Creativity, Resilience and Sense of Humor among Nursing Graduates, Alexandria University, Egypt

[1]Mona Metwally Elsayed, [2]Eslam Abd-Elfatah Abd-Elhamid, [3]Heba Ahmed Mohsen, [4]Marwa Abd El-Gawad Mousa.

(1) Assistant Professor of Psychiatric Nursing, and Mental Health, Alexandria University, Egypt.
(2) Lecturer of Psychiatric Nursing, and Mental Health, Alexandria University, Egypt.
(3) Lecturer of Gerontological Nursing, Faculty of Nursing, Alexandria University, Egypt.
(4) Assistant Professor of Psychiatric Nursing, and Mental Health, Alexandria University, Egypt.

Abstract

Background: The current and future global health and education challenges that face the nursing graduates, critically positioned them to be more creative and resilient. Creativity and resilience are essential for advancing the graduate-level nursing from a level of proficiency, which is expected at the undergraduate level to expert competency at the graduate-level. Indeed, using the sense of humor as a means of dealing with everyday problems and difficulties is much recognized recently as well as needed to be adopted by those graduates. **Aim:** investigate the relationship between resilience, creativity, and sense of humor among the nursing graduates. **Methodology:** A descriptive cross-sectional correlational design was used. The study was conducted at the Faculty of Nursing, Alexandria University, Egypt. A randomized sample of 165 graduate nurses was included. Online web-based electronic questionnaires were used comprising; A socio-demographic and Academic Data, SSCS, CD-RISC-10 and MSHS. **Results:** The results showed that 93.9%, 81.2% and 64.2% of the studied graduates had moderate to high levels of creativity, resilience, and sense of humor respectively. A positive statistically significant relationship at level of P≤ 0.01 between creativity, resilience and sense of humor was found. Humor production and creativity domain is the best predictor of both creativity and resilience among those graduates. **Conclusion:** It can be concluded that creativity, resilience, and sense of humour are related to each other, be a humor productive graduate nurse and using of humour as adaptive coping strategy in daily life situations contributes to be more creative and resilient. Finally, increase age of the graduates indicates to be more resilient. **Recommendations:** Providing the graduated nurses with the space to generate new ideas and innovations through filliped classroom, competence-based learning, problem-based learning, and interactive learning are recommended.

Introduction

Graduate level nurses are usually bothered with direct or indirect countless stressors. Theses stressors include time pressure, workload, multiple roles, emotional distress, and insufficient emotional and stress-related coping skills (Labrague, McEnroe Petitte, Leocadio, Van Bogaert, & Cummings, 2018; Pulido Martos, Augusto Landa, & Lopez Zafra, 2012). It was documented that all graduate nurses at some point will experience poor performance, challenge, or pressure. Some of them present with the capacity to reverse this academic misfortune, failure, and succeed. While others continue to perform poorly and fail (A. J. Martin, Colmar, Davey, & Marsh, 2010). In this respect, the concepts of creativity and resilience play a vital role in helping graduate nurses to develop something new and valuable to improve their success (Csikszentmihalyi & Wolfe, 2014). Creativity is a psychological aspect of problem-solving and coping in situations of tension and adversity (Yılmaz, 2017). Throughout nursing history, the transference of creativity into nursing science was promoted as essential elements to the art of nursing (Townsend & Morgan, 2017).

Granting that some graduate nurses are more creative than others, everyone can be creative (Csikszentmihalyi & Wolfe, 2014). A creative student is always open and curios to new experiences, extroverted, and independent in his judgment (Chávez-Eakle, Eakle, & Cruz-Fuentes, 2012). He can visualize, build mental images, investigate ideas, and find new connections (Eragamreddy, 2013).

Creativity in graduate nursing education is a basic objective that can be achieved through discovering the areas of interest and designing assignments or activities that inspire the student's imagination and generation of new thoughts (Margaret, Jennene, Madsen, & Godden, 2010; Renzulli & De Wet, 2010). Thinking outside of the box to illustrate their points of view in various nursing issues through creating simulations, virtual reality, role-play and drawing (Aebersold & Tschannen, 2012).

Evermore, the another main characteristic that should be maintained and enhanced among graduate nursing is resilience (McDonald, Jackson, Wilkes, & Vickers, 2012). Resilience is a process of effectively negotiating, adapting to, or managing the significant life stressors (Wright, Masten, & Narayan, 2013). It facilitates the ability to challenge adversity and restores or maintains the equilibrium under momentous threats (Henley, 2010; Windle, 2011). Recently, it viewed as the ability to "bounce-back" or recover from stressful circumstances. It was proclaimed that a highly resilient candidate is better at maintaining the psychological health and recover from stressful events than lowly resilient ones (Hale, Shah, & Clegg, 2019). In that sense, resilience implies presence of positive mental health qualities such as positive self-concept and self-esteem, social competence, problem-solving skills, autonomy, motivation and goal-orientation (Fong, 2016; McMillan, 2016). Previous studies have found that resilience assists in retention the candidates in the academic program, deals effectively with adversities in the clinical settings and achieves academic

success (Beauvais, Stewart, DeNisco, & Beauvais, 2014; Cassidy, 2015).

