allocation/low salary was the most prominent reason for

Table 2. Socio-Demographic Characteristics (N = 100).

Characteristics	n	%
Age		
Years (Mean \pm SD)	32.68	6.095
Gender		
Female	62	62.00%
Male	38	38.00%
Nationality		
Saudi	85	85.00%
Non-Saudi	15	15.00%
Marital Status		
Single	43	43.00%
Married	56	56.00%
Divorced	1	1.00%
Widowed	0	0.00%
Level of Education		
Diploma	0	0.00%
Bachelor's degree	79	79.00%
Master's degree	21	21.00%
Years of Experience		
Less than 1 year	10	10.00%
1 year-5 years	36	36.00%
6 years-10 years	26	26.00%
More than 10 years	28	28.00%
Occupation		
Laboratory Technician	6	6.00%
Laboratory Technologist II	16	16.00%
Laboratory Technologist I	62	62.00%
Supervisor	16	16.00%
Working Hours' System		
Regular Shift (9 hrs) w/o weekend	42	42.00%
Regular Shift (9 hrs) w weekend	23	23.00%
Irregular Shift 9 hrs (Day, Evening, Night)	20	20.00%
Irregular Shift 12 hrs (Day, Night)	15	15.00%
Monthly Income		
Below 7000 SAR	4	4.00%
7000 SAR-10.000 SAR	17	17.00%
7000 SAR-10.000 SAR	47	47.00%
More than 15.000 SAR	32	32.00%

turnover ($M = 4.31$; $SD = 0.85$). 48% strongly agreed that low increment systems (annual raises) were also a factor for them ($M = 4.19$; $SD = 0.94$) followed by limited opportunities for internal promotion ($M = 4.22$; $SD = 0.99$), insufficient allowances or benefits ($M = 4.27$; $SD = 0.85$), and lack of continuing education/professional growth opportunities ($M = 4.12$; $SD = 1.09$). 49% of respondents strongly agreed across all 3 factors. 26% strongly agreed/agreed that lack of autonomy/independence was also a key issue ($M = 3.68$; $SD = 0.99$). The lowest ranked factor was poor workgroup union/cohesion ($M = 3.52$; $SD = 1$) with only 17% in strong agreement (see Table 3).

Job Satisfaction

The most prominent factors that caused job dissatisfaction were level of workload with 39% ($M = 2.00$; $SD = 1.04$), provided

Table 3. Reasons for Turnover.

Parameters	Frequency (%)					Mean	SD
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree		
1. Limited opportunities for internal promotion	3 (3%)	4 (4%)	10 (10%)	34 (34%)	49 (49%)	4.22	0.991
2. Unsupportive organization	6 (6%)	6 (6%)	22 (22%)	36 (36%)	30 (30%)	3.78	1.124
3. Work-life imbalances	0 (0%)	9 (9%)	28 (28%)	32 (32%)	31 (31%)	3.85	0.968
4. Emotional/physical exhaustion	0 (0%)	6 (6%)	20 (20%)	37 (37%)	37 (37%)	4.05	0.903
5. Poor work environment	3 (3%)	12 (12%)	32 (32%)	22 (22%)	31 (31%)	3.66	1.13
6. Scheduling conflicts or inflexibility	8 (8%)	14 (14%)	30 (30%)	24 (24%)	24 (24%)	3.42	1.224
7. Lack of continuing education/professional growth opportunities	3 (3%)	8 (8%)	12 (12%)	28 (28%)	49 (49%)	4.12	1.094
8. Lack of managerial support	4 (4%)	16 (16%)	17 (17%)	29 (29%)	34 (34%)	3.73	1.205
9. Poor work group union/cohesion	2 (2%)	14 (14%)	31 (31%)	36 (36%)	17 (17%)	3.52	1
10. Unmanageable workloads	3 (3%)	10 (10%)	17 (17%)	40 (40%)	30 (30%)	3.84	1.061
11. Negative attitudes from supervisors	12 (12%)	21 (21%)	23 (23%)	18 (18%)	26 (26%)	3.25	1.366
12. discrepancy in wage allocation / low salary	1 (1%)	2 (2%)	13 (13%)	33 (33%)	51 (51%)	4.31	0.849
13. Low increment system (annual raise)	1 (1%)	4 (4%)	18 (18%)	29 (29%)	48 (48%)	4.19	0.94
14. Insufficient allowance or benefits system	1 (1%)	1 (1%)	17 (17%)	32 (32%)	49 (49%)	4.27	0.851
15. Unfair performance appraisal process	5 (5%)	8 (8%)	24 (24%)	28 (28%)	35 (35%)	3.8	1.155
16. Insufficient training and development opportunities	3 (3%)	10 (10%)	13 (13%)	40 (40%)	34 (34%)	3.92	1.07
17. Lack of autonomy/ independence	2 (2%)	6 (6%)	40 (40%)	26 (26%)	26 (26%)	3.68	0.994
Total average of Reasons for turnover						3.856471	0.681307

