

Systematic Appraisal of the Impacts of Transformational Leadership on Innovation Behaviour Among Nurses

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Abstract

Background: The healthcare industry is among the most essential in any economy. The challenges that confront the sector are wide and far-reaching. Given the economic challenges that are unpredictable and difficult to plan for, the healthcare sector is facing a host of challenges. This study aims to explore the important role of transformational leadership that can inspire innovative work behaviour of nurses to perform their tasks most efficiently.

Method: the initial online database search for relevant literature yielded 4160 papers from two databases. After excluding duplicates and those for which full texts were not available, and other exclusion criteria, six papers were selected for extraction of results. First, rating of the quality of these papers was done adapting the CASP model for one qualitative review and Axis analysis for five papers. In depth analysis of six papers was further done are results presented for discussions.

Results: A few critical issues emerged which were considered in the discussions of these findings. Considered along with works reviewed in the Review of Literature chapter, the outcome of the work led to some useful conclusions that there is a correlation between transformational leadership and innovative work behaviour among nurses. There is sufficient evidence from the six papers analysed on a positive relationship between transformational leadership and nurse innovation behaviour amid certain mediating factors.

Conclusion: More nurse innovative approaches need to be directly applied to achieve the triple aim of care quality, service, and affordability across all health care organisations in the ever-changing scenarios of evidence-based medical practices.

Keywords: Transformational Leadership, Innovation Behaviour, Nurses

BACKGROUND

The performance of healthcare organisations is determined by its effectiveness, which is measured by the quality of care and positive patient outcomes leading to patient satisfaction. Related to these are the work environment and psycho-sociological factors of healthcare employees from specialists to attendees in the hospital hierarchy.

As the direct contact point for quality care and patient outcomes, the effectiveness of nursing care is linked to the effectiveness of the whole organisation. In their work, Casida and Pinto-Zipp (2008), noted that in health care organisations, the culture and leadership profile define success or failure in the performance of these organisations. The leadership role of nurse managers in this respect is increasingly recognised. Nurse managers need to adopt leadership styles suitable for the complex, turbulent and dynamically changing environment of health care. The authors examined the nursing leadership factors that had contributed to a well-performing acute care hospital measured by increasing patient satisfaction. In a systematic review,

Cummings et al. (2008) stressed on nursing leadership styles affecting organisational effectiveness. In the work of Mahmoud (2008), positive factors related to nursing work environment led to job satisfaction and this, in turn, increased organisational effectiveness. The advantages of transformational leadership styles of nurse managers included organizational effectiveness as noted in the findings of Doody and Doody (2012). The confidence of Canadian nursing leaders in their ability to provide leadership to all nursing-related matters in their organisations, as observed by Laschinger et al. (2008), is a direct factor which could influence the effectiveness of the respective healthcare organisations.

Leadership Style

Many leadership styles have been described in the literature. Antonakis, Avolio, and Sivasubramaniam (2003) and Avolio and Bass (2004) provided a summary of these leadership theories. Casida and Pinto-Zipp provided an adapted version of these two on different leadership styles (2008). Several studies have reported that transactional and relational leadership styles increase innovative work behaviour of nurses under a nurse manager. The study by Casida and Pinto-Zipp (2008) showed that transformational and transactional contingent reward leadership were associated with nursing unit culture to maintain and enhance organisational effectiveness. Thus, nursing leadership and its style become an important aspect of health care organisational performance. A systematic review by Cummings et al. (2010) also found that leadership styles that are relationally focused enhanced organisational effectiveness via positive nursing work environment but, only two out of 53 selected studies dealt with improvement in nurse and one on team innovative work behaviour. Wong, Cummings, and Ducharme (2013) found relational leadership styles affecting organisational effectiveness but did not include innovative work behaviour in the review parameters. Resonant leadership style was associated with the development of positive nursing workplace behaviour leading to positive patient outcomes (Laschinger et al., 2014). According to Brady and Cummings (2010), relational leadership style was conducive to positive nursing performance enhancing various nursing factors. Self-efficacy and team efficacy fully mediated the relationship between transformational leadership with well-being and team efficacy partially mediated the relationship between transformational leadership and job satisfaction in the findings of Nielsen et al. (2009). Here, the leadership style evaluated is transformational in favour of the more effective transactional style and the differences in results could be due to this variation from other studies.

