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Relationship Betweenhealth Care Organizational Strategic Intelligence and Nurses' Professional Accountability and Their Work Engagement

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Abstract: ***Background and aim:****Professional accountability and work engagement are important factors to consider when managing changes in workplace and enhancing both individual and overall organizational performance and increasing nurses' commitment to their health care organization. This study aimed to examine the relationship between health care organizational strategic intelligence and nurses' professional accountability and their work engagement at Damanhour National Medical Institute.* ***Methods:*** *A descriptive correlational research design was conducted by all nurses (N = 326) working in DamanhourNational Medical Institute, Egypt. Organizational Strategic Intelligence Questionnaire, Utrecht Work Engagement Scale, and Burns Professional Accountability Instrument proved valid and reliable to measure study variables.* ***Results:*** *The present study revealed that nurses experienced high organizational strategic intelligence, professional accountability and work engagement level. A significant positive correlation was found between nurses' perception of organizational strategic intelligence and their work engagement (p < .001).In addition, a significant positive correlation was found between nurses' perception of professional accountability and their work engagement (p < .013). In addition, organizational strategic intelligence and professional accountability can significantly predict work engagement, where the regression model is positively significant (F = 131.828, p < .001).****Conclusion:*** *it was concluded that highly significant correlation was found between health care organizational strategic intelligence and work engagement; and a significant correlation was found between professional accountability and work engagement.* ***Recommendations:*** *Creating an atmosphere of trust and empowering nurses professionally. Hospital managers can adopt strategies that facilitate nurses' engagement and enhancetheir professional accountability. Positive empowering work climate, teamwork, proactive management, future-oriented system thinking and health care professionals' dedication at work, and nurse managers' leadership styles are factors that foster strategic intelligence, professional accountability and work engagement.*

Keywords: *Organizational strategic intelligence, Professional accountability, Work engagement.*

I. Introduction:

Health care organizations have been investing resources into raising the engagement of their health care staff for years, but despite their best efforts, many of these organizations just do not see the results they were hoping to achieve(1). In some situations, health care organizations will even score high in the engagement category, but the organization still suffers from the less-than-ideal performance and nurse professional accountability(2). Strategic intelligence is a theoreticalframework of leadership talents, which must be contemplated in the contextual relationship of the challenges encounter leaders and the relationships between leaders and their followers. A leader's philosophy and dispositionimpact the way for expressing the qualities of strategic intelligence when things are going according to plan and when leaders encounter significant conflicts(3). Leaders are most effective by tapping into the substantial motivations of followers through empowerment. Nurses regularly face daily challenges, continually evolving job demands,diverseactions and work environment areas characterized by confusion and rapid change in addition to augmented competition, innovation and creativity, due to the environmental and technological changes in the various different fields(4).Based on the outcome of the rapid and massive developments that have accompanied the information and communication revolution, there is a need for the evolution of intelligent thinking and adoption of modern concepts, which guarantee probabilities of existence, growth and development and improve organizational performancelevels and strengthen level of professional accountability(5). Theseperceptionsare attached to strategic intelligence's philosophy as crossing the entry to deal with the predictable strategic change and replying to situations to survive by enhancing nurses' professional accountability and their willingness for work engagement. As more health care organizations probing for nurses, who react and step-up to workplace challenges innovatively, empowerment, professional accountability and work engagement, concluded obviously

demanding predominately when managing changes in work and consolidate performance at work. Consequently, empowered, accountable and involvednurses are glad with their work, granting and compulsory at work[6].

1.1Study Framework

The present study built on the concepts of three work factors to be specific: organizational strategic intelligence, professional accountability and work engagement. The subsequent section illumined them.

1.1.1 Organizational Strategic Intelligence

Health care Organizational Strategic Intelligence(HOSI) prepares leaders to comprehend the context in which they are leading and to exert for the mutual benefit. This has been vital for the health care facilities, and the organizations need to dialogue this kind of intelligence [7]. The basicfunction of "information" in formulating strategic intelligence connotation is to support decision-making practicability and the development of plans and policies, and to foresee environment changes and the trend of the participants and adjust them through it[8].Esmaeili (2014)[8] introduced HOSI as:"the degree of the breadth and depth of information in building approved strategic decisions"[8]. In addition, Al-Zu'bi (2014)[9]stated that it is a telling process through it the organization pay attention to its environment, to choose and take actions for the activities required to determine its efforts toattain its objectives[9].In this context,Wright(2014)[10]addedthat its functions are: specialize in examining competitors or understand the current and forthcomingstrategies and objectives; trustfor the conventions about selves and organization; recognize their capabilities and highlight their residents[10].

Maccoby and Scudder (2011)[3] indicated that leaders of the intelligent organization possessessentials, namely:prospective;systems thinking;future vision;partnership; and ability to motivate nurses. These five elements of strategic intelligence are grasped together as a concrete system by leadership philosophy and personality intelligence. Deep self-knowledge; knowledge of others; clearly articulated purpose;and set of values, principles, and beliefs prepare nurse leaders to explore the future, concentrate on pertinent directions, and create a systemic vision. They fetch this vision to reality by recruiting and developing strategic and operational partners, who supplement their skills, upholding the vision, and share their philosophy. Through personality intelligence, nurse leaders apply an understanding of the values of their partners and can motivate and empower them to collaborate and achieve a shared purpose[3].In a nutshell, strategic intelligenceand professional accountability are most important at the level of meanings (countries, organizations, and individuals), as different organizational objectives depends on them, leading to better understanding of some work-related factors, such as: work engagement[11].

1.1.2Nurses' Professional Accountability

Professional accountabilityisthe capacity to embrace, act, defend or justify one's behaviors based on one's professional expertise, intellectual curiosity, and moral/ethical belief system in a partnership towards the common good, recognizing that doing one's best impacts the outcomes for the community served[12].Furthermore, the American Nurses Association(ANA) Code of Ethics (2015) defines professional accountability as:"being answerable to oneself and others for one's own actions" [13]. Nurses not only hold high clinical practice and ethical standards for themselves, but also are willing to accept professional responsibility when or if deviations from care standards occur[14]. Professional nursing accountability support safe nursing practice and is a fundamental behavior supporting harmony between nursing actions and standards that are linked with quality and safety in patient care, which support and improve the strategic intelligent organization[15].Moreover, it is viewed as:"taking responsibility for one's nursing decisions, practices, and omissions as being related to lifelong learning; maintaining competency; and upholding both quality patient care outcomes and professional standards; while being answerable to those who are affected by one's nursing practice".Nurses are predicted to communicate and perform their duties with accountability and with production of quality patient outcomes for: self; patient; team and organization[16]. Gaining knowledge about self-capacity to question, reflect and grow from emotional experiences to improve performance is needed to advance nursing research about the magnitude of professional accountability[17]. Intelligent leaders in health care settings are able to empower their staff through motivation; providing a future directed vision; proactive and system thinking; and partnership by supporting and encouraging teamwork[18].