Indeed, when a resilient student is in front of adversities or unexpected outcomes, he tends to cope using creative solutions and new possibilities (Stephens, 2012). Since human beings are not able to make something out of nothing, the human act of creation always involves a reshaping of given materials, whether physical or mental (Kim, Han, Kim, & Jeon, 2018). This definition echoes strongly with those of resilience, which is mostly defined as bouncing back through a positive adaptation – a reshaping in response to a given condition such an adversity or risk (Day, 2014). The ability to withstand ambiguity and create alternative goals to a set path seem to be inherent characteristics of a resilient and creative student (Moenkemeyer, Hoegl, & Weiss, 2012).

In fact, meeting everyday challenges necessitate the graduate nurses to complete use of their entire available human and mental resources (Chow et al., 2018). Among the most important of these resources is sense of humor which is the ability to perceive, enjoy, or express what is comical or funny that create a positive feeling (Yılmaz, 2017). It is a cognitive, emotional, behavioral, psychological, and social phenomenon that seen as a crucial factor for health and happiness (Ruch, Heintz, Platt, Wagner, & Proyer, 2018). In the same vein, it thought that sense of humor can provides a relaxed relief in a tense class, and it can be used to highlight and explain important points to enhance understanding and retention (Gordon, 2010; Mendiburo- Seguel, Páez, &

Martínez Sánchez, 2015; Shively, 2013).

On the other hand, humor serves as a factor of resilience against negative influences. It helps to create a feeling of looking from a distance between himself and the problem (Cann & Collette, 2014; Kuiper, 2012). It enables them to change their perspectives and reappraises a negative stimuli as less drastic (Pérez-Aranda et al., 2019; Samson, Glassco, Lee, & Gross, 2014). Respectively, humor is not only a short-term regulator of negative emotions, but it is also an effective coping strategy to deal better with negative life situations in the long-term. According to Freud, humor is a physiological mechanism of managing stress as a model for relieving tensions by releasing excessive energy and transforming this energy to the physical one (Goriup, Stričević, & Sruk, 2017; Morreall, 2014). Humor functions are both physiologically and psychologically as a relief of suppressed emotions and feelings which it would otherwise remain hidden (Goriup et al., 2017).

Laughing and using a sense of humor affect student's ability to think flexibly and creatively, to find solutions, to cope with stressful situations, to pull themselves together rapidly and to adapt to the new situations (Mendiburo-Seguel et al., 2015). This gives them a more optimistic perspective on life plus happiness and enhances their resilience (Çam & Büyükbayram, 2015). Relevant studies have found that individuals with resilience have sense of humor, creative thoughts, and behaviors. They are optimistic, hopeful about the future and have personal goals (Abbas & Raja, 2015; Van den Heuvel, Demerouti, Bakker, & Schaufeli, 2010). When the

have sense of humor, this affects their resilience and reduces stress in workplace, as well makes professional life more productive and funny (Çam & Büyükbayram, 2015).

Although creativity, resilience and sense of humor have been illustrated in the nursing literatures for many years, it has been the subject of only a small amount of research in nursing. Recent nursing literatures have recurrently asserted the need for studying the relationships between resilience, creativity, and humor in nursing (Grace, 2017; Jackson, 2015; Kushner, 2017; Lewis, 2016; McMillan, 2016). Thus, the present study aimed to investigate the relationship between resilience, creativity, and sense of humor among the nursing graduates.

Research Questions

- What is the level of creativity, resilience, and sense of humor among the nursing graduates?

- What is the relationship between the student's creativity, resilience, and sense of humor among the nursing graduates?

Subjects and Methods

Research design:

A descriptive cross-sectional correlational design was utilized in this study.

Setting:

The study was conducted at the Faculty of Nursing, Alexandria University which is affiliated to the Ministry of Higher Education in Egypt. The Faculty has nine different scientific departments that namely Medical-Surgical Nursing, Critical Care Nursing, Pediatric Nursing, Obstetric and Gynecological Nursing, Nursing Administration, Community Health Nursing, Gerontological Nursing, Nursing Education, and Psychiatric Nursing and Mental Health.

All undergraduate and graduate programs follow the credit hours system. The graduate education at the Faculty of Nursing includes studying for Diploma, Master and/or Doctorate degrees in one of the nursing science specialties mentioned before.

Studying specific courses along certain number of academic semesters is required for each degree; two academic semesters for Diploma program without a thesis, three semesters for both Master and Doctorate programs with completing a thesis to obtain the scientific degree.

Subjects:

According to the records of the Office of Graduate Studies and Research at the Faculty of Nursing, the total number of nursing graduates registered in all study semesters at the academic year 2019-2020 amounted to 305, 192 in Master's program, 88 in Doctorate and 20 in Diploma program.

Sample size was estimated by the EPI INFO 7 program based on using 5% acceptable error, 99% confidence coefficient, 50% expected frequency and population size of 305. The program revealed a minimum sample size to be 161 nursing graduates. Accordingly, a randomized sample of 165 graduates was included in the present study.

Tools:

Data of this study were collected using four tools:

Tool I: Graduate Student's Socio-demographic and Academic Data Questionnaire:

It was developed by the researchers to elicit socio-demographic characteristics of the studied subjects such as age, sex, marital status, residence, cohabitation, and birth order. It also covers academic data such as the current academic semester studying semester, previously obtained scientific degree, the reason for registering in graduate studies, and previous work experience.