One of the studies on transformational leadership is that done by Gundersen, Hellesoy, and Raeder (2012) who explored the effectiveness of the style in managing international projects with multifaceted work environments. As noted previously, Paul and Elder (2008) presented guidelines for the analysis of research articles. The authors examined the relationship between work adjustments such as the role of trust in mediation and transformational leadership. The key concepts put forward by the writers covered the arguments about transformational leadership in the areas of trust, dynamism of work environment, performance of teams, job satisfaction, and work adjustment programmes. The assumptions of the study were based on the premises that the suitability of transformational leadership depends on the context; hence, the need to carry out more empirical studies on the relationship between the style and certain perceived team outcomes. Moreover, Gundersen, Hellesoy, and Raeder (2012) established that no prior studies had been put forward in the international context to explain the implications of leadership behaviours. Their research is a quantitative, positivist, and objectivist view whose

purpose was confirmatory. They anticipated a correlation between dependent and independent variables in the hypothesis to confirm any relationship through investigation (Creswell, 2009).

Another related study is that done by Hamstra et al. (2011) who worked on followers preferred regulatory styles, stability, and effectiveness of their organisation. The authors' main goal was to identify gaps in leadership articles in relation to their regulatory fit *vis-a-vis* turnover intentions and to integrate transactional and transformative leadership styles in the regulatory front. The research addressed the relationship between transformational leadership and turnover intentions considering promotion-focused and prevention-focused regulatory strategies. The authors discuss leadership styles, turnover intentions, and regulatory strategies in a research format that is quantitative, positivist, and has objectivist view of confirming hypothesis made. Like Gundersen, Hellesoy, and Raeder (2012), they anticipated a correlation between dependent and independent variables in the hypothesis to confirm any relationship through investigation (Creswell, 2009). In their study, Hamstra et al. (2011) faced certain research implications such as making specific leadership behaviours that followers would prefer for their self-regulation. The choices, if established, would lead to employee retention, stability in an organisation, and active way of engaging followers. The authors recommended further research on the relationship between leadership style, turnover intention, and follower commitment.

Innovation and Innovative Behaviour

The definition of the term innovation is an elusive one as opposing views held across the world; yet, it is commonly discussed in organisational change (Cummings and Oldham, 1997; Brazeal and Herbert, 1999; Patterson, 2000). Innovation has three categories referring to invention, process, and product whose further extension refers to creation, development, and efforts made in marketing. Ideally, to innovate is to create a something new from the existing ones either in form of an operation or product. It brings a positive change to a new touch of product. Innovation creates a competitive environment that makes organisations to thrive. In the context of an organisation, to innovate enhances the performance of current services and propel them into the market (Gumusluoğlu and Ilsev, 2009). As such, innovation enables organisations to develop tools that improve their performance (García-Morales, Lloréns-Montes and Verdú-Jover, 2008).

Innovation at team level was a result variable in a study by Gebert, Boerner, and Kearney (2010) and as Eisenbeiss, van Knippenberg and Boerner (2008) add, innovation at team level depend on how to create and execute numbers. Also, it depends on quality critiques that those engaging in a workplace put. Hülshager, Anderson and Salgado (2009) buttress that team process is essential when highlighting group performance to ensure that every member works towards the achievement of organisational goals.

