

Application of Optimis' Talent Management Model for Head Nurses on Nurses' Job Crafting and Innovation

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Abstract: As a result of scarcity of talented and innovative nurses, hospitals are competing to acquire and retain them through enhancing job crafting practices. Aim: to investigate the effect of the application of Optimis' Talent Management Model for head nurses on nurses' job crafting and innovation at Damanhour National Medical Institute. Materials: The study was conducted at all critical and intensive care units, at Damanhour National Medical Institute. All head nurses and their assistants (n=24); and all nurses (n=161) were included in the study. Three tools were used: Tool (I): is composed of two parts: first part is Demographic data sheet; second part is Talent Management Questionnaire; tool (II): Job Crafting Scale; and finally, tool (III): Innovative behavior and Support Inventory. Results: highly significant differences were found between pre-, immediately after and after three months from model application for head nurses' and nurses' perceptions of talent management dimensions, total job crafting and all its dimensions; and total innovation at the three times of evaluation of the model application. Conclusion: Optimis' Talent Management Model application on head nurses had positive effect on talent management and on their nurses' job crafting and innovation, at Damanhour National Medical Institute; at immediately after and after three months from model application; compared to pre-application. Recommendations: All healthcare organizations should introduce talent management, job crafting and innovation strategies in their strategic planning to remain competitive in today's healthcare market. **Keywords:** Talent Management, Optimis' Model, Job Crafting, Innovation.

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I. Introduction

Nowadays for competitive market talent management and job crafting is the main driving force for successful hospitals (Cappelli & Keller, 2014). Head nurses have an essential role in enabling nurses' talent management, innovation and performance improvement through job crafting. They have a critical role in nurses' performance improvement efforts to provide ongoing leadership and accountability for talent management and innovation issues. In the confrontation of globalization, hospitals are interested in designing talent management strategy in an innovative trend that fits the national context (Kular, 2018). Health care settings have to grasp, evolve and possess talented and innovative nurses, essentially those who are more extraordinary (Taie, 2015). Therefore, hospitals are competing against each other to acquire and retain talented nurses in order to maintain their operations and continue to grow (El Dahshan, Keshk & Dorgham, 2018).

The need for talented nursing staff in the future is going to increase, while the supply will drop (Al Ariss, Cascio & Paauwe, 2014). Surely globalization and technology have transformed our lives, as it has led to enhanced competition on talent. Thus, the possible growth of health care settings worldwide counts on their ability to ensure that the suitable person with the right skills are in the suitable place at the right time and focused on the right activities. Wherefore, talent management has been raised to the top of strategic human resources management challenges, acquiring the highest priority across all health care settings (Elia et al., 2017). Organizations are researching for talent as a unique asset that can provide sustainable competitive advantage and outstanding performance (Rop, 2015). Suitable talent is the major asset for any organization. Actually, one of the most important roles of human resources is to ensure that nurses, with the right skills, will stick with the organization for long enough (Nzewi, Chiekezie & Ogbeta, 2015).

Thunnissen (2016) defined talent management as: "a process, which includes a complete and interrelated set of organizational activities, such as: identifying, selecting, developing and retaining the best nurses, as well as developing their potential for the most strategic positions, and helping them in formulating the best utilization of strengths in order to

get their engagement and contribution, which participate to organizational benefits". Talent is also recognized as the inherent ability of an individual to do a particular task in a special way. It is recognized as the sum of an individual's abilities, which includes nurse's intrinsic gifts, skills, knowledge, experience, intelligence, judgment, attitude, character and drive (Fig. 1). It also includes the nurse's ability to learn and grow (Olszewski-Kubilius, 2018). Talent refers to unique characteristics, qualities, traits or abilities of people, which are utilized to reach the objectives of organizations (Taie, 2015). While, it is noted that talent represents greater mastery of developed abilities and knowledge gradually in the field of human endeavor (Onwuka, Ugwu & Kekeocha, 2015).



Fig1. *Components of Talent*

(Olszewski-Kubilius, 2018)

Today, talent management is known as a systematic approach to attract, screen, select the right talent, engage, develop, deploy, lead and retain high potential and high performer nurses to ensure a continuous talent feeding inside the organization aimed at increasing workforce productivity (Amran et al., 2015; Thunnissen, 2016). The goal of talent management is to create a high-performance, sustainable organization that meets its strategic and operational goals and objectives (Cappelli & Keller, 2014). Attracting, selecting, engaging, developing and retaining nurses are the five main focuses of talent management. For organization to gain a competitive advantage, the demand for human capital will continue to drive talent management (Mamahit, Worang & Rumokoy, 2019).

As a result, hospitals can hardly compete without highly skilled nurses and without the continual investment in the human capital that depends strongly on talented nurses (Lengnick-Hall, Beck & Lengnick-Hall, 2011). Optimis (2011) developed Optimis' Talent Management Model that identifies various talent management dimensions and links them to workforce performance, leading eventually to organization performance (Fig. 2). There are three main elements that shape talent management, namely: attraction, development and retention. **Talent attraction** is a management technique that employers use to pull desired skills into the organization. This technique is administered in order to get the right job fits (El Dahshan, Keshk & Dorgham, 2018). Talent attraction is composed of recruitment and selection, employer branding, nurse value proposition and employer of choice (Leekha, Chhabra & Sharma, 2014). Human resource departments should also consider flexible working hours as a strategy for attracting key talented nurses. Employer branding involves a set of activities which would help an organization attract the potential nurses. It makes an organization more attractive for job seekers. Organizational attractiveness gives it a competitive advantage (Figurska & Matuska, 2013). In competitive and dynamic organizations, learning and development had become a backbone of success, because without continuous learning, gaining and maintaining performance, the organizational success may become impossible (Rabbi et al., 2015). **Talent development** is the process of changing an organization, its nurses and stakeholders by using planned and unplanned learning, in order to achieve and maintain viable organizational advantages. Talent development is process of upgrading the skills and attitude of nurses (Rabbi et al., 2015).

