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Review Article

Innovative Behavior in Nursing Context: A Concept Analysis

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ABSTRACT

Purpose: The aim of this study was to understand the concept of innovative behavior and its theoretical and practical implications for nursing.

Methods: Eight-step modification of Wilson's classic concept analysis procedure (1963) by Walker and Avant's (2005) was used to explore the antecedents, attributes, and consequences of innovative behavior in the literature. Electronic searches were conducted in PubMed, Google Scholar, OVID Medline, Science Direct, and ERIC databases using "innovative behavior" or "innovative work behavior", "innovativeness", "innovation", "leadership", "healthcare", and "nursing" as keywords, with no limitation on publication date.

Results: Organizing the framework based on the method of concept analysis by Walker and Avant, defining attributes to innovative behavior were opportunity exploration, idea generation, idea search, idea communication, promotion of idea, idea championing, application, and overcoming obstacles. Antecedents to innovative behavior are categorized into three groups: organizational characteristics, work environmental characteristics, and individual characteristics. Consequences of innovative behavior included job productivity, lower levels of job burnout, job satisfaction, solving the organizational problems, organizational commitment, organizational efficiency, and effectiveness.

Conclusion: Eight dimensions including opportunity exploration, idea generation, idea search, idea communication, idea promotion, championing, application, and overcoming obstacles were analyzed. We suggest promoting innovative behavior through leadership and management in nursing. Future research should focus on developing instruments and conducting empirical studies on innovative behavior in nursing research and practice.

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Introduction

Leadership and management promote innovation by facilitating new thinking, new ideas, and new fashion of working among the employees for organizational performance. Innovation is being considered by organizations as an essential approach for effectiveness and competitiveness. "Creativity" and "innovation" have been interchangeably discussed in the existing literature [1]. Being creative is extremely important for innovative behavior [2]. Researchers often used the term "creativity" to describe something that was done for the first time [1]. In the history, a new and different thing to do is considered as the concept of innovation [3]. The word "innovation" was derived from the word "innovates" in

Latin meaning the practice of new techniques in social, cultural, and administrative contexts [4]. The process of innovations has been first introduced by Schumpeter in 1934 in the field of economic sociology [5]. The concept of innovative behavior has been launched in 1994 by Scott and Bruce, and the literature has developed frequently [6].

The terminologies in this area, including innovation, innovativeness, innovative behavior, and innovative work behavior, are also used interchangeably or as the personal preference because of the lack of clear definitions of innovative behavior in different fields including health care. Importantly, employee innovative behavior is a crucial resource for improving the performance of the organization. Encouraging innovative behavior of the employee, an organization can obtain maximum effectiveness and efficiency while providing the other required resources [7,8].

Nowadays, the phenomenon of innovative behavior has been widely addressed in the area of business management, technology, engineering, and education as well [8,9]. Nevertheless, innovative

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behavior was not much discussed in the area of health care, especially in nursing, linking with institutional achievement [10]. Health-care institutions are facing an accelerating need for innovation to emerge as competitive and introduce new treatments for patients [8].

Health-care professionals including nurses with positive attitude toward new ideas can contribute to improve and upgrade the capability of the existing health-care system or develop a new treatment strategy for patients. Few empirical studies have focused on innovative behavior in health care [11–15] including eight studies in nursing. Those studies highlighted that there is a possibility to develop innovative behavior in nurses. For instance, based on an empirical research finding, doctors demonstrated the skills of gathering knowledge, whereas nurses exhibited the skills of new idea generation which was more important in innovating behavior process [13].

According to the International Council of Nurses [14], innovation is highly needed for nursing practice in promoting health, minimizing risk factors for health conditions, avoiding diseases, improving attitudes toward the healthy life, and enhancing the treatment strategies and procedures [16]. The American Nurses Association [15] emphasized that all registered nurses to be leaders within the profession, working to influence policies and encourage innovation [15].

Accordingly, further clarification of innovative behavior is essential for related nursing dialog, research, and practice. This analysis aimed to understand the concept of innovative behavior and its theoretical and practical implications for nursing. Specific objectives were to identify the uses of the concept, to examine the related concepts, to define the attributes and concept of innovative behavior, to describe the model case and additional cases, and to identify the antecedents and consequences.

