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Relationship between Grit and Academic Performance among Medical Students

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Abstract

Grit is a psychological notion that highlights personal tenacity and dedication to long-term goals. This study examines the relationship between the level of grit and academic performance among medical students. A descriptive-correlational study was conducted involving 262 participants. Descriptive and inferential statistics were used to analyze the gathered data. Results showed that there was no significant difference based on the demographic profiles such as age, sex, or family income, nationality, year level, and student status. The participants were shown to have high levels of grit. Also, a significant relationship was found between grit and academic achievement, as determined by the general weighted average (GWA). The findings underscore the importance of fostering resilience and long-term commitment in medical training. Future research could explore interventions to enhance grit and its impact on student outcomes across diverse educational settings.

Keywords: academic performance, grit, medical students

Introduction

Grit is a psychological concept that emphasizes individual perseverance and commitment to long-term objectives (Duckworth et al., 2007; Giordano, 2019; Eskreis-Winkler et al., 2014; Duckworth & Quinn, 2019). Grit levels can thus represent applicants' level of dedication to reaching long-term objectives, conquering challenges, handling failure well, and staying motivated even in the absence of external incentives (Duckworth et al., 2007; Duckworth & Quinn, 2019; Miller-Matero, 2018). The concept has been recently introduced in the field of research by Angela Duckworth, who described it as the combination of "passion and perseverance for one's goals and entails working strenuously toward challenges, maintaining effort and interest over the years despite failure, adversity, and plateaus in progress" (Duckworth et al., 2007). Moreover, the introduction of this concept argued that high-achieving individuals are not necessarily the most talented or the ones with the highest intelligence quotient (IQ) levels; instead, they are the ones who can push through setbacks and sustain their interest despite discomfort or unpleasant moments to attain goals (Stokas, 2015). Duckworth et al. (2007) also posited that gritty individuals are not only passionate and focused on their long-term goals, but they are also capable of pursuing mundane tasks unlikely to provide short-term gratification in pursuit of their long-term goals (Barker, 2017).

The concept of grit is unique as unlike any other predictors of success (e.g., IQ levels or social intelligence), it is something one can develop as a response to trying and failing. It is further argued that how much or how well one can learn depends on the individual's persistence. Moreover, many posit that the road to success is more of hard work than sheer talent. And when people realize that effort matters, they tend to work harder to overcome failures.

Since it has been argued that grit is a trait of high-achieving individuals, it is not surprising that this discourse is compelling to the field of medical education. Although medical schools take great care in selecting their applicants for admission by identifying intelligent, philanthropic individuals with a solid commitment to their goals of becoming a physician, the process of completing medical school is a rigorous one, even for the best-qualified candidate (Fillmore, 2015). One of the success indicators used by medical schools in the Philippines is the admission of students from various cultural backgrounds and countries. Such admission procedure needs to be tough because the entire medical education is a test of perseverance, focus, resilience, and industry. Therefore, the path to being a professional medical practitioner involves a myriad of challenges that would test one's limits. However, medical students are always under pressure as the very environment of medical schools is complicated, with complex integration of principles and disciplines.

In light of this, the objective of this study is to determine the level of grit among medical students and to explore various situations, challenges, and circumstances and how these relate to the students' development of grit.

Methods

Design and Participants

The study utilized descriptive correlational research to determine the relationship between the medical students' level of grit and their academic performance.

Setting and Participants

The study was conducted in a selected College of Medicine in the Philippines. A total of 468 students were enrolled in the School of Medicine at the time of the data collection. Students were stratified by year level and selected using the formula for educational research (Sana et al. 2010). A total of 262 students were selected as the sample population. From the total sample population, 96 first-year students, 73 second-year students, 42 third-year students, and 51 fourth-year students were given the questionnaire. A systematic random sampling against the class list was done for each year level until the desired number of students was reached.

Instrumentation

A three-part survey questionnaire was administered to the participants. Part 1 involves items about the profile of the participants. Part 2 included the items in the Grit Scale (Duckworth & Quinn, 2009). Part 3 involves open-ended questions assessing the students' various situations, challenges, and circumstances.

Personal Profile. The first part of the questionnaire includes items such as age, family income, nationality, year level, student classification, and academic performance of the students (based on their current general weighted average (GWA)).

Grit Scale (Duckworth & Quinn, 2009). It is a self-report survey questionnaire designed to measure an individual's perseverance and passion for long-term goals. It consisted of items that assess an individual's ability to stick unswervingly to a single goal over a period of years and directional consistency. Higher scores indicated a higher level of grit, while lower scores meant a lower level of grit. It consists of two subscales, namely, consistency of interest and perseverance of effort. The questionnaire was considered validated by Datu et al. (2015) and has a Cronbach alpha score of 0.87.