1.1.3 Work engagement

Engagement is a multifaceted concept that can be characterized as the emotional and intellectual commitment of nurses towards the health care organization[19]. Nursing engagementmostly, depend upon the mental aptitudes; the act of job; work conditions and foundation that shape the process through which nurses make themselves reasonably and physically displayed in the work environment amid the activity or work execution[20].Schaufeli and Salanova (2007) [21] recognized that work engagement is: "a positive, fulfilling,

work-related state of mind", which is characterized by three dimensions:(1) vigor is described by high vitality levels and mental versatility, when working, the readiness to put exertion in nurses' work, not getting to be plainly exhausted, and ingenuity even with the challenges;(2) dedication alludes to the solid inclusion in nurses' work, described by excitement and pride in their activity, and feeling enlivened by it;(3) absorption is described by focusing completely on nurses' work. It indicates a charming state in which they are completely submerged in their work, disregarding everything else[(22)].Work engagement happens when nurse encounters cognitive conscientious, emotional and passionate warmth with other nurses in the work environment and feel accountable regarding their profession toward self, patient, team and organization[(23)].

1.2Problem statement and significance of the study

The third millennium witnessed a remarkable development in the field of health care, which has become very important in the economies of both developed and developing countries, which has generated fierce competition among them at the local, regional and international levels. Strength and weakness are one of the distinctive features of the continuity for these settings, their adaptation and transfer from the center of the subordinate to the challenger. It also engages in uncertain and complex environments and faces challenges with opportunities and threats with no future vision.Nurses' work in these organizations is viewed as a very woeful work, since they need to give additional time and effort and managerial concern[(24)].Nurses, who elucidate separation or disengagement in work, turn out to have low work practices and performance and donot demonstrate any exertion or perform well[(19)].The nursing profession continues to be directly affected by the complexity to ensure the preparedness of the nurses in the workforce and by the transition from the student's role to the professional nurse role [(25)].There is an increase demand from service agencies to ensure task orientation versus professional accountability for the patient's care and safety at time of nurse's hire[(26)]. Nurses have the most frequent contact with the patients and are held to high standards of performance for quality and safety care leading to positive clinical patient'soutcomes[(27)].Disengaged nurses are more disposed towards the withdrawal of cognizance and enthusiastic connectionsnear their obligations and work practices[(28)]. This disengagement can be caused by low empowered jobs or potentially when nurses imagine that they do an irrelevant work and feel shaky about their activities [(14)]. Furthermore, the experience of being motivated and future oriented through the strategic intelligence has proposed to be an ruling between managerial practices and the outcomes expected from empowered nurses, such as: engagement, organizational commitment and job performance[(29)]. Little is known about whether organizational strategic intelligence and professional accountability are related to nurses' perceptions of their work engagement particularly concerning the context of Egyptian hospitals. Consequently, a necessity exists to examine these relationships. It is hoped that, by investigating the relationship between organizational strategic intelligence, professional nursing accountability, and work engagement among nurses, will add to health care organizations and nursing leaders' knowledge and behaviors to enhance motivated nursing staff, ensure their professional accountability, work engagement; leading to improve organizational performance and quality of patient outcomes.

1.3Aim of the study

The aim of this study was to examinethe relationship between health care organizational strategic intelligence and nurses'professional accountability and their work engagementat Damanhour National Medical Institute.

1.4 Research questions

1. What is the relationship between health care organizational strategic intelligence and nurses' work engagement?
2. What is the relationship between nurses' professional accountability and their work engagement?

II. Material And Methods:

2.1Research design

This studyused a descriptive correlational researchdesign

2.2 Setting

This study was conducted at all intensive and critical care, surgical and medical units at Damanhour National Medical Institute (N=28). Intensive and critical care units (N=11), namely: general intensive care unit (ICU) (old and new); high risk; coronary care; kidney dialysis; emergency recovery; post cardiac-catheterization ICU; obstetrics ICU; pediatrics ICU; and emergency (male and female). Surgical units (N=10), namely: general surgery (A, B, C and D); orthopedics (1 and2); urology; neuro-surgery; thoracic; and open heart.Medical units (N=7), namely: hematemesis; thalassemia; obstetrics; hepatic; neuropsychiatric; renal; and pediatrics. The Institute is allied to the General Organization of Teaching Hospital and Institutes; and is considered the main

teaching hospital at El-Beheira governorate equipped with 336beds. The setting offers a full range of services including acute inpatient care, intensive care units, and partial hospitalization services; as well as paramedical services.

2.3Subjects
All nurses, who are working in theabove-mentioned settings and who were available at the time of data collection, were included (N = 326).

2.4Tools of the study
Three tools were utilized in this study.
Tool(1):Organizational Strategic IntelligenceQuestionnaire(OSIQ),developed by Maccoby and Scudder(2011) [(3)], was used to measure nurses' perception of their health care organizational strategic intelligence. It consists of 27 items on fiveelements, namely: Prospective (5-item); systems thinking(5-item); the future vision(6-item); partnership(5-item); and lastly, ability to motivate nurses (6-item). Responses were measured using 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The score ranged from 5 to 135. High score indicates a high level of organizational strategic intelligence. [3]

Tool (2):Burns Professional Accountability Instrument (BPAI),developedby Burns (2016)[(26)], was used to measure how nursesexperience professional accountability in their workplace.It consists of 47 items on four subscales, namely: professional accountability related to self (35-item);professional accountability related to patient (2-item); professional accountability related to team (5-item); and professional accountability related to organization (5-item). Responses were measured using 5-pointLikert scale, ranging from 1 (strongly disagree) to 5(strongly agree).Reverse coded items were applied on negative statements, prior to calculating total scores. The score ranged from 47 to 235. Higherscores imply greater nurses' professional accountability.[26]

Tool (3):Utrecht Work Engagement Scale (UWES), developed by Schaufeli et al.(2002)[(21)], was used to measure nurses' perceptionsof work engagement. It consists of 17 items including three dimensions: vigor (6-item);dedication (5-item); andabsorption (6-item). Responses were measured using a7-point Likert scale, ranging from 0 (Never) to 6 (Veryoften). The score ranged from 6 to 102. The higher the score,the more nurses' engagement in their work.[21]
In addition, demographic and work-related characteristicsform was developed by the researchers, includingquestions related to: (age, gender, marital status, educational level, working unit, and years of experience).

2.5Methods
- Hospital approval was obtained to collect the study data from the identified setting, after elucidating the purpose of the study to ensure their full cooperation.
- The study tools were translated into Arabicto suit the Egyptian culture and tested for content validityalong with the fluency of the translation by five experts in the field of study (four Professors and aLecturer from Nursing Administration Department). Accordingly,some statements were modified for more clarity.
- Toolswere tested for internal reliability using the Cronbach'sAlpha correlation coefficient, revealing a good reliability for OSIQ, BPAI and UWES (α 0.808, 0.765 and 0.838), respectively.
- A pilotstudy was conducted with 33 nurses (10%) who were not included in the study, with no changes in the final tools.