allowance with 31% ($M = 2.07$; $SD = 0.94$), lack of top management support with 31% ($M = 2.31$; $SD = 1.12$), hours of work with 31% ($M = 2.24$; $SD = 1.08$), and lack of opportunities for promotion with 44% ($M = 1.85$; $SD = 0.947$) followed by job insecurity ($M = 3.43$; $SD = 1.075$) where 5% were strongly dissatisfied and 14% dissatisfied. 13% were dissatisfied with their relationships with co-workers ($M = 3.45$; $SD = 1.02$). The mean overall satisfaction with current job was ($M = 2.53$; $SD = 1.00$), with 35% dissatisfied and 16% reported being strongly dissatisfied (see Table 4).

Motivation to Remain

80% of respondents found that opportunities for career growth were motivators for them to remain with their organizations and 76% selected higher pay. 27% found the option of additional vacation time to be of importance and 34% found having supportive colleagues necessary. Reduction of working hours, fairness in the workplace, strong workplace ethic and job security in the workplace only had minimal agreement from respondents (7%) (see Table 5).

Analysis of the 3 Factors: Reasons for Turnover, Satisfaction and Motivation

When evaluating the reasons for turnover, job satisfaction and motivation across age and level of education groups we found employees with bachelor's degrees were ($M = 31.8$ years, $SD = 5.797$), and master's degrees ($M = 36$ years, $SD = 6.181$) and this was statistically significant ($t = 2.805$, $p = 0.009$).

For respondents with a bachelor's degree, the mean score of reasons for turnover was ($M = 3.847$, $SD = 0.6959$), and for those with a master's degree ($M = 3.89$, $SD = 0.637$). The results of the t-test did not indicate a significant difference ($t = 0.272$, $p = 0.787$).

For respondents with a bachelor's degree, the mean score for job satisfaction was ($M = 2.55$, $SD = 0.647$), and for those with a master's degree ($M = 2.84$, $SD = 0.672$). The results of the t-test did not indicate a difference between the 2 groups ($t = 1.755$, $p = 0.089$).

As for levels of motivation, we found that the mean of bachelor's degree holders to be ($M = 0.499$, $SD = 0.266$), and for master's degree ($M = 0.667$, $SD = 0.208$). The results of the t-test indicated a difference between the 2 groups, but this was not significant ($t = 3.082$, $p = 0.004$) (see Table 6).

We used the Analysis of Variance (ANOVA) across the 3 factors groups (reason for turnover, satisfaction, and motivation) to evaluate the correlations with years of experience. Respondents with less than 1 year of work experience scored ($M = 26.5$, $SD = 1.716$), and those with 1-5 years' work experience ($M = 29.8$, $SD = 6.4$), 6-10 years' of work experience ($M = 33$, $SD = 3.00$), and those with more than 10 years' work experience ($M = 38.21$, $SD = 4.104$). When using the F-Test to evaluate the difference between the 4 groups we found ($F = 22.75$ $p = 0.000$) and this was statistically significant (see Table 7).