Methods

Electronic searches were conducted in PubMed, Google Scholar, OVID Medline, Science Direct, and ERIC databases using “innovative behavior” or “innovative work behavior”, “innovativeness”, “innovation”, “leadership”, “healthcare”, and “nursing” as keywords, with no limitation on publication date. Disciplines including nursing, medicine, education, psychology, management, engineering and other related fields were investigated from January 3, 2018 to February 25, 2018.

The articles that defined the concepts of innovative behavior and discussed the dimensions of innovative behavior, are written in English, and explored the antecedents and outcomes were included. The articles that were not written in English, with absence of definition or antecedents tested in empirical research, were excluded. After removing duplicates, finally, 51 studies were selected for concept analysis (Figure 1). To explore the antecedents, attributes, and consequences of innovative behavior, eight process of concept analysis of Walker and Avant, the modification of Wilson’s concept analysis method, was used as the organizing framework [17]. Analysis was conducted according to the eight steps proposed by Walker and Avant as “select a concept; determine the aims or purposes of analysis; identify all uses of the concept to be discovered; determine the defining attributes; identify borderline, related, contrary, invented, and illegitimate cases; identify antecedents and consequences; and define empirical referents” [17].

Results

In this concept analysis, definitions, antecedents, and consequences of the innovative behavior in different fields including

nursing were reviewed. Although there are many works of literature about innovative behavior and its effect on the organization in different fields, there have been very few studies that have adequately investigated the innovative behavior of nursing employees and health-care professionals.

Uses of the concept

Applications and discussions associated with innovative behavior are virtually noted throughout the literature in technology, education, social services, business management, and psychology, but surprisingly very few in nursing and medicine. Innovation and innovative behavior have been closely discussed together in the literature. Furthermore, innovation is the creation and implementation of new ideas, products, process, and policies [6]. Innovation and its efficient application are contributed by the individual employee’s knowledge [18]. Thus, it is important to recognize and reward the innovative activity (innovative behavior) in the people management practice [19]. Some authors described the innovative behavior as individual-level behavior that aims to achieve the intentional generation and implementation of new and useful ideas within an organization [20].

In practice, these processes are demonstrated in the middle manager’s enthusiasm to experiment and take risk, to discuss the problem, or to administer time and energy in exploring better alternatives [21]. The second stage involves implementing the innovation as an intervention which needs power involvement. This transition phase is potential for conflict because each person tries to protect his or her position of power [22]. Therefore, the generation and testing of ideas do not satisfactorily guarantee their implementation. Implementation phase of the innovative behavior is crucial as it encompasses the introduction of a new procedure and its use by the department or project group [23]. Within the organizational climate, employees need to know that failures will be tolerated during experimenting for innovation and that failures will not be punishable [24]. Without failure tolerance, there can be no risk-taking behavior that fosters the innovative behavior [25]. Accordingly, in the nursing context, developing efficiency and effectiveness will contribute to enhancing patient safety and satisfaction [13]. Hence, activated innovative behavior of the nurse leaders, nurse managers, registered nurses, and health-care practitioners is needed to face current challenges in health care.

Related concepts

Related concepts are terms that are similar to innovative behavior but with subtle variations under close examination [17]. Related concepts for innovative behavior which are generally cited in literature include innovation, innovativeness, individual innovativeness, and innovative work behavior.

Innovation was defined by Schumpeter in 1934 as “new combinations” of new or existing knowledge, resources, equipment, and other factors [26]. However, innovation also includes the implementation of ideas [27]. There are four types of innovation under the headings: product innovation, process innovation, marketing innovation, organizational innovation [4].

Innovativeness was defined as the propensity for an organization to innovate or develop new products [27]. In the perspective of a firm, innovativeness has been considered as newness, new to the world, new to the adopting unit, new to the industry, new to the market, and new to the consumer [28]. Past studies revealed that hospital innovativeness supported reduction of mortality, better patient satisfaction, and greater income per bed [29].