Tool II: Short Scale of Creative Self (SSCS):

The scale was developed by (Karwowski, 2012) to measure two domains; *Creative Self-Efficacy (CSE)* and *Creative Personal Identity (CPI)*. The SSCS is composed of 11 items; six for measuring CSE subscale (items: 3, 4, 5, 6, 8, 9), and five for CPI subscale (items: 1, 2, 7, 10, 11). Each item was measured on a 5-point Likert scale, where 1= "definitely not" and 5= "definitely yes". The total score ranges between 11 and 55, with higher scores indicate higher creativity. Scores of the two subscales range from 6 to 30 for the CSE subscale and from 5 to 25 for the CPI subscale. Higher scores on CSE and CPI subscales reflect higher creative self-efficacy and creative personal identity, respectively.

The total score was calculated by summing up the scores of each subscale, which was converted into %

score and classified into the following: $< 50\%$ = low creativity, 50% to $< 75\%$ = moderate creativity and $\geq 75\%$ = high creativity. It was reported that the internal consistency of the two subscales were α CSE=0.81 and α CPI=0.90.

Tool III: Connor-Davidson Resilience Scale (CD-RISC-10):

The CD-RISC-10 is a self-report scale consisting of 10-items intended to measure resilience (Campbell - Sills & Stein, 2007). Respondents rate items on a 5-point Likert scale, ranging from 0 "not true at all" to 4 "true nearly all the time".

The total score for the CD-RISC-10 was calculated by summing up the scores of the 10 items, with a range of 0-40 which was converted into % score and classified into the followings; $<$ 50% for low resilience level and $\geq$50% for high resilience level.

The CD-RISC10 demonstrated good internal consistency in two recent studies (Cronbach's alpha = 0.94, and 0.95, respectively) (Kwan et al., 2019; Shin et al., 2018).

Tool IV: Multidimensional Sense of Humor Scale (MSHS):

It is a comprehensive instrument for assessing the multidimensional aspects of humor, it was designed by (Thorson, Powell, Sarmany - Schuller, & Hampes, 1997). MSHS is consisting of 24 items, six of them are negatively phrased items 15, 16, 21, 22, 23 and 24 to capture four independent dimensions of humor: **i)** *humor production and creativity (11 items from no. 1-11* e.g., "I use humor to entertain my friends");

ii) *coping or adaptive humor (7 items* from 12-18 *e.g., "Uses of humor or wit help me master difficult situations")*; **iii)** *appreciation of humor (2 items 19-20 e.g., "I like a good joke")* and **iv)** *attitudes toward humor and humorous people (4 items* from 21-24 *e.g. "People who tell jokes are a pain in the neck").*

It is presented in the form of a 5-points Likert scale, ranging from 0 (strongly disagree) to 4 (strongly agree), possible global score between 0 and 96. The total score was calculated by summing up the scores of each factor, which was converted into % score and classified into the following: < 50% for low humor, 50% to < 75% for moderate humor and ≥ 75% for high level of humor.

It was reported that the scale was valid and having a high internal consistency as presented by the elevated Cronbach's alpha (0.92) (G. N. Martin & Sullivan, 2013; Mota de Sousa et al., 2018).

Method:

- Official permissions were obtained from the responsible authorities of the Faculty of Nursing, Alexandria University.

- Tool I (Graduate Student's Socio-demographic and Academic Data Questionnaire) was developed by the researchers.

- Tool II (SSCS), tool III (CD-RISC-10) and tool IV (MSHS) were translated into Arabic language, and then submitted to a jury composed of five experts in the field of psychiatric nursing and

mental health to test their face and content validity of the scales. The three tools proved to be valid.

- Before embarking on the actual study, a pilot study was carried out on 20 nursing graduates who were excluded from the actual study. The pilot study revealed that all tools were clear, understood, and applicable.

- The internal consistency of the study tools was measured by Alpha Cronbach's test. They proved to be reliable; tool II (α=0.943), tool III (α=0.839) and tool IV (α=0.769).

- For starting the actual study, a list of graduates ' names who are registered in the first term of the academic year 2019-2020 was obtained from the Office of Graduate Studies and Research.

- Out of 305 enrolled the Faculty of Nursing graduates, Alexandria University in the academic year 2019-2020 a representative sample was selected through a **stratified random sampling technique** after excluding the names of those who participated in the pilot study and the reliability test.

- A representative sample from students registered in each semester was recruited through the stratified random sampling method after excluding names of graduates who participated in the pilot study and the reliability test.

  - To ensure that the study population registered in the three programs is properly represented

in the study sample, the stratified sampling technique was used through applying the following steps:

- The registered graduates in the three programs (Master, PhD and Diploma programs) were considered as three strata.

- Random selection of graduates from each stratum was done using simple randomization technique to pick up 50% of these students.

- From each stratum, the appropriate percent of graduates were picked up using simple randomization technique.

- The researchers collected the data through sending the electronic web-based form for the randomly recruited students through their academic E-mails.