One of the primary concerns of many organizations today is nurses' retention. Retention is viewed as a strategic opportunity for many organizations to maintain a competitive workforce (Oladapo, 2014). Retaining talented nurses is one of organizational priority and it is the key differentiator of human capital management because of challenge in retaining talent competes in the global markets (Mohammed, 2016). *Talent retention* aims to take measures to encourage nurses to remain in the organization for the maximum period of time. Talent retention can be controlled through performance-based pay, training, challenging work, intrinsic motivations, career development and giving benefits before demand (Ibidunn et al., 2015). Talent turnover is harmful to organization's productivity because costs of attraction are high. Direct cost refers to turnover costs, replacement costs and transitions costs, and indirect costs relate to the loss of production, reduced performance levels, unnecessary overtime and low morale (Golden, 2012).



Fig. (2): Optimis' Talent Management Model (Optimis, 2011).

In the current competitive environment, retention of highly talented nurses is very important as they contribute positively to improving the organizational productivity. Turnover reduction is crucial for organizational success (Mohammed, 2016). Several benefits of talent management include: nurse engagement and retention; increased productivity; culture of excellence and much more (El Dahshan, Keshk & Dorgham, 2018). Moreover, conducting planning and implementation of management policies, processes and programs have positive impact on the process of acquiring, developing and retaining talents to sustain organizational competitive advantage, as it promotes workforce efficiency and productivity (Lengnick-Hall, Beck & Lengnick-Hall, 2011). Organization performance is the ability to attain and achieve its goals and objectives by using resources in an efficient and effective manner (Barrick et al., 2015). Consequently, talent management is seen as vital for achieving the organization's goals and objectives if it manages properly in a comprehensive way (Okoye & Ezejiofor, 2013). Recently, the human resources management is continuously triggering the performance of the workforce; as well as the production of the organizations with job crafting (Orony, 2016).

Job crafting has positive effects on organizations from completely different views as financial performance; presented in annual profits; the job satisfaction of organization members; presented in spending a respectable amount of their time and money in activities as training and learning and has positive effects on organizational commitment of nurses. Job crafting is particularly outstanding for health care organizations because it can be learned and efficiently transmitted from training to organizational practices (Gu-Ne & Lee, 2016). The job crafting concept was announced as an extension to the top - down approach of job redesign, which is a process by which managers decide on separate job tasks, and the authority required for their subordinates. The nurses share their job redesigning only to give information to their supervisors about their individual job properties that support the main redesign platform originated and reinforced by management (Pearlson & Saunders, 2019).

Belknap (2015) conceptualized job crafting, from the viewpoint of Job Demands-Resources (J-DR) model, which proposes that all job characteristics that nurses can adjust in their jobs can be categorized as; either job demands that mean the job requirements that require nurse's effort to achieve it; or job resources that mean features of the job that enable the work to be done. Furthermore, job crafting is viewed as: "changes that nurses make regarding their job demands and job resources to customize their jobs to their own abilities, preferences and wishes". In the light of J-DR model, four dimensions of job crafting can be distinguished that

represent the definite behaviors that nurses perform to shape or change their jobs; namely:(1) **increasing structural job resources**, that refers to mobilizing job resources proactively as job autonomy and skill opportunities or realities for development;(2) **increasing social job resources**, which refers to seeking social support, supervisory coaching or performance feedback;(3) **challenging job demands**: are perceived as demands that promote mastery and future gains as job complexity and workload pressure; finally, (4)**hindrance job demands**: refers to constraints that block progress as role ambiguity and conflicts (Belknap, 2015).Under job crafting, nurses incline to reshape and redefine the job content, mode of working and cooperation relationship with teammates. Besides, job crafting can improve organizational design and working relationship, which improves nurses' working identification, innovativeness and adversity coping ability (Peng, 2018).

Nurses' innovative behavior establishes a micro-foundation of organizational innovation and intrapreneurship, such as creatively re-combining resources to explore opportunities to be an integral part of entrepreneurship. Despite some differences, intrapreneurship and innovation both entail innovative activities, combating barriers and have business consequences. Individual level of innovative behavior is underlying to intrapreneurship that is typically placed at organizational level. Nurse innovative behavior is viewed as:"behaviors through which nurses generate or adopt new ideas and make subsequent efforts to implement them".Innovation is also viewed as social in nature,when others need to be convinced and influenced about the value of an idea or need help to be mobilized to implement novel ideas(Lukes& Stephan, 2017).

Innovative behaviors have multiple facets that are embedded in tendimensions. Typically, idea generation, idea search then idea implementation are distinguished as the main building blocks of innovation. (1)**Idea generation** as a behavioral aspect of innovation. Besides generating ideas, innovative activity may also be triggered by individuals searching for new ideas in their environment. (2) The **idea search** perspective is consistent with the findings that entrepreneurial and innovative activities may be founded on searches of existing sources of knowledge. Idea generation and idea search are both seen as valid paths into entrepreneurship. Successful innovation necessitates that novel ideas are acted upon and implemented. In organizations, nurses are rarely able to execute innovative ideas on their own and often need their managers' permission. Accordingly, an important aspect of innovative behavior is to (3) **communicate the idea** to colleagues and managers to receive their support and feedback. This facet of innovative behavior is often "hidden", either as a part of a broadly defined innovative construct, or it relates to idea championing. Even though championing refers to a cluster of different activities of champions. Once an idea is approved, further resources such as time, money and people are allocated to start the implementation process. Idea implementation typically comprises the nomination of an innovation champion a key individual, who takes responsibility to implement the idea. (4) **Implementation of starting activities**are accomplished by preparing plans for implementation, which entails anticipating problems and proactively developing contingency plans, as well as acquiring resources and funds(Lukes& Stephan, 2017;George, McGahan& Prabhu, 2012).

