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### Original article

## Creativity and effective factors on hospital nurses creativity

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### ABSTRACT

Creativity in people is one of the most important issue to provide better solutions to problems, create opportunities and better use of them, increase cooperation and responses to changing environments and the various factors effect on it. Therefore, this study was designed to investigate the creativity and the factors influencing on nurses at Shafizadeh Children's Hospital at 2012. This study is an applied investigation that has been prepared as descriptive - correlation. Sampling method is as full number, including 114 registered nurses at Shafizadeh Children's Hospital in Babol, finally 102 questionnaires were returned and data was collected by "demographics" and "creativity pediatric nurses' research. Questionnaire validity was in content and appearance validity method. The reliability was performed as internal consistency and stability method. After entering data to SPSS, it was analyzed by the related tests. The creativity of nurses is 64 percent, the highest creativity (73.5%) is relevant to solve problems in collaboration with others (fluency) and the highest medium creative (82.4%) is relevant to prepare a list of ways to communicate (Initiative). The highest rate of low creativity (61.8%) is for ease of report writing in nursing

(expansion). The highest creativity is related to fluency (70 %) and the lowest is in areas of expansion and innovation (50 %). Factors such as marital status and number of children in care are basic steps to keep the nurses creativity that with promotion of creative innovations, appropriate factors should be applied.

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## 1. Introduction

Nowadays, with the development of features in some people, organization development can be provided (1). Among these, innovation is an important foundation for the development of each organization required, to fulfill creativity, the necessary conditions should be provided and the leading obstacles should be overcome(2). Creativity is a process that uses different skills, tools and references to express different ideas(3). Also, in order to design a future that we can continue to work on it, creativity is essential. The new approach gives everyone an opportunity to be creative and provides a framework to work with others (4). Xu and Rickards thoughts creativity is a process that the persons and groups express their ideas to other groups in the society(5). Creativity is not only changing but also shows the creativity of values and can mean a new value, new services, new methods and similar ways(6). Innovation and creativity improve mental health, increase employee motivation, work organization, emergence of movement in organizations and improve organization productivity (2). Therefore, understanding the factors influencing on innovation and creativity in organization can help to strengthen them and provide a suitable bed for organization excellence (7). Torrance expresses creativity as combine four main factors of fluency (talent of creating great ideas), elaboration (talent of attention to detail), originality (ability to produce new and unusual ideas) and flexibility (ability to produce very different ideas or methods).

There are various factors that affect the creativity like environmental factors. So that there is a positive relationship between environment lively and friendly, open and independent innovation methods, but in closed environments, this relationship is negative (8).

However, factors such as confidence and dynamics can lead creativity and innovation, and its opposite, factors such as distance measurement, apathy and lack of job commitment, emphasizing on production and interruptions decrease employee motivation for creativity and innovation and thereby employees do not attempt to demonstrate creativity and innovation (8,9).

Today, healthcare organizations also need to have creativity and innovation. Nurses should think creatively in a risk position. Creative nursing offers better clinical practice in all aspects of care from patient, family and community (10).

Sabzi et al (2007) states that: "Creativity is very important in nursing and nursing using nurses' innovation, we can try to remove the child frightening and cooperate in the implementation of therapies." Using creativity in performing therapy by a nurse leads a child suffers less but also get good feedback from the patient and his family and to facilitate the growth of professional nurses(11). However, due to the many factors that can contribute to the creativity, the researcher examined the impact of various factors on creativity at Shafizadeh Children's Hospital in Babol in 2012.

## 2. Materials and methods

This study is an applied investigation that has been prepared as descriptive – correlation in 2012. The study population is consisted of all nurses at Shafizadeh Children's Hospital in Babol (114 cases) in 2012, which "a questionnaire for demographic characteristics" (11 questions about personal characteristics of nurses) and "creative nurse questionnaire in children department"(20 questions) in four areas of fluency, elaboration, innovation, flexibility have been collected and distributed between different departments and shifts of nurses.