2.6Data collection
The researchers distributed the questionnaires to nurses intheir working units. Each nurse took about 20 minutes tocomplete the questionnaires after giving the complete instructions.
Data were gathered from nurses after obtaining theirconsent. Data collection took three months, from August2017 till October 2017.

2.7Ethical considerations
The researchers explainedthe aim of the research to all participants. The privacy andconfidentiality of data were maintained. Participants' informedconsent was assured. The anonymity of participantswas granted. The right to withdraw or rejected to participate in the study were assured.

2.8Statistical analysis
Data were coded by the researchers and statistically analyzed utilizing SPSS version 22. Frequency and percentages wereused for describing demographic and work-related characteristics.Descriptive statistics (means

and standard deviations) and Inferential statistics (Pearson correlationcoefficient and Regression analysis [R2]) were used toanalyze the results of the study. Regression analysis (R) wasrun to test the predictive power of independent variables (organizational strategic intelligence and professional accountability) on the dependent variable (workengagement). R2change was tested withF-test. A significant F-value for R2meant that the variablesadded significant prediction. All statistical analyses weredoneutilizingan alpha error of 0.05. Regarding P value, it was considered that: non-significant (NS) if P> 0.05, Significant (S) if P< 0.05, Highly Significant (HS) if P<0.01. Pearson correlation coefficientvalues indicated as follow: r = 0.1 weak; r= 0.3 moderate; and r = 0.5 strong relationship.

III. Results:

Table 1 showed that 30.1% of nurses were aged 35 years old or more, while 15% of them were between 25 to less than 20 years old with a mean score $\bar{x}$±SD31.3±8.9. Regardingnurses' gender, 60.7% of them were female, compared to39.3% of them male.About three quarters of nurses (74.8%) were married. The highest percentage of nurses (42.6%) had a Technical Nursing Institute Diploma; whereas23.4% had a Bachelor of Nursing Sciences degree. In relation to working unit, above half of them (52.8%) work in intensive and critical care units; while 22.4% work in medical units. Moreover, 51.2% of nurses had from 15years of nursing experienceto less than 25 years; whereas 13.8%of them had more than 25 years of the same experience with a mean score of $\bar{x}$±SD 17.4±7.9.

Fig. (1) showed that 41% of nurses had high perception of health care organizational strategic intelligence; compared to 24%of them having low perception.

Fig.(2) revealed that 37% of nurses had high level of professional accountability; while 13% of them had low level.

Fig.(3) clarified that 47% of nurses had high level of work engagement; whereas 18% of them had low level.

In relation to the comparison of nurses' perception of Health care Organizational Strategic Intelligence(HOSI) and its elements' means and their working units,table 2 revealed that a highly statistically significant difference (P = .000) exists between overall HOSI and working units. Additionally, there was a highly statistically significant difference between all elements of HOSI (foresight, system thinking, vision, motivating, and partnering) among nurses and working units (P= .003, .002, .001, .000, and .000), respectively. The highest mean scoreof overall HOSI (93.11)was among nurses working at intensive& critical care units; while the lowest mean score (68.21) was among nurses working at medical units. Vision was the first element among nurses, who were working at intensive and surgical units, with the highest mean score (19.90, 18.01), respectively. Contrarily, the lowest mean scorewas for the foresight element, at the same units (14.32, 13.03), consecutively. Moreover, the nurses working at medical units, perceived high mean score (14.81) for partneringelement; whereas the lowest mean score (11.98) was for foresight element.

Regarding the comparison of nurses' professional accountability and its subscales' means and their working units,table 3showed that there were statistically significant differences between the three working units (intensive, surgical and medical) and overall and all subscales of professional accountability related to (self, patient, team, and organization) (P= .000, .000, .001, .009 and .014), respectively. The highest mean score for overall professional accountability (181.20) was among nurses, working at intensive and critical care units; while the lowest mean score (157.40) was at medical units. The highest mean score was the same for self-accountability subscale at critical, surgical and medical units(136.90, 128.31, 115.75), respectively. Contrarily, the lowest mean score was related to patient subscale at critical, surgical and medical units (12.75, 9.68, 8.54), consecutively.

Pertaining to the comparison of nurses' work engagement and its dimensions' means and their working units,table 4illustrated that there were highly statistically significant differences between the three working units (intensive, surgical and medical) and overall and all dimensions of work engagement (vigor, dedication, and absorption) (P= .000, .000, 001, and .002), respectively. The highest mean score of overall nurses' work engagement (63.80), were at intensive and critical units; while the lowest mean score (51.23) was at medical units. Among nurses, who were working at intensive and critical units, the highest mean score (20.31) was for vigor dimension;whereas, the lowest mean score (18.34) was for dedication dimension. Furthermore, the highest mean scores for nurses, working at surgical and medical units, was for dedication dimension(18.11, 17.33), respectively.Furthermore, nurses at surgical unit had the lowest mean score (16.10) for absorption dimension; compared to, nurses working at medical units, lowest mean score (15.63) for vigor dimension.

Table 5 indicated that there were highly significant relationships between nurses' overall healthcare organizational strategic intelligence and each of their age, educational level, years of nursing experience, and working unit (P = .001, .000, .021, .002), respectively. Similarly, highly significant relationshipswere found between nurses' overallwork engagement and each of their age, educational level, years of nursing experience, and working units (P = .000, .001, .002, and .000), consecutively. Furthermore, highly significant

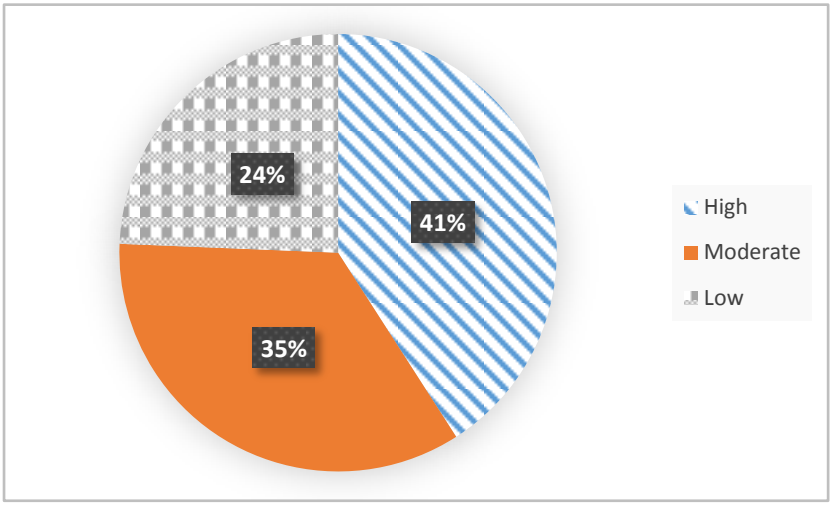
relationshipswere found between nurses' overallprofessional accountability and all of their demographic and work-related characteristics including: age, gender, marital status, educational level, years of experience and working units (P = .000, .041, .049, .003, .001 and .000), respectively. As regard to nurses' high level of organizational strategic intelligence, it was found that 37.3% of themhad from 25 years old toless than 30 years old;above half of them (51.6%) had a Bachelor nursing degree; 46.2% of them had from 5 to less than 15 years of nursing experience; and lastly, 62.6% of them were working at intensive and critical care units. Concerning nurses' high level of professional accountability, it was found that 47.9% of themhad from 25 years old toless than 30 years old; 52.9% were male; 78.4% were married; 43.7% of them had a Bachelor nursing degree, 47.9% had from 15 to less than 25 years of nursing experience; and 57.5% of them were working at intensive and critical care units. Regarding nurses' high level of work engagement, it was found that 47.9% of themhad from 25 years old toless than 30 years old; 45.9% of them had a Technical nursing institute diploma; 47.9% of them had from 15 to less than 25 years of nursing experience; and 58.2% of them were working at intensive and critical care units.