- Informed consent was required from the study participants before including them in the study. They were asked to send a signed consent or record their approval through WhatsApp or E-mail.

- The purpose of the study and anonymity of the candidate's responses and their confidentiality was reassured through E-mail message, and then instructions regarding answering the study tools were given.

- The collected responses were revised and retrieved via online communication network programs.

- Data collection was completed over a period of about 2 months

from 1st April 2020 to the mid of May 2020.

Ethical considerations:
The followings were considered throughout the study:

- An informed signed or recorded consent was obtained from each student after explaining the purpose and nature of the study. As well, the returned responses considered as a consent.

- the graduates' privacy and anonymity were considered and respected.

- Confidentiality of data was assured and respected.

- The right to participate and to withdraw from the study was emphasized to the graduates.

Statistical analysis:

- The Statistical Package for Social Sciences (SPSS) program, version 25.0 was used for data analysis.

- Qualitative data were described using number and percent.

- Quantitative data were described using range (minimum and maximum), mean, and standard deviation.

- Reliability of tools was assessed using Cronbach's Alpha test.

- The correlations between two quantitative variables were assessed using Pearson coefficient.

- The multiple analysis coefficient was assessed by the Stepwise Technique.

Results:

Table 1: It displayed the distribution of the studied nursing graduates according to their socio-

demographic and academic characteristics. It can be observed from this table that 93.3% the studied graduates were females and being above 30 years. 77% of them were married, 85.5% of them live in urban areas, and 92.1% of them lives with their families. It was also found that 66.0% of them enrolled in Master program, 25.5% enrolled in PhD program and the rest 8.5% in Diploma program. It can be also observed that 41.8% of the studied graduates joined Faculty of Nursing as an opportunity to get suitable job in the future and 17.6% of them love helping others.

Table (1): The distribution of the studied nursing graduates according to their socio-demographic and academic characteristics (N=165):

Variable	Categories	No	%
Sex	Male	11	6.7
	Female	154	93.3
Age	20-24	2	1.2
	25 -29	59	35.8
	≥30	104	63.0
Marital status	Single	35	21.2
	Married	127	77.0
	Widow	3	1.8
level of education	Diploma program	14	8.5
	Master program	109	66.0
	Doctorate program	42	25.5
Reason for joining Faculty of Nursing	Job opportunity	69	41.8
	Pre-faculty grades	33	20.0
	Love helping others	29	17.6
	Family pressure	34	20.6
Residence	Urban	141	85.5
	Rural	24	14.5
Cohabitation	Family	152	92.1
	Relatives	5	3.0
	Alone	8	4.8

Table 2: It represented the distribution of the studied nursing graduates according to their levels of creativity, resilience, and sense of humor. The table illustrated that 53.9% of the studied graduates had a high level of creativity followed by 40.0% having a moderate level with a total mean score of 40.63±7.28. Regarding the level of resilience, the table displays that 81.2% of the studied nursing graduates were highly resilient, while the rest of them had low level of resilience with a total mean score of 24.83±5.93. Concerning sense of humor, 61.8% of the studied nursing graduates had a moderate level, and 35.8% of them had a low level. Meanwhile, only 2.4% of the studied graduates had high level the sense of humour with a total mean score of 50.64±8.40.

Table (2): The frequency and mean of the studied nursing graduates according to their levels of creativity, resilience, and sense of humor (N=165):

Variables	Level	No	%	Min. – Max. (Mean ± SD)
Creativity	Low	10	6.1	20-55 40.63±7.28
	Moderate	66	40.0	
	High	89	53.9	
Resilience	Low	31	18.8	10-40 24.83±5.93
	High	134	81.2	
Sense of Humor	Low	59	35.8	29-78 50.64±8.40
	Moderate	102	61.8	
	High	4	2.4	

Table 3: It denoted the correlation matrix between the creativity, resilience, and sense of humour among the studied nursing graduates. The table revealed that a statistically significant positive correlation is found between creativity and sense of humour (r=.238, p= 0.01). It can also be noted that there is a statistically significant positive correlation between resilience and sense of humour (r=.404, p=0.01). A statistically significant negative correlation between attitudes toward humour and humours people, creativity, and resilience was found among the studied graduates (r= -.268, p=0.01). From this table, it can be concluded that there is a statistically significant positive relationship between creativity, resilience, and sense of humour among the studied graduated nurses.

Table (3): The Correlation Matrix between the creativity, resilience and sense of humour among nursing graduates (N=165):

Variables	Creativity			Resilience
	Creative Self-Efficacy	Creative Personal Identity	Total	
Humor production and creativity.	.224**	.265**	.254**	.420**
Coping or adaptive humor.	.081	.179*	.131	.237**
Appreciation of humor.	.029	.117	.072	.208**
Attitudes toward humor and humorous people.	-.124	-.151	-.143	-.268**
Total	.196*	.265**	.238**	.404**

r = Pearson correlation   * Significant p at P≤0.05.