Afterwards, an innovation champion (5) **involves others** in the implementation; communicates a vision of what the innovation entails; and displays confidence and enthusiasm about it. A key challenge in the implementation stage is to (6)**overcome obstacles**, barriers and resistance, which is achieved by adapting the idea or implementation plans until improvement of service or process to be used in the organization and, thus, (7)**innovation outputs** have been achieved and are occasionally confounded with activities' implementation. Outputs are defined as:"reports of achieved changes, i.e., implemented new ideas that changed services or processes in an organization". Individual nurse innovative behavior can be facilitated or hindered by contextual factors that are more proximal to an individual, such as the immediate manager and the organization exerting a greater influence on individuals' innovative behavior than more distal factors, such as national culture that shape leadership styles and organizational cultures. Contexts that signal clearly the supported and desired innovative behavior, i.e., legitimize such behaviors, in turn encourage individual nurses not to hold back and generate, search for, communicate and implement ideas. The three important contextual influences for innovating nurses: their managers, features of the organization they work in, and wider national culture(Klerkx&Aarts, 2013; Honiden& Connors, 2015).

One aspect that receives consistent support is leader/manager support for nurse's innovation;(8) **managerial support**, which can be described as nurse's perception of their supervisor's support to novel and innovative ideas. Moreover, at the organizational level, (9) **organizational support**may include the availability of organizational resources to implement new ideas and encouraging innovation through top-management support and use of rewards. Nurses' perception of such support is vital and encourages them to engage in innovative behaviors. Finally, at the country-level, relationship between culture and innovation and entrepreneurship was confirmed. (10) **National culture** is supposed to influence organizational culture, since organizations are embedded in national cultures. Moreover, effective leadership styles are influenced by both organizational and national culture reflecting the fact that sociocultural assumptions shape managers' and nurses' behaviors(DiLiello& Houghton, 2006; Thoroughgood,Sawyer & Hunter, 2013;Martin et al., 2016).

Therefore, the theoretical model consists of nurse's innovative behavior (as a multifaceted construct that reflects key aspects of innovation – idea generation, idea search, idea communication, implementation starting activities, involving others and overcoming obstacles); innovation outputs (results achieved by engaging in innovative behavior); key contextual influences on nurse's innovative behavior (managerial support as the most proximal contextual influence, which in turn is predisposed by organizational support because managers are embedded within organizations); and finally, organizational support that are influenced by national culture for innovation (Cappelli & Keller, 2014). There are limited studies done locally about talent management, job crafting and innovation because talent management is lacking research to establish what constitutes effective talent management and how it can influence job crafting and nurses' innovation (Mahmoud, 2017; El Dahshan, Keshk & Dorgham, 2018). Therefore, there is a need to fill the existing research gap by conducting a study locally to determine the effect of applying Optimis' Talent Management Model on nurses' job crafting and innovation. It is hoped that such study will give valuable insights to nursing managers on how to deal with environmental characteristics that support nursing job crafting and innovative behaviors, which in turn will lead to value-added outcomes.

II. Significance of the Study

Nurses are heavily exposed to psychological stress in their daily work; so, it is recommended to develop and apply working environments and managerial strategies that integrate nurses into the organization and improve their job crafting. It is believed that talent management can influence job crafting and could result in positive organizational outcomes, such as: increase job satisfaction, organizational commitment and work engagement (Bakker & Demerouti, 2017). The health care organizations and their administrators, particularly human resources management, will be influenced in various ways. These may include realization of the reasons for failure to attract and retain talented and innovative nurses. Ultimately, corrective actions are taken after some developed policies that contribute to elimination of low staff morale; hence improving their services and work activities through job crafting, which eventually, lead to increase both job awareness and enjoyment and organizational performance improvement (Ibidunnet al., 2015; Ibidunni, Ogunnaike & Abiodun, 2017).

AIM OF THE STUDY

The present study aims to investigate the effect of the application of Optimis' Talent Management Model for head nurses on nurses' job crafting and innovation at Damanhour National Medical Institute.

STUDY HYPOTHESES

H1: The application of Optimis' Talent Management Model for head nurses will have positive effect on their talent management, job crafting and innovation at Damanhour National Medical Institute.

H2: The application of Optimis' Talent Management Model for head nurses will have positive effects on nurses' job crafting and innovation at Damanhour National Medical Institute.

III. Material And Methods

Research Design: A quasi-experimental research design was utilized.

Setting: The study was conducted at all critical and intensive care units, at Damanhour National Medical Institute (N=12), namely: general Intensive Care Unit (ICU); coronary care unit; emergency unit (male and female); diagnostic and treatment heart catheter; open heart surgery; neurosurgery ICU; recovery; dialysis; pediatric ICU; high risk; and obstetrics & gynecology ICU. The institute is affiliated to the General Organization for Teaching Hospital and Institutes; and is considered the main teaching hospital at El-Beheira governorate equipped with 336 beds. The facility offers a full range of services including acute inpatient care, intensive care units and partial hospitalization services; as well as paramedical services.

Subjects: All head nurses and their assistants, who were working in the previously mentioned settings and had at least one year of working experience as head nurse or as assistant, were included. (N = 24) Moreover, all nurses, working at the aforementioned settings, with at least one year of experience with their head nurses, were comprised. (N = 161)

Tools of the Study:

The data was collected through self-administered questionnaire containing four tools:

Tool (I): Optimis' Talent Management Model Questionnaire: This questionnaire was developed by El Nakhala (2013), based on the work of Optimis (2011) and was adopted for the purpose of this study to suit the nursing profession. It is used to examine nurses' perception of talent management components in their

workplace. It consists of 31 items, representing the three main theoretical dimensions of talent management, as follows: (1) **talent attraction**(10-item), as “The hospital has a system to attract and recruit talented nurses”; “Managers at the hospital have the competencies to attract and recruit talented nurses” and “There are opportunities for learning and development at the hospital”; (2) **talent development**(10-item), like “The hospital identify training needs objectively” and “The hospital seeks to transfer expertise from highly skilled nurses for the less experienced”;and finally, (3) **talent retention**(11-item), as “The salaries and benefits at the hospital are competitive” and “The employment conditions at the hospital satisfy work-life balance”.Responses were measured using 5-point Likert scale, ranging from 1 (never satisfied) to 5 (highly satisfied). The mean score for talent management was calculated and it ranged from 31 to 155. The higher score indicates higher nurses' satisfaction with talent management.