Table 6 revealed that a highly significant correlation was found betweenhealth care organizational strategic intelligence and work engagement (r = 2.988, P =.001). On the other hand, a significant correlation was found between professional accountability and work engagement (r = 3.567, P = .013).

Table 7 clarified that the outcomes of a multiple linear regression analysis designed to predict the nurses' work engagement (as the dependent outcome) from two independent predictors (1st predictor = organizational strategic intelligence; and finally, the 2nd predictor = nurses' professional accountability). The model shows that the 1st predictor is the strongest independent predictor of nurses' work engagement beta = .912; followed by the 2nd predictor beta = .823, i.e., 91.2 % of the variance of the nurses' work engagement can be predicted by the independent predictor in this model. The overall significance of the model was high F= 131.828, P=0.000.

Table (1): Distribution of nurses according to their demographic & work-related characteristicsat Damanhour National Medical Institute (N=326).

Demographic & work-related characteristics	No.	%
Age		
20 - <25	49	15.0
25 - <30	87	26.7
30 - < 35	92	28.2
≥35	98	30.1
$\bar{x}$±SD**31.3±8.9**		
Gender		
Male	128	39.3
Female	198	60.7
Marital Status		
Married	244	74.8
Not Married	82	25.2
Educational Level		
Secondary nursing diploma	111	34.0
Technical nursing institute diploma	139	42.6
Bachelor nursing degree	76	23.4
Working Unit		
Intensive and critical care units	172	52.8
Surgical units	81	24.8
Medical units	73	22.4
Years of Nursing Experience		
5<15 years	114	35.0
15 - <25 years	167	51.2
≥25 years	45	13.8
$\bar{x}$ ± SD 17.4±7.9		



Fig, (1): Distribution of nurses according to overall health care organizational strategic intelligence (N = 326).

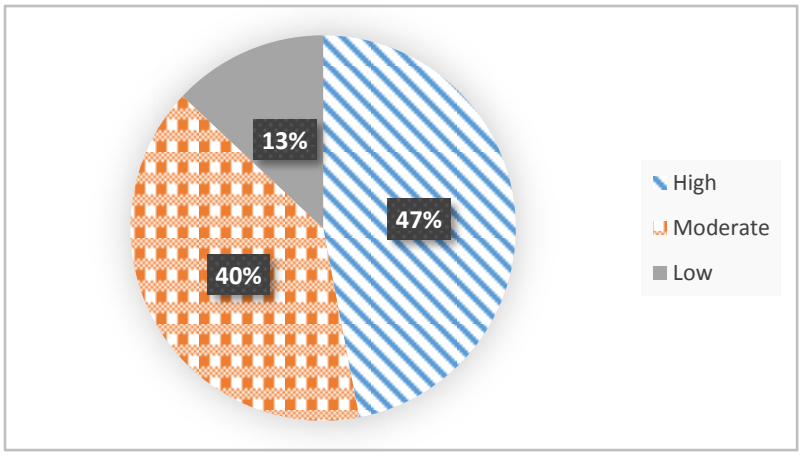


Fig. (2): Distribution of nurses according to overall Professional accountability (N = 326).

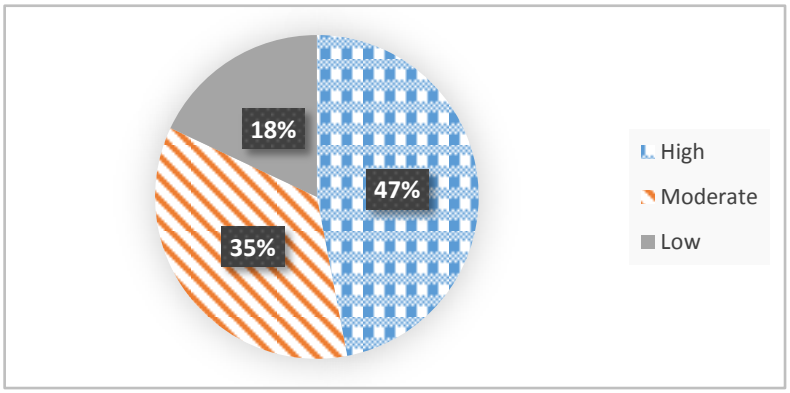


Fig. (3): Distribution of nurses according to overall work engagement (N = 326).

Table (2): Comparison of nurses' means of health care organizational strategic intelligence between intensive and critical, surgical and medical units at Damanhour National Medical Institute (N=326).

Health care organizational strategic intelligence (HOSI)elements	Intensive &Critical Units (N = 172)	Surgical Units (N = 81)	Medical Units (N = 73)	Friedman Test	
				χ^2	P.value
Prospective	14.32	13.03	11.98	10.6	.003**
Systems Thinking	18.74	14.97	12.77	13.9	.002**
Future Vision	19.90	18.01	14.74	18.7	.001**
Partnership	17.38	16.12	14.81	19.8	.000**

Ability to Motivate Nurses	19.22	17.80	13.94	21.5	.000**
Overall HOSI	93.11	81.24	68.21	31.5	.000**

*Significant at P< 0.05; **highly significant at P<0.01

Table (3):Comparison of nurses' means of professional accountability between intensive and critical, surgical and medical units at Damanhour National Medical Institute (N=326).

Professional accountability subscales	Intensive &Critical Units (N = 172)	Surgical Units (N = 81)	Medical Units (N = 73)	Friedman test	
				χ^2	P.value
Related to self	136.90	128.31	115.75	19.4	.000**
Related to patient	12.75	9.68	8.54	13.19	.001**
Related to team	21.27	18.70	17.41	11.43	.009**
Related to organization	20.01	19.75	18.42	9.32	.014*
Overall professional accountability	181.20	169.11	157.40	29.80	.000**

*Significant at P< 0.05; **highly significant at P<0.01

Table (4):Comparison of nurses' means of work engagement between intensive and critical, surgical and medical units at Damanhour National Medical Institute (N=326).