In conducting a Post Hoc comparison to determine which of the groups of work experience caused the differences we found the third group (6-10 years) and the fourth group (more than 10 years' experience) and this was the same across all 3 factors (see Table 8).

Table 4. Job Satisfaction.

Parameters	Frequency (%)					Mean	SD
	Strongly dissatisfied	Dissatisfied	Neutral	Satisfied	Strongly satisfied		
1-Hours of work	31 (31%)	31 (31%)	22 (22%)	15 (15%)	1 (1%)	2.24	1.084
2-Flexibility in scheduling	17 (17%)	16 (16%)	34 (34%)	31 (31%)	2 (2%)	2.85	1.104
3-Amount of paid vacation time/sick leave offered	21 (21%)	17 (17%)	30 (30%)	25 (25%)	7 (7%)	2.8	1.231
4-Rate of pay	28 (28%)	35 (35%)	25 (25%)	11 (11%)	1 (1%)	2.22	1.011
5-Opportunities for promotion	44 (44%)	35 (35%)	14 (14%)	6 (6%)	1 (1%)	1.85	0.947
6-Provided allowances	31 (31%)	40 (40%)	20 (20%)	9 (9%)	0 (0%)	2.07	0.935
7-Benefits (treatment, maternity leave, etc.)	12 (12%)	12 (12%)	39 (39%)	33 (33%)	4 (4%)	3.05	1.048
8-Recognition for work accomplished	22 (22%)	27 (27%)	31 (31%)	19 (19%)	1 (1%)	2.5	1.068
9-Relationships with your co-workers	4 (4%)	13 (13%)	31 (31%)	38 (38%)	14 (14%)	3.45	1.019
10-Relationship(s) with your supervisor(s)	12 (12%)	11 (11%)	29 (29%)	30 (30%)	18 (18%)	3.31	1.237
11-Opportunity to learn new skills	20 (20%)	31 (31%)	23 (23%)	22 (22%)	4 (4%)	2.59	1.156
12-Support for additional training and education	28 (28%)	39 (39%)	21 (21%)	11 (11%)	1 (1%)	2.18	0.999
13-The level of workload	39 (39%)	35 (35%)	15 (15%)	9 (9%)	2 (2%)	2	1.044
14-Freedom to use your own judgment during work	15 (15%)	22 (22%)	39 (39%)	20 (20%)	4 (4%)	2.76	1.065
15-Work environment (value, culture)	8 (8%)	20 (20%)	41 (41%)	24 (24%)	7 (7%)	3.02	1.025
16-Job security	5 (5%)	14 (14%)	30 (30%)	35 (35%)	16 (16%)	3.43	1.075
17-Top management support	31 (31%)	25 (25%)	28 (28%)	14 (14%)	2 (2%)	2.31	1.116
18-Overall satisfaction with current job	16 (16%)	35 (35%)	30 (30%)	18 (18%)	1 (1%)	2.53	1
Total average of job satisfaction						2.619444	0.659774

In evaluating the correlation between age, and the 3 factor groups we only found a statistically significant correlation between age and motivation, ($r = 0.223$, $p = 0.026$). The other factors (reasons for turnover and satisfaction) had a positive correlation with age, but this was not significant (Table 9).

In evaluating the determination coefficient for the entire model, we found 26.6% of the total variation from the average in job satisfaction was dependent on the averages of reasons for turnover (see Table 10), if we excluded the other factors from the model (see Table 11) where the F test = 35.573 with a significance of $p = 0.000$.

Discussion

Of the 17 factors across the 3 groups we studied for association with the likelihood of employee turnover (Table 3), discrepancy in wage allocation/low salary emerged as a key issue for 84% of respondents. We found low increment systems (annual raise) were another factor contributing to the likelihood of turnover and demotivation by 77%.

