



The Relationship Between Grit and Empathy Among Nurses Working in Medical-Surgical wards

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ABSTRACT

Empathy and grit are key constructs associated with the quality of nursing care and professional performance; however, their reciprocal relationship has been less frequently examined in clinical settings. This study aimed to determine the association between grit and empathy among nurses working in medical-surgical wards of teaching hospitals in Khorramabad, Iran. In this descriptive-correlational study, 263 nurses were recruited through census sampling based on inclusion criteria. Data were collected using the Short Grit Scale and the Jefferson Scale of Empathy. Statistical analyses were performed in Stata version 17 using descriptive statistics, Pearson's correlation, and multivariate regression tests. Empathy showed a significant positive correlation with grit ($r = 0.266$, $p < 0.001$). Among the grit dimensions, perseverance of effort ($r = 0.250$, $p < 0.001$) showed a stronger correlation with empathy than consistency of interest ($r = 0.133$, $p = 0.031$). Multivariate regression analysis indicated that grit ($\beta = 0.436$, $p = 0.005$), sex ($\beta = 3.916$, $p = 0.049$), and interest in the nursing profession ($\beta = 4.763$, $p = 0.010$) were significant predictors of empathy. In conclusion, nursing managers are advised to consider strategies that foster intrinsic motivation, such as culturally grounded educational approaches and targeted interventions, to enhance grit and empathy during recruitment and training.

Keywords: Grit; Empathy; Nurses

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Introduction

Empathy, as one of the fundamental pillars of nursing care, is closely intertwined with the process of nursing practice [1]. Healthcare professionals must

understand patients' emotions, attitudes, and experiences to accurately assess patients' needs and provide care tailored to their individual circumstances. This ability requires cultivating and reinforcing empathic skills [2]. Empathy is defined as the capacity to perceive the patient's inner world as if one were in

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the same situation, while maintaining the boundaries between self and other [3]. It is a multidimensional construct encompassing affective, cognitive, and behavioral domains [4]. Affective empathy refers to the ability to recognize and share in the emotions of others; cognitive empathy denotes the capacity to infer and comprehend their emotional experiences; and behavioral or therapeutic empathy involves enhancing the nurse's understanding of the patient's condition through communication, conveying empathic concern, and responding appropriately to the patient's needs [5]. Evidence suggests that empathy not only improves patient-provider interactions, quality of care, patient satisfaction, empowerment, and treatment adherence, but also reduces the risk of misunderstandings, optimizes the use of healthcare resources, and lowers costs [6]. Conversely, a lack of empathy may lead to nurses' unawareness of patients' psychological needs, weaken the nurse-patient relationship, and diminish the quality of care [7].

Despite previous research emphasizing the importance of empathy, its implementation in clinical settings faces considerable challenges. Studies have shown that nearly 70% of healthcare professionals experience difficulty in establishing empathy with their patients [2]. In recent years, empathy among nurses in China and Iran has declined [8]. Empathy is influenced by factors such as interpersonal relationships, self-esteem, self-efficacy, and satisfaction with the profession, with interpersonal relationships playing a particularly prominent role [9]. Evidence also indicates that female students in nursing and medical programs exhibit higher levels of empathy than do their male counterparts.

In comparison, nursing students report lower levels of empathy than students in other medical science disciplines [10]. The workplace setting is another key factor affecting empathy. For instance, psychiatric nurses, due to their frequent encounters with patients suffering from acute mental disorders, aggressive behaviors, or suicide attempts, may experience emotions such as fear, anxiety, concern, and insecurity. These experiences can foster prejudicial attitudes and create distance between nurses and patients, ultimately reducing their willingness to engage in empathetic behaviors [11].

Alongside the importance of empathy in improving the quality of nursing care, grit has emerged as another key concept influencing nurses' professional performance [12]. Nurses work in complex and diverse environments, and achieving long-term goals requires sustained effort and persistence [13]. Duckworth et al. defined grit as an individual's relentless effort and enduring passion for long-term objectives despite setbacks encountered along the way [14]. They specifically argued that individuals with higher levels of grit are less affected by temporary setbacks or short-term goals and are therefore able to make greater use of their abilities [15]. Individuals with

greater grit are also less likely to experience psychological problems such as stress, anxiety, and depression [16]. Grit can protect nurses against occupational burnout, enhance their capacity to persist in the face of challenges, and ultimately improve their job performance [15]. Moreover, grit has been associated with reduced absenteeism, lower risk of turnover, and better management of work-related pressures [17].