Tool (II):Job Crafting Scale: it was developed by **Tims et al.(2012)**, based on Job Demands-Resources Model, and it was used to assess nurses' job crafting behaviors. It consists of 21 items classified under four dimensions, namely: (1) **increasing structure job resources** (5-item);(2) **increasing social job resources** (5-item);(3) **increasing challenging job demands** (5-item); and lastly, (4) **decreasing hindering job demands** (6-item). Responses were measured on 5-point Likert scale, ranging from (1) never to (5) very often. The mean score was calculated for job crafting scale and the score ranged from 21 to 105. High score indicates a high level of job crafting.

Tool (III):Innovative Behavior Inventory (IBI): It was developed by the researchers based on the review of related literature(**Kaminski, 2011;Omogbadegun&Okuboyejo, 2013;Gardner, Gardner & O'Connell, 2014**), to assess head nurses' and nurses'perceptions regarding innovative behaviors. It consisted of 35 items categorized into ten dimensions, namely: (1) **Idea generation** (3-item);(2) **Idea search**(3-item);(3) **Idea communication**(4-item);(4) **Implementation starting activities**(3-item);(5) **Involving others** (3-item);(6) **Overcoming obstacles** (4-item);(7) **Innovation outputs** (3-item);(8) **Managerial support** (5-item);(9) **Organizational support** (3-item); and finally, (10)**Cultural support** (4-item). Responses were measured on 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Scores ranged from 35 to 175. High score indicates a high level of innovative behaviors.

Additionally,**Demographic data sheet:**was developed and including age, educational level, working unit, experience in both nursing (years) and current position (years) and marital status.

METHODS

1. An official permission was granted from the Director of Damanhour National Medical Institute and the departments' heads in which the study was conducted. Researchers conducted a meeting with director of nursing services to explain the aim and objectives of the study, to acquire better cooperation, support and to stimulate head nurses and nurses to participate positively in the study.
2. Tools (I, II& III) were translated into Arabic and tested for its content and face validity by a jury of five experts (three professors and two assistant professors of nursing administration) and accordingly, some modifications were done.
3. The tools used in this study had high reliability, by using Cronbach's Alpha Coefficient test: Optimis' Talent Management Model Questionnaire (0.92); Job Crafting Scale (0.87); and Innovative Behavior Inventory (IBI) (0.90).
4. **Pilot Study:** It was achieved to test the clarity, feasibility and applicability of the study tools, on (10%) two headnurses and 16 nurses, rather than the study sample. Based on the results of the pilot study, some modifications were done.
5. Baseline assessment to recognize the studied subjects' demographic characteristics; their perceptions of talent management, job crafting and innovation from both head nurses' and nurses' perspectives was done at their working unit (tool I, II and III).
6. Afterwards, the study was conducted by conducting three awareness sessions on the Optimis' Talent Management Model, to acquaint head nurses with talent management strategies usage to influence their nurses' job crafting and innovative behaviors. Every session took about 2 hours.
7. The **first session** consisted of model's theoretical content with illustrative pictures, concerning its three dimensions, namely: talent attraction by identifying the competencies necessary to attract and recruit talented nurses and by offering opportunities for learning and development at the hospital. The second dimension is talent development, which included how to identify objectively the nurses' training needs and how to benefit from highly skilled nurses for the less experienced to transfer expertise. Lastly, the third dimension is talent retention, which consisted of ways to make salaries and benefits at the hospital more competitive and to make the employment conditions at the hospital more satisfying for the work-life balance.

8. The **second session** consisted of model's application, through groupwork to practice the talent management skills and to elucidate the needed skills to be learnt; as well as discussion was executed with the participants to describe: how talent management can be implemented; the boundaries to apply talent management; and ways to develop strategies to defeat barriers and strengthen the talent management usage.
9. Lastly, the **third session** comprised the simulated application of the model to familiarize and guarantee the conformity of head nurses and their assistants with the Optimis' Talent Management Model's application in their clinical settings. After each presentation, a structured feedback was applied.
10. It has been concluded that head nurses should conduct meeting with nurses to perform reflective practices to validate their own job crafting methods and innovative behaviors.
11. Methods of teaching used were: interactive lectures, group discussion, groupwork, simulations and case studies. Instructional media was used; it included illustrative pictures and visual materials showed with laptop.
12. The evaluation was highlighted, at the end of the three awareness sessions, by using the study tools (tool I, II & III) to assessing the effect of **Optimis' Talent Management Model** application, for head nurses' on their nurses' at immediately and after three months from model application; for talent management, job crafting and innovative behaviors.
13. **Ethical Considerations:** An informed written consent was obtained from the study subjects after explanation of the aim of the study. Privacy and right to refuse to participate or withdraw from the study were assured during the study. Confidentiality and anonymity regarding data collected were maintained.
14. Data was collected three times (pre; immediately after; and after three months from Optimis' Talent Management Model application), by the above-mentioned tools that were distributed among the subjects at their working units. Each questionnaire took approximately from 45 to 50 minutes/participant. The data was collected for a period of 8 months started from 1st of February 2018 to the 31st of August 2018.

IV. Statistical Analysis

Data were collected, tabulated and analyzed statistically using an IBM personal computer with Statistical Package of Social Science (SPSS) version 22. The following statistics were applied. 1. *Descriptive statistics*: in the form of mean percent score with standard deviation; and qualitative data were presented in the form of frequencies and percentages. 2. *Analytical statistics*: The Friedman test is the non-parametric alternative to the one-way ANOVA with repeated measures; and Correlation coefficients are used to measure the strength of the relationship between two variables. Multiple linear regression was done using the "Enter" method, to predict the dependent outcome from independent predictors by Pearson correlation. The unstandardized regression coefficient (beta) for each independent predictor was compared to beta of standardized coefficient, to determine the strength of each as an independent predictor, even after adjusting the effect of other predictors in the model. All statistical analysis was done using two tailed tests and 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 $P < 0.01$.