Limited opportunities for internal promotion were key factors as well as insufficient allowances and a weak benefit system. This is in alignment with the findings of Jehanzeb et al (2012) who found that promotion and pay were key for improved performance and strong employee motivation.¹⁵ Where there is no visible potential for promotion, there is a higher likelihood of dissatisfaction and turnover. The achievement of exceptional performance arises from management that is committed toward motivating employee with visible and incentives such as potential promotions that are attainable.

We found a considerable influence of the lack of continuing education or professional growth opportunities. The desire to grow professionally, develop expertise or continue one's education is a key influencer of job performance, and if these opportunities are not available, this can also influence turnover rates.

We found lower rates of dissatisfaction and turnover, and improved employee commitment, retention and productivity (Table 5) a result of the use of the IMS and this is in agreement with several studies we reviewed.^{15,24,25,26} We found that there was a significant correlation between age and levels of motivation (Table 6), but we did not find significant correlations between age, reasons for turnover and job satisfaction. We did find that with increasing age, the overall motivation level increases, and although this was not significant the positive correlation remains essential to consider when designing incentives. This agrees with existing studies that found low satisfaction adversely affected productivity and led to turnover.^{16,27}

Our findings also align with studies that reported significant issues with motivation.^{28,29} Where motivation score positively correlated to age variations, more motivation was seen in older employees. There is a stronger desire by older employees to fulfill intrinsically challenging jobs and this is also linked to work experience. Studies have also reported positive associations between employee career opportunities and levels of motivation, and this was stronger among younger employees.²⁹

We found a significant association between educational level, age, and motivation and this agrees with Paul (2012) that found an increase in the sense of fulfilment associated with an increase in levels of education and a measure of achievement.²⁴ When compared to employees with a bachelor's degree, those with masters'

Table 5. Frequency of Motivation that Encourages Employees to Remain.

Parameters	Frequency (%)	
	No	Yes
1-Opportunity for career growth	20 (20%)	80 (80%)
2-Higher pay	24 (24%)	76 (76%)
3-Flexibility or self-scheduling	53 (53%)	47 (47%)
4-Paid education leave for school or conferences	44 (44%)	56 (56%)
5-Additional vacation time	73 (73%)	27 (27%)
6-Supportive and empathetic manager	44 (44%)	56 (56%)
7-Supportive colleagues	66 (66%)	34 (34%)
8-Reasonable workloads	53 (53%)	47 (47%)
9-More supportive and responsive organization	43 (43%)	57 (57%)
10-Recognition and rewards	46 (46%)	54 (54%)
11-Other	93 (93%)	7 (7%)
a- Decreased working hours		
b- Inability to supplement income		
c- Fairness in workplace, workplace ethic, reliable supervisors		
d- Job security		
e- Seeking other opportunities		
f- Complicated regulations for promotion		
g- Ability to obtain permission for full-time sabbatical once an admission to higher education program is approved		

Table 6. T-test for Age and the 3 Factors by the Level of Education.

	Level of education	N	Mean	Std. deviation	t	Sig. (2-tailed)
Age	Bachelor's Degree	79	31.80	5.797	2.805	.009
	Master's Degree	21	36.00	6.181		
Total average of reason for turnover	Bachelor's Degree	79	3.847	.695	.272	.787
	Master's Degree	21	3.890	.637		
Total average of job Satisfaction	Bachelor's Degree	79	2.559	.647	1.755	.089
	Master's Degree	21	2.846	.673		
Average motivation	Bachelor's Degree	79	.499	.266	3.084	.004
	Master's Degree	21	.667	.208		

degrees were more motivated. Where master's degree holders are older, there was an evident higher level of motivation.

Paul et al (2012) also found that inadequate involvement in decision-making and low advancement opportunities were linked to negative employee motivation.²⁴ If the IMS offered better participation and advancement opportunities for employees with higher levels of education, there is then a risk of low motivation for employees with lower levels of education. Older employees have more work experience, better exposure to workplace issues, better awareness, better control of their expectations on the job and knowledge of the incentive systems in place and are better positioned to take advantage of them.²⁸

There was no significant relationship found between educational level, reasons for turnover and motivation. Where there is a high level of satisfaction, the likelihood of turnover is reduced.^{1,28} The reported rates of dissatisfaction in this area demonstrate some weaknesses in the IMS in our study, which indicate areas where it might be further developed.