Fundamental studies in this area have demonstrated that individuals' grit levels increase with age and educational attainment. Moreover, the cultivation of grit appears to be more pronounced in cultures where this trait is highly valued [18]. Cultural values and beliefs may shape grit; cultures that emphasize grit foster professional motivation and enthusiasm. However, how such a culture can be established in nursing practice settings and its impact on staff persistence require further investigation [19]. Most research on grit has focused on Western populations, while studies in non-Western contexts, such as non-industrialized or low-income societies, are limited [20]. In addition, most grit-related research has been conducted in educational contexts, with relatively little attention paid to clinical environments [21]. Eisenberg et al. found that grit among medical students was positively and significantly correlated with empathy, self-esteem, and activity, while showing significant negative correlations with loneliness, aggression, hostility, and anxiety [22].

Despite the importance of both psychological constructs, the relationship between empathy and grit has been less frequently investigated. It is expected that nurses with higher levels of grit will demonstrate greater motivation and persistence, as well as an enhanced ability to display empathic behaviors in their interactions with patients when confronted with environmental challenges. Moreover, applying the concept of grit in recruitment processes, assigning critical responsibilities, and promoting staff collaboration is effective and may even improve job-search effectiveness among applicants [21]. On the other hand, research has indicated that grit is a cultivable construct, with training strategies focusing on setting specific goals, fostering a growth mindset, and finding purpose in work [17]. Empathy can encourage nurses to sustain their professional efforts by increasing job satisfaction and deepening professional relationships. Therefore, it may be assumed that these two traits operate in a reciprocal and reinforcing cycle, ultimately enhancing the quality of nursing care. In light of these considerations, the present study was designed to examine the relationship between grit and empathy among nurses. The findings of this study may provide a foundation for developing educational and managerial interventions to strengthen empathetic skills and enhance grit among nursing staff, thereby improving the quality of care.

Materials and Methods

Study Design

This descriptive–correlational study was conducted between November 2024 and February 2025.

Participants

The study population comprised all nurses working in the medical–surgical wards of teaching hospitals affiliated with Lorestan University of Medical Sciences in Khorramabad, Iran ($n = 315$).

Sampling

A census sampling method was employed. Of the 315 nurses in the medical–surgical wards, 270 met the inclusion criteria. The inclusion criteria included holding at least a bachelor's degree in nursing, having at least 6 months of clinical experience, and willingness to participate in the study. The exclusion criteria were incomplete or partially completed questionnaires.

Instruments

Demographic Information Form: This form collected data on participants' age, gender, marital status, educational level, work shift, years of clinical experience, type of employment, ward of service, and interest in the nursing profession.

Jefferson Scale of Empathy (JSE-HPS): The JSE-HPS is designed to assess empathy among physicians and other healthcare professionals who interact with patients in clinical settings, as well as students in medicine and related health professions preparing for clinical practice [23]. The scale consists of 20 items covering three dimensions: perspective taking, compassionate care or emotional engagement, and standing in the patient's shoes [24]. Items are rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Items 1, 3, 6, 7, 8, 11, 12, 14, 18, and 19 are reverse-scored. Higher scores indicate greater empathy, with a total range of 20 to 140 [25]. In Iran, Hashemipour and Karami translated the original version into Persian using a forward–backward translation method. Reliability was tested on 30 dental and medical students, and validity was examined on 554 students. The overall Cronbach's alpha coefficient was 0.83, and the test–retest reliability coefficient was 0.82 [26]. In the present study, the reliability of the JSE-HPS was confirmed with a Cronbach's alpha coefficient of 0.84, indicating satisfactory internal consistency.

Short Grit Scale (Grit-S): The Grit-S, developed by Duckworth and Quinn, was used to assess nurses' grit. This questionnaire consists of 12 items and two subscales: consistency of interest and perseverance of effort. Each item is rated on a 5-point Likert scale ranging from 1 (“not at all like me”) to 5 (“very much like me”). Items 1, 2, 3, 4, 5, and 6 are reverse-scored. The total score ranges from 16 to 60, with higher

scores reflecting greater grit [14]. Duckworth et al. reported a Cronbach's alpha coefficient of 0.85 for the scale [27]. In Iran, Najarian and Vahedi reported a Cronbach's alpha of 0.79 for the overall scale, with coefficients of 0.78 for consistency of interest and 0.82 for perseverance of effort [28]. In the present study, the reliability of the Grit-S was confirmed with a Cronbach's alpha coefficient of 0.73, indicating acceptable internal consistency.

Data Collection Procedure

Lorestan University approved this study of Medical Sciences. Trained undergraduate nursing students who served as research assistants distributed the questionnaires in person at the beginning of each work shift to nurses working in medical–surgical wards. Prior to distribution, participants were informed about the study objectives and procedures. A total of 263 valid responses were collected, yielding a response rate of 96.29% (seven nurses were unable to complete the questionnaires).