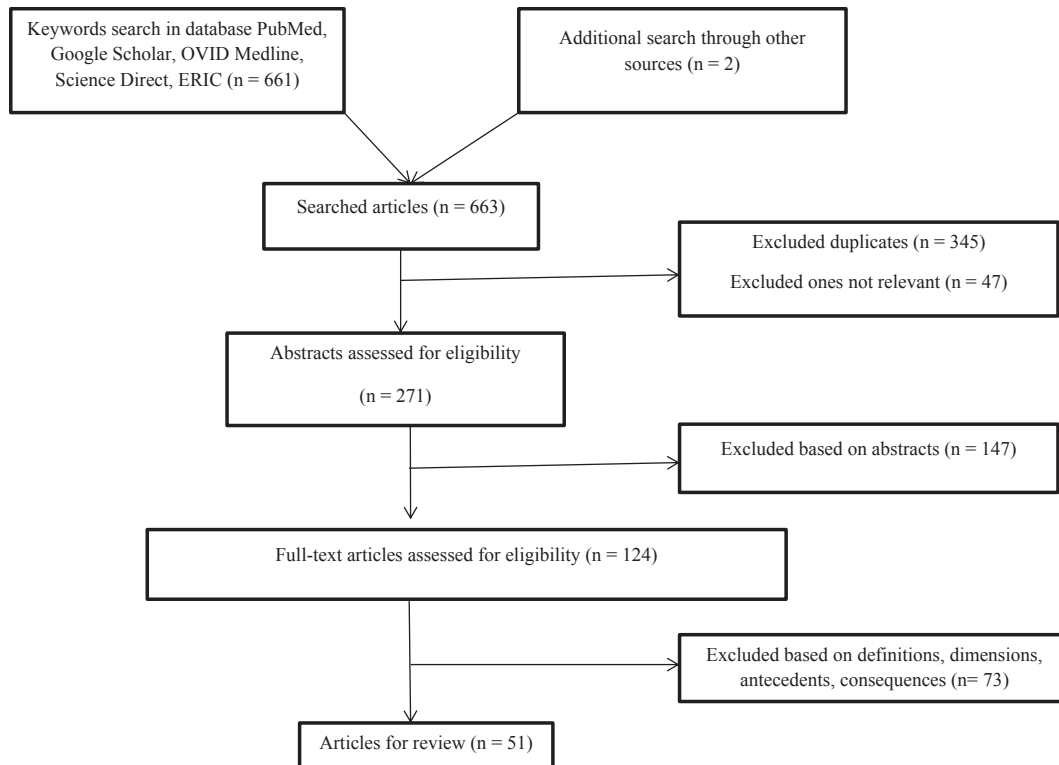


Figure 1. Selection process of the articles for review.

Individual innovativeness is a persistent trait or disposition that determines how an individual perceives and reacts to an innovation [30]. Findings of the study by Ali [8] explored that extraversion, agreeableness, conscientiousness, and openness to experience have positive effects on individual innovativeness and satisfaction with life perceptions, whereas neuroticism has negative influence on individual innovativeness.

Innovative work behavior is defined as “all employee behavior directed at the generation, introduction, and/or application (within a role, group, or organization) of ideas, processes, products, or procedures, new to the relevant unit of adoption that supposedly significantly benefit the relevant unit of adoption” [6]. In the field of health care, health-care professionals’ innovative work behavior may appear in progressive adaptations of existing health-care processes, services, or products or as absolutely novel practical solutions [13].

Defining attributes

Defining attributes, comparable to signs and symptoms, are unique characteristics that are most frequently associated with a concept to differentiate the concept from other similar or related concepts and clarify the meaning [17]. Based on literature, we recognized eight key defining attributes of innovative behavior: opportunity exploration, idea generation, idea search, idea communication, promotion of an idea, idea championing, application, and overcoming obstacles [6,31–33].

Opportunity exploration: Opportunity exploration refers to “identification of opportunities” and includes activities such as discovery, search, creation, and running across problem [33,34]. Different terms have been used for opportunity exploration such as opportunity identification, recognition, discovery, seeking, enactment, development, and construction. Krueger [35] pointed out

that the innovation begins with coworkers identifying new opportunities.