Table 4: It displayed the linear regression between the creativity and sense of humour among the studied nursing graduates. The table indicated that the percentage of variance in creativity that is due to sense of humour is 6.8%. This means that the sense of humour can predicate creativity among the nursing graduates. The stepwise technique revealed that the humour production was the best predictor of creativity "T"=2.652 at statistically significant level p=0.01. Meanwhile, the appreciation of humor and attitudes toward humor plus humorous people were negative and the less predictors of creativity "T"=-0.200 and -0.656, respectively. Thus, the multiple regression equation that it determines the

prediction of creativity and the sense of humour among nursing graduates can be formulated as follows: Creativity = 36.080 + 0.226 (Humour production and creativity) + 0.071 (Coping or adaptive humour)-0.100 (Appreciation of humour) - 0.209 (Attitudes toward humour and Humorous people).

Table (4): The linear regression between the creativity and the sense of humour among nursing graduates (N=165):

Dependent Variable	Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	R Square
		B	Std. Error	Beta			
Creativity	**(Constant)**	36.080	5.727	-----	6.300	.000	**6.8%**
	Humor production and creativity.	.226	.085	.230	2.652	.009	
	Coping or adaptive humor.	.071	.264	.023	.267	.790	
	Appreciation of humor.	-.100	.501	-.016	-.200	.842	
	Attitudes toward humor and Humorous people.	-.209	.319	-.057	-.656	.513	

*Statistically significant at p ≤ 0.01

Creativity = 36.080 + 0.226 (Humor production and creativity) + 0.071 (Coping or adaptive humor) -0.100 (Appreciation of humor) -0.209 (Attitudes toward humour and Humorous people)

Table 5: It illustrated the linear regression between the resilience and the sense of humour among the studied nursing graduates. The table denoted that the percentage of variance in resilience that is due to sense of humour is 19.9%. This means that sense of humour can predicate resilience among nursing graduates. The stepwise technique revealed that the humour production was the best predictor of resilience "T"=4.265 at statistically significant level (0.000).

Whereas the appreciation of humor and attitudes toward humor and humorous people were statistically significant negative and the less predictors of resilience "T"=-1.382. Thus, the multiple regression equation that determines the prediction of resilience and sense of humour among nursing graduates can be formulated as follows: Resilience = 17.643 + 0.274 (Humour production and Resilience) + 0.116 (Coping or adaptive humour) +0.334 (Appreciation of humour) -0.333 (Attitudes toward humour and Humorous people).

Table (5): The linear regression between resilience and sense of humour among nursing graduates (N=165):

Dependent Variable	Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	R Square
		B	Std. Error	Beta			
Resilience	(Constant)	17.643	4.328	-----	4.076	.000	19.9%
	Humor production and Resilience.	.274	.064	.343	4.265	.000	
	Coping or adaptive humor.	.116	.200	.047	.579	.563	
	Appreciation of humor.	.334	.378	.067	.883	.379	
	Attitudes toward humor and Humorous people.	-.333	.241	-.111	-1.382	.169-	

*Statistically significant at $p \leq 0.01$

Resilience = 17.643 + 0.274 (Humour production and Resilience) + 0.116 (Coping or adaptive humour) +0.334 (Appreciation of humour) -0.333 (Attitudes toward humour and Humorous people).

Discussion:

Creativity and resilience are considered the major competences in graduate nursing education (McDonald, Jackson, Wilkes, & Vickers, 2013; McDonald et al., 2012; Wald, 2015). The graduate need to go beyond nursing routine and acquire innovative solutions to make valuable decisions in their areas (Yuan, Williams, & Fang, 2012). Therefore, creativity and resilience are essential skills that should be adopted and enhanced through graduate nursing education either a theoretical or a practical part. Evermore, another area of interest that raises today is using sense of humor as an adaptive maneuver to deal with difficult life situations and during graduate-level education. Hence, the current study aimed to investigate the relationship between creativity, resilience, and sense of humor among the nursing graduates.

The results of this study reported that a moderate-high level of self-creativity was found among nursing graduates. Similarly, the study of (Liu, Chang, Wang, & Chao, 2020) who investigated the association between creativity, creative components of personality, and innovation among Taiwanese nursing found the same results. He reported that the mean total score for creative personality traits was 3.15 (SD = 0.33), suggesting the graduates perceived themselves as moderately creativity. Moreover, they studied the graduate nurses in the Teaching Creativity Model (TCM) program and found that they have medium-high levels of creative tendency (Liu et al., 2020). This could be attributed to the nature of postgraduate nursing science education

which required certain qualifications and requirements which encourage those graduates to seek new information when faced with challenges. The nursing graduates must analyze and examine ideas to select the appropriate research problem, organize the new knowledge, debate, and exchange views to make rational decisions. Hence, nursing sciences education had the power to promote the graduates' cognitive capabilities, enlarge their perspectives, and promote their creative personality.

The high level of resilience is found in the studied graduated nurses. This agreed with the study of (Chow et al., 2018) who recruited a convenience sample of 678 nursing from a university and he found that the mean score of CD-RISC-10 was 24.0. When comparing the resilience levels of undergraduate and postgraduate students, the total scores were found to be 23.8 and 24.9, respectively. As well, the study of (Pinar, Yildirim, & Sayin, 2018) who explored the psychological resilience, self-confidence, and problem-solving skills of midwife . He reported that psychological resilience, self-confidence, and problem-solving skills of midwife in their first year of studies are higher than those who are in their fourth year. The study of (Mills, Woods, Harrison, Chamberlain-Salaun, & Spencer, 2017) who posted that RNs reported positive resilience scores over all 5 years post-graduation. Resilience scores were highest in the first-year post-graduation, and then they slightly declined until stabilising in years 3–5 post-graduation.