Statistical Analysis

Descriptive statistics, including mean, standard deviation, frequency, and percentage, were used to summarize the participants' demographic characteristics, empathy, and grit scores. Independent t-tests were applied to examine the relationships between demographic variables and empathy and grit scores. To test the study hypotheses, inferential analyses were conducted using Pearson's correlation coefficient (for normally distributed, linear variables), the intraclass correlation coefficient, and multivariate linear regression. All statistical analyses were performed using Stata version 17, with a significance level set at $p < 0.05$.

Results

A total of 263 nurses participated in this study. Normality of the data was assessed using skewness and kurtosis indices, and all study variables were within the acceptable thresholds of ± 1 .

The demographic characteristics of the participants indicated that the majority were female, held a bachelor's degree in nursing, and were single). More than half of the participants (54.4%) were working in surgical wards. The mean age of the nurses was 32.2 years ($SD = 7.67$; range: 23–55 years), and the mean work experience was 7.78 (7.32) years.

The findings showed that the mean grit scores were not significantly associated with any of the demographic characteristics. Nurses' empathy scores were not significantly related to age, work experience, educational level, marital status, ward type, work shift, and employment status ($p > 0.05$). However, empathy was significantly associated with gender and interest in the nursing profession (Table 1).

The mean and standard deviation of grit and empathy were 40.36(6.62) and 98.19 (15.60), respectively. The score range indicated that both variables were at a relatively favorable level, with greater variability in empathy than in grit. Pearson's correlation analysis revealed a significant positive relationship between grit and empathy ($r = 0.266$, $p < 0.001$).

Furthermore, a significant linear relationship was found between empathy and both grit subscales (consistency of interest and perseverance of effort). The correlation between empathy and perseverance of effort ($r = 0.250$, $p < 0.01$) was more substantial than that between empathy and consistency of interest ($r = 0.133$, $p < 0.05$). These findings suggest that both dimensions of grit are positively and significantly associated with empathy, although perseverance of effort serves as a stronger predictor of empathy among nurses (Table 2).

The results of the multivariate regression analysis demonstrated the relationships between grit and its subscales, and empathy among nurses. As shown, grit was directly and significantly associated with empathy after adjusting for age, gender, employment type, work shift, and interest in the nursing profession. Specifically, for each one-unit increase in grit score, empathy increased by 0.185 ($p < 0.05$). The multivariate regression model further indicated that grit ($\beta = 0.436$, $p = 0.005$), gender ($\beta = 3.916$, $p = 0.049$), and interest in the nursing profession ($\beta = 4.763$, $p = 0.010$) were significant positive predictors of empathy among nurses. Other variables did not have a significant effect on empathy. The coefficient of determination ($R^2=0.163$) indicated that approximately 16.3% of the variance in empathy was explained by the variables included in the model (Table 3).

Table 1. Description and correlation of empathy and grit with demographic characteristics of nurses working in teaching hospitals of Khorramabad

Variable		Sample	Grit		Empathy			
		Frequency N (%)	Mean (SD)	t	p	Mean (SD)	t	P
Gender	Male	79(30)	40.81(6.29)	0.468	0.73	94.96(15.60)	-2.22	0.02
	Female	184(70)	40.16(6.76)			99.58(15.40)		
Education level	bachelor degree	252(95.8)	40.26(6.58)	-1.12	0.26	98.04(15.64)	-0.77	0.44
	Master's degree	11(4.2)	42.55(7.45)			101.73(14.10)		
Marital status	Single	137(52.1)	40.04(6.86)	-0.80	0.42	97.50(16.31)	-0.75	0.45
	Married	126(47.9)	4.70(6.35)			98.95(14.76)		
Working department	Surgery	138(52.4)	40.08(6.78)	-0.71	0.47	97.80(15.94)	-0.43	0.66
	Medicine	125(47.6)	40.66(6.44)			98.63(15.21)		
Type of work shift	Fixed shift	38(14.4)	44.24(6.61)	1.90	0.05	100.39(15.44)	0.94	0.34
	Rotating shift	225(85.6)	40.04(6.58)			97.82(15.60)		
Interest in nursing	Yes	145(55.1)	40.78(6.53)	1.15	0.25	100.70(15.73)	2.93	0.00
	No	118(44.9)	39.84(6.71)			95.11(14(87)		
Employment status	Official	129(49)	40.85 (6.2)	1.19	0.23	99.86 (15.5)	1.7	0.08
	Unofficial	134(51)	39.88 (6.94)			96.58(15.4)		
Length of nursing work (years)	7.78(7.32)			0.04	0.48	7.78(7.32)	0.06	0.27
Age	32.25(7.67)			$r=0.11$	0.06	32.25(7.67)	0.06	0.27 <0.001

