

Connectedness to Nature, Grit and Depression Among Selected Filipino Adolescents



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ABSTRACT: The study determined the relationship between connectedness to nature, grit, and depression level among selected Filipino adolescents. There were 116 respondents, with an average age of 19.6 years, who accomplished a self-administered questionnaire. The findings show that the average level of connectedness to nature was 50.99 with majority of the scores in the average range. Around two-thirds had an average grit level. Less than three-fourths of the respondents had an average depression level. Connectedness to nature had a weak positive relationship with grit levels and a weak negative relationship with depression levels. Grit levels had a weak negative relationship with depression levels. These relationships were significant. Adolescent connectedness to nature and grit should be enhanced in various settings as they are related to positive individual states. Further studies can consider larger samples of adolescents from various contexts and how the mentioned variables may facilitate better well-being in the youth.

KEYWORDS: connectedness to nature, grit, depression, adolescence

INTRODUCTION

Valuing nature and one's relationship with nature are imperative due to a host of existing environmental challenges being experienced around the globe (Kelly, 2014). A focus on connectedness to nature emerged and how to establish and enhance it in individuals. Capaldi et al. (2014) referred to connectedness to nature as an individual's personal sense of his/her relationship to the natural world. This includes one's sense of being part of nature and nature as part of the self. Pritchard et al. (2019) pointed to connectedness to nature as a stable individual characteristic with cognitive, affective, and experiential dimensions. Cervinka et al. (2012) emphasized that this connectedness to nature is significant for both human and environmental states of well-being.

Connectedness to nature is related to pro-environmental behaviors and pro-nature behaviors (Pereira and Forster, 2015; Richardson et al., 2016) Further, connectedness to nature is associated with a multitude of benefits to human development such as increased attentional capacity (Mayer et al., 2009), reflection and meaningfulness of life (Cervinka et al., 2012; Slezackova and Doubkova, 2013), happiness and positive affect (White et al., 2017; Nisbet and Zelenski, 2014; Capaldi et al., 2014; Kumar et al., 2014), life satisfaction (Capaldi et al., 2014), prosocial orientation (Passmore and Holder, 2017), and psychological well-being (Howell et al., 2013; Windhorst and Williams, 2015; Pritchard et al., 2019).

Grit is a non-cognitive skill and a personality trait which manifests consistency in interest and long-term persistence in pursuing a goal despite failures and challenges (Duckworth and Winkler, 2013). It has emerged as an area of research since the study of Duckworth et al. (2007) was published. In that study, Duckworth et al. found that much as intelligence is highly associated with achievement, grit also predicts success in terms of grade point average, educational attainment, and completion of the rigorous West Point cadet summer training. Grit was also highly correlated with the Big Five personality trait of conscientiousness which can be described as thoroughness, being organized, goal-directed, reliable, industrious, and self-controlled. Its main difference with conscientiousness focuses on grit's long-term persistence in relation to consistent goals or interests even without feedback. Other studies on grit have focused on its relationship with academic success, athletic success, metacognition, leadership behavior, retention (in work, school and marriage), happiness, life satisfaction, negative life events, and suicidality (Crede, Tynan, and Harms, 2017).

There are no studies yet on connectedness to nature and grit. The most related are studies done in relation to conscientiousness. Previous studies have shown that connectedness to nature is positively correlated with conscientiousness (Tam, 2013; Zhang et al., 2014; Di Fabio and Bucci, 2016). Recently, Di Fabio and Rosen (2019) confirmed this association among

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university students. They explained that characteristics of conscientiousness such as being organized, careful, self-disciplined, achievement-oriented, and diligent are involved in expressing attention and care toward nature.