Relationship Between Transformational Leadership and Nurse Workplace Innovation

In Pakistan, Masood and Afsar (2017) observed a positive effect of transformational leadership on psychological empowerment of nurses for intrinsic motivation knowledge sharing. These two variables jointly led to a positive influence on innovative work behaviour. In a South African study, Jordan, Werner, and Venter (2015) reported a positive relationship among transformational leadership, organisational culture and organisational change, but innovation

and intellectual stimulation required improvement. Leadership behaviour of nurse managers was correlated with some elements of innovation (shared vision, challenging the process) in a detailed Singapore study by Chiok Foong Loke (2001). The role of transformational leadership in intellectual stimulation of staff nurses was a point made by Murphy (2005) in favour of this style of leadership. Intellectual stimulation is the extent to which an organisation encourages followers to look at old methods beyond the conventional way and question the status quo (Shahzad and Zareen, 2011). They must be able to stimulate innovative thoughts in followers for increased organisation performance (Yasin et al., 2014). Innovative quality is a component of intellectual stimulation according to Bass (1985). A transformational leader constructs intellectual stimulation through deliberate efforts to integrate and adapt.

Weberg (2016) points out that innovation is a non-linear process. This is due to vast trajectory of ideas in social organisations, science, and legal, and market domains (Leydesdorff, Rotolo, and de Nooy, 2013). Leaders should give followers direction through teams and networks to create and work on novel ideas of success. If the adopted leadership style is transformational, it will star innovation by setting a vision to be achieved by empowered followers. Notably, Weberg (2016) considers transformational leadership as a framework separately from trait, style, and complexity. The impact of transformational leadership on innovation may vary. Transformational leadership leads to innovation through empowerment. Followers are not intrinsically motivated to initiate or lead changes; therefore, transformational characteristics are essential (Weng et al., 2015). There is a danger if the vision of a leader differs from that of an organisation in which case, a leader may reject any innovation by the team, which does not align with their innovation.

Differential Effects of Elements and Factors of Innovation

In a survey of Taiwanese nurses by Weng et al. (2016), the nurses ranked innovation behaviour highest although it did not have any significant effect on customer perception of care quality and experience. It may be difficult to accept the conclusion that nurse innovation did not improve quality of care, even if not perceived so by customers. Self-reporting types of studies have drawbacks in that they are not efficient in concluding whether the desired effect has actually happened or not, as the surveys reveal only perceptions, which may not be an eventuality. The study does not link innovation with any leadership style of nurse managers.

From the results obtained by Li-Ying, Paunova, and Egerod (2016), it appears that the relationship between innovative work behaviour and knowledge sharing is not wholesome. Their study was conducted in intensive care units where knowledge sharing affected innovation differently. If nurses innovate daily on their approaches to care quality, improvement in care quality will be the result of innovative work behaviour. This may happen with or without the mediation by any leadership style, be it transformational, authentic, or any other. Out of the two options considered by the authors to nullify the strong barrier of process controls on innovations, the option of managers encouraging a climate of mutual help among the nurses contains elements of transformational leadership. However, no leadership style was considered in this study.

Leadership Skills and how they help Nurses to Innovate

Fischer (2017) argued that nurses also require transformational leadership skills. This means innovative behaviour can directly arise from transformational staff nurses themselves rather

than through intellectual motivation by their bosses. The existence of leadership qualities and capability of innovating on a daily basis among nurses was noted by Hughes (2006) in the selected papers. The Scopes and Standards of the American Nurses Association (ANA) help to define the perspectives of nursing innovations. Declaring that attempts and achievements of registered nurses make them innovators, Thomas, Seifert, and Joyner (2016) listed the Agency for Healthcare Research and Quality (AHRQ) standards of nursing innovations. The aim of this research is to identify the important aspects of transformation leadership that impact upon innovation behaviour among nurses and to propose a framework, which might link the aspects of transformational leadership to innovation behaviour among nurses.

METHODS

Design

The study employed systematic review approach.

Inclusion and Exclusion Studies

Inclusion and exclusion criteria were essential in making sure only relevant articles are considered for the systematic review. Inclusion criteria were based on empirical research, meta-analysis, and systematic reviews studies on transformational leadership and innovative work behaviour. Only 2008-2018 articles were included in the study. On the other hand, exclusion was based on the type of articles, for instance, reviews, book reviews, clinical trials, and review articles were not considered. Data were extracted by two reviewers and appraised by sung CASP to assess methodological quality.