Table 2. Mean scores of empathy and grit, and linear correlations between grit and its subscales with empathy among nurses

Variable	Empathy [$r(p\text{-value})$]	SD (Mean)
Empathy	1	98.19 (15.57)
Grit	$r=0.266$ (0.001)	40.35 (6.61)
Consistency of interest and	$r=0.133$ (0.03)	19.35(4.39)
Perseverance of effort.	$r=0.25$ (0.001)	21(4.69)

Table 3. Results of multivariate linear regression analysis of the association between grit and empathy among nurses in teaching hospitals of Khorramabad

Model	Unstandardized coefficient		Standardized coefficient		t	-edsaw 0020 +P
	β	Standard Error	β			
Constant	57.28	9.55			5.99	0.000
Grit	0.436	0.155	0.185		2.81	0.005
Age	-0.091	0.165	-0.045		-5.49	0.583
Gender	3.916	1.981	0.115		1.977	0.049
Residence Status	-9.4076	3.366	-0.164		-2.795	0.006
Employment Status	-0.431	0.621	-0.054		-0.695	0.488
Shift Type	1.325	2.886	0.030		0.459	0.646
Interest in Nursing	-4.763	1.831	-0.152		-2.599	0.010

a. Dependent Variable:

Discussion

This study aimed to examine the relationship between grit and empathy among nurses working in medical–surgical wards. Empathy was more strongly correlated with the perseverance dimension of grit than with the consistency dimension of interest. This finding has important implications for efforts to enhance retention and satisfaction in the nursing profession.

The mean grit score of nurses in this study was in the moderate-to-high range, consistent with the findings of Yang et al. [29] but lower than that reported among newly graduated Korean nurses [30]. This discrepancy likely reflects demographic differences, as Korean nurses were younger and had less work experience. These findings suggest that professional experience and increasing age reinforce grit development. Similarly, the level of empathy among nurses in this study was moderate to high, consistent with the findings of Ghaedi et al., who examined nurses working in intensive care, emergency, and psychiatric wards [11].

The present study further demonstrated that empathy was positively and significantly correlated with both dimensions of grit: perseverance of effort and consistency of interest. This result is consistent with the findings of Nam and Park [31] and Eisenberg et al. [22]. This consistency highlights the importance of incorporating empathy training into professional education programs. Higher levels of grit appear to enhance nurses' resilience to occupational stressors and strengthen their capacity for empathy.

In this study, grit emerged as a significant predictor of empathy. Nurses with higher grit levels demonstrated a greater ability to recognize patients' emotional needs and provide empathetic, patient-centered care. These characteristics enhance the overall quality of the nursing practice. In addition to grit, gender and interest in the nursing profession were

identified as significant factors influencing empathy. In contrast, variables such as age, employment status, and work shift did not significantly affect empathy.

The findings regarding the relationship between demographic characteristics and empathy among nurses indicated that age and sex were significantly associated with empathy. Older female nurses demonstrated greater empathy than younger male nurses. This result is inconsistent with the findings of Ghaedi et al. [11] and Dogan Boyacioglu [31]. Whether empathy is truly influenced by sex remains a matter of debate [32]. However, the observed sex differences in self-reported empathy may be attributed to women's greater tendency to provide empathic responses, rather than reflecting actual differences in empathic capacity between men and women [33].

This study also showed that educational level and ward type had no significant effect on nurses' empathy, consistent with the findings of Ghaedi et al. [11]. Empathy, as a complex psychological construct, may be shaped more through practical interactions in clinical settings and direct experiences with patients than through advanced theoretical education. Similarly, no significant differences in empathy were observed with respect to marital status or work shift, aligning with the findings of Dogan Boyacioglu [31].

The employment status of nurses did not influence their ability to express empathy in patient interactions. This result is consistent with the findings of Onuoha and Edimodia [35]. In the teaching hospitals of Khorramabad, the similarity of training programs and working conditions between permanent and non-permanent nurses may explain this lack of difference.

Finally, nurses who expressed greater interest in their profession demonstrated higher levels of empathy. This finding is consistent with that of Luth-Jones and Kant [35]. Interest in nursing may serve as an intrinsic motivator, fostering the development of communication skills and the expression of effective empathy.