Other factors, such as poor workgroup cohesion, relationships with peers and lack of autonomy and independence,

work environment quality, and degree of fulfilment of employee expectations of their respective jobs emerged as less impactful on the likelihood of employee's turnover overall.^{21,24,30}

Years of experience affected reasons for turnover, satisfaction and motivation levels in our study and this was in agreement with the findings of several previous studies^{6,28,31} (Table 7). Employees with longer tenure and years of work experience, had higher workplace engagement levels. As age and years of employment increases, there is an associated increase in the level of experience, and higher awareness of job demands.²⁸

When compared to older employees, who have more experience; younger employees are less experienced and may have overrated expectations of their jobs. This agrees with the findings of Boumans et al (2011) who reported that motivation was higher in older employees, and that overall years of experience influenced reasons for turnover and job satisfaction.²⁹ Rozman et al (2017) also found that differences in employee age and experiences led to increased levels of innovation, creativity and problem-solving skills.³² If the employee faces challenges due to inadequate skills and abilities, those with more experience have

Table 7. ANOVA and F Test for Age and the 3 Factors by Years of Experience.

	Years of experience	N	Mean	Std. deviation	F	Sig.
Age	less than 1 year	10	26.50	1.716	22.751	.000
	1-5 years	36	29.86	6.419		
	6-10 years	26	33.00	3.007		
	more than 10 years	28	38.21	4.104		
Total average of reason for turnover	less than 1 year	10	2.85	.443	13.047	.000
	1-5 years	36	4.03	.563		
	6-10 years	26	3.73	.690		
	more than 10 years	28	4.12	.538		
Total average job satisfaction	less than 1 year	10	3.17	.564	3.330	.023
	1-5 years	36	2.55	.667		
	6-10 years	26	2.45	.688		
	more than 10 years	28	2.68	.568		
Average motivation to remain	less than 1 year	10	.32	.161	3.111	.030
	1-5 years	36	.53	.283		
	6-10 years	26	.54	.273		
	more than 10 years	28	.61	.224		

Table 8. Post Hoc by Scheffe Test for Age and Three Factors by Level of Education Correlations Across Age and 3 Factors (Reason for Turnover, Job Satisfaction and Motivation to Remain).

Scheffe					
Dependent variable	(I) Years of experience	(J) Years of experience	Mean difference (I-J)	Std. error	Sig.
Age	6-10 years	less than 1 year	6.500*	1.761	.005
		1-5 years	3.139	1.218	.091
		more than 10 years	-5.214*	1.289	.002
	more than 10 years	less than 1 year	11.714*	1.743	.000
		1-5 years	8.353*	1.192	.000
		6-10 years	5.214*	1.289	.002
Total average of reason for turnover	less than 1 year	1-5 years	-1.17*	.208	.000
		6-10 years	-8.67	.217	.002
		more than 10 years	-1.256*	.215	.000
Total average job satisfaction	less than 1 year	1-5 years	.620	.228	.067
		6-10 years	.720	.237	.031
		more than 10 years	.488	.2345	.236
Average motivation to remain	less than 1 year	1-5 years	-.2106	.0914	.158
		6-10 years	-.2223	.0951	.149
		more than 10 years	-.2871*	.0942	.030

*. The mean difference is significant at the 0.05 level.

a better chance of coping. Motivation and job satisfaction are crucial for ensuring active employee engagement and enhance productivity and sustainability of the organization.^{1,6,28,33}

Limitations of the Study

The study was conducted on a highly specialized category of healthcare professional (medical laboratory technologists) and variations in these findings could be found if the questionnaire was applied to other categories, or in comparison between specialties within the same organization or conducted nationally within the health system. Using another study design such as in-depth interviews may have provided more clarity on the reasons for employee turnover and their impressions on their

motivation to work and remain with the organization and the factors influencing their levels of satisfaction. This work was part of a graduate studies project and was constrained by time considerations.