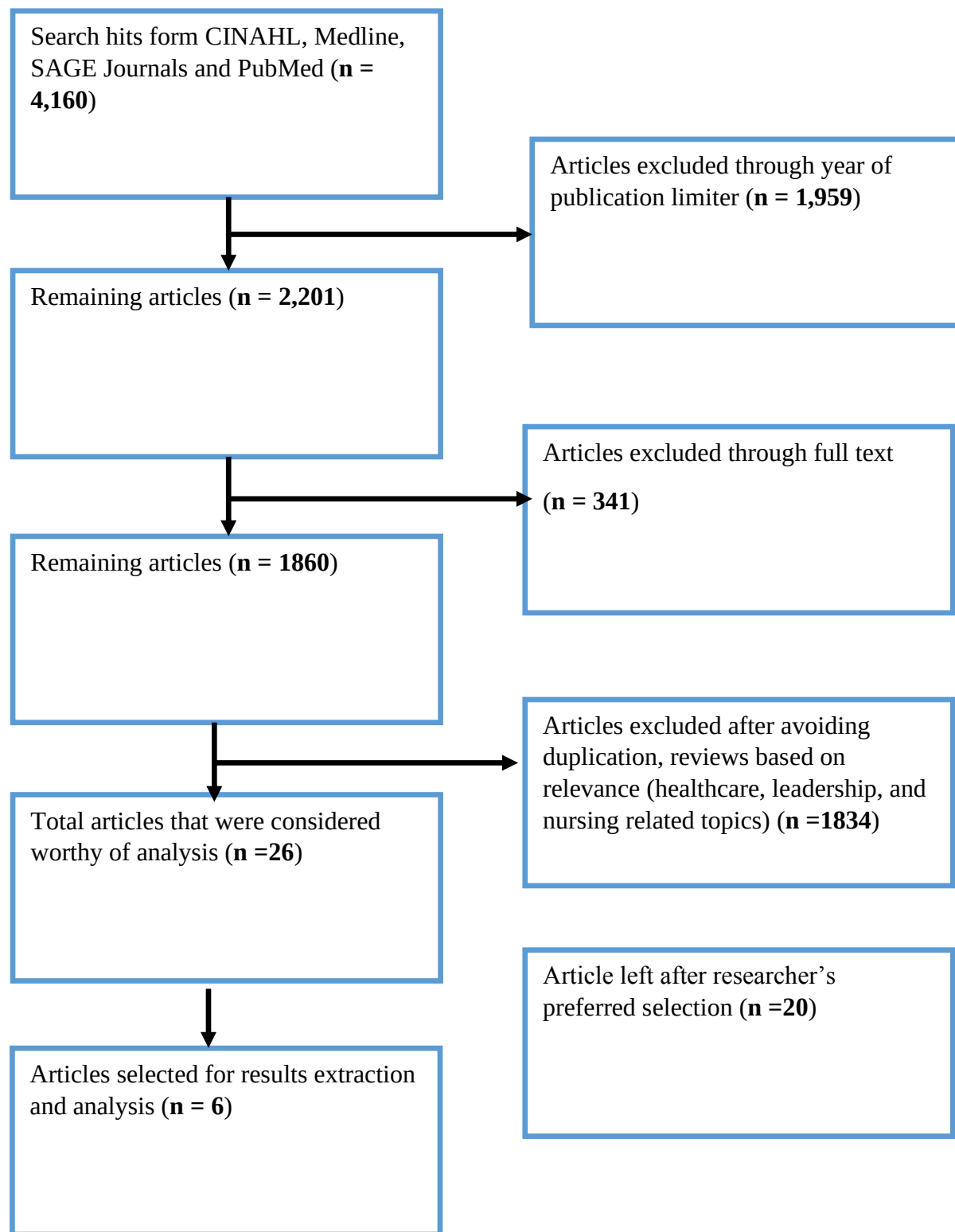


Figure 1: Flow chart of studies extraction

RESULTS

The initial search result yielded 4160 papers from the two databases and after systematic exclusion and selection, 6 articles were selected for results retrieval. The results were entered in tables for rating and how the studies concluded on transformational leadership and innovative work behaviour. Papers collected from academic database search from online university library (CINAHL, Medline, PubMed, SAGE Journals). The results of evaluation of each selected paper are presented in tables 2, 3, 4, 5, 6, and 7 where the 10 specific items on the CASP model were entered and 20 specific items on AXIS model were checked out. After the entries, a determination about the rating of the selected papers was made where high rating refers to a score of 6/8 while excellent refers to a score of 8/8. for the axis analysis, a rating of 12/20 to 15/20 was rated high and 16/20 or higher was rated excellent.