Idea generation: Idea generation is considered as “a behavioral aspect of creativity in all studies of employee innovative behavior” [31]. It is frequently stimulated by obvious difficulty or challenging condition. Idea generation refers to the stage during which employees recognize problems and generate innovative solutions to deal with the problems [6]. Typically, all innovation processes comprise generating and selecting opportunities or ideas [36]. The success of idea generation in innovation generally depends on the quality of the best opportunity recognized [36]. However, several authors mentioned that it is hard to differentiate the terms “finding opportunity” and “generation of idea” [37,38].

Idea search: Innovative activity may also be promoted by individuals searching for new ideas based on searches of existing knowledge sources in their environment [31,39]. On the other hand, existing knowledge can be called as knowledge acquisition. Health-care research shows that the degree of knowledge acquisition concerns diagnoses, symptoms, therapies, the state of research, and health-care procedures and processes [13].

Idea communication: An essential aspect of employee innovative behavior is to communicate the idea to managers because employees in organizations are rarely able to implement ideas on their own and often have to receive permission from their managers [40]. Thus, effective communication skills help to build a link between novel idea that is generated and finding ways to implement it. The concept of “ideation leadership” was identified as a key factor related to the creative process associated with generating, developing, and communicating new ideas [41,42].

Promotion of an idea: This is characterized by decline of importance of personal qualities, while the outcomes of organizational and management level become more significant: organizational climate and use of “external” motivation and encouragement

for innovative behavior [13]. When an employee has generated an idea for overcoming challenges or further improvement, the employee has to persuade the manager that the changes are necessary and beneficial for the department of the company. This new idea can further develop to get organizational effectiveness.

Idea championing: Championing refers to “a cluster of various activities of particular champions” [15]. A champion is someone who emerges to put efforts into creative ideas [2]. The innovation champion starts implementing activities with confidence by preparing plans for implementation in an unstructured environment [31]. This requires anticipating problems and developing contingency plans, as well as obtaining funds and resources [31].

Application: Application is related to the behaviors of co-workers aimed at developing, testing, and commercializing a new service [32]. It involves making innovations a regular aspect of working processes, and it includes emergence of new services or working practices [2,43,44].

Overcoming obstacles: Overcoming obstacles is a key challenge in the implementation phase to achieve the innovation output [43]. The outputs refer to “reports of achieved changes such as implemented new ideas that changed products, services, or processes in an institution” [31]. Overcoming obstacles should be achieved by adapting the idea or implementation strategies until a product, service, or process has been enhanced.

Defining innovative behavior

In prior studies, innovative behavior is defined as “a multistage process in which an individual recognizes a problem for which she or he generates new (novel or adopted) ideas and solutions, works to promote and build support for them, and produces an applicable prototype or model for the use and benefit of the organization or parts within it” [7].

Literature showed that definitions of innovative behavior in several ways overlap with other concepts such as creativity in the workplace, innovation, innovative work behavior, entrepreneurship, organizational citizenship behavior, personal initiative, taking charge, and employee-driven innovation. For instance, articles suggested that the definition for innovative behavior often only referred to the definition by West and Farr which has been introduced in 1990 for defining innovation [6,45,46]. Moreover, authors have implied a deferent number of dimensions such as one dimension [31,48], two dimensions [47], three dimensions [13,38], four dimensions [49,50], five dimensions [51], and six dimensions [31]. To date, it is evident that there are many definitions of innovative behavior in different disciplines shown in the Table 1.

Overviewing the different definitions of innovative behavior, in this article, we define innovative behavior in the context of nursing as generating novel ideas and putting effort to implement them with confidence, overcoming possible challenges to produce new procedures, treatment strategies, or policies for restoring and health promotion of patient or clients [31,47].

Model case

The use of the model, borderline, and related cases further describe the concept [17]. These cases may or may not include all the attributes that have been illustrated previously. It is through the use of these cases that we can further figure out the concept of innovative behavior.

Mrs. P is a team leader who has middle-level power in the health-care organization and has many relationships with professionals in many fields. She is well organized with the future-oriented mind. She has effective communication skills with superiors and subordinates to share ideas and manage the situations.

Table 1 Definitions of Innovative Behavior.