Implications for Future Study

Future research can adjust the study design and include control or experimental groups. Since this study focuses on examining IMS, with emphasis on reasons for turnover, motivation and satisfaction, therefore having 2 groups (with exposure and without exposure) to the factors may facilitate more clarity in future studies. It is also potentially possible to remove time constraints on data collection, and multiple categories of health

Table 9. Correlation Coefficients for Age and the Three Factors.

Factor		Age	Total average of reasons for turnover	Total average job satisfaction	Average motivation to remain
Age	Pearson Correlation	1	.055	.086	.223*
	Sig. (2-tailed)		.587	.397	.026
	N	100	100	100	100
Total average of reasons for turnover	Pearson Correlation	.055	1	-.516**	.170
	Sig. (2-tailed)	.587		.000	.092
	N	100	100	100	100
Total average job satisfaction	Pearson Correlation	.086	-.516**	1	-.129
	Sig. (2-tailed)	.397	.000		.202
	N	100	100	100	100
Average motivation to remain	Pearson Correlation	.223*	.170	-.129	1
	Sig. (2-tailed)	.026	.092	.202	
	N	100	100	100	100

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 10. Model Summary.

Model	R	R square	Adjusted R square	Std. error of the estimate
1	.516 ^a	.266	.259	.568007508805005

a. Predictors: (Constant), Total average of Reason

Table 11. ANOVA.

Model		Sum of squares	Df	Mean square	F	Sig.
1	Regression	11.477	1	11.477	35.573	.000 ^b
	Residual	31.618	98	.323		
	Total	43.095	99			

a. Predictors: (Constant), Total average of Reason.

b. Dependent Variable: Total average satisfied.

professionals to develop comparisons and generate potentially generalizable results. Comparisons between cities or countries is also potentially interesting for applications of the IMS, as well as between public and private sector healthcare.

A further study on reasons for non-significance in some of the factors, such as the correlation between satisfaction and educational level (master/bachelor), can offer additional insight into the design and application of tools such as the IMS in improving employee satisfaction. Hours of work and pay rates require readjustment, as they emerged as the top reason for dissatisfaction and a critical factor for motivation, satisfaction and a pre-requisite for engagement.^{17,29,32} Dissatisfaction with work hours is linked to work overload, an indication of inadequate staffing, which is linked to issues of burnout.

KAMC human resources can apply various promotional types, as means to guarantee motivation and satisfaction in employees. Opportunities for rank advancement, increased pay or offering other benefits are options to consider, along with adjusting the laboratory employee's responsibilities or duties.

Encouraging fair and transparent competition across teams for promotional initiatives is essential in facilitate performance excellence and promote employee's morale.

Managerial support is critical in the motivation of employees and minimizing turnover. Failures in managerial support increase the likelihood of turnover with employees searching for more supportive opportunities in other organizations.

Our results showed that motivation, satisfaction and reasons for turnover vary across age groups, years of experience and levels of education. It is highly challenging to design an effective incentive plan and create a workplace that aligns with the needs of all employees. It is necessary for managers to attempt to balance between the employee needs and those of the organization. There is a need to implement the right incentive measures to ensure this balance is successfully achieved. Human Resource Managers must incorporate these findings to promote increase job satisfaction, maintain motivation and reduce turnover, especially in healthcare.

Conclusion

Our findings indicate significant dissatisfaction among the MLTs sampled. Discrepancy in wage allocation /salary was the primary concern influencing the potential for employees deciding to leave their workplace. Limitations in educational growth/expansion or promotion opportunities for enhanced job security and insufficient benefits/allowances were also major reasons for turnover. Supportive management and workload levels also affected the levels of satisfaction among employees, resulted in non-productive behaviors, demotivation and lack of engagement.