V. Results

Table (1) clarified that the mean age of head nurses was 46.65 ± 4.21 ; compared to 36.98 ± 13.43 for nurses. All head nurses were holding Bachelor's degree of Nursing Sciences; however, above two thirds of nurses (65.2%) had Diploma of Secondary Nursing School. The head nurses were equal at all critical and intensive care units (8.3%); while the highest percentage of nurses (19.8%) were working in kidney dialysis; and the lowest percentage of them (3.2%) were working in recovery and open-heart surgery. All head nurses had more than 10 years of nursing experience; compared to 51.5% of nurses, who had from 5 to less than 10 years of the same experience. The highest percentage of head nurses (70.8%) had more than 10 years of experience in the current position; contrasting to 46.6% of nurses, who had from 5 to less than 10 years of the same experience. The highest percentage of head nurses and nurses were married (75%, 64.6%), respectively.

Table (2) indicated that highly significant differences were found between the head nurses' talent management, at the three evaluative times of Optimis' Talent Management Model application (pre, immediately after and after three months), for total talent management; talent attraction; talent development; and talent retention dimensions (where $P = 0.000, 0.000, 0.001, 0.003$), respectively. The highest dimension was for talent retention at pre, immediately after and after three months of model application ($29.33 \pm 3.85, 43.41 \pm 5.24, 38.44 \pm 3.18$), respectively; followed by talent attraction dimension ($28.21 \pm 5.15, 42.41 \pm 3.11, 40.78 \pm 3.79$), consecutively.

Fig. (3) illustrated that head nurses' talent management scores were good (81%), at immediately after Optimis' Talent Management Model application; compared to (78%) of them, who scored poor, at pre-application.

Table (3) stated that highly significant differences were found between head nurses and nurses regarding total job crafting and all its dimensions, as follows: increased structural resources for work; reducing hindering requirements; increase social sources of work; increasing challenging business requirements; where $P < 0.005$, at the three times of Optimis' Talent Management Model application.

Fig. (4) indicated that head nurses' and nurses' perceptions in relation to job crafting were good (94%, 82%) respectively, immediately after talent management model application; compared to (41%, 30%), consecutively, who had poor perceptions at pre-application.

Table (4) showed that highly significant differences were found between head nurses and nurses regarding total innovation at the three times of model application's evaluation (pre, immediately after, and post three months) ($P = 0.000, 0.000, 0.000$), consecutively. Also, there were highly significant differences between head nurses and nurses regarding idea generation; idea search; implementation starting activities; involving others; management support; organizational support; and cultural support domains, where $P < 0.001$ at the three times of model application's evaluation. Additionally, significant differences were found between both subjects regarding idea communication; overcoming obstacles; and innovation output domains where $P < 0.05$ at pre, immediately after and after three months after Optimis' Talent Management Model application.

Fig. (5) illustrated that head nurses' and nurses' perceptions level related to innovation were good (88%, 71%) respectively, immediately after Optimis' Talent Management Model application; compared to (36%, 19%), consecutively, who had poor perceptions pre-application.

Table (5) indicated that highly positive significant correlations were found between head nurses' talent management, innovation and job crafting ($P = 0.000, 0.002$), respectively. Moreover, highly significant correlation was found between innovation and job crafting ($P = 0.000$).

Table (6 a and b) showed that the outcomes of a multiple linear regression analysis designed to predict nurses' job crafting (as the dependent outcome) from the independent predictor Optimis' Talent Management Model. The model shows that the talent attraction dimension is the strongest independent predictor of nurses' innovation $\beta = .401$; followed by the talent retention dimension $\beta = .214$, and finally the talent development dimension $\beta = .199$. The overall significance of the model was high $t = 5.009, P = 0.001$. Additionally, the multiple linear regression analysis designed to predict nurses' innovation (as the dependent outcome) from the independent predictor Optimis' Talent Management Model. The model shows that the talent development dimension is the strongest independent predictor of nurses' innovation $\beta = .314$; followed by the talent attraction dimension $\beta = .244$, and finally the talent retention dimension $\beta = .163$. The overall significance of the model was high $t = 5.113, P = 0.001$.

Table (1): Distribution of demographic characteristics of studied subjects working at Damanhour National Medical Institute.

Demographic characteristics	Head nurses (N = 24)		Nurses (N = 161)	
	No.	%	No.	%
Age				
Less than 30	0	0.0	39	24.2
30-<40	6	25.0	67	41.6
40-<50	16	66.7	32	19.9
50-60	2	8.3	23	14.3
Age (mean ± SD)	46.65±4.21		36.98±13.43	
Educational level				
Diploma of Secondary Nursing School	0	0.0	105	65.2
Diploma of Technical Institute of Nursing	0	0.0	13	8.1
Bachelor of Nursing Sciences	24	100.0	43	26.7
Working unit				
General intensive care	2	8.3	15	9.3
Coronary care	2	8.3	12	7.5
Emergency - male	2	8.3	7	4.3
Emergency - female	2	8.3	8	5.0
Diagnostic and treatment heart catheter	2	8.3	7	4.3
Open heart surgery	2	8.3	6	3.7
Neurosurgery intensive care	2	8.3	12	7.5
Recovery	2	8.3	6	3.7
Dialysis	2	8.3	30	18.6
Pediatric intensive care	2	8.3	22	13.7

Demographic characteristics	Head nurses (N = 24)		Nurses (N = 161)	
	No.	%	No.	%
High risk	2	8.3	16	10.0
Obstetrics & gynecology intensive care	2	8.3	20	12.4
Years of nursing experience				
1-<5 years	0	0.0	40	24.8
5-<10	0	0.0	83	51.5
≥10 years	24	100.0	38	23.7
Years of current position experience				
1-<5 years	4	16.7	33	20.5
5-<10	3	12.5	75	46.6
≥10 years	17	70.8	53	32.9
Marital status				
Single	2	8.3	47	29.2
Married	18	75.0	104	64.6
Widow	4	16.7	7	4.3
Divorced	0	0.0	3	1.9