References	Definitions
Janssen [42]	Innovative work behavior is defined as “the intentional creation, introduction and application of new ideas within a work role, group, or organization to benefit role performance, the group, or the organization,” which includes rethinking and changing the underlying principles of organizational work.
Janssen [7]	Innovative behavior can be defined as “the intentional generation, promotion, and realization of new ideas within a work role, work group, or organization to benefit role performance, a group, or an organization.”
Carmelli et al. [1]	Based on the literature, innovative behavior is defined here as “a multistage process in which an individual recognizes a problem for which she or he generates new (novel or adopted) ideas and solutions, works to promote and build support for them, and produces an applicable prototype or model for the use and benefit of the organization or parts within it.”
De Jong and Den Hartog [49]	Innovative work behavior (IWB) is defined as “the intentional behavior of an individual to introduce and/or apply new ideas, products, processes, and procedures to his or her work role, unit, or organization.”
Yuan & Woodman [9]	Innovative behavior is defined as “an employee's intentional introduction or application of new ideas, products, processes, and procedures to his or her work role, work unit, or organization.”
Kessel et al. [14]	Innovative work behavior is defined as “the configuration of an activity set consisting of knowledge acquisition, idea generation, and solution implementation.”
De Spiegelaere et al. [6]	Innovative work behavior is defined as “all employee behavior directed at the generation, introduction, and/or application (within a role, group or organization) of ideas, processes, products, or procedures, new to the relevant unit of adoption that supposedly significantly benefit the relevant unit of adoption”.
Gogoleva et al. [37]	Innovative behavior is “a part of organizational behavior, and it is considered as proactive, based on full understanding of one's duties and responsibilities in the work place and caused by intrinsic motives”.
Lukes & Stephan [31]	Employee innovative behavior is defined as “behaviors through which employees generate or adopt new ideas and make subsequent efforts to implement them”.

Therefore, she is offering support for innovative ideas. She is searching out new working methods, techniques, or instruments. She is acquiring approval for innovative ideas and can get necessary resources to implement the innovative activities. She is transforming innovative ideas into useful applications. She has the ability to generate actual solutions to problems by introducing innovative ideas in a systematic way. Also, she is making important organizational members enthusiastic about innovative ideas, eventually evaluating the application of innovating ideas. This model case contains all the attributes and clearly illustrates innovative behavior [43,49]. She has a behavior in terms of idea generation, idea searching, idea communication, championing, application, and overcoming obstacles dimensions.

Additional cases

Some attributes are included in the borderline cases, but not all [17]. For instance, Ms. Q, a registered nurse, is working in the cancer unit. She wants to start a new strategy to reduce cancer-related fatigue in patients with cancer. She could not have more power

to implement it. Therefore, she conveyed her idea to a nurse manager, although the nurse manager has no effective relationship with stakeholders to get enough resources. She could not convert innovative ideas into useful interventions. Therefore, the registered nurse stopped expressing her new ideas to the ward manager. In this case, the nurse has new ideas; unfortunately, the nurse has no power. The nurse manager also does not have enough potential to implement the idea because of various obstacles. The nurse stopped expressing her innovative ideas because of no appreciation from the organization. This case is an additional case because it is fulfilled only a few innovative dimensions [10,42].

Antecedents

Antecedents are the factors that are the reason for the occurrence of the concept [17]. In previous studies, various factors were detected as the antecedents of innovative behavior and were studied extensively. We organized these antecedents into three categories: organizational characteristics, work environmental characteristics, and individual characteristics. Organizational characteristics such as innovative climate, procedural justice, pay, learning organization, reward fairness, feedback on previous innovative behavior, and leadership behavior [7,46,49] were explored in the previous studies. In healthcare disease condition research, the existence of guidelines is significantly related to each of innovative work behavior: acquiring knowledge, generating new ideas for adequate care concepts, and implementing those ideas in the care process [13]. Work environmental characteristics such as job-specific experience, nursing experience [11], specialty

certification, and team workplace friendship were identified as the stimulant for innovative behavior [1]. Sociodemographic factors such as age, tenure, and education level; perfectionism; employees' motivation; employee risk-taking behavior; and individuals' flexibility (flexible role ownership) were explored related to innovative behavior in the previous studies [1,13].