In this study, to determine face validity, content validity index was used for determining the validity of the method. To evaluate the face validity and content validity, the questionnaire was analyzed by a group of professionals and faculty members, nursing, psychology and clinical nurses to be clear, simple and relevant

questions in content and the comments were applied after judgment and review. To assess two questionnaires, the reliability and stability of internal consistency with Cronbach's alpha was used to test-retest interval of two weeks. Cronbach's alpha of Creativity was  $\alpha=0.79$ . Reliability coefficient was  $r=0.80$  by re-test of the questionnaire Creativity. Data after entering SPSS software was analyzed at a significance level of  $P \leq 0.05$ .

### 3. Findings

The cross - correlation study was done by 102 nurses in Shafizadeh Children's Hospital and accordance with Table 1 it shows 82.4% of these people are married, and 17.6 % are single and more nurses (38.3 %) are formally hired and lowest nurses (15.7 %) are working on a contract basis. 70.6 % of nurses are required overtime. Also, most nurses (81.4 %) are interested in the nursing field and in each shift, 65.7% of nurses care for 6-10 children. Also, according to Table 2, the highest level of creativity of nurses (73.5%) is related to solve problem in collaboration with others. The highest level in medium creativity (82.4%) is related for the preparation of a list of ways to communicate.

**Table 1**  
nurse demographics status in Shafizadeh Children's Hospital in Babol in 2012

| Profile                          | Status              | Number | Percentage |
|----------------------------------|---------------------|--------|------------|
| age                              | 20-25               | 17     | 16.7       |
|                                  | 26-30               | 22     | 21.6       |
|                                  | 31-35               | 30     | 29.4       |
|                                  | 36-40               | 26     | 25.5       |
|                                  | 41-45               | 7      | 6.8        |
| Marital Status                   | single              | 18     | 17.6       |
|                                  | Married             | 84     | 82.4       |
| Education                        | Resource            | 1      | 1.0        |
|                                  | Bachelor            | 95     | 93.1       |
|                                  | Graduate student    | 4      | 3.9        |
|                                  | Masters             | 2      | 2.0        |
| Employment Type                  | Official            | 39     | 38.3       |
|                                  | Contractual         | 29     | 28.4       |
|                                  | Contract            | 16     | 15.7       |
|                                  | Plan                | 18     | 17.6       |
| Experience in pediatric          | 1-5                 | 41     | 40.2       |
|                                  | 6-10                | 33     | 32.4       |
|                                  | 11-15               | 20     | 19.6       |
|                                  | 16-20               | 8      | 7.8        |
| Shift                            | Fixed Morning       | 3      | 2.9        |
|                                  | Morning and Evening | 3      | 2.9        |
|                                  | Rotatory            | 96     | 94.1       |
| Number of children in care       | 0-5                 | 19     | 18.6       |
|                                  | 6-10                | 67     | 65.7       |
|                                  | 11-15               | 16     | 15.7       |
| Average hours worked per week    | Less than 45 hours  | 47     | 46.1       |
|                                  | More than 45 hours  | 55     | 53.9       |
| Mandatory overtime               | yes                 | 72     | 70.6       |
|                                  | no                  | 30     | 29.4       |
| The amount of mandatory overtime | Less than 10 hours  | 62     | 60.8       |
|                                  | More than 10 hours  | 40     | 39.2       |
| Interest in Nursing              | Yes                 | 83     | 81.2       |
|                                  | No                  | 19     | 18.6       |