Work engagementdimensions	Intensive &Critical Units (N = 172)	Surgical Units (N = 81)	Medical Units (N = 73)	Friedman test	
				χ^2	P.value
Vigor	20.31	17.46	15.63	14.79	.000**
Dedication	18.34	18.11	17.33	12.45	.001**
Absorption	19.93	16.10	15.73	11.6	.002**
Overall work engagement	63.80	55.97	51.23	19.34	.000**

*Significant at P< 0.05; **highly significant at P<0.01

Table (5): Relationship between nurses' demographic & work-related characteristicsand their total health care organizational strategic intelligence, professional accountability and work engagementat Damanhour National Medical Institute (N=326).

Nurses' demographic & work-related characteristics		Organizational strategic intelligence						Professional accountability						Work engagement					
		High (N=134)		Moderate (N= 114)		Low (N=78)		High (N=153)		Moderate (N=131)		Low (N=42)		High (N=153)		Moderate (N=114)		Low (N=59)	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Age	20 - <25	35	26.2	10	8.7	4	5.3	40	26.1	9	6.8	0	0	40	26.1	9	7.8	0	0
	25 - <30	50	37.3	25	21.9	12	15.3	73	47.9	14	10.8	0	0	73	47.9	9	7.8	5	8.4
	30 - < 35	40	29.8	32	28.2	20	25.6	31	20.2	51	38.9	10	23.8	31	20.2	45	39.7	16	27.1
	≥35	9	6.7	47	41.2	42	53.8	9	5.8	57	43.5	32	76.2	9	5.8	51	44.7	38	64.5
	χ^2 Calculated P-Value	6.32 .001**						13.81 .000**						11.20 .000**					
Gender	Male	60	44.7	55	48.2	13	16.6	81	52.9	27	20.6	20	47.7	59	38.6	49	42.9	20	33.8
	Female	74	55.3	59	51.8	65	83.4	72	47.1	104	79.4	22	52.3	94	61.4	65	57.1	39	66.2
	χ^2 Calculated P-Value	0.98 .060						7.51 .041*						1.76 .084					
Marital status	Married	74	55.3	94	82.4	76	97.4	120	78.4	115	87.7	9	21.4	120	78.4	80	70.1	44	74.6
	Not Married	60	44.7	20	17.6	2	2.6	33	21.6	16	12.3	33	78.6	33	21.6	34	29.9	15	25.4
	χ^2 Calculated P-Value	0.861 .073						4.75 .049*						3.32 .059					
Educa-tional Level	Secondary school Diploma	5	3.7	37	32.5	69	88.4	23	15.2	59	45.2	29	69.2	18	11.7	63	55.2	30	50.8
	Technical Institute diploma	60	44.7	70	61.4	9	11.6	63	41.1	66	50.3	10	23.8	70	45.9	40	35.2	29	49.2
	Bachelor degree	69	51.6	7	6.1	0	0.0	67	43.7	6	4.5	3	7	65	42.4	11	6.6	0	0
	χ^2 Calculated P-Value	9.41 .000**						9.92 .003**						6.003 .001**					
Years of Experie-nce	5 -<15	62	46.2	30	26.4	22	28.2	67	43.7	38	29.1	9	21.4	67	43.7	33	28.9	14	23.8
	15-<25	58	43.2	77	67.5	32	41.1	73	47.9	84	64.1	10	23.8	73	47.9	79	69.2	15	25.4
	≥25 years	14	10.6	7	6.1	24	30.7	13	8.4	9	6.8	23	54.8	13	8.4	2	1.9	30	50.8
	χ^2 Calculated P-Value	5.94 .021*						7.37 .001**						9.11 .002**					
Working Unit	Intensive & Critical	84	62.6	71	62.2	17	21.7	88	57.5	76	58.0	8	19.1	89	58.2	68	59.8	15	25.4
	Surgical	40	29.8	16	14.2	17	21.7	59	38.6	4	3.1	10	23.8	58	37.9	5	4.3	10	16.9
	Medical	10	7.6	27	23.6	44	56.61	6	3.9	51	38.9	24	57.1	6	3.9	41	35.9	34	57.7
	χ^2 Calculated P-Value	7.04 .002**						14.06 .000**						10.46 .000**					

*Significant at P< 0.05; **highly significant at P<0.01

Table (6):Correlation matrix between health care organizational strategic intelligence, professional accountability and work engagement among nurses at Damanhour National Medical Institute (N=326).

Total studied variables	Work engagement	
	Calculated R	P value
Organizational strategic intelligence	2.988	.001**
Professional accountability	3.567	.013*

*Significant at P< 0.05; **highly significant at P<0.01

Table (7): Multivariate analysis linear regression for organizational strategic intelligence, professional accountability and work engagement among nurses at Damanhour National Medical Institute (N=326).

	Unstandardized coefficients		Standardized coefficients	T	P. value
	Beta	SE	Beta		
Constant variable	46.825	7.602		4.719	.000**
Organizational strategic intelligence	.912	.051	.841	10.941	.000**
Professional accountability	.823	.043	.762	9.627	.001**

ANOVA			
Model	**df**	**F**	**P. value**
Regression	1	131.828	.000**

a. Dependent Variable: Work engagement
b. Predictors: (constant), organizational strategic intelligence and professional accountability

SE: standard error; T: t-test value; R^2: regression coefficient; F: F-test (ANOVA); ANOVA: analysis of variance; df: degree of freedom. *Significant at level P≤ 0.05**;** **highly significant at P≤0.01

IV. Discussion:

Healthcare delivery has become more complicated by thechallenges of having different generations of nurses, with severalcharacteristics and values, working together in healthcare settings[31]. Strategic intelligence is an emerging field, aiming to undertake the task of revealing large, or complex issues of transformation in a more understandable way. It has been common to describe strategic intelligence as the collection, processing, analysis, and dissemination of information that has high strategic relevance [32]. Consequence of strategic intelligence is professional accountability and work engagement. Professional accountabilityencourages professional nurses and health care organizations to develop and work collaboratively as accountable careorganizations [26]. Losing the public trust in health care professionals and the organizations are faced with the pressure to deliver accountable care [33]. Work engagement is essential and vital for nursing practice, when dealing with different challenges, namely: nursing shortage, pressures to decrease expenditures, and growing needs for quality care and positive patients' outcomes [34].