Consequences

Consequences are events that are caused by engagement of concept [17]. Identifying these consequences is important for further research. In general, the consequences of innovative behavior illustrate three beneficiaries: organization, clients, and employees. In the health-care context, consequences effect on patients or clients, health-care organization, and employees such as medical, nursing, and associated professionals involving in the provision of health care. Consequences emphasized in previous works are solving organizational problems, job productivity, lower levels of job burnout, job satisfaction, organizational commitment, organizational efficiency, and effectiveness [13,18]. Analyzing concepts as mentioned previously, we arranged antecedents, attributes, and consequences in a conceptual diagram shown in Figure 2.

Empirical referents

Empirical referents are “the classes or categories of actual phenomena that by their existence or presence demonstrate the occurrence of the concept itself” [17]. Instruments have been

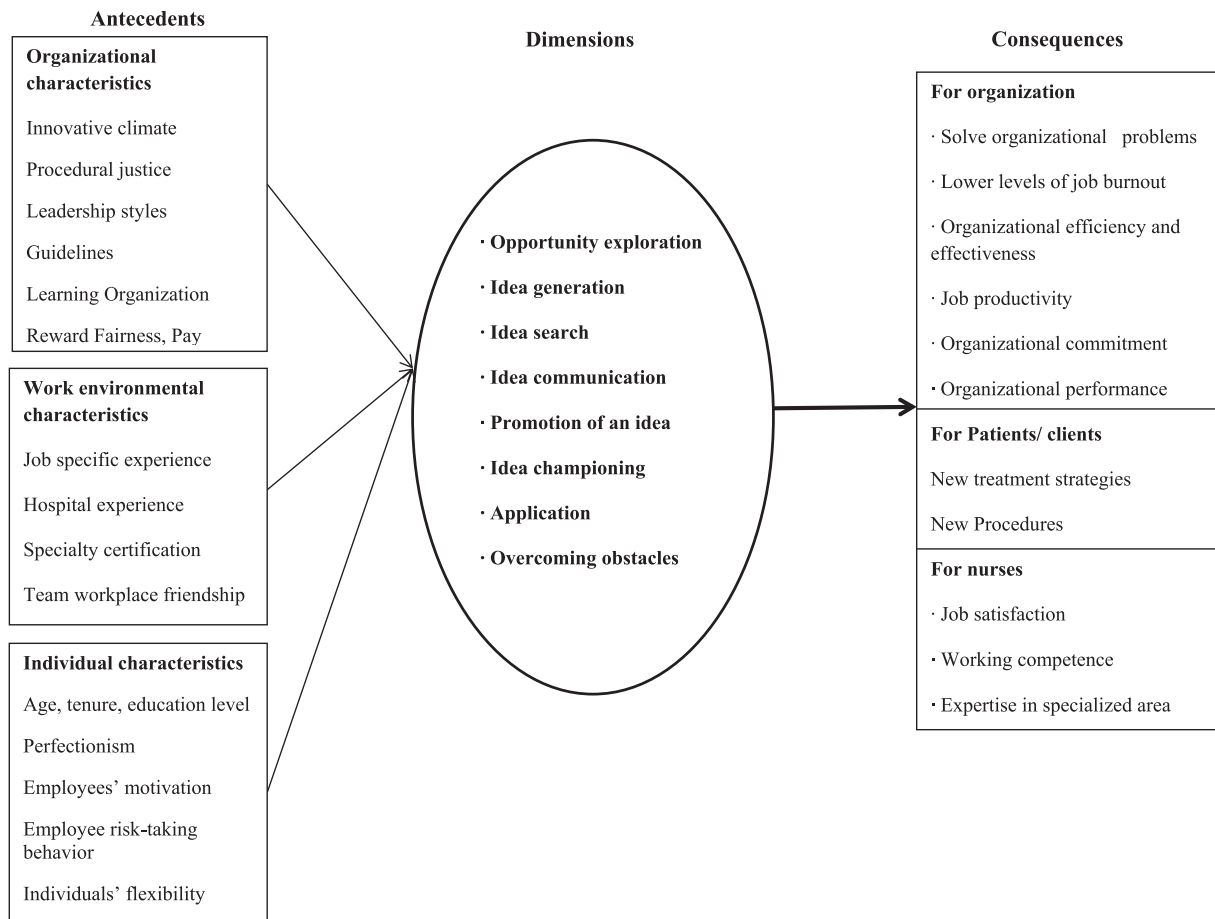


Figure 2. Concept diagram of innovative behavior.