Data Collection Procedure

Before the study was conducted, permission was secured from the Dean of the School of Medicine. Afterwards, actual data collection was done. The distribution and collection of the questionnaire were administered by a research assistant, and this was done at the School of Medicine, after class, or during the students' free time. For the fourth-year students, this was done at the affiliated Medical Center, after a Department Conference, or during the students' free time. The period of distribution and collection of the questionnaires was between March to April 2018.

After identifying the final list of student participants, a letter was written to the College Secretary requesting the GWA grades of said participants. After obtaining the GWA grades, the student's name and personally identifiable information were removed from the data sets.

Data Analysis

The data collected were compiled, entered, and coded into the Statistical Package for Social Sciences (IBM SPSS Statistics 25.0 ver. 2015) software program. Descriptive and inferential statistics for quantitative data.

Ethical Considerations

Before implementing any data gathering procedure, approval must be obtained from the ManilaMed Ethics Review Committee (MMERC), the affiliate hospital's Ethics Review Board. Approval was obtained from the School of Medicine's Ethical Review Committee. Survey questionnaires were then distributed to the selected medical students. Consent to participate was attached to the survey questionnaire, which included information on the current study, its nature, and objectives, as well as a request for permission to access their grades. The students were informed that participation was voluntary.

Results

Table 1 shows the profile of the participants. The mean age of the participants was 24.32 (± 2.43), and they were primarily female (52.3%) and had family income of P50,00 and above (54.2%). Most of them are Indians (43.5%), first-year (36.5%), and are not transferees (67.9%). The mean GWA of the participants was 2.49 (± 2.43).

Table 1. Profile of the Participants

Demographics	Frequency (f)	Percentage (%)
Age (Mean, SD)	24.32	($\pm$ 2.43)
Below 21 years old	27	10.3
21-25 years old	186	70.9
26-30 years old	41	15.8
31 years old and above	8	3.0
Sex		
Male	125	47.7
Female	137	52.3
Family Income		
Below Php 10,000	9	3.40
Php 10,001 – 20,000	20	7.60
Php 20,001 – 30,000	32	12.3
Php 30,001 – 50,000	59	22.5
Php 50,000 and above	142	54.2
Nationality		
Filipino	105	40.0
Indians	114	43.5
Nepalese	18	6.90
Maldivians	10	3.80
Others	15	5.80
Year Level		
First Year	96	36.5
Second Year	73	27.8
Third Year	42	16.3
Fourth Year	51	19.4
Student Status		
Transferee	84	32.1
Not Transferee	178	67.9
GWA (Mean, SD)	2.49	($\pm$ 0.52)

Table 2 shows the level of grittiness among the participants. The participants are most likely gritty as shown by their overall mean score of grittiness of ($M=3.85$; $SD\pm 0.29$). Similarly, the participants are most likely gritty on the subscale “consistency of interest” and “perseverance of effort,” having a mean score of $M=3.43$ ($SD\pm 0.29$) and $M=3.97$ ($SD\pm 0.23$), respectively.

Table 2. Level of Grittiness among the participants

	Mean (SD)	Interpretation
New ideas and projects does not distract me from previous ones.	3.24 ($\pm$ 0.23)	18.1
I have been obsessed with a certain idea or project and strives to maintain interest.	3.38 ($\pm$ 0.43)	33.3
I often set a goal but later choose to pursue a different one.	3.58 ($\pm$ 0.18)	35.5
I have difficulty maintaining my focus on projects that take more than a few months to complete.	3.54 ($\pm$ 0.23)	21
Consistency of Interest	3.43 ($\pm$ 0.13)	Most likely gritty
Seatbacks don't discourage me.	3.27 ($\pm$ 0.18)	
I am a hard worker.	3.97 ($\pm$ 0.12)	
I finish whatever I begin.	4.22 ($\pm$ 0.53)	
Perseverance of Effort	3.97 ($\pm$ 0.23)	Most likely gritty
Overall Grittiness	3.85 ($\pm$ 0.29)	Most likely gritty
Reference scale: 1.00-1.49 = no at all gritty; 1.50–2.49 = not much gritty; 2.50 – 3.49 = somewhat gritty; 3.50 – 4.49 = most likely gritty; 4.50 – 5.00 = extremely gritty		

The difference on the level of grittiness of medical students based on their profile is shown on Table 3. It was found that there was no significant difference based on their age, sex, family income, nationality, year level, and student classification.

Table 3. Differences on the level of grittiness of medical students based on their profile

	F value	p value
Age	0.536	0.658
Sex	0.903	0.133
Family Income	1.792	0.131
Nationality	1.642	0.138
Year Level	0.790	0.500
Student Classification	1.770	0.732

*Significant at 0.05 level

Table 4 shows the relationship between grittiness and academic performance among the participants. A Pearson's r correlation shows a significant relationship between grittiness and academic performance with an r -value of 0.8 and p -value of .004.