Table (2): Distribution of head nurses' Talent Management mean scores at pre, immediately after and after three months of Optimis' Talent Management Model application, at Damanhour National Medical Institute. (N = 24)

Talent Management Dimensions	Pre	Post	Follow up	Friedman test	P. value
Talent Attraction	28.21±5.15	42.41±3.11	40.78±3.79	18.375	.000**
Talent Development	27.21±4.30	41.38±3.57	39.74±4.08	14.856	.001**
Talent Retention	29.33±3.85	43.41±5.24	38.44±3.18	12.910	.003**
Total talent management	98.17±10.74	131.25±12.38	128.10±9.22	24.357	.000**

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

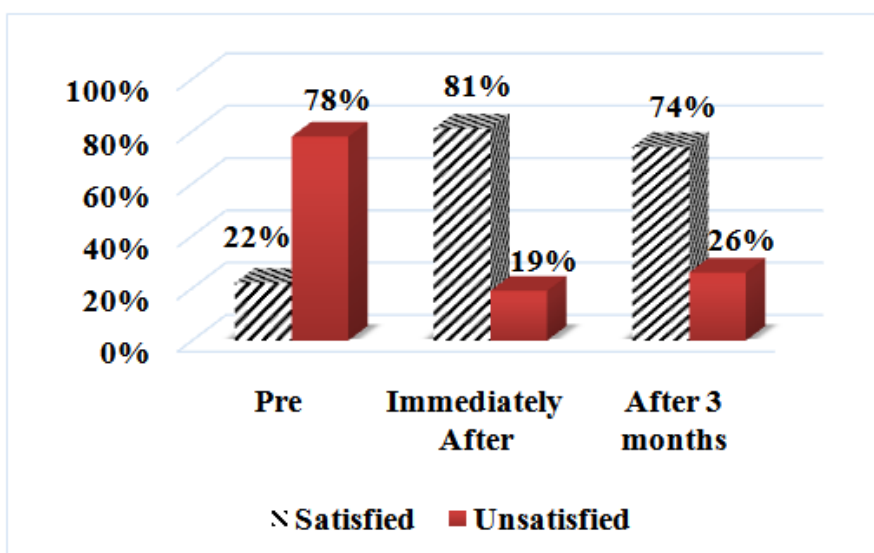


Fig. (3): Distribution of head nurses regarding their talent management at pre, immediately after and after three months from Optimis' Talent Management Model application, at Damanhour National Medical Institute (N=24).

Table (3): Distribution of head nurses' and nurses' perceptions of job crafting mean scores at pre, immediately after and after three months from Optimis' Talent Management Model application, at Damanhour National Medical Institute.

Job Crafting Dimensions	Pre		T. test p. value	Post		T. test P. value	Follow up		T. test P. value
	Head nurses (N=24)	Nurses (N=161)		Head nurses (N=24)	Nurses (N=161)		Head nurses (N=24)	Nurses (N=161)	
Increased structural resources for work	18.32	14.65	7.365 .001**	23.84	19.37	8.710 .002**	21.79	18.07	6.487 .001**
Reducing hindering requirements	20.47	17.64	9.270 .000**	25.78	21.10	7.480 .003**	23.64	19.47	8.021 .000**

Job Crafting Dimensions	Pre		T. test p. value	Post		T. test P. value	Follow up		T. test P. value
	Head nurses (N=24)	Nurses (N=161)		Head nurses (N=24)	Nurses (N=161)		Head nurses (N=24)	Nurses (N=161)	
Increase social sources of work	17.69	13.65	8.366 .001**	22.097	20.74	6.541 .003**	21.28	17.68	11.343 .000**
Increasing challenging business requirements	18.97	15.80	13.850 .000**	22.39	19.04	10.794 .000**	20.69	18.37	13.540 .000**
Total job crafting	64.35	59.369	12.308 .000**	88.91	76.74	11.447 .000**	85.18	74.01	14.365 .000**

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

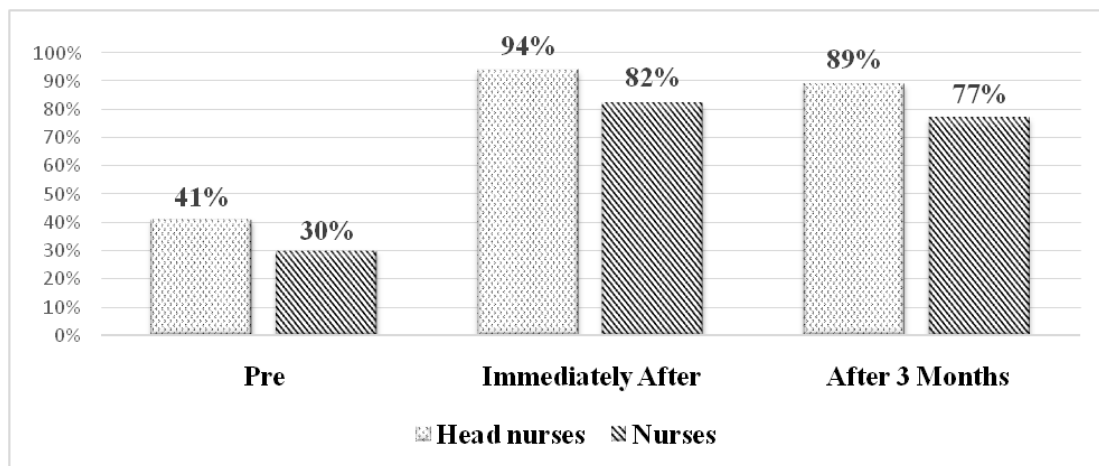


Fig. (4): Distribution of head nurses'(N=24) and nurses' (N=161) perceptions of job crafting at pre, immediately after and after three months from Optimis' Talent Management Model application at Damanhour National Medical Institute.

Table (4): Distribution of head nurses and nurses' perceptions of innovation mean scores at pre, immediately after and after three months from Optimis' Talent Management Model application, at Damanhour National Medical Institute.