developed to measure innovative behavior that reflects the ambiguity of the concept. The way innovative behavior is defined determines specific items that must be embedded in the assessment tool. Numerous empirical referents for the attributes of opportunity exploration, idea generation, idea search, idea communication, championing, application, and overcoming obstacles were reported in the literature as items in the instruments [12,13]. Based on the literature, we arranged the growth of dimensions in a framework as shown in Figure 3. However, empirical referents must include other aspects apart from health-care professionals' attitudes, knowledge, and skills. For instance, the statement "employees' ability to quickly and appropriately respond to customers, propose new ideas, and create new products" can be replaced to present the meaning of innovative behavior [12]. Clients' changes and organizations' effectiveness should also be considered [12].

Discussion

In the literature, researchers in different realms claim that innovative work behavior is crucial for the vigorous functioning of organizational systems. Based on the findings, there is a theoretical link between innovative behavior and the adoption of scientific exploration into clinical practice [29]. For instance, to reduce the occurring of ventilator-associated pneumonia, the use of the ventilator-associated pneumonia bundle is an innovative nursing practice that has shown improvements in the outcome of critically ill patients [29]. Therefore, the innovative behavior is an important concept to be considered in nursing for improving the quality of nursing care and increasing positive outcomes for the health-care organization.

Furthermore, to enhance the quality and safety of patient care, innovative behavior was recognized as key to promoting nursing care practices [10]. Nurses have a special place not only in the health-care team in nursing care but also in innovative ideas. Evidence was on the study of Dy Bunpin et al. [30] that hospital-based registered nurses were on moderate levels of innovative behavior.

Comparatively, it was lower than the levels of innovative behavior reported for technology and business workers and hospital pharmacists [29]. Hence, health-care organizations should focus on the improvement of innovative behavior among registered nurses who work at the bedside nursing care.

To reinforce the innovative behavior, organizations should facilitate opportunities for specialty certification and increasing levels of education [29]. In addition, job-specific experience may marginally accelerate employees' innovative behavior, probably due to employees' knowledge on general but mainly specific explicit and tacit work [1]. Problem-solving ability supports the overcoming obstacles, which is a challenging phase of the innovative process. High team workplace friendship in which mutual commitment, trust, and shared values or interests among colleagues taking place helps to prompt innovative behaviors and decrease job burnout because team friendship is leading to better problem-solving [41,48]. Personal initiative is a work behavior defined as self-starting and active behavior that overcomes barriers to achieve a goal [18].

Perfectionism is a common personality characteristic of people who pursue flawlessness and set excessively high-performance standards [8,10,14]. The healthy perfectionism is positively correlated with innovative behavior, whereas unhealthy perfectionism is positively correlated with job burnout. Employee's motivation devotes the encouragement for generating new ideas and implementing them [19,21]. Supporting the literature, innovative work behavior itself is associated with high uncertainty and depends on the employees' motivation [13]. Several authors have proposed flexible role ownership as an important determinant of proactive work behavior. It is noted that flexible role orientation is positively related to idea generation [13]. Furthermore, literature indicated that self-leaders displayed relatively high innovative behavior, for example, the role of self-leadership skills in inspiring innovative behavior at work [1]. Open and free working environment, harmonious organizational climate, rapid circulation of the message and good communication between ranks, and the organizations