This could be related to postgraduate education with its multiple requirements, such as preparation of assignments, presentation of different topic, using different educational strategies and searching for new ideas for research, etc. These requirements have the power that enables the graduates to be more independent, self-efficient and resilient. The multiple roles that student nurses do as a student, teacher, demonstrator, and supervisor enhance their abilities for facing the challenges, drawing conclusions, solving the problems, and making reasonable decisions.

Sense of humour is moderate among the studied nursing graduates. This result is consistent with (Seyedfatemi, Tafreshi, & Hagani, 2007) who posted that the humorous strategy "joking and keeping a sense of humour is one of coping strategies that used by 51.9% of the studied Iranian nursing . Laughing and using a sense of humour protect the value of the individual's self, create a feeling of looking from a distance between the person in addition to the problem which is healthy. Also, it creates a new perspective on the problem. Thus, the person recovers physically, emotionally, cognitively, socially, and morally. Positive emotions affect candidate's ability to think flexibly and creatively, to find solutions, to cope with stressful situations, to pull themselves together rapidly, and to adapt to new situations. This gives them a more optimistic perspective on life as well as happiness and enhances their resilience.

As expected, the findings of the current study displayed that the creativity, resilience, and sense of humor are related to each other among the studied graduates. This consistent with study of (Kim et al., 2018) who studied the effects of critical thinking tendencies, self-resilience, and creativity of nursing on problem-solving ability. He found that the critical thinking disposition, creativity, resilience and situational adaptability had significantly positive effects on problem-solving ability among nursing graduates. As well, (Yuli, Fenglin, Fanghong, Zhen, & Yanhua, 2012) reported that nursing with higher creativity have higher resilience, stronger hypomanic personality, and fantasy proneness. This could be explained by when the nursing graduates were equipped with creativity, they would be more confident in facing new situations or even locating innovative solutions to the new problems they faced. Creativity helps the graduates to express their opinions after systematic analysis of the topics and be more self-reliant. It can further help the nursing graduates to explore the depth of their thoughts, challenge themselves, and be more independent and resilient. Relevant studies have found that individuals with resilience have positive emotions, thoughts, and behaviours (e.g., happiness and satisfaction with life). They are optimistic, hopeful about the future and have personal goals. When graduates have positive feelings and sense of humour, these affect their resilience and reduce the stress and improve the workplace atmosphere. For nursing graduates to improve their resilience, it is important for them to develop positive viewpoints, skills of critical, creative thinking, and a sense of humour, all three of them help in coping with different academic and life stressors.

Evermore, multiple studies have shown that sense of humour have a wide range of effects on nursing graduates. Both theoretical and empirical work indicate that sense of humour foster flexibility in thinking and problem solving, counteract the physiological effects of negative emotions, and create enduring social resources(Thomas & Revell, 2016).

Conclusion:

It can be concluded that creativity, resilience, and sense of humour are related to each other, be a humor productive graduate nurse and using of humour as adaptive coping strategy in daily life situations contributes to be more creative and resilient. Finally, increase age of the nursing graduates indicates to be more resilient.

Recommendations:

▪ Providing the nursing graduates with the space to generate new ideas and innovations to maintain and enhance their creativity, resilience and promote their sense of humor through:

o Student-centered teaching methods such as flipped classroom.

o Problem-based learning on real-life case studies, which allow nursing graduates to release their creativity and curiosity.

o Creative expression methods including stories telling, writing poems and movies should also be included in seminars and conferences.

o Interactive teaching like role-plays, simulation, virtual reality, brainstorming and game-based learning methods.

o Cognitive reframing, toughening up, emotional toughness and emotional detachment, grounding connections and work–life balance, critical reflection, and reconciliation.

▪ A comfortable atmosphere with sense of humour in health care settings that encourage creative problem-solving skills, promote resilience, and lower the burnout among graduated nursing staff need to be maintained.

▪ Further studies need to examine variables that could influence the relationship between resilience, creativity and sense of humour such as perceived stress, self-efficacy, and depressive symptoms.

References

Abbas, M., & Raja, U. Impact of psychological capital on innovative performance and job stress. Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration, 2015; 32(2): 128-138.

Aebersold, M., & Tschannen, D. Virtual Reality Simulations: Teaching Interpersonal and Clinical Judgments Skills to Healthcare Practitioners Handbook of research on serious games as educational, business and research tools 2012; 800-817: IGI Global.

Beauvais, A. M., Stewart, J. G., DeNisco, S., & Beauvais, J. E. Factors related to academic success among nursing students: A descriptive correlational research study. Nurse Education Today, 2014; 34(6): 918-923.

Çam, O., & Büyükbayram, A. The Results of Nurses' Increasing Emotional Intelligence and Resilience. Journal of Psychiatric Nursing/Psikiyatri Hemsireleri Dernegi, 2015;6(3):25-33.

Campbell- Sills, L., & Stein, M. B. Psychometric analysis and refinement of the connor–davidson resilience scale (CD-RISC): Validation of a 10-item measure of resilience. Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies, 2007;20(6): 1019-1028.