The results of this study indicated that gender had no significant effect on nurses' grit, consistent with the findings of Gorupeik et al. [36]. Similarly, Ramzan et al. [37] assessed non-cognitive skills such as grit, empathy, and communication among medical students in Lahore, Pakistan, and found that students demonstrated moderate levels of these skills with no significant gender differences. Previous studies have identified several predictors of grit, such as older age, female gender, and higher academic achievement [37]. The absence of gender differences in the present study may reflect the influence of similar working conditions that influence nurses regardless of gender.

The findings also indicated that educational level was not significantly associated with nurses' grit. Likewise, Terry and Peck reported that grit levels among students with acceptable academic and clinical performance were significantly lower than those with higher levels of performance. However, no significant differences were observed between the standard and flexible students. The authors concluded that grit is an attribute independent of educational level, yet it plays a critical role in both academic and clinical performance. As a non-cognitive trait, grit exerts a consistent influence across all years of study, likely because it is rooted in intrinsic qualities such as perseverance and passion, rather than progression through academic programs [38].

Nevertheless, Gorupić et al. presented a different perspective, showing that nurses with advanced academic qualifications—such as specialized postgraduate or professional bachelor's degrees—demonstrated higher levels of grit than those with standard professional bachelor's degrees in nursing [36]. This difference may reflect these nurses' greater ability to sustain effort and maintain interest in pursuing long-term professional goals when facing challenges, which could stem from their more specialized training. The discrepancy between the findings of the present study and those of Gorupić et al. may be explained by contextual differences, including variations in educational structures or working conditions in Croatia compared to Khorramabad.

In addition, the results of this study indicated that demographic characteristics such as marital status and interest in nursing, and occupational factors such as employment status, work shift, and ward type, did not significantly affect nurses' grit. To the best of our knowledge, no study in Iran or internationally has specifically examined the relationship between these variables and nurses' grit. This finding highlights an important research gap, as grit—a key psychological trait—may play a crucial role in sustaining nurses' professional persistence in the stressful environment of teaching hospitals. The results also indicated that

age and work experience were not significantly associated with grit. This finding is consistent with that of Gorupeik et al., who reported no significant differences in grit based on these variables [36]. Duckworth et al. further noted that although precise strategies for cultivating grit have not yet been identified, fundamental research suggests that grit is a flexible trait that tends to increase with age and higher levels of education [14].

Despite its strengths, this study faced several limitations that may affect the generalizability and interpretation of the findings. First, its cross-sectional design limited the ability to infer causal relationships between variables, making it impossible to determine definitively which factors are causes and which are effects. Second, reliance on self-report questionnaires may have introduced response bias due to inaccuracies in self-assessment. Finally, the multivariate regression model explained only a small proportion of the variance in empathy, suggesting that other psychological and organizational factors—such as hospital management policies or the level of organizational and social support—may also play important roles but were not examined in this study. Future research is recommended to address these factors.

Conclusion

The findings of the present study demonstrated that grit plays a significant positive role in predicting nurses' empathy. Nurses with greater perseverance of effort and consistency of interest demonstrated greater ability to understand patients' needs and display empathetic behaviors. In addition, female nurses and those with a stronger interest in their profession reported higher levels of empathy. In contrast, age, employment status, and work shift were not significantly associated with empathy.

These results underscore the importance of designing interventions to enhance personality traits such as grit and foster intrinsic motivation, including interest in nursing, to improve the quality of patient-centered care. Future educational programs and skill-based workshops should be developed to cultivate grit and perseverance among nurses. Furthermore, longitudinal studies should examine the causal relationships between grit, empathy, and professional outcomes in nursing. The use of qualitative approaches is also recommended to gain deeper insights into nurses' experiences of empathy and identify factors that strengthen or weaken it, thereby enabling the design of more evidence-based interventions in the future.

Authorship contribution statement

All authors have reviewed and approved the final version of the manuscript. SB conceived and designed the study. EE, RH, RM, FF and SB conducted the study and collected the data, performed the data analysis and interpretation.

Ethical Consideration

This study was conducted in accordance with the principles of the Declaration of Helsinki. It was approved by the Ethics Committee of Lorestan University of Medical Sciences (IR.LUMS.RCE.1403.321). Prior to completing the questionnaires, participants were informed about the study objectives, its main content, and the potential uses of the data. Written informed consent was obtained from all participants. Upon completion of the questionnaires, participants received a small token of appreciation.

Declaration of Competing Interest

The authors have no conflict of interests related to this article.

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Data Availability

The datasets supporting the findings of this study are available from the corresponding author upon reasonable request.

Declaration of Generative AI

The authors declare that they have not used any type of generative artificial intelligence for the writing of this manuscript, nor for the creation of tables, or their corresponding captions.

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