Innovation Dimensions	Pre		T. test p. value	Post		T. test P. value	Follow up		T. test P. value
	Head nurses (N=24)	Nurses (N=161)		Head nurses (N=24)	Nurses (N=161)		Head nurses (N=24)	Nurses (N=161)	
Idea generation	11.57	9.67	6.321 .004**	14.11	11.44	8.102 .001**	13.97	12.92	6.746 .005**
Idea search	12.36	10.81	5.731 .001**	13.87	12.56	7.196 .002**	13.24	11.97	4.175 .009**
Idea communication	12.38	11.78	2.941 .011*	18.09	16.73	9.746 .000**	16.49	14.68	5.471 .004**
Implementation starting activities	11.08	9.74	5.374 .004**	14.05	12.71	8.374 .000**	13.01	11.84	8.710 .002**
Involving others	10.46	8.335	6.941 .007**	13.81	11.79	5.088 .009**	12.99	11.08	7.480 .003**
Overcoming obstacles	11.075	10.971	3.641 .010*	17.14	15.82	4.074 .010*	16.36	14.70	6.541 .003**
Innovation output	9.64	7.87	4.612 .003**	12.79	10.65	4.850 .012*	12.00	9.46	10.794 .000**
Managerial support	18.321	16.89	7.081 .000**	22.41	19.68	7.641 .001**	21.57	18.05	6.941 .007**
Organizational support	10.641	8.374	7.601 .002**	14.06	12.37	8.377 .000**	13.46	10.71	3.641 .010*
Cultural support	15.08	13.62	8.941 .000**	18.49	15.31	9.001 .000**	17.67	13.08	7.884 .000**
Total Innovation	108.78	97.48	12.278 .000**	159.31	131.97	14.184 .000**	151.47	126.61	16.740 .000**

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

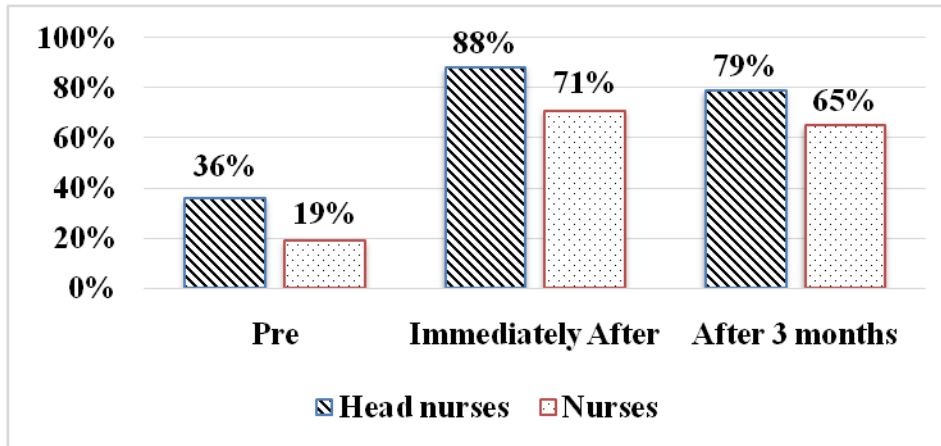


Fig. (5): Distribution of head nurses (N=24) and nurses (N=161), regarding innovation scores at pre, immediately after and after three months from Optimis' Talent Management Model application at Damanhour National Medical Institute.

Table (5): Correlation Matrix between head nurses' Optimis' Talent Management Model, job crafting and innovation, at Damanhour National Medical Institute (N=24).

Study variables	Talent Management		Job Crafting		Innovation	
	r.	p. value	r.	p. value	r.	p. value
Talent Management	-----	-----	1.975	.002**	2.320	.000**
Job Crafting	1.975	.002**	-----	-----	2.019	.000**
Innovation	2.320	.000**	2.019	.000**	-----	-----

Pearson correlation co-efficient (r)*Significant at level $P \leq 0.05$; **highly significant at $P \leq 0.01$
 Interpretation of correlation co-efficient Weak (0.1-0.24) Intermediate (0.25-0.74) Strong (0.75-0.99)

Table (6 a): Regression Coefficient for Optimis' Talent Management Model: Attraction, Development and Retention as predictors for job crafting among head nurses at Damanhour National Medical Institute (N=24).

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	β	SE	Beta			Lower Bound	Upper Bound
(Constant)	12.087	1.712		5.009	.001**	7.956	15.516
Total score of talent attraction components	.401	.041	.228	7.212	.002**	.301	.376
Total score of Talent development	.199	.053	.349	6.140	.000**	.117	.297
Total score of Talent retention	.214	.031	.277	5.354	.001**	.071	.178

a. Dependent Variable: Job Crafting

SE: standard error; T: t-test value. *Significant at level $P \leq 0.05$; **highly significant at $P \leq 0.01$

Table (6 b): Regression Coefficient for Optimis' Talent Management Model: Attraction, Development and Retention as predictors for innovation among head nurses at Damanhour National Medical Institute (N= 24).

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	β	SE	Beta			Lower Bound	Upper Bound
(Constant)	11.397	1.210		5.113	.001**	6.956	13.516
Total score of talent attraction components	.244	.057	.280	6.769	.000**	.154	.319
Total score of Talent development	.314	.036	.341	7.938	.000**	.213	.217
Total score of Talent retention	.163	.028	.278	4.598	.002**	.058	.320

a. Dependent Variable: Innovation

SE: standard error; T: t-test value. *Significant at level $P \leq 0.05$; **highly significant at $P \leq 0.01$

VI. Discussion

As regards to the characteristics of studied head nurses and nurses, this study revealed that the mean age of head nurses was 46.65 ± 4.2 ; while, 36.98 ± 13.43 for nurses. All head nurses were holding Bachelor of Nursing Sciences degree; whereas, above two thirds of nurses had Diploma of Secondary Nursing School. These results may be due to positional requirements to hold at least Bachelor's degree and the largest proportion of university educated nurses are younger. These results are consistent with **Karlberg Traav et al. (2018)**, who found that all head nurses were highly educated. On the other hand, this was not in line with **Irtaimeh et al. (2016)**, who reported that nurse managers' mean age was 38.17 ± 3.13 .