Cann, A., & Collette, C. Sense of humor, stable affect, and psychological well-being. Europe's Journal of Psychology, 2014; 10(3): 464-479.

Cassidy, S. Resilience building in students: the role of academic self-efficacy. Frontiers in psychology,2015; 6:0 1781-1789.

Chávez-Eakle, R. A., Eakle, A. J., & Cruz-Fuentes, C. The multiple relations between creativity and personality. Creativity Research Journal, 2012;24(1): 76-82.

Chow, K. M., Tang, W. K. F., Chan, W. H. C., Sit, W. H. J., Choi, K. C., & Sally, C. Resilience and well-being of university nursing students in Hong Kong: a cross-sectional study. BMC medical education, 2018;18(1): 1-8.

Csikszentmihalyi, M., & Wolfe, R. New conceptions and research approaches to creativity: Implications of a systems perspective for creativity in education The systems model of creativity,2014; 161-184: Springer.

Day, C. Resilient principals in challenging schools: The courage and costs of conviction. Teachers and Teaching,2014; 20(5): 638-654.

Eragamreddy, N. Teaching creative thinking skills. International Journal of english language & translation studies, 2013; 1(2): 124-145.

Fong, T. L. Foster youth, reunification, and resilience: A study of the social emotional resilience of former foster youth in the presence and absence of family reunification. Alliant International University.2016; 5(1):20-28.

Gordon, M. Learning to laugh at ourselves: Humor, self-transcendence, and the cultivation of moral virtues. Educational Theory,2010; 60(6): 735-749.

Goriup, J., Stričević, J., & Sruk, V. Is Education for Using Humour in Nursing Needed?(Slovenian Case Study on Sociological and Ergonomic Aspects of the Impact of Humour on Nursing Professionals).

Acta Educationis Generalis, 2017;7(3): 45-62.

Grace, P. J. Nursing ethics and professional responsibility in advanced practice: Jones & Bartlett Learning, 2017;2(55):112-119.

Hale, M., Shah, S., & Clegg, A. Frailty, inequality and resilience. Clinical Medicine, 2019;19(3): 219-224.

Henley, R. Resilience enhancing psychosocial programmes for youth in different cultural contexts: Evaluation and research. Progress in Development Studies,2010; 10(4): 295-307.

Jackson, J. Managing exposure: A grounded theory of burnout and resilience in critical care nurses. Europe's Journal of Psychology,2015;2(9):258-269.

Karwowski, M. Did curiosity kill the cat? Relationship between trait curiosity, creative self-efficacy and creative personal identity. Europe's Journal of Psychology, 2012;8(4):547-558.

Kim, Y. S., Han, M. Y., Kim, I. J., & Jeon, M. K. Factors affecting problem solving ability among nursing students. Nurse Education Today, 2018;14(5): 91-103.

Kuiper, N. A. Humor and resiliency: Towards a process model of coping and growth. Europe's Journal of Psychology,2012;22(8):669-674.

Kushner, T. N. What actions can novice nurse practitioners take to develop and maintain therapeutic relationships with adult patients in primary care? Nurse Education Today,2017;5(1):999-1012.

Kwan, Y. H., Ng, A., Lim, K. K., Fong, W., Phang, J. K., Chew, E. H., . . . Østbye, T. Validity and reliability of the ten-item Connor–Davidson Resilience Scale (CD-RISC10) instrument in patients with axial spondyloarthritis (axSpA) in Singapore. Rheumatology international, 2019;39(1): 105-110.

Labrague, L. J., McEnroe- Petitte, D. M., Leocadio, M. C., Van Bogaert, P., & Cummings, G. G. Stress and ways of coping among nurse managers: An integrative review. Journal of Clinical Nursing, 2018;27(7-8): 1346-1359.

Lewis, L. S. Community College Nursing Students' Experience of Repeating a Course After Academic Failure. Nurse Education Today,2016;14(8):15-19.

Liu, H.-Y., Chang, C.-C., Wang, I.-T., & Chao, S.-Y. The association between creativity, creative components of personality, and innovation among Taiwanese nursing students. Thinking Skills and Creativity,2020; 35(5):29-36.

Margaret, M., Jennene, G., Madsen, W., & Godden, J. Generating ideas for the teaching of nursing's history in Australia. Collegian, 2010;17(1): 13-22.

Martin, A. J., Colmar, S. H., Davey, L. A., & Marsh, H. W. Longitudinal modelling of academic buoyancy and motivation: Do the 5Cs hold up over time? British Journal of Educational Psychology, 2010;80(3): 473-496.

Martin, G. N., & Sullivan, E. Sense of Humor Across Cultures: A Comparison of British, Australian and American Respondents. North American Journal of Psychology, 2013;15(2):445-462.

McDonald, G., Jackson, D., Wilkes, L., & Vickers, M. Personal resilience in nurses and midwives: effects of a work-based educational intervention. Contemporary nurse, 2013;45(1): 134-143.

McDonald, G., Jackson, D., Wilkes, L., & Vickers, M. H. A work-based educational intervention to support the development of personal resilience in nurses and midwives. Nurse education today, 2012;32(4): 378-384.