Table 4. Relationship of Grittiness on Academic Performance among the participants

	r value	p value
Grittiness and Academic Performance	0.8	*0.004

*Significant at 0.05 level

Discussion

Grit is the craving and determination of an individual for long-term and meaningful goals. It is the ability to continue in something one feels passionate about and endure even when faced with challenges and obstacles (De Vera et al., 2015). The kind of passion or grit is beyond intense emotions or infatuation. It gives someone a sense of direction with a commitment to accomplish it. If an individual possesses grit, an individual can stay committed to a task that may be difficult or boring (Stokas, 2015).

The demographics of medical students reflect their capacity, possibility, or inclination to achieve the highest level of grit. As seen in the results section, most medical students are in their early adulthood (most are 21-25 years old) and females with familial income of Php50,000 and above. Most are Filipinos and are in their first year of education. Few are transferees, and their GWA is considered satisfactory. The study also found that the participants have a high level of grit, while other studies have revealed an average level of grit among medical students (Cortez et al., 2019; Alzerwi, 2020).

Grit has been studied across different ages, ranging from young students until late adulthood. The findings of the study do not support the fact that by increasing age and educational levels from grade school to mature adults, grit scores repeatedly predict better outcomes for individuals participating in activities requiring consistency of effort and perseverance (Shanafelt & Noseworthy, 2017). In each age range, grittier individuals outperformed their less gritty peers and were willing to work harder and longer than their less gritty peers to achieve successful outcomes. It was also proposed that individuals' grit increases over the lifespan since younger individuals tend to have lower overall grit than older persons (Duckworth et al., 2007). These students also were grittier than students with a bachelor's degree, although not to a significant level (Duckworth et al., 2007). A study also mentioned that female students have more grit than their male counterparts (Halliday et al., 2016). However, it is difficult to draw conclusions without the benefit of a longitudinal study because generational differences or other factors could also account for these differences (Salles et al., 2014). Previous

studies focused on the impact of family background (including cultural and social capital) on educational outcomes, where students with high levels of family resources obtain better results (Roshchina, 2010; Tovar-Garcia, 2013). However, the findings of the study said otherwise.

As per year level, a study mentioned that student course engagement did not significantly differ with their grit, a finding similar to the current study (Robinson, 2015). However, another study revealed that students with higher educational year levels are more likely to manifest higher grit because of their capacity to demonstrate participation/integration engagement in different courses in a degree (Li et al., 2018). Students in the advanced levels of a degree program were more likely to manifest grit than those in the lower years because of increased participation and engagement, class familiarity, exposure, and experience (Komarraju et al., 2013). However, different authors mentioned that the findings should be interpreted with caution because there is no strong statistical evidence of such an assumption (Shechtman et al., 2013). The non-significance of the academic year is further supported when Lerner (2013) discovered that there was no statistical significance between grit levels of juniors and seniors, which were slightly higher than that of the freshmen.

Each study of grit mentioned previously provided basic demographic information of participants, but researchers offered no further analyses. This inference supports the non-significance of demographic variables levels to grit. Regardless of age, educational level, sex, income, nationality or type of student, prediction of success outcomes is more likely with grittier individuals (Duckworth et al., 2007). Strayhorn (2013), however, states that specific races, especially those from the minority, manifest higher grit. However, the researcher found no other analyses in the literature to support possible relationships between grit and gender, race or ethnicity, and other demographic factors mentioned in the study.

Despite the inconsistencies in the impact of the student profile on the level of grit, the literature universally agrees that students' grit is predicted by their academic performance. Duckworth et al. (2007) reported that grittier students consistently reported higher GWAs. Classroom performance scores were also strongly related to GWA. Therefore, when students' classroom performance scores are higher, student GWA scores are also expected to be higher, and grit is also higher. Similarly, Strayhorn (2013) reported that gritty students earned significantly higher GWAs in college than their less gritty peers achieved. Grit was valuable as a predictive measure of college success for students. Another study that highlights the relationship between GWA and grit is similar to the study of Kena et al. (2015). The GWA seemed to emerge as the most important demographic variable associated with grit and factors of engagement. It was reported that students who manifested better performance on tests, being confident that they can learn and do well in class and get good grades, would have associated increased level of grit (Galla et al., 2014), although it makes logical sense that students with more engagement skills, such as taking notes in class, studying regularly, and keeping current with reading assignments, might have associated higher GWA; hence, a reflection of grit.

This is the first study to report grit scores and other related variables among Philippine medical students. The results of this study will help medical colleges

around the country become more aware of this crucial issue, and they might serve as a springboard for a national study.

Conclusion

Medical students manifested a high level of grit. Irrespective of their profile characteristics, the medical students consistently manifest a high level of grit. Better academic performance is reflected through their GWA, which has a strong positive relationship with grit. More so, those who acquire higher academic performance will most likely have a higher level of grit.

Future studies are encouraged to explore other variables contributing to grit, such as engagement, empowerment, and motivation. Further research can also focus on interventions to improve grit and its evaluation. A more in-depth qualitative study on the grit experiences and quantitative studies that can predict the learning outcomes of the students are also highly recommended

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