Apart from the qualitative study A3, all other papers applied questionnaire survey that were standardised and approved by professionals to collect data (Parahoo, 2014). The analysis of gathered information answered specific moderators between transformational leadership and innovative work behaviour. A1 surveyed managers and followers for different reasons such as the managers are well conversant with innovation culture. Even though survey questionnaires were structured to answer the same questions from both managers and their followers, there could have been some bias arising from the manipulation of questions to suit the understanding of each group. On the other hand, questionnaire use is subject to other biases; for instance, based on gender, cultural, and age differences. Even though questionnaires are effective in giving feedback within a short time, some response rate noted in A3 is too low (18.7%) to justify an effective research process. This in turn affects the generalizability of results. Moreover, studies such as A1 and A4, A5, and A6 were cross-sectional in design, which is a limiting factor in establishing hierarchy of evidence for generalization of results.

Sampling

Qualitative Study:

For the qualitative study A2, the process of literature synthesis requires the writers to extract information from 78 journals and books.

Quantitative Studies:

The sample in A1 included 49 managers and 194 followers drawn from a French Aeronautic firm participated in the study. In A3, 6 team leaders and 195 members responded out of the 700 participants contacted in a Hong Kong university. In A4, the authors sourced for 587 nurses, 164 doctors, and nurse supervisors working in Pakistani hospitals. Besides, in A5, 439 nurses working in Taiwan hospitals were sampled out to participate in the study. Lastly, in A6, 231 project team nurses and 577 departmental nurses working in Taiwan hospitals were the subjects of the research. The six papers draw from different professionals' settings on leadership, administrative, management, and organisational trends on transformational leadership and work innovation.

Approaches to Analysis

In A1 the adopted method was a 7-point Likert type scale together with a 22-item scale by Podsakoff et al. (1990). In the same paper, confirmatory factor analysis (CFA) was used via an analytical tool called LISREL 8.80 to examine the dimensions of the three constructs under investigation including transformational leadership, climate for innovation, and adaptive

performance. Transformational leadership correlated positively with adaptive performance ($r = 0.44$, $p < .01$). Team-level transformational climate had positive effect in the ability of individuals to adapt for innovation. The second paper, A2 is a qualitative analysis hence no statistical measure to analyse results was followed. The analyses used in A3 were hierarchical linear modelling (HLM) and ordinary least squares (OLS) to evaluate the relationships of predicted individual and cross level and individual innovation respectively. A4 used standard error of the mean (SEM) for verification of causal relationships, one-way ANOVA to measure of behaviour of dependent variables, and hierarchical multiple regression examining role of empowerment as a moderator between psychological empowerment and transformational leadership. In A5, a multiple regression using SPSS 15.0 and SPSS AMOS 6.0 while in A6, HLM was applied.

Outcomes or Findings

A1-Research established a positive correlation between adaptive performance and transformational leadership following individual-level analysis. Besides, team level analysis showed that transformational environment led to a positive cross-level effect on individual adaptive responsibilities. Lastly, team-level environment for innovation acted as a mediating factor for the correlation between a member's perception of transformational leadership and adaptive performance.

A2- By involving patients in the design of healthcare delivery procedures, transformational nurses let them develop beneficial behaviour change.

A3- Individual-level and group-level transformational leadership have different results on innovation. When deciding on the preferred style, leaders should put more focus on individual behaviours than a shared team vision.

A4- Transformational leadership correlates positively with psychological empowerment and is stronger when nurses engage actively in their roles.

