



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



Contents lists available at ScienceDirect

Teaching and Learning in Nursing

journal homepage: www.journals.elsevier.com/teaching-and-learning-in-nursing

Predictors and correlates of Saudi nursing students' grit and positive thinking amidst the COVID-19 pandemic

Mohammed Hamdan Alshammari, PhD, RN^{a*}, Mohammad Alboliteh, PhD, RN^b

^a Mental Health Nursing Department, College of Nursing, University of Ha'il, Ha'il City, KSA, Saudi Arabia

^b Medical-Surgical Nursing Department, College of Nursing, University of Ha'il, Ha'il City, KSA, Saudi Arabia



ARTICLE INFO

Article History:
Accepted 23 June 2022

Keywords:
Grit
Nursing
Nursing student
Perseverance
Positive thinking
Positivity

ABSTRACT

Introduction: Academic success requires grit and positive thinking. However, research on Middle Eastern nursing students' grit and positive thinking is limited. This study investigated the demographic variables that correlate to and predict Saudi nursing students' grit and positive thinking.

Method: A descriptive cross-sectional design guided this study. We used the 12-item Short Grit Scale (Grit-S) and 8-item Positive Thinking Skills Scale (PTSS) to collect data from 338 nursing students. The Pearson correlation coefficient and linear regression analysis were utilized to analyze the data.

Findings: Nursing students' Grit-S mean score is more significant than their PTSS score. The year level is inversely associated with Grit-S, while gender and Grit-S had a weak direct correlation. Regarding PTSS, only the year level was inversely correlated. Finally, both the year level and gender were significant predictors of Grit-S and PTSS.

Discussion: Participants' responses to Grit-S and PTSS scores vary greatly depending on their demographics. The nursing students' grit and positive thinking did not develop as they progressed in the nursing program, which is viewed differently by each gender.

© 2022 Organization for Associate Degree Nursing. Published by Elsevier Inc. All rights reserved.

Introduction

Academic stress and burnout affect nursing students' learning behaviors and outcomes (Berdida & Grande, 2022a; Olvera Alvarez et al., 2019). If not addressed adequately and appropriately, this will have a detrimental effect on their learning. However, little is known about nursing students' resilience and ability to think positively in the face of academic stress and challenges, particularly during this pandemic (Berdida & Grande, 2022a; Berdida & Grande, 2022b). Nursing students, more than ever, need to embody protective traits such as tenacity and positive thinking to sustain their mental health and success in their studies during a pandemic the world has never witnessed, at least in the previous century.

Grit and positive thinking are inextricably linked concepts. Angela Duckworth (2016) is the world's foremost authority on "grit," and she defined this concept as "passion and sustained persistence applied toward long-term achievement, with no particular concern for rewards or recognition along the way. It combines resilience, ambition, and self-control in pursuing goals that take months, years, or even decades" (p.1087). In comparison, positive thinking focuses on the positive aspects of a situation, which is frequently referred to

as an optimistic perspective (New Jersey State Nurses Association, 2022; Sherwood, 2021). According to the fundamental tenet of positive thinking, one should approach all aspects of life to expect everything to work out well (Yang & Wu, 2021).

More than ever, the grit and positivity of Saudi students, particularly student nurses, were tested during the COVID-19 pandemic. They faced an enormous burden due to the abrupt transition from face-to-face learning to virtual mode (Grande et al., 2022). This abrupt shift required students to adapt rapidly to changing learning modes. Although the virtual learning mode is not novel, it still requires students to have robust internet connectivity, increased proficiency with technology and the platform used, and the undivided necessary level of focus. Virtual learning fundamentally differs from traditional classroom instruction (Alshehri, 2021; Grande et al., 2022). All of these readiness challenges and resource constraints for online learning placed Saudi nursing students' protective traits such as grit and positive thinking to the test. As a result, investigating their protective traits will shed light on how they enable nursing students to cope with the pandemic.

Background of the Study

Grit is defined in a variety of contexts and sources. Some sources describe it as the ability to persevere in an endeavor for which an

*Corresponding author. Tel.: (966) 533000347.