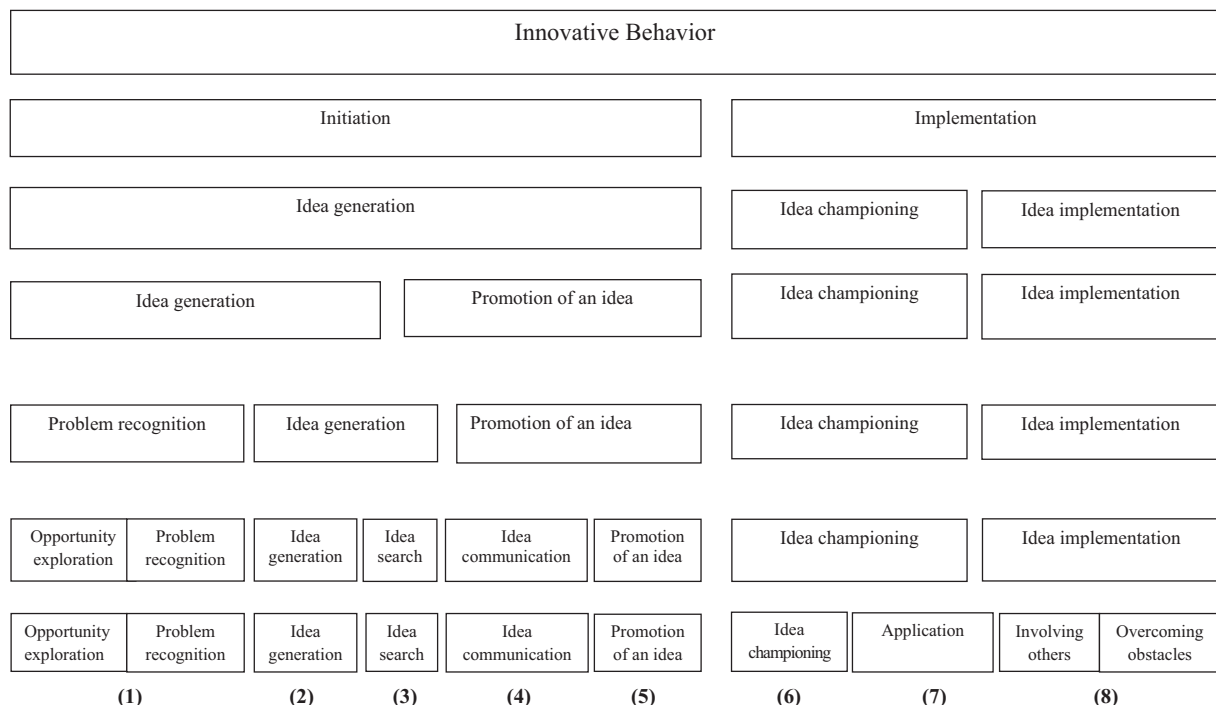


Figure 3. Growth of dimensions of innovative behavior in the literature.

with supportive culture can provide their staff a warm family feeling [19] and increase their job satisfaction, organizational commitment, and organizational effectiveness. Along with these attitudes, individuals can generate and implement innovative ideas.

Researchers suggested that physicians, therapists, and nurses must involve in modifying and modernizing standards and must apply novel techniques and procedures to ensure effective health-care services. Health-care professionals' innovative work behavior may emerge in incremental adaptations of existing health-care processes, services, or products or as entirely new practical solutions [13,49]. Health-care leaders, including nursing schools, need to consider what the industry will look like in the 22nd century [26]. Therefore, nursing leaders should provide more opportunities to encourage the nurses to pursue higher levels innovative behavior. In this article, we suggest conducting research on innovative behavior among nurses. We believe that antecedents, attributes, and consequences highlighted in this work may help develop innovative behavior assessment tools and for further research framework.

Conclusion

Innovative behavior has emerged as a crucial concept for scholars, practitioners, and policymakers in different fields. This concepts analysis article advanced the academic understanding of the attributes of innovative behavior, reviewing different definitions in various disciplines. Based on the findings, we concluded eight dimensions: opportunity exploration, idea generation, idea search, idea communication, idea promotion, championing, application, and overcoming obstacles. Antecedents and consequences were identified, and model case and additional cases were clarified with analyzing of dimensions in the literature. The concept of innovative behavior in nursing context should be addressed in future research because instruments that measure the concept from health-care organization were rare. This article provides the strong recommendation for future research on innovative behavior in nursing research and practice.

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Conflicts of interest

The authors declare no conflicts of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.anr.2018.11.003>.

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