There is a need to improve the IMS in the workplace and the development of incentive plans that align with the work-related and personal needs of employees, for their satisfaction as well as the reduction of turnover, to benefit the healthcare organization by increasing retention and productivity and therefore the quality of the healthcare services provided.

Appendix A Questionnaire

Section 1: Socio Demographic Questions

1. **Age:** _____ years old
2. **Gender:**
 - Male
 - Female
3. **Nationality:**
 - Saudi
 - Non-Saudi
4. **Level of Education:**
 - Diploma
 - Bachelor's Degree
 - Master's Degree
5. **Marital status:**
 - Married
 - Single
 - Divorced
 - Widowed
6. **Years of experience:**
 - Less than 1 year
 - 1-5 years
 - 6-10 years
 - More than 10 years
7. **Occupation:**
 - Laboratory technician
 - Laboratory technologist II
 - Laboratory technologist I
 - Supervisor
 - Other (specify): _____
8. **8. Working Hours' System:**
 - Regular (morning) shift (9 hrs) without weekend work
 - Regular (morning) shift (9 hrs) with weekend work
 - Irregular shift 9 hrs (evening, night)
 - Other (specify): _____
9. **Monthly Income:**
 - Below \$ 1867
 - \$ 1867-\$ 2667
 - \$ 2933-\$ 4000
 - Above \$ 4000

Section 2: Likert Scale Questions

A—Indicate the Extent of Your Agreement with the Following Statements: Reasons that May Lead You to Submit Your Resignation

Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1-Limited opportunities for internal promotion					
2-Unsupportive organization					
3-Work-life imbalance					
4-Emotional/Physical exhaustion					
5-Poor work environment					
6-Scheduling conflicts or inflexibility					

(continued)

(continued)

Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
7-Lack of continuing education/professional growth opportunities					
8-Lack of manager support					
9-Unmanageable workloads					
10-Poor work group union/cohesion					
11-Negative attitudes from supervisor					
12-Unfair pay/ low salary					
13-Low increment system (annual raise)					
14-Insufficient allowance or benefits system					
15-Unfair performance appraisal process					
16-Insufficient training and development opportunities					
17-Lack of autonomy/ independence					

B—Rate the Following Items for the Extent of Your Satisfaction with Your Organization:

Items	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
1-Hours of work					
2-Flexibility in scheduling					
3-Amount of paid vacation time/sick leave offered					
4-Rate of pay					
5-Opportunities for promotion					
6-Provided allowances					
7-Benefits (treatment, maternity leave, etc.)					
8-Recognition for work accomplished					
9-Relationships with your co-workers					
10-Relationship(s) with your supervisor(s)					
11-Opportunity to learn new skills					
12-Support for additional training and education					
13-The level of workload					
14-Freedom to use your own judgment during work					
15-Work Environment (value, culture)					
16-Job Security					
17-Top management support					
18-Overall, your current job					

Section 3: Checklist Methods

Which of the Following Strategies Would Encourage You to Remain in Your Current Job? (Check ALL that apply):

1. Opportunity for career growth
2. Higher pay
3. Flexibility or self-scheduling
4. Paid education leave for school or conferences
5. Additional vacation time
6. Supportive and empathetic manager
7. Supportive colleagues
8. Reasonable workloads
9. More supportive and responsive organization
10. Recognition and rewards
11. Other (Describe):

Abbreviations

MLTs	Medical Laboratory Technologists
DPLM	Department of Pathology and Laboratory Medicine
IMS	Incentive Management System
KAMC	King Abdul-Aziz Medical City
SPSS	Statistical Package Social Science Software
CAP	College of American Pathologists
AABB	American Association of Blood Banks
JCIA	Joint Commission International Accreditation

Authors' Note

We declare that we have obtained the required ethical approvals for this study, including consent for publication. The first author designed the study, sought ethical approvals from the relevant entities, developed the data collection instrument with permissions, collected and analyzed the data and wrote the manuscript. The second author supervised and reviewed the conduct of the work, edited and advised on conceptualization, data collection and analysis, and co-edited the manuscript for submission.

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