**Table 2**  
Distribution of areas of creativity in nurses in Shafizadeh Children's Hospital in Babol in 2012.

| row                | Expressions  | High Creativity |         | Medium Creative |         | low Creativity |         |
|--------------------|--|-----------------|---------|-----------------|---------|----------------|---------|
|                    |  | Number          | Percent | Number          | Percent | Number         | Percent |
| <b>Fluency</b>     |  |                 |         |                 |         |                |         |
| 1                  | Coping with the loss of important pieces                       | 71              | 69.6    | 31              | 30.4    | -              | -       |
| 2                  | Enjoy the difficult issues                                     | 54              | 52.9    | 41              | 40.2    | 7              | 6.9     |
| 3                  | Problem solving in collaboration with                          | 75              | 63.5    | 26              | 25.5    | 1              | 1.0     |
| 4                  | Face to face with new problems                                 | 65              | 63.7    | 37              | 36.3    | -              | -       |
| 5                  | Face to face with unusual issues                               | 7               | 6.9     | 81              | 79.4    | 14             | 13.7    |
| <b>Elaboration</b> |  |                 |         |                 |         |                |         |
| 6                  | Use words to describe the content                              | 55              | 53.9    | 44              | 43.2    | 3              | 2.9     |
| 7                  | Expression of Nursing Diagnosis                                | 15              | 14.7    | 83              | 81.4    | 4              | 3.9     |
| 8                  | The use of unusual materials                                   | 19              | 18.6    | 81              | 79.4    | 2              | 2.0     |
| 9                  | Ease of writing, commentary or criticism                       | 17              | 16.7    | 22              | 21.5    | 63             | 61.8    |
| 10                 | Provide a new method of patient education                      | 25              | 24.5    | 71              | 69.6    | 6              | 5.9     |
| <b>Originality</b> |  |                 |         |                 |         |                |         |
| 11                 | Prepare a list of communication                                | 10              | 9.8     | 84              | 82.4    | 8              | 7.8     |
| 12                 | Enjoy new levels of  | 62              | 60.8    | 37              | 36.3    | 3              | 2.9     |
| 13                 | How to persuade parents  | 18              | 17.6    | 77              | 75.5    | 7              | 6.9     |
| 14                 | Type what you like (with a little ingenuity, initiative)       | 20              | 19.6    | 57              | 55.9    | 25             | 24.5    |
| 15                 | Difficult to justify the amount of abnormal child behavior     | 37              | 36.3    | 56              | 54.9    | 9              | 8.8     |
| <b>Flexibility</b> |  |                 |         |                 |         |                |         |
| 16                 | Given the amount of unwanted events                            | 42              | 41.2    | 59              | 57.8    | 1              | 1.0     |
| 17                 | Attention to the details of the child's favorite               | 63              | 61.8    | 35              | 34.5    | 4              | 3.9     |
| 18                 | Considering the amount of content topics                       | 63              | 61.8    | 35              | 34.3    | 4              | 3.9     |
| 19                 | Nursing-related content included in your text                  | 15              | 14.7    | 49              | 48.0    | 38             | 27.3    |
| 20                 | Visualize the amount of time nurses spent time reading Nursing | 44              | 43.1    | 50              | 49.0    | 8              | 7.9     |

**Table 3**  
Frequency and Evaluation of areas of nurses' creativity in Shafizadeh Children's Hospital in Babol in 2012.

| expression | Percentage | Erea of creativity | Erea percentage |
|------------|------------|--------------------|-----------------|
| Creativity | 64         | Fluency            | 70              |
|            |            | Elaboration        | 50              |
|            |            | Originality        | 50              |
|            |            | Flexibility        | 60              |

The highest rate in low in creativity (61.8%) is for the ease of writing nursing report. In Table 3, the highest level of nurse's creativity (70%) is in fluency and the lowest 50 % is related to elaboration and creativity there is more correlation between the areas of fluency and originality and the rate of innovation in the nurses of this hospital is 64%(Table 4). there was a significant inverse correlation between creativity and the number of children in care ( $r=-2/0$ ,  $p=-0/002$ ), but there is a direct correlation between creativity with marital status and single people are more creative ( $t=1/7$ ,  $p=0/02$ ) but there is no relation between creativity with factors such as type of employment, interest in nursing and mandatory overtime ( $p> 0/05$ ) (Table 5 and 6).