The findings of the current study revealed that nurses highly perceived organizational strategic intelligence; and that the level of nurses' perception is appropriate for the future vision and motivationelements; followed by system thinking, partnership and prospective. This may be due to the nurses, who believe that they had a common vision in their units that determine the direction of work. They also had the ability to turn their vision into the best possible application within the hospital's mission and goals; and they can convince others and motivate them to believe in their strategic, future vision; and they were encouraged to act in harmony with hospital goals because of the national alignment towards quality and accreditation. Additionally, they can push colleagues to implement the hospital vision and developed perceptions. Similarly, Rawat (2011)[35] proved that a feeling of capability will give nurses the conviction that they can carry out their work roles with expertise and achievement; fortifying them to apply significant exertion for the organization. In addition, self-determination gives them control over their work and a voice in work-related decision processes, leading to enhanced involvement in the organization. Maccoby and Scudder (2011)[3]also proved that nurses are motivated, when their responsibilities are meaningful by engaging their abilities and values, especially when they stretch and develop them, but they are not motivated if their responsibilities are too easy or do not stretch them at all. Furthermore, the findingis consistent with Esmaeili (2014), and Coyne and Bell (2011)[8, 36], who indicated that the majority of nurses in their hospitals perceived motivation and future-directed plans, positively in their workplace environment. Comparatively, Seibert et al. (2011)[37] proved that a high level of organizational strategic intelligence brings greater satisfaction and wellbeing at work, greater organizational commitment, and improved task performance. In this regard, Kruger (2010)[38] indicated that the organizations believe that strategic intelligence enhances decision-making, and that strategic intelligence plays a critical role in the strategic management process. This is also corroborated byLaschinger et al. (2010)[39], whoevidence that nurse managers' role is to provide adequateconditions, where nurses are enabled to provide quality care for the patients.

Regarding professional accountability, the findings proved that nurses are professionally accountable in their work; with the highest subscale was for self; followed by organization, team and patient subscales. This

may be imputed to nurses' perception of motivation and satisfaction with empowerment that they experienced in their working environment. Nurses also believe that they had an ethical dutiesand obligations towards performing patient care safely. Moreover, they exercise autonomy in their role as a nurse especially in evening and night shifts, leading to be accountable for their decisions made concerning their role as a nurse; and to acquire skills necessary to provide competent patients care. In the same line, Laschinger et al. (2010)[39] stated that when nurses have tools topractice their work, they will, in turn, experience a greater energy and will become more enthusiastic and proud of their achievements and will be more engaged in their work. Moreover, accountability was explained asbeing answerable to someone for something done, and responsibility asacting in a reliable, trustworthy and credible manner[26]. Professional accountability is also a core element of role development for professional nursing practice, which requires adherence to the professional code of conduct and ethical moral practice that underpin safe practice [16]. Benner et al. (2011)[40] asserted that through relational interactions, nurses become more effective members in the healthcare multidisciplinary team. They added that the advanced beginner nurses have moved away from focusing on skill acquisition to interactions with other healthcare multidisciplinary team members and are more focused on character development of behaviors leading to professional accountability. Consequently, Benner et al. (2011)[40] and Krautscheid (2014)[16]emphasized that professional accountability is a core element for role development of professional nursing practice. This is also supported by Luhanga et al. (2010)[41], who stated that professional accountability is multifaced and demands commitment to protect and serve the patient, employers, regulatory agencies and educational institutions.

Pertaining to work engagement, the findings of this study approved that nurses highly perceive work engagement and its related dimensions: dedication, followed by absorption, then vigor. These results may be attributed to nurses' perceptionsabout their job as: challenging and inspiring; feeling enthusiastic about it;being proud of their work done; and retrieving that the work done is full of meaning and purpose. In the same line isLaschinger et al. (2010)[39], whoclarified that when nurses had tools for practicing their work, they experience a greater energy and become more likely to be enthusiastic, proud of their care and be more engaged in their work. Likewise, Schaufeli and Salanova (2007)[42]proved that engaged nurses have a sense of energetic and effective connections with their work activities and consider themselves ready to bargain totally with the requests of their activities. In this context, Chaudhary et al. (2011)[43] underlined thatnurse engagement has developed as one path for organizations to gauge their interest in human capital. Besides, Sierra et al. (2016)[44] proposed that positive work atmosphere; supportive organization and leadership styles are factors that encourage work engagement. Additionally, Salanova et al.(2011)[45], Riegel (2013)[48]and Demerouti and Bakker (2016)[46]showed that levels of work engagement are positively related to strong relationships with extra-role performance as perceived by customers, in comparison with its experiential opposite, i.e., burnout. Accordingly, Xanthopoulouet al.(2010)[47] found that work engagement mediates the relationship between self-efficacy and (in-role and extra-role) performance.

Concerning demographic and work-related characteristics, the findingsindicated that there were highly significant relationships between overall health care organizational strategic intelligence;professional accountability and work engagement and nurses' age, educational level, years of nursing experience, and working unit. It was found that nurses, who had from 25 to less than 30 years old; had a Bachelor nursing degree and Technical nursing institute diploma; had from 5 to less than 15 and from 15 to less than 25 years of nursing experience; and lastly, the highest percentage of them were working at intensive and critical care units, were highly significantly related to the study variables. This may be attributed to the nature of mature and older adult nursing staff, who are more accountable and feel a sense of responsibility towards their work. Moreover, their high level of nursing education places an important role on their behaviors and knowledge for better performance and promotion. Additionally, this may be related to their nursing experience, which emphasize their commitment to execute their organizational strategy;support their management system;effectively thinking of their organizational system; and lastly, to have a sense of accountability toward themselves, colleagues, patients, and organization because the nature of intensive and critical care units, require from them to be alert about everything. This is in line with Thiengburanatham et al. (2011) [49], who found that older nurses often reflect a more positive perception regarding their professional accountability and work engagement.

Moreover, Harokova and Gurkova(2012) [50] found that nurses'accountability and satisfactionget better with age, just in those areas of high turnover rate and intensive care, where the results of their experience and skills are manifested – in control and responsibility at work, praise and recognition, and scheduling. In their study, Ferreira et al. (2012) [51]added that higher strategic intelligence and motivation was shown with older nurses with high nursing experienceyears; compared to middle-aged. Their interpretation points out that aged nursing staff may feel motivated, accountable and engaged, as they had much experience on the labour market and able to evaluate their working conditions; which decreases just in middle age. This is supported by Khademo and Hoseyni(2013) [52], who concluded that the variables related to theindividual characteristics of nurses, such as: age, professional experience and education represent, in relation to nurses' intelligence, work engagement and accountability, hadstable correlations.

These findings also revealed that there werepositive significant relationships between nurses' perception of health care organizational strategic intelligence and both their professional accountability and work engagement. These correlations were,additionally, confirmed by the result of multiple linear regression analysis, which revealed that health care organizational strategic intelligence and professional accountability can predict work engagement in a positive significant way. These results implied that strategic intelligent health care organizations with accountable nursing staff to their profession are experiencing more work engagement. These are parallel with Manuel and Crowe (2014)[(53)], who found that professional accountability and work engagement are forcefully and fundamentally related. Likewise, Immam (2014)[(54)] demonstrated that there was a noteworthy positive effect of strategic intelligence on work engagement, which affects nurses' satisfaction in a positive way.Moreover, Buysand Chenelle (2010)[(55)] revealed that the standardized regression coefficients confirmed that professional accountability predicted nurses' engagement.Additionally, announced that an empowering work environment with professional accountability was strongly predictive of nurses' feelings of effectiveness and engagement with the work. Nursing administrators and supervisors assume a vital part in making connections with workplaces, in which nurses encounter their work as significant and where they feel that they can affect the work productivity.