Among the Filipino youth, it has been observed that mental illnesses, particularly depression, has increased in the recent years (Tomacruz, 2018). The increase has been attributed to social media and technology usage (Tomacruz, 2018; Maglunog and Dy, 2019), unhealthy lifestyles such as frequent smoking and drinking, dissatisfaction with financial status, disconnectedness from parents and peers (Lee et al., 2013), and detachment from the natural world (Windhorst and Williams, 2015). In their study, Zelenski and Nisbet (2014), found that nature relatedness or connectedness brought about “happiness benefits” and was associated to other measures of well-being related to interpersonal qualities. Berman et al. (2012) stated that for individuals with Major Depressive Disorder (MDD), walking for 50 minutes in a natural setting increased their positive affect. More recently, Bierski (2016) found that people with mental health problems are helped to recover by visiting outdoor places to become attuned to the environment and one’s relationship to it. This intervention is known as “Green therapy” or “Ecotherapy” (Bushak, 2013). Being in nature has a role in establishing and maintaining positive mental health.

Some studies have been done regarding grit and positive and negative emotional states. Singh and Jha (2008) found that, among university students, grit, positive affect, happiness, and life satisfaction were positively correlated. Grit accounted for 7% of the total variance for happiness. Life satisfaction and happiness levels may change over time and grit could help in increasing this through goal setting and achievement, close relationships, pleasurable physical activities, and flow activities. Pennings et al. (2015) found that, at higher grit levels, the relationship between hopelessness and suicidal thoughts decreased in strength. Also, the relationship between hopelessness and plans for suicide became negative. Similarly, Blalock et al. (2015) found with that high grit levels, the relationship between negative life events and suicidal ideation was weak. These results point to grit as a possible protective and resilience factor against suicidal ideation and attempts.

Thus, the present study focuses on determining the relationships among levels of connectedness to nature, grit, and depression among Filipino adolescents studying in the university. Scopelleti et al. (2016) pointed out that studies on connectedness to nature has been confined to Europe, North America, and Australia and that investigations in other countries need to be done. Further, only one study on grit as related to academic performance in Filipino university students was found (Garcia et al., 2015). This study extends the literature by looking into connectedness to nature and grit, which are considered as psychological strengths, their relationship to each other, and their relationship with depression. The study aimed to specifically answer the following questions:

1. To determine connectedness to nature levels of the respondents
2. To determine the grit levels of the respondents
3. To determine the depression level of the respondents
4. To determine the relationships among these variables

METHODOLOGY

This is a quantitative study using the cross-sectional research design to gather data through a survey questionnaire at one time period from the university students. The study locale was an autonomous unit of the national university in Los Banos, Laguna, a town located south of the national capital region.

The respondents were university students in their freshmen to senior year levels from three sections of a large General Education class. A complete enumeration of the respondents was done. There were 122 respondents who accomplished the questionnaire out of a total of 194 enrolled students for a 62.9% response rate. However, due to non-accomplishment of some items or scales in the questionnaire, 6 students were not included, for a total of 116 respondents.

The research instrument was a questionnaire with four parts. The first part focused on the socio-demographic characteristics of the respondents followed by the Connectedness to Nature Scale of Mayer and Frantz (2004). The Connectedness to Nature Scale measures how emotionally connected a person is to the natural world. It is composed of 14 items rated on a Likert scale from 1 (strongly disagree) to 5 (strongly agree). The highest possible score is 70 and higher scores mean a higher connection to nature. The scale’s reliability is high at 0.82. The third part is the Center for Epidemiological Studies-Depression (CES-D) Scale (Radloff, 1977) to determine the depression level. It is a 20-item self-administered questionnaire where respondents were asked to rate how often they experienced symptoms associated with depression over the past week. Response options range from 0 to 3 for each item (0= Rarely/None of the time, 1= Some/little of the time, 2= Occasionally/Moderate amount of time, 3= All the time). The highest possible score is 60 and high scores indicated greater depressive symptoms. The CES-D’s reliability ranges from 0.85-0.90. The last part is the Grit Scale of Duckworth et al. (2007), a 12-item self-administered questionnaire rated on a 5-point Likert scale to measure perseverance and consistency of interest in goals. The highest possible score, after averaging the item scores, is 5 (extremely gritty). The reliability of the scale ranges from 0.79-0.85.

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The permission of the professors to conduct the study in the large classes were asked for and when they approved, the informed consent forms were sent to the respondents. The questionnaires were, thereafter, administered