**Table 4**

Correlation coefficient between the areas of creativity in Nurses Shafizadeh Children's Hospital in Babol in 2012.

| Areas of creativity | The correlation coefficient | Fluency | Elaboration | Originality | Flexibility |
|---------------------|-----------------------------|---------|-------------|-------------|-------------|
| Fluency             | The correlation coefficient | 0.45    | 0.14        | 0.45        | 0.40        |
|                     | Significant                 | 0.000   | 0.07        | 0.000       | 0.000       |
| Elaboration         | The correlation coefficient | 0.14    | 1           | 0.43        | 0.42        |
|                     | Significant                 | 0.07    | 0.000       | 0.000       | 0.000       |
| Originality         | The correlation coefficient | 0.45    | 0.43        | 1           | 0.40        |
|                     | Significant                 | 0.000   | 0.000       | 0.000       | 0.000       |
| Flexibility         | The correlation coefficient | 0.40    | 0.42        | 0.40        | 1           |
|                     | Significant                 | 0.00    | 0.000       | 0.000       | 0.000       |

**Table 5**

Correlation between mean creativity with marital status, type of employment, overtime and interest in nursing in Shafizadeh Children's Hospital in Babol in 2012.

| Creativity | Variable            | Groups     | Number | Average | Standard deviation | Confidence interval |         | Significance level |
|------------|---------------------|------------|--------|---------|--------------------|---------------------|---------|--------------------|
|            |                     |            |        |         |                    | Minimum             | maximum |                    |
|            | Marital Status      | Single     | 18     | 67.3    | 53                 | 0.5                 | 7.4     | P =0.02            |
|            |                     | Single     | 84     | 63      | 10.9               |                     |         |                    |
|            | Employment Type     | Official   | 39     | 63.8    | 12.4               | 50.8                | 67.2    | P=0.91             |
|            |                     | Contractua | 29     | 64.6    | 8.9                | 61.2                | 68      |                    |
|            |                     | Contract   | 16     | 65      | 8.8                | 60.2                | 69.7    |                    |
|            |                     | Plan       | 18     | 62.7    | 9                  | 58.2                | 67.2    |                    |
|            |                     | Total      | 102    | 64      | 10.3               | 62                  | 66      |                    |
|            | Mandatory overtime  | yes        | 72     | 64.1    | 9.2                | -4.2                | 4.6     | P=0.9              |
|            |                     | no         | 30     | 63.9    | 12.7               |                     |         |                    |
|            | Interest in Nursing | yes        | 83     | 64.5    | 9.9                | -2.7                | 7.6     | P=0.3              |
|            |                     | no         | 19     | 62.1    | 11.7               |                     |         |                    |

#### 4. Discussion

In general it can be stated that creativity in nurses is 64 %, the highest level of creativity of nurses (73.5%) is related to solve problem in collaboration with others. The highest level in medium creativity (82.4%) is related for the preparation of a list of ways to communicate. The highest rate in low in creativity (61.8%) is for the ease of writing nursing report. the highest level of nurse's creativity (70%) is in fluency and the lowest 50 % is related to elaboration and creativity there is more correlation between the areas of fluency and originality.

In the research by Ahmadian et al (2012) nurses' creativity is 57.1% which is quite desirable (12). Daemi and Barforoosh (2004) in their study concluded that greatest amount of creativity (85 percent) is related to fluency; medium creativity highest rate (84 %) is related the flexibility and the lowest (80%) is related to the expansion (13). In research by Shams et al (2011) there is a significant correlation between each of the areas of creativity (originality, fluency, elaboration and flexibility). The findings show that all creativity parameters have a significant correlation and there is more correlation between the areas of creativity, innovation and solidarity. This is perhaps

due to the nature of work in the children's section. Because creating great and new ideas is felt in the children more than ever and nurses should use these two innovations more. The findings of the present study differs from other studies may be due to the difference between the society of current study and research because the nature of children nursing is different from the nursing care of adults. In order to gain the cooperation of children in care and treatment procedures, more creativity is needed.