E-mail address: dr.mh.alshammari@gmail.com (M.H. Alshammari).

individual is passionate (Datu et al., 2019) and to persevere in the face of adversity (Duckworth & Yeager, 2015). Intense feelings or emotional connections characterize this type of passion. It all comes down to concentration and commitment (Duckworth & Yeager, 2015). When motivated by this passion, they will persevere through a difficult or tedious task (Datu, 2021). To develop grit or mental toughness, an individual must articulate its meaning. It may be a month without skipping an exercise program or two consecutive days of arriving at work punctually. It could also be a combination of perseverance and modest physical achievements in one's daily life. As with a muscle, mental toughness requires nourishment to grow and develop appropriately (Jasemi et al., 2017; Kang, 2018). Another approach to developing grit is forming strong habits and weaning oneself off motivation, as grit is not about receiving an abundance of enthusiasm or confidence. Rather, it should be about building daily habits that enable an individual to achieve deadlines consistently and persevere in the face of distractions (Han et al., 2020; Mason, 2018; Ramsay et al., 2020).

Nursing students face enormous stress during their studies, and grit is a critical protective characteristic that enables them to overcome these obstacles, particularly those associated with their learning experience, exacerbated by the current pandemic (Grande et al., 2022). According to a study of Australian nursing students, online delivery significantly impacted learning outcomes, and online teaching was not an effective method of teaching the research course (Ramsay et al., 2020). Grit mitigates negative influences on nursing students' learning experiences because of many social and personal adverse events. Indeed, grit and other protective factors indirectly influence achievement orientation and academic performance. The persistence of effort has a more significant influence than the consistency of interest. As a result, cultivating a learning environment that values grit can supplement faculty members' teaching endeavors (Alhadabi & Karpinski, 2020; Mason, 2018).

On the other hand, positive thinking refers to the belief that despite adversity, things will eventually improve (Moaser, 2016; Motamed-Jahromi et al., 2017). In a study of two groups of students, positive thinking increased happiness. It was concluded that training in positive thinking skills directly affected the students' happiness following the experiment (Moaser, 2016). A similar study revealed that positive thinking training delivered via diverse platforms such as social media could influence nurses' job-related stress, low mood, and fatigue (Motamed-Jahromi et al., 2017).

Despite the positive and beneficial effects of grit and positive thinking on nursing students, the literature does not fully explore the relationship between these two protective traits. Therefore, the purpose of this study was to determine the mean responses of participants to the positive thinking scale and the short grit scale and the relationship between these positive thinking skills and their grit. Furthermore, we identified the demographic variables that predict positive thinking and grit.

Methods

Research Design

In this study, we used a descriptive, cross-sectional design to determine the relationship between positive thinking and grit and their predictor variables.

Study Setting

The study recruited students at a single Saudi Arabian state university that offers a Bachelor of Science (BS) degree in nursing in north-central Saudi Arabia. The university was founded in 2005 and began offering a nursing program in 2010. It has two separate

campuses: the male nursing college is located on the main campus, while the female nursing college is situated on the Aja campus, the female university campus, located approximately 17 kilometers from the main campus.

Sampling and Participants

This study employed convenience sampling to recruit eligible participants. To be eligible, students must be enrolled in the nursing program during the academic year 2021–2022 in one of the two semesters, have no gender or year level disparity, and consent to participate. A total of 500 online forms were distributed to participants, and 390 completed online survey forms were returned. After thorough validation, 338 of the forms received were determined to be complete, error-free, and thus fit for analysis.

Ethical Considerations

After obtaining all relevant paperwork, the University of Ha'il's ethics committee approved the study proposal. Permission to proceed with the study was conferred following the terms of the ethics committee. Data were collected online via Google survey forms. The first portion of the survey forms prominently displayed the title and consent statements. Both English and Arabic consent forms were used. Consent forms clearly stated that voluntarily completing the form indicated the participant's implied consent to participate.

Instrument

In our study, we used two instruments. The first is the Short Grit Scale (Grit-S), developed by Angela Lee Duckworth and Patrick Quinn of the University of Pennsylvania. The Grit-S scale was published in 2009, and its primary aim is to assess grit, which is the ability to maintain both effort and interest in works that take months or even years to complete (Duckworth & Quinn, 2009). Grit is related to but distinct from the need for achievement, and people with grit adhere to their goals even when they would not get positive feedback. The Grit-S consists of 12 items divided into two subscales. Each subscale consists of six items for consistency of interest and perseverance of effort. The Grit-S is scored using a 5-point Likert scale, with 1 indicating strong disagreement and 5 indicating strong agreement. The perseverance of effort and consistency of interest factors have a Cronbach's alpha score of 0.70, 0.77, and 0.82 for the entire Grit-S, respectively, indicating that the scale is reliable (Duckworth & Quinn, 2009).

The original English version of the Grit-S was translated into Arabic with the help of three language experts from the study setting. The instrument's content validity was established using a forward-backward translation (Gjersing et al., 2010) that adhered to semantic equivalence procedures (Polit & Beck, 2018). Following that, three expert researchers from the nursing college who were fluent in Arabic and English evaluated the Arabic version of the instrument. We conducted a pilot test of the Arabic version of the instruments with a small sample size (10%) of the population to determine its reliability. This resulted in a Cronbach's alpha value of 0.95 for Grit-S and 0.90 indicating high reliability and internal consistency (Taber, 2018).

The second instrument Positive Thinking Skills Scale (PTSS) determines students' capacity for positive thinking (Matel-Anderson & Bekhet, 2019). The PTSS measures the skills based on cognitive-behavioral theory. They exemplify cognitive activities to increase positive thoughts and eradicate or moderate negative ones. A higher PTSS score indicates that participants have a greater capacity for positive thinking (Matel-Anderson & Bekhet, 2019). When administered to college students, the PTSS has a Cronbach's coefficient of 0.86, indicating high reliability. The PTSS is an eight-item scale with final

scores ranging from 0 to 24. Its items range from 0 (never) to 3 (always). A higher score suggests that positive thinking abilities are more regularly used, while a lower number indicates that they are less commonly used (Matel-Anderson & Bekhet, 2019). We used the Arabic version of the PTSS, which the authors provided to the researchers.

Data Collection

Data were collected using online Google survey forms between August 20, 2021, and January 5, 2022. During the data collection period, no face-to-face interaction was made, though face-to-face classes were permitted in the study setting. With the help and support of their colleagues, the researchers reminded participants to complete and return the online questionnaires at the end of their face-to-face lectures.

Data Processing and Analysis

Microsoft® Excel 2017 was used to organize the data, and SPSS, Version 27.0 for Windows, was used to analyze it. We employed descriptive statistics to describe the participants' demographic profiles and responses to the Grit-S and PTSS. We utilized frequency and proportion for categorical variables, but mean, standard deviation, and medians for normally and non-normally distributed continuous data. The Pearson correlation coefficient was also used to determine the relationship between the study variables. In contrast, in the multivariate analysis of data, linear regression analysis was used to identify predictors of Grit-S and PTSS. The significance level was set to 0.05.

Results

Demographic Profiles of the Participants

The study recruited 338 participants. The distribution of participants according to their demographic profiles is shown in Table 1. Over 60% were second or third-year students. Females outnumbered males by 75.7% to 24.3%, indicating a male to female ratio of 1:3. None had a grade point average of D+/D, whereas 75 (22.2%) had a grade point average of C+/C, 206 (60.9%) had a grade point average of B+/B, and 57 (16.9%) had a grade point average of A+/A.

Table 1
Demographic Profile of Participants (n=338).

Variables	Frequency	Percentage
Year level		
Second year	71	21.0
Third year	141	41.7
Fourth year	126	37.3
Gender		
Male	82	24.3
Female	256	75.7
Units enrolled in current semester		
Less than 50% of offered units	19	5.6
50% of offered units	131	38.8
100% of offered units	188	55.6
Grade point average (GPA)		
D+/D	0	0
C+/C	75	22.2
B+/B	206	60.9
A+/A	57	16.9

Table 2

Mean and standard deviation of Short Grit Scale (Grit-S) and Positive Thinking Skills Scale (PTSS).

	Mean ± SD	Max	Min
Short Grit Scale (Grit-S)	3.00 ± 0.25	4.17	2.50
Positive Thinking Skills Scale (PTSS)	1.71 ± 0.28	2.50	1.12

Grit-S: Not at all like me: 1.00 – 1.80; Most of the time not like me: 1.81 – 2.60; Undecided: 2.61 – 3.40; Most of the time like me: 3.41 – 4.20; Very much like me: 4.21 – 5.00; PTSS: Never: 0 – 0.75; Sometimes: 0.76 – 1.50; Most of the time: 1.51 – 2.25; Always: 2.26 – 3.00.

Mean, Standard Deviation, and Correlations of Grit-S and PTSS

The mean score on the Grit-S and PTSS was 3.000 and 1.71, respectively (Table 2). Table 3 shows the correlations between the various demographic variables and the nursing students' short grit scale and positive thinking skills. As a result, the year level of nursing students had a moderate inverse association with Grit-S ($r = -0.340$, $p < 0.001$), whereas gender and Grit-S had a weak positive correlation ($r = 0.130$, $p = 0.016$). Only the year level of PTSS was correlated to Grit-S, although it was an inverse correlation ($r = -0.483$, $p < 0.001$).

Predictors of Grit-S and PTSS

As shown in Table 4, the linear regression model was used to assess the predictive ability of year level, gender, and GPA as independent variables and Grit-S and PTSS as dependent variables. The resulting linear regression model can explain 16.8 % of the variability in the Grit-S ($R^2 = 0.168$). Year level and gender were significant predictors of Grit-S, as indicated by p values < 0.0001 . Both profiles, year level, and gender were also significant predictors of PTSS, as demonstrated by their respective p values of < 0.0001 and 0.032.

Discussion

The participants' Grit-S mean responses indicated that they frequently feel like they are the ones in the situation. According to their responses to the Grit-S scale items, the two factors, consistency of interest and perseverance of interest, are remarkably similar in many ways. As items such as 'Setting goals but later choose to pursue a different one' and 'New ideas and projects distract me from previous ones' relate to the current pandemic's impact on their studies. While statements such as 'I finish whatever I begin' and 'Setbacks don't discourage me' show the participants' tenacity and resilience, demonstrating their grit. Grit, which is defined as "persistence and desire for long-term aspirations" (Duckworth, 2016, p. 1087), may have an enduring impact on the mental and physical well-being of nursing students, especially during the pandemic (Yang & Wu, 2021). A correlation between grit and positive thinking was identified among high school students, with a statistically significant positive correlation. According to Han et al. (2020), as an individual's positive thinking scale

Table 3

Correlation of the different variables with Short Grit Scale (SGS) and Positive Thinking Skills Scale (PTSS).

Variables	SGS		PTSS	
	r	p-value	r	p-value
Year level	-0.340	<0.001*	-0.483	<0.001*
Gender	0.130	0.016*	-0.014	0.794
GPA	-0.002	0.973	-0.026	0.633

* Significant: < 0.05 , Not significant: > 0.05 .

Table 4
Predictors of Grit-S and PTSS.

	Variable	Unstandardized coefficients β	Standardized coefficients β	p value	95% Confidence interval for β		Adjusted R ²	R ²
					Lower limit	Upper limit		
Grit-S	Year level	-0.140	-0.409	<0.0001*	-0.175	-0.104	0.161	0.168
	Gender	0.132	0.222	<0.0001*	0.072	0.192		
	GPA	0.032	0.078	0.129	-0.009	0.073		
PTSS	Year level	-0.198	-0.527	<0.0001*	-0.235	-0.161	0.244	0.251
	Gender	0.068	0.105	0.032*	0.006	0.131		
	GPA	0.039	0.086	0.079	-0.004	0.082		

Linear Regression Analysis.

* Significant: <0.05, Not significant: >0.05.

scores grow, so does their grit score. Thus, students with more grit think more positively, and having more grit indicates that the student is more persevering and hopeful (Han et al., 2020). When nursing students deal with stress, despair, and the possible verge of self-harm or suicide, it is crucial to assess their positive thinking. COVID-19 pandemic stress threatens their wellness and safety (Bekhet & Garnier-Villareal, 2018; Bekhet & Zauszniewski, 2013). As our findings indicate, it is more crucial than ever to explore the impact of COVID-19 on nurses' and nursing students' use of grit and positive thinking, as rates of nurse suicide and self-harm have increased during the pandemic (Gao et al., 2021). Additionally, reports of stress, anxiety, and depression were reported among Saudi nursing students (Alsolais et al., 2021) and non-Saudi nursing students (Gao et al., 2021; Wynter et al., 2021).

In this study, the year level of participants is inversely related to their grit. They indicate that the strength of grit decreases with increasing year level, implying that students in higher year levels may have mastered other protective traits or developed more personal than general coping mechanisms. Grit is associated with greater levels of achievement and wellness and would help avoid exhaustion, reduce the risk of dropout, and facilitate learning and commitment. Additionally, grit is a trait that develops over time, and positive associations between grit and increased life satisfaction and well-being have been found in the literature (Kang, 2018; Schimschal et al., 2021). Positive thinking is a conscious thought that promotes a person's development of optimism. Its effects include hopeful emotions, pleasant mood, behavioral positivity, and improved concentration and focus (Bekhet & Garnier-Villareal, 2018). Positivity can assist in the recovery process following psychological trauma, stress, despair, and other events that may transcend human tolerance (Bekhet & Zauszniewski, 2013). And, especially during this pandemic, nursing students must embody positive thinking to increase their concentration and performance in the nursing program. Considering the previous discussion about the rising rates of suicide, self-harm, and depressive symptoms among nursing students, several nursing schools worldwide established social support systems and mental health resources for their students during the current pandemic (Jardon & Choi, 2022).

Our study discovered that the year level and gender predict grit and positive thinking. A concept analysis study about grit corroborated our findings (Schimschal et al., 2021). It reported that grit reduces attrition among medical students pursuing a higher degree of academic endeavor and that grit is stronger and more intense at the senior college level (Mason, 2018; Schimschal et al., 2021). Students studying for a doctorate have more grit than those studying for a bachelor's or master's degree. Additionally, students who are 'grit-tier' earn higher marks than those who are not (Schimschal et al., 2021). A study of grit among Australian nursing students found that year level is a predictor of grit, with first-year students having lower grit levels than students in succeeding years of the program (Terry & Peck, 2020). Supporting our findings, Korean nursing students

demonstrated that when relevant positive psychology programs are included in the curriculum, positive thinking stimulates more optimism and produces a positive life experience throughout nursing studies, regardless of gender (Çelik & Sarıçam, 2018; Han et al., 2020). Nursing students at several nursing schools worldwide face various psychosocial challenges due to the COVID-19 pandemic, necessitating curriculum changes to address their students' mental health needs (Agu et al., 2021; Berdida & Grande, 2022a).

Positive thinking and grit are associated in several ways theoretically supported by the literature. Grit cannot be instantly learned or developed, but nursing students who are taught the importance of grit in school can cultivate this protective trait (McCabe, 2016). Meanwhile, positive thinking like grit enables nursing students to overcome the stressful tasks associated with their nursing studies by fostering positive psychology that focuses on their inherent strengths (McDermott et al., 2021). Students' emotional and psychological well-being is influenced by factors rooted in multiple sources, such as family and social environment, which impact their academic success. Family distress has been identified as a predictor of low self-esteem and negativity, negatively affecting student academic achievement (Ratanasiripong et al., 2021). Building grit and positive thinking among students can draw the line between academic success and failure. Identifying the effects of life stress and other factors on vulnerable adolescents, such as nursing students in their early adulthood, might help them prevent long-term difficulties that could impair their wellness and overall health (Olvera Alvarez et al., 2019). Our findings also highlighted the importance of a nursing student's family and social network in helping them overcome adversity during their COVID-19 studies. The role of a family couple with positive traits like grit and positive thinning helped nursing students overcome the pandemic's struggles (Molino et al., 2021).

Positive thinking and grit have been examined across various publications among university students and in other careers, social contexts, and nearly all forms of human endeavor. Berdida and Grande (2022b) revealed that having positive thinking and grit as part of a person's psychology and domains, specifically the environmental, physical, and psychosocial domains, can result in a higher quality of life. The development of quality of life among Saudi nursing students may be attributable to their ability to focus on their studies and finish on time despite the pandemic and its challenges (Grande et al., 2021). The challenge of nursing education resulting from the pandemic cannot be neglected, but it should not be exaggerated as well. Regarding nursing students, if there is one positive aspect of this pandemic, protective traits such as grit and positive thinking have become more prominent in them (Terry & Peck, 2020).

Limitation

Our study's findings may have several limitations, most notably generalizability in describing the current level of grit and positive thinking among nursing students during this COVID-19 pandemic.

Given that our study included only students from a single university, our findings only apply to nursing students in the study setting. Another limitation is that we used a cross-sectional research approach, which can only infer current results and not correlate them to the phenomena's past or future state.

Recommendation

The findings of this study imply that more research should be conducted utilizing the SG-S and PTSS to examine how nursing students' grit and positive thinking develop as they progress through the program. Grit and positive thinking should be incorporated into nursing courses to equip students with the values and protective factors they need to succeed in their studies. Future research could assess the student nurses who exhibit grit and optimism by evaluating them after their last year in the nursing program. This will enable nursing educators, administrators, and even employers to understand the influence of these protective factors on them and how they contribute to students' future professional success. Additionally, similar research should be undertaken on a larger sample of nursing students throughout Saudi Arabia and perhaps other countries to compare grit and positive thinking across borders and determine a global trend in how nursing students regard themselves. There may be cultural, socioeconomic, and ethnic characteristics associated with the way students from diverse cultures and countries express grit and positive thinking.

Conclusion

Saudi nursing students' Grit-S and PTSS scores are highly variable relative to their demographic profiles. Nursing students' grit is more significant than their positive thinking, indicating that despite these two traits being both protective, the way nursing student's value one over the other remains distinct. Furthermore, the grit of Saudi nursing students did not develop as they progressed through the nursing program. This suggests that their grit was set early in their nursing program, and other protective characteristics developed later. Additionally, it demonstrates that they learn from their mistakes and view all obstacles as opportunities to build academic stressor-specific coping mechanisms. However, it is essential to note how each gender views grit differently; that is why males and females differ substantially. Participants' grit and positive thinking levels were also dissimilar from one another. Positive thinking helps people stay calm and hopeful throughout their lives, whereas grit focuses on the future and how things will end. Therefore, nurse educators and policymakers should include curricular and clinical programs that develop nursing students' grit and positive thinking to keep them in the nursing program.

Funding source

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Ethics approval number

University of Ha'il Research Ethics Committee (REC) approval number H-2020-257 (December 29, 2020).

Data sharing statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

We would like to express our gratitude to students of the University of Ha'il's College of Nursing.

References

- Agu, C. F., Stewart, J., McFarlane-Stewart, N., & Rae, T. (2021). COVID-19 pandemic effects on nursing education: Looking through the lens of a developing country. *International Nursing Review*, 68(2), 153–158. doi:10.1111/inr.12663.
- Alhadabi, A., & Karpinski, A. C. (2020). Grit, self-efficacy, achievement orientation goals, and academic performance in university students. *International Journal of Adolescence and Youth*, 25(1), 519–535. doi:10.1080/02673843.2019.1679202.
- Alshehri, E. A. R. (2021). Mental well-being among health science specialty female students in Riyadh, Saudi Arabia. *Middle East Current Psychiatry*, 28(1), 1–8. doi:10.1186/s43045-021-00096-7.
- Alsolais, A., Alquwez, N., Alotaibi, K. A., Alqarni, A. S., Almalki, M., Alsolami, F., Almazan, J., & Cruz, J. P. (2021). Risk perceptions, fear, depression, anxiety, stress and coping among Saudi nursing students during the COVID-19 pandemic. *Journal of Mental Health (Abingdon, England)*, 30(2), 194–201. doi:10.1080/09638237.2021.1922636.
- Bekhet, A. K., & Garnier-Villareal, M. (2018). Factor structure and psychometric properties of Cognitive-Behavioral Scales in Caregivers of Persons with Dementia. *International Journal of Psychology and Psychoanalysis*, 4(2), 1–9. doi:10.23937/2572-4037.1510035.
- Bekhet, A. K., & Zauszniewski, J. A. (2013). Measuring use of positive thinking skills: Psychometric testing of a new scale. *Western Journal of Nursing Research*, 35(8), 1074–1093. doi:10.1177/0193945913482191.
- Berdida, D. J. E., & Grande, R. A. N. (2022a). Academic stress, COVID-19 anxiety, and quality of life among nursing students: The mediating role of resilience. *International Nursing Review* 1–9. doi:10.1111/inr.12774 Advanced online publication.
- Berdida, D. J. E., & Grande, R. A. N. (2022b). Quality of life and academic resilience of Filipino nursing students during the COVID-19 pandemic: A cross-sectional study. *International Journal of Nursing Education Scholarship*, 18(1), 1–11. doi:10.1515/ijnes-2021-0115.
- Çelik, İ., & Sarıçam, H. (2018). The Relationships between Positive Thinking Skills, Academic Locus of Control and Grit in Adolescents. *Universal Journal of Educational Research*, 6(3), 392–398. doi:10.13189/ujer.2018.060305.
- Datu, J. A. D. (2021). Beyond passion and perseverance: Review and future research initiatives on the science of grit. *Frontiers in Psychology*, 11, 1–17. doi:10.3389/fpsyg.2020.545526.
- Datu, J. A. D., King, R. B., Valdez, J. P. M., & Eala, M. S. M. (2019). Grit is associated with lower depression via meaning in life among Filipino high school students. *Youth & Society*, 51(6), 865–876. doi:10.1177/0044118X18760402.
- Duckworth, A. (2016). *Grit: The power of passion and perseverance*. New York, NY: Scribner/Simon & Schuster.
- Duckworth, A. L., & Quinn, P. D. (2009). Development and validation of the Short Grit Scale (Grit–S). *Journal of Personality Assessment*, 91(2), 166–174. doi:10.1080/00223890802634290.
- Duckworth, A. L., & Yeager, D. S. (2015). Measurement matters: Assessing personal qualities other than cognitive ability for educational purposes. *Educational Researcher*, 44(4), 237–251. doi:10.3102/0013189X15584327.
- Gao, J., Wang, F., Guo, S., & Hu, F. (2021). Mental health of nursing students amid Coronavirus Disease 2019 pandemic. *Frontiers in Psychology*, 12, 1–12. doi:10.3389/fpsyg.2021.699558.
- Gjersing, L., Caplehorn, J. R., & Clausen, T. (2010). Cross-cultural adaptation of research instruments: Language, setting, time and statistical considerations. *BMC Medical Research Methodology*, 10, 1–10. doi:10.1186/1471-2288-10-13.
- Grande, R., Berdida, D., Maniago, J. D., Ablao, J. N., Llaguno, M., & Manood, E. G. (2021). Predictors of quality of life of nursing internship students from five Saudi universities. *Journal of Taibah University Medical Sciences*, 16(5), 747–754. doi:10.1016/j.jtumed.2021.05.004.
- Grande, R., Berdida, D., Paulino, R., Anies, E. A., Ebol, R., & Molina, R. R. (2022). The multidimensionality of anxiety among nursing students during COVID-19 pandemic: A cross-sectional study. *Nursing Forum*, 57(2), 267–276. doi:10.1111/nuf.12675.
- Han, J.-W., Kang, K. I., & Joung, J. (2020). Enhancing happiness for nursing students through positive psychology activities: A mixed methods study. *International Journal of Environmental Research and Public Health*, 17(24), 1–11. doi:10.3390/ijerph17249274.
- Jardon, C., & Choi, K. R. (2022). COVID-19 Experiences and mental health among graduate and undergraduate nursing students in Los Angeles. *Journal of the American Psychiatric Nurses Association* 1–9. doi:10.1177/10783903211072222 Advance online publication .

- Jasemi, M., Valizadeh, L., Zamanzadeh, V., & Keogh, B. (2017). A concept analysis of holistic care by hybrid model. *Indian Journal of Palliative Care*, 23(1), 71–80. doi:10.4103/0973-1075.197960.
- Kang, S.-W. (2018). Nursing students' grit: A cross-sectional study. *Advances in Social Sciences Research Journal*, 5(10), 127–131. doi:10.14738/assrj.510.5303.
- Mason, H. D. (2018). Grit and academic performance among first-year university students: A brief report. *Journal of Psychology in Africa*, 28(1), 66–68. doi:10.1080/14330237.2017.1409478.
- Matel-Anderson, D. M., & Bekhet, A. K. (2019). Psychometric properties of the positive thinking skills scale among college students. *Archives of Psychiatric Nursing*, 33(1), 65–69. doi:10.1016/j.apnu.2018.10.005.
- McCabe, E. M. (2016). Can grit be nurtured in undergraduate nursing students? *NASN School Nurse*, 31(3), 144–146. doi:10.1177/1942602X16634440.
- McDermott, R. C., Fruh, S. M., Williams, S., Hauff, C., Sittig, S., Wright, T., Riley, B., Swanzy, D., Graves, R. J., & Hall, H. (2021). Characteristics of negative and positive mental health among nursing students in the United States. *Journal of the American Psychiatric Nurses Association*, 27(1), 44–53. doi:10.1177/1078390319865322.
- Moaser, Z. A. (2016). Effectiveness of positive thinking skills training on Hamedan students anxiety and happiness. *Specialty Journal of Psychology and Management*, 2(3), 74–77.
- Molino, A. R., Andersen, K. M., Sawyer, S. B., Doãn, L. N., Rivera, Y. M., James, B. D., Fox, M. P., Murray, E. J., D'Agostino McGowan, L., & Jarrett, B. A. (2021). The expert next door: Interactions with friends and family during the COVID-19 pandemic. *American Journal of Epidemiology*, 191(4), 552–556. doi:10.1093/aje/kwab245.
- Motamed-Jahromi, M., Fereidouni, Z., & Dehghan, A. (2017). Effectiveness of positive thinking training program on nurses' quality of work-life through smartphone applications. *International Scholarly Research Notices*, 2017, 1–6. doi:10.1155/2017/4965816.
- New Jersey State Nurses Association (2022). *The power of positive thinking*. Retrieved from <https://njsna.org/the-power-of-positive-thinking/>.
- Olvera Alvarez, H. A., Provencio-Vasquez, E., Slavich, G. M., Laurent, J. G. C., Browning, M., McKee-Lopez, G., Robbins, L., & Spengler, J. D. (2019). Stress and health in nursing students: The nurse engagement and wellness study. *Nursing Research*, 68(6), 453–463. doi:10.1097/NNR.0000000000000383.
- Polit, D. F., & Beck, C. T. (2018). *Essentials of nursing research: Appraising evidence for nursing practice* (9th ed.). Philadelphia: Wolters Kluwer Health.
- Ramsay, A., Wicking, K., & Yates, K. (2020). In what ways does online teaching create a positive attitude towards research in nursing students studying a first year evidence-based practice undergraduate subject online? *Nurse Education in Practice*, 44, 1–7. doi:10.1016/j.nepr.2020.102744.
- Ratanasiripong, P., Wang, C. D., Ratanasiripong, N., Hanklang, S., Kathalae, D., & Chumchai, P. (2021). Impact of psychosocial factors on academic performance of nursing students in Thailand. *Journal of Health Research*, 36(4), 598–606. doi:10.1108/JHR-07-2020-0242 ahead-of-print (ahead-of-print).
- Schimschal, S. E., Visentin, D., Kornhaber, R., & Cleary, M. (2021). Grit: A concept analysis. *Issues in Mental Health Nursing*, 42(5), 495–505. doi:10.1080/01612840.2020.1814913.
- Sherwood, A. (2021). *What is positive thinking?* Retrieved from <https://www.webmd.com/mental-health/positive-thinking-overview>.
- Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education*, 48, 1273–1296. doi:10.1007/s11165-016-9602-2.
- Terry, D., & Peck, B. (2020). Factors that impact measures of grit among nursing students: A journey emblematic of the Koi Fish. *European Journal of Investigation in Health, Psychology and Education*, 10(2), 564–574. doi:10.3390/ejihpe10020041.
- Wynter, K., Redley, B., Holton, S., Manias, E., McDonall, J., McTier, L., Hutchinson, A. M., Kerr, D., Lowe, G., Phillips, N. N. M., & Rasmussen, B. (2021). Depression, anxiety and stress among Australian nursing and midwifery undergraduate students during the COVID-19 pandemic: A cross-sectional study. *International Journal of Nursing Education Scholarship*, 18(1) 210060. doi:10.1515/ijnes-2021-0060.
- Yang, L., & Wu, D. (2021). Grit and meaning in life of Chinese nurses: The chain mediating effect of social support and hope. *Frontiers in Psychology*, 12, 1–18. doi:10.3389/fpsyg.2021.769707.