A5- The correlation between transformational leadership and nurse innovation was positive with the patient safety climate at 4.00 and 3.60 for innovation climate supporting the objective that through transformational leadership, nurse leaders can instil innovative work behaviour in followers.

A6- Nurse experience had a positive correlation of innovation diffusion ($p < 0.01$) with $X^2 = 133.64$, $df = 84$; $X^2 = 160.38$, $df = 84$) all significant implying that it is a mediating factor towards implementation of transformational leadership style to inspire innovativeness of nurses.

Quality Assessment of the Selected Papers

The CASP model requires astute assessment of quality of the papers used in a systematic literature review. In this section (presented in **Table 8**), the quality of the papers was carried out by checking the samples used in the empirical studies, the validity and reliability scores to affirm or dismiss the correlation between transformational leadership and innovation behaviour on nurses or participants. generally, five papers had excellent score while only one paper had high score.

Discussion

Undoubtedly, the overall message from the papers reviewed systematically is that transformational leadership has the ability to influence nurse innovative work behaviour. Out of the six papers analysed, all the papers explored the relationship between transformational leadership and innovative work behaviour amid different mediating factors. In one instance, A1, innovation environment was the mediating factor between transformational leadership and adaptive performance of workers.

Apart from that, transformational leadership itself seem to act through intellectual stimulation, which is one of the four components of transformational leadership (Bass, 1985). The role of intellectual stimulation can be in a variety of ways. The role of intellectual stimulation was suggested in Bally (2007), Schwartz et al. (2011), and Doody and Doody (2012) among the selected papers.

There are certain implications of the above overall observations. Considering the results from A2, A3, A5, and A6, four papers were based in a nursing environment while A1 was in an aeronautic firm while A3 was done in a higher learning institution. For A1 and A3 it cannot be claimed that the study findings would apply in a nursing or healthcare environment to justify the role of transformational leadership on innovative nurse behaviour. On the other hand, it may be possible to definitely say that nurse leaders should create work environment favourable for innovative work behaviour of nurses given the mediating factors that the A1, A2, A3, A4, A5, and A6 addressed. Work environment includes the factors that elicit intellectual stimulation such as A3 found.

Themes

Mediating Factors:

From the literature review chapter, one of the thematic issues was that the correlation between transformational leadership and innovative work behaviour of nurses was postulated to depend on some mediating factors. After analyses of themes from the six papers, several mediating factors have been identified. In A1, the paper found a positive correlation between adaptive performance and transformational leadership after analysing data from individual participants. On the other hand, team-level analysis showed that transformational environment was a prerequisite for cross-level individual adaptive responsibilities. Another finding from A1 interestingly is that team-level environment for innovation was a mediator for a correlation between an individual's perception of transformational leadership and adaptive performance. A2 findings indicate that transformational leadership encourages cognitive, social, behavioural changes to a level above such styles as transactional and laissez-faire. Clinicians in a health care environment are like ambassadors whose transformational leadership behaviours are important to fellow clinicians, an organisation, and behaviour change in the health care scene. Nurses should be innovative enough to devise ways of letting patients feel they are offered person-centred care, give them a platform to make suggestions of procedures (intellectual stimulation). A4 found that transformational leadership correlates positively with psychological empowerment as a mediating factor for nurses undertaking active roles. Another mediating factor is patient safety in study A5 where a positive correlation existed between transformational leadership and innovation climate. Lastly, in A6 the identified mediating factor was nurse experience. Additionally, in the literature review section, El Magda (2017) gives nursing informatics as a moderator of the level of nurse competencies. The author did not

however specify the kind of leadership style that could best achieve this. Li-Ying, Paunova, and Egerod (2016) on the other hand did not link knowledge sharing with innovative work behaviour and requested more research to find out. A4 conceptualised that knowledge sharing is critical to innovative work behaviour as employees interact at departmental levels of organisations.