**Table 6**

Correlation coefficient between demographics quantitative variables and Creative nurses in Children's Hospital nurse Shafizadeh 2002.

| Variables                  | The correlation coefficient | Age   | Experience | Number of children in care | Working hours per week | Creativity |
|----------------------------|-----------------------------|-------|------------|----------------------------|------------------------|------------|
| Age                        | The correlation coefficient | 1     | 0.58       | 0.03                       | -0.15                  | 0.14       |
|                            | Significant                 | 0.000 | 0.000      | 0.71                       | 0.11                   | 0.14       |
| Experience                 | The correlation coefficient | 0.58  | 1          | -0.16                      | -0.13                  | 0.007      |
|                            | Significant                 | 0.000 | 0.000      | 0.10                       | 0.19                   | 0.94       |
| Number of children in care | The correlation coefficient | 0.03  | -0.16      | 1                          | 0.29                   | -0.29      |
|                            | Significant                 | 0.71  | 0.10       | 0.000                      | 0.003                  | 0.002      |
| Working hours per week     | The correlation coefficient | -0.15 | -0.13      | 0.29                       | 1                      | 0.15       |
|                            | Significant                 | 0.11  | 0.19       | 0.003                      | 0.000                  | 0.11       |
| Creativity                 | The correlation coefficient | -0.14 | -0.007     | -0.29                      | 0.15                   | 1          |
|                            | Significant                 | 0.14  | 0.94       | 0.002                      | 0.11                   | 0.000      |

According to demographic studies and creativity in current research, findings show that there is a correlation between marital status and creativity. So that creativity is more in single over the married. These findings are consistent with prior research findings by Nekooi and colleagues (2010) and inconsistent with the findings by Esonloo and colleagues (2006) is (15,16). Nekooi Moghaddam and colleagues (2010) in their study concluded that between marital status, level of experience and level of education was significantly associated with creativity ( $p < 0.05$ ), but there is a significant correlation between age and gender with Creativity ( $p < 0.05$ ) (15). Esonloo et al (2006) in their study stated that marital status, gender, and education showed no significant correlation with creativity (16). The reason for this difference may be due to differences in study populations. In the present research study, nurses were in children section while in Esonloo study, population is comprised of executives. Due to busy executives, they may have less time for creativity.

The study also found no correlation between creativity and nurses employed aligned with the findings of Ahmadi et al (2012). In their study concluded that there is no significant correlation between years of service and employment creation but significant positive correlation between level of education and creativity ( $p = 0.01$ ).

These findings showed no significant relationship between creativity and overtime, in this regard, according to the findings of Tolooi and colleagues (2006), there is a significant correlation between factors such as overtime with supervision, interest to work, conscious overtime and working overtime with facilities ( $p < 0.05$ ) (18).

Current research indicates that there is no correlation between interest in the work and creativity. However, in Koh and colleagues (2008) and Salehi Sedghiani and Dehghan (2010) they found a significant correlation between interest and competence of individual creativity (19,20). It appears that interest and understanding of people from their jobs effects on job satisfaction and creativity of employees and managers with replacement affect individuals in any area can cause job satisfaction and creativity of their staff.

But regarding the nurses in children section, perhaps because they work with children, there is no significant correlation between amounts of creativity with interest in nursing. However, the present study population was selected from a hospital, Perhaps factors such as management, leadership, organizational culture and the

atmosphere is dominated by hospital cause such a result. The researcher thinks people with higher satisfaction have favorite job tasks, but to increase employee creativity, only increasing interest is not enough and creativity and creative teaching methods can be effective for people. Indeed, the results of this study show that the level of creativity in children's hospital in Shafizadeh is 64%, and considering factors such as marital status and number of children in care is an essential step in order to maintain their creativity and promote innovation in the nurse, then appropriate strategies should be employed.

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