V. Conclusion And Recommendations

The findings of this study concluded that a highly significant correlation was found between health care organizational strategic intelligence and nurses' work engagement; and a significant correlation was found between nurses' professional accountability and their work engagement. Moreover, highly significant relationshipswere found between both health care organizational strategic intelligence and nurses' work engagement and age, educational level, years of nursing experience, and working unit; whereas highly significant relationships were found between nurses' professional accountability and all demographic and work-related characteristics.

VI. Recommendations

In the light of the study findings, it is recommended that:

- Hospital administrators should:
- Apply the intelligence process especially in other fields, such as: human resource intelligence; organizational process intelligence; technological intelligence; informational intelligence; financial resource intelligence; competitor intelligence;artificial intelligence and customer intelligence.
- Adopt strategies that facilitate nurses' engagement and enhance their professional accountability levels.
- Positively empower nurses' work climate, trust, teamwork, proactive management, future-oriented system thinking and health care professionals' dedication at work.
- Enhance and develop their leadership styles and skills, which are factors that foster strategic intelligence, professional accountability and work engagement.
- Support manager's strategic intelligence through training and education to process and analyze information, collect correct information, improve organizational intelligence, competitive intelligence and knowledge management in organizations.
- Expand their practical intelligence abilities, such as: problem-solving, critical thinking and situational judgment, as well as their tacit knowledge and try to make good use of the experiences in the proper position.
- Create a healthy, positive and competitive environment to strengthen personality traits and professional accountability, which consequently will affect nurses' work engagement.
- Nurses should:
- Recognize the opportunities and environmental issues, and best solutions to engage in the strategic intelligent process through self-development.
- Employ different activities, expected performance and approaches to improve their professional accountability.
- Adopt strategies that enhance nurses' engagement and professional accountability levels, such as: interpersonal relationships, clinical judgment, interprofessional communication and professional conduct.
- Future studies:
- Investigate the effect of health care organizational strategic intelligence, professional accountability, and nurses'work engagement on other variables, such as: staff turnover, creativity, innovation, information management, performance, and patient safety.

References

[1]. Shuck I, Brad T, Reio Jr, Thomas G, Rocco N, Tonette S. Employee Engagement: An Examination Of Antecedent And Outcome Variables. Human Resource Development International. 2011;14(4):427-45.
[2]. Shirey F, Marc R, Ebright B, Patricia R, Mcdaniel J, Anna M. Nurse Manager Cognitive Decision-Making Amidst Stress And Work Complexity. Journal Of Nursing Management. 2013;21(1):17-30.
[3]. Maccoby M, Scudder T. Strategic Intelligence: A Conceptual System Of Leadership For Change. Performance Improvement. 2011;50(3):32-40.
[4]. Fisher C. Happiness At Work. International Journal Of Management Reviews. 2010;12(4):384-412.
[5]. Schwab K. The Fourth Industrial Revolution: Currency; 2017.
[6]. Moura D, Daniel K, Orgambídez-Ramos H, Alejandro D, Saul N. Psychological Empowerment And Work Engagement As Predictors Of Work Satisfaction: A Sample Of Hotel Employees. Journal Of Spatial And Organizational Dynamics. 2015;3(2):125-34.
[7]. Schein E. Organizational Culture And Leadership: John Wiley & Sons; 2010.
[8]. Esmaeili M. A Study On The Effect Of The Strategic Intelligence On Decision Making And Strategic Planning. International Journal Of Asian Social Science. 2014;4(10):1045-61.
[9]. Al-Zu'bi H. Aspects Of Strategic Intelligence And Its Role In Achieving Organizational Agility: An Empirical Investigation. International Journal Of Academic Research In Business And Social Sciences. 2016;6(4):2222-6990.
[10]. Wright S. Competitive Intelligence, Analysis And Strategy: Creating Organisational Agility: Routledge; 2014.
[11]. Thompson J. Organizations In Action: Social Science Bases Of Administrative Theory: Routledge; 2017.
[12]. Burns L. Standards, Policy Paradoxes, And The New Literacy Studies: A Call To Professional Political Action. Journal Of Adolescent & Adult Literacy. 2012;56(2):93-7.
[13]. American Nurses Association (Ana). Code Of Ethics For Nurses. 2015. Available At: Http://Www.Nursingworld.Org/Mobile/Code-Of-Ethics/Provisions-4.Html#Two. Retrieved On: 20/4/2016.
[14]. Battie R. Accountability In Nursing Practice: Why It Is Important For Patient Safety. Acorn: The Journal Of Perioperative Nursing In Australia. 2016;29(4):11.
[15]. Davis C. The Importance Of Professional Accountability. Lww; 2017.
[16]. Krautscheid L. Defining Professional Nursing Accountability: A Literature Review. Journal Of Professional Nursing. 2014;30(1):43-7.
[17]. White M. Preparing For The Future: What Nurses Need To Know. The Journal Of Continuing Education In Nursing. 2012;43(2):55-6.
[18]. West N, Michael A, Eckert L, Reginy S, Steward N, Katte B, Pasmore M, William A. Developing Collective Leadership For Health Care: King's Fund London; 2014.
[19]. Bedarkar M, Pandita D. A Study On The Drivers Of Employee Engagement Impacting Employee Performance. Procedia-Social And Behavioral Sciences. 2014;133:106-15.
[20]. Bin Abdullah A, Abdul Ghani K, Almadhoun A, Tareq Z, Ling Y, Ying-Leh L. Psychological Empowerment, Job Satisfaction And Commitment Among Malaysian Secondary School Teachers. Asian Journal Of Educational Research Vol. 2015;3(3).
[21]. Schaufeli W, Salanova M, Gonzalez-Rom V, Bakker A. The Measurement Of Engagement And Burnout: A Two Sample Confirmatory Factor Analysis Approach. Journal Of Happiness Studies. 2002; 3(1): 71-92.
[22]. Hakanen J, Schaufeli W. Do Burnout And Work Engagement Predict Depressive Symptoms And Life Satisfaction? A Three-Wave Seven-Year Prospective Study. Journal Of Affective Disorders. 2012;141(2-3):415-24.
[23]. Gitterman A. Handbook Of Social Work Practice With Vulnerable And Resilient Populations: Columbia University Press; 2014.
[24]. Boserup N, Tan E, Su F, Toulmin M, Camillo B. Woman's Role In Economic Development: Routledge; 2013.
[25]. Lekan N, Deborah A, Corazzini M, Kirsten N, Gilliss A, Catherine L, Bailey Jr, Donald E. Clinical Leadership Development In Accelerated Baccalaureate Nursing Students: An Education Innovation. Journal Of Professional Nursing. 2011;27(4):202-14.
[26]. Burns C. Professional Accountability: Intellectual Curiosity, Self-Awareness, Emotional Intelligence, And Subjective Norms Of Novice Nurses And Advanced Beginner Nurses: Widener University; 2016.
[27]. Battié R, Steelman V. Accountability In Nursing Practice: Why It Is Important For Patient Safety. Aorn Journal. 2014;100(5):537-41. Doi:10.1016/J.Aorn2014.08.008
[28]. Nwokeocha S-M. Academic Staff Working Conditions, Organizational Commitment And Performance Of Nigerian Universities: Anglia Ruskin University; 2015.
[29]. Best K. Holistic Leadership: A Model For Leader-Member Engagement And Development. The Journal Of Values-Based Leadership. 2011;4(1):5.
[30]. Weathers S. 1-Year Retention Rates And Performance Ratings: Comparing Associate Degree, Baccalaureate, And Accelerated Baccalaureate Degree Nurses. . Journal Of Nursing Administration2013 Sep;1;43(9):468-74.
[31]. Becton J, Walker H, Jones-Farmer A. Generational Differences Inworkplace Behavior. Journal Of Applied Social Psychology. 2014; 44: 175-89. Doi:10.1111/Jasp.12208
[32]. Kuosa T. Different Approaches Of Pattern Management And Strategic Intelligence. Technological Forecasting And Social Change. 2011; 78: 458-67.
[33]. Manuel J, Crowe M. Clinical Responsibility, Accountability, And Risk Aversionin Mental Health Nursing: A Descriptive, Qualitative Study. International Journal Ofmental Health Nursing. 2014; 23: 336-43. Doi: 10.1111/Inm.12063