Regarding head nurses' talent mean scores at pre, immediately after and after three months of Optimis' Talent Management Model application, this study stated that there were highly significant improvements for head nurses' scores at pre, immediately after and after three months regarding total talent management and all its dimensions: attraction, development and retention. These results may be due to the comprehensive and concise application of the talent management model through instructional tutoring, which were grounded on the results of the pre-test and the use of illustrative media as PowerPoints and pictures. These results are supported by **Obeidat et al. (2018)**; and **Voxted (2019)**, who reported positive impact of training on head nurses' talent management skills. This is also supported by **Howard (2008)**, who emphasized that the goal of talent management is to confirm that a supply of talent is accessible to align with the right people at the right time in the right job using predictable, measurable, and actionable skills that assist as a key to organizational success.

According to job crafting, this study stated that there were highly significant differences between head nurses and nurses at pre, immediately after and after three months from model application, for total job crafting and its dimensions. These results may be due to head nurses had highly desire to apply innovation skills than staff nurses because head nurses know the importance of innovation skills & their effectiveness on the nurses' performance. These results are in agreement with that of **Li et al. (2015)** and **Mahmoud (2017)**, who indicated that the belief of having control in one's work, being able to impact work activities and outcomes and to fulfil job tasks, and the degree of one's values their job, altogether positively influence nurses' role performance. This is also supported by **Petrou et al. (2012)**, who found that job crafting dimensions mainly involves asking for feedback or advice from colleagues and seeking new learning opportunities.

Pertaining to innovation, the findings of the present study revealed that there were highly significant differences between head nurses and nurses at pre, immediately after and after three months from Optimis' Talent Management Model application for total innovation and its dimensions. These results may be attributed to head nurses' commitment to attend such training courses about talent management model and this is explained by their initiations and enthusiasm because of the nature of their working units, which need high performing nurses and innovative solutions to deal with the critically ill patients. Moreover, head nurses need to find means to transfer their knowledge and experiences to their nurses, who, in turn, will use to improve their level of performance and the quality of care delivered. These results are in accordance with the results of **Thomas et al. (2016)** and **Einesand Vatne (2018)**, who revealed that highly improvement of innovation skills was achieved after educational program. This is also supported by The **Institute of Medicine (IOM) (2010)** confirmed that nurses must play dynamic role as change leaders, in this time of health care transformation because nurses are uniquely positioned to understand patient needs and initiate innovative solutions.

Concerning the correlation between studied variables, this study revealed that there were highly positive significant correlations between talent management, innovation and job crafting. Moreover, highly significant correlation was found between innovation and job crafting. This may be due to the inter-relation between the studied variables to retain talented and innovative nurses. These results are similar to that of **Esteves and Pereira (2017)**, who reported that highly correlation was found between talent management and job crafting. Moreover, **Afsar et al. (2019)** indicated that there was highly correlation between job crafting and innovation. Talent management also had positive impact on nurses' innovation skills at health care setting (**Luu et al., 2019**). This is supported by **Bakker and Demerouti (2007)**, who suggested that resources minimize the negative effects of job demands and help individuals accomplish their work goals, which in turn results in enhanced innovativeness and performance.

With reference to the regression coefficient for talent management on job crafting, this model showed that talent attraction domain was the strongest independent predictor of nurses' job crafting; followed by talent retention domain; and finally, talent development domain. These results were supported with that of **Meyers (2019)**, who reported that there was highly impact of talent management on job crafting. Furthermore, **Tims et al. (2012)** concluded that nurses will only craft their job and search for additional challenges (e.g. tasks or responsibilities), when they are not completely using their abilities and skills (i.e. boredom), and when they will profit from adjusting them.

In relation to the regression coefficient for talent management on innovation, this model showed that talent development domain was the strongest independent predictor of nurses' innovation; followed by talent attraction domain; and finally, talent retention domain. These results were in accordance with that of

Kular(2018), and **Van den Broek et al. (2018)**, who revealed that dimensions of job crafting, seeking resources behavior inconsistently and positively related to task performance over time, seeking challenges, and work innovative behaviors.

VII. Conclusion

This study concluded that Optimis' Talent Management Model application on head nurses had positive effect on their talent management, job crafting and innovation, at Damanhour National Medical Institute; at immediately after and after three months from model application; compared to pre-application. Furthermore, it is concluded that Optimis' Talent Management Model application on head nurses had positive effect on their nurses' job crafting and innovation, at Damanhour National Medical Institute; at immediately after and after three months from model application; compared to pre-application.

VIII. Recommendations

In the light of the study findings, the following recommendations are proposed:

Hospital administrators should:

- Conduct talent management and job crafting workshops periodically for all head nurses based on their job description as a refreshment course.
- Support and inspire innovation and job crafting among nurses and plan for the coordination of care, especially within multidisciplinary health care teams, through encouraging teamwork to develop cooperation for the benefits of patient welfare.
- Introduce talent management strategies in their human resources' strategic plan to remain competitive in today's healthcare market.
- Incorporate talent management system across all aspects of human resource management. It is obvious that there is link between talent management and recruitment, development, diversity, and retention.
- Design good working conditions, such as bonus, flexible work hours, fringe benefits, and strategy to retain and motivate nurses to prevent their job quitting for better job elsewhere.

Head nurses should:

- Follow the steps of Optimis' Talent Management Model application in their daily working activities among nurses.
 - Help nurses to find meaning in their work; apply different job crafting initiatives between them, as task crafting and relationship crafting; lastly, redesign their jobs in manner that align with organizational goals. For instance, arranging mentoring/coaching opportunities for nurses; developing and implementing programs and sharing exemplary job crafting cases to facilitate nurses' job crafting behaviors.
 - Encourage innovative strategies, such as: reflective practice among nurses to promote better innovative behaviors.
- Future research is needed to investigate the factors and challenges affecting talent management, and job crafting application in practices. Additionally, to replicate the current study with different variables, such as: organizational performance, work engagement...etc, in both public and private health care sectors.

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