McMillan, S. C. Exploring the associations among college students self-reported resilience, coping behavior, goal orientation and passion for academics. Europe's Journal of Psychology, 2016;11(4):207-215.

Mendiburo- Seguel, A., Páez, D., & Martínez- Sánchez, F. Humor styles and personality: A meta-analysis of the relation between humor styles and the Big Five personality traits. Scandinavian journal of psychology, 2015;56(3): 335-340.

Mills, J., Woods, C., Harrison, H., Chamberlain-Salaun, J., & Spencer, B. Retention of early career registered nurses: the influence of self-concept, practice environment and resilience in the first five years post-graduation.

Journal of Research in Nursing,2017; 22(5): 372-385.

Moenkemeyer, G., Hoegl, M., & Weiss, M. Innovator resilience potential: A process perspective of individual resilience as influenced by innovation project termination. Human Relations,2012; 65(5): 627-655.

Morreall, J. Humor, philosophy and education. Educational Philosophy and Theory, 2014;46(2): 120-131.

Mota de Sousa, L., Marques-Vieira, C., Severino, S., Pozo-Rosado, J., Antunes, A. V., & José, H. Validation of the multidimensional sense of humor scale in people with chronic kidney disease. Journal of Nursing Education and Practice, 2018;10(2)72-79.

Pérez- Aranda, A., Hofmann, J., Feliu- Soler, A., Ramírez- Maestre, C., Andrés- Rodríguez, L., Ruch, W., & Luciano, J. V. Laughing away the pain: A narrative review of humour, sense of humour and pain. European Journal of Pain,2019; 23(2): 220-233.

Pinar, S. E., Yildirim, G., & Sayin, N. Investigating the psychological resilience, self-confidence and problem-solving skills of midwife candidates. Nurse Education Today,2018; 64(1):144-149.

Pulido- Martos, M., Augusto- Landa, J. M., & Lopez- Zafra, E. Sources of stress in nursing students: a systematic review of quantitative studies. International Nursing Review, 2012; 59(1): 15-25.

Renzulli, J. S., & De Wet, C. Developing creative productivity in young people through the pursuit of ideal acts of learning. Nurturing creativity in the classroom,2010;7(3): 24-72.

Ruch, W., Heintz, S., Platt, T., Wagner, L., & Proyer, R. T. Broadening humor: comic styles differentially tap into temperament, character, and ability. Frontiers in psychology, 2018;9(6):12-36.

Samson, A. C., Glassco, A. L., Lee, I. A., & Gross, J. J. Humorous coping and serious reappraisal: short-term and longer-term effects. Europe's Journal of Psychology, 2014;10(3): 571-581.

Seyedfatemi, N., Tafreshi, M., & Hagani, H. Experienced stressors and coping strategies among Iranian nursing students. BMC Nursing, 2007;(1), 11-23.

Shin, G.-S., Choi, K.-S., Jeong, K. S., Min, Y.-S., Ahn, Y.-S., & Kim, M.-G. Psychometric properties of the 10-item Conner-Davidson resilience scale on toxic chemical-exposed workers in South Korea. Annals of Occupational and Environmental Medicine, 2018;30(1):136-147.

Shively, R. L. Learning to be funny in Spanish during study abroad: L2 humor development. The Modern Language Journal, 2013;97(4): 930-946.

Stephens, T. M. Increasing resilience in adolescent nursing students. Nurse Education Today,2012;6(2)569-578.

Thomas, L. J., & Revell, S. H. Resilience in nursing students: An integrative review. Nurse education today, 2016;36(6): 457-462.

Thorson, J. A., Powell, F. C., Sarmany- Schuller, I., & Hampes, W. P. Psychological health and sense of humor. Journal of clinical psychology, 1997;53(6): 605-619.

Townsend, M. C., & Morgan, K. I. Psychiatric mental health nursing: Concepts of care in evidence-based practice: FA Davis, 2017:58-96.

Van den Heuvel, M., Demerouti, E., Bakker, A. B., & Schaufeli, W. B. Personal resources and work engagement in the face of change. Contemporary occupational health psychology: Global Perspectives on Research and Practice,2010; 1(10):124-150.

Wald, H. S. Professional identity (trans) formation in medical education: reflection, relationship, resilience. Academic Medicine,2015; 90(6): 701-706.

Windle, G. What is resilience? A review and concept analysis. Reviews in Clinical Gerontology,2011; 21(2): 152-169.

Wright, M. O. D., Masten, A. S., & Narayan, A. J. Resilience processes in development: Four waves of research on positive adaptation in the context of adversity Handbook of resilience in children, 2013:15-37.

Yılmaz, E. B. Resilience as a strategy for struggling against challenges related to the nursing profession. Chinese Nursing Research, 2017;4(1): 9-13.

Yuan, H., Williams, B., & Fang, J. The contribution of high-fidelity simulation to nursing students' confidence and competence: a systematic review. International Nursing Review, 2012;59(1): 26-33.

Yuli, L., Fenglin, C., Fanghong, D., Zhen, K., & Yanhua, Z. Relationship between creativity and psychological traits in undergraduate nursing students [J]. Journal of Nursing Science,2012; 10(8): 119-126.