[34]. Keyko K, Cummings G, Yonge O, Wong C. Work Engagement In Professional Nursing Practice: A Systematic Review. International Journal Of Nursing Studies. Sep. 2016, 61(9): 142-64. Https://Doi.Org/10.1016/J.Ijnurstu.2016.06.003
[35]. Rawat A, Danda B, Popescu M, Dimitrie C, Yan L, Gongjun F, Olariu B, Stephan N. Enhancing Vanet Performance By Joint Adaptation Of Transmission Power And Contention Window Size. Ieee Transactions On Parallel And Distributed Systems. 2011;22(9):1528-35.
[36]. Coyne J, Bell P. The Role Of Strategic Intelligence In Anticipating Transnational Organised Crime: A Literary Review. International Journal Of Law, Crime And Justice. 2011;39(1):60-78.
[37]. Seibert S, Wang N, Courtright J. Antecedents And Consequences Of Psychological And Team Empowerment In Organizations: A Meta-Analytic Review. Journal Of Applied Psychology. 2011;96(5):981.
[38]. Kruger K, Serpell J. Animal-Assisted Interventions In Mental Health: Definitions And Theoretical Foundations. Handbook On Animal-Assisted Therapy: Elsevier; 2010. P. 33-48.
[39]. Laschinger M, Wong L, Carol A, Spencel, Heather K, Cummings C, Greta G. Authentic Leadership And Nurses' Voice Behaviour And Perceptions Of Care Quality. Journal Of Nursing Management. 2010;18(8):889-900.
[40]. Benner P. Formation In Professional Education: An Examination Of The Relationship Between Theories Of Meaning And Theories Of The Self. Journal Of Medicine And Philosophy. 2011;36(4):342-53.
[41]. Luhanga M, Florence B, Myrick A, Florence T, Yonge L, Olive A. The Preceptorship Experience: An Examination Of Ethical And Accountability Issues. Journal Of Professional Nursing. 2010;26(5):264-71.
[42]. Schaufeli W, Salanova M. Work Engagement: An Emerging Psychological Concept And Its Implications For Organizations. In: Gilliland S, Steiner D, Skarlicki D. (Eds.), Research In Social Issues In Management (Volume 5): Managing Social And Ethical Issues In Organizations (P. 135-177). 2007. Greenwich, Ct: Information Age Publishers.
[43]. Chaudharyr, Rangnekar M, Santosh E, Baru D, Mukesh T. Relation Between Human Resource Development Climate And Employee Engagement: Results From India. Europe's Journal Of Psychology. 2011;7(4):664-85.
[44]. Sierra G, Fernández-Castro R, Jordi M, Martínez-Zaragoza V, Fermín M. Relationship Between Job Demand And Burnout In Nurses: Does It Depend On Work Engagement? Journal Of Nursing Management. 2016;24(6):780-8.
[45]. Salanova M, Lorente M, Laury N, Chambel B, Mariz J, Martínez D. Linking Transformational Leadership To Nurses' Extra-Role Performance: The Mediating Role Of Self-Efficacy And Work Engagement. Journal Of Advanced Nursing. 2011;67(10):2256-66.
[46]. Demerouti K, Bakker L, Ceschi M, Andrea N, Evangeline F, Sartori R, Riccardo A, Weller N, Joshua N. Decision-Making Processes In The Workplace: How Exhaustion, Lack Of Resources And Job Demands Impair Them And Affect Performance. Frontiers In Psychology. 2016;8:313.
[47]. Xanthopoulou B, Arnold B, Et Al. Beyond The Demand-Control Model. Journal Of Personnel Psychology. 2010.
[48]. Riegel E. Orienting A New Generation Of Nurses: Expectations Of The Millennial New Graduate. Open Journal Of Nursing. 2013;3(07):461.
[49]. Thiengburanatham U, Intraraprasong B, Kaewpan W, Sillabutra J. How Motivation To Work Affects Nursing Service Quality According To The Perception Of Registered Nurses At Phyathai Hospital Group In Bangkok, Thailand. J Pub Health. Dev 2011; 9: 143-53.
[50]. Haroková S., Gurková E. Satisfaction Factors Of Czech Nurses. Kontakt. 2012; 14(4s.): 401-09.
[51]. Ferreira M, Proenca T, Proenca J. Motivation Among Hospital Volunteers: An Empirical Analysis In Portugal. Int Rev Public Nonprofit Marketing. 2012; 9: 137-52.
[52]. Khademo L, Hoseyni I. Consequences Of Nursing Procedures Measurement On Job Satisfaction. In Iranian Journal Of Nursing And Midwifery Research. 2013; 18(2): 123-27.
[53]. Manuel C, Jenni M. Clinical Responsibility, Accountability, And Risk Aversion In Mental Health Nursing: A Descriptive, Qualitative Study. International Journal Of Mental Health Nursing. 2014;23(4):336-43.
[54]. Immam H. Influence Of Perceived Organisational Culture, Upward Mobility And Organisations Hrd Practices On Employees Perceived Qwl And Work Identification: Aligarh Muslim University; 2014.
[55]. Buys R, Chenelle S. Burnout And Engagement Of Reformed Church Ministers. Sa Journal Of Industrial Psychology. 2010;36(1):1-11.

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