Transformational Leadership and Innovative Work Behaviour

In a corporate environment, Kang, Solomon, and Choi (2015) was able to show that both transactional and transformational leadership influenced innovative work behaviour among CEOs in the US. However, transformational leadership was essential and applicable where there is enabling climate for innovation. For instance, organisational behaviour was among the moderators for a positive correlation for transactional leadership style only. The question posed in the literature review chapter; hence, was “does it mean transactional leadership is better than transformational leadership in enhancing innovative behaviour contrary to what has been reported by many workers and is this finding applicable across several contexts.” After thematic review of the six papers in the result section, this systematic review affirms that the contrary is true. Transformational leadership enhances innovative work behaviour with organisational behaviour as a mediating factor (A2). The authors proposed a conceptual framework where organisational structure influences behaviours of nurses to steer transformational leadership. The transformational style composes of intellectual stimulation, inspired motivation, idealized influence, individualised consideration. The organisational culture applies exclusively, and it is upon nurses to find the best blend to steer innovative behaviour (A2).

It is important to identify the intervening moderators between transformational leadership and innovative work behaviour and according to Jiang and Chen (2018), team leaders need to identify the cooperation norms in innovative tasks to encourage such behaviours as knowledge sharing. Training leaders on transformational behaviours could improve their capabilities to improve an innovation-enhancing environment (Jiang and Chen, 2018). On the same note, Yammarino et al. (2012) identified role play as a group cooperation behaviour that is critical in goal setting for team leaders to maintain transformative interactions (Yammarino et al., 2012).

According to McSherry and Douglas (2011), heavy workload is a barrier for nurse innovation. Although heavy workload is a fact, this should itself be a motivation to innovate on easier and more efficient methods of doing their jobs. Nurses who have workloads may continuously be thinking how to manage them more efficiently, so that their working time is distributed according to each job they perform. In the experimental studies of Renolen et al. (2018) keeping the track by juggling tasks, struggling along with quality improvement, and passing for considering were the strategies adopted by nurses to manage their workloads while implementing evidence-base practices. MacPhee, Dahinten, and Havaei (2017) reported the possibility of heavy workloads affecting patient outcomes. When such occasions arise, they have hardly any time to innovate as a deliberate process. If any innovation happens as Hughes claims, it may be incidental rather than deliberate.

According to Vaismoradi et al (2016), reduction of medication errors is possible with the intervention of transformational leaders motivating them. Here, innovative behaviour created by transformational leadership can be utilised to seek innovative solutions to such errors.

Excessive workload was a possible cause of medical errors according to the results of a review by Brady et al. (2009). A study by Hofmann and Mark (2006) showed that safety climate was related with reduction of medical errors. Nevertheless, severe patient conditions may affect this relationship. In their work, Firth-Cozens and Mowbray (2001) discussed the effect of different types of leaderships on quality of care. According to the authors, transformational leadership does not match performance management necessary for accountability in health care and this may affect quality of care. Most of the changes are imposed upon leaders by the top management along with their expected outcomes.

Holleman et al (2009) reviewed team innovation. Innovation by a team of nurses, rather than by individual nurses may produce better results. They did not discuss how leadership style affects team innovation. However, after thematic analysis of the six papers, A1 affirms the role of team-level innovation o transformational leadership behaviours. West et al. (2003) highlighted the importance of clarity about when innovation is desirable as an outcome of team performance. Weberg (2016) also dealt with team innovation behaviours, as was discussed in Review of Literature.

Bally (2007) wanted leaders to mentor their nurses. Although mentoring is researched quite often, the issue here is: mentoring for what? If it is not for innovation or factors not related with it, mentoring has no use in this research. Mentoring is usually done to survive difficulties and problems of new work environment of especially the newly appointed nurses. However, little work has been done on this specific aspect. The contents, and therefore the issues in other selected papers were similar to those discussed above. Thus, the discussions on the issues arising from the contents of the selected papers are concluded

CONCLUSION

Organisational climate and nurse work environment are the main factors, both including many other variables and factors. Hence, exploring the role of organisational climate work environment should be further studied to develop competencies and define better evidence for nurse practitioners who mind about the role of patient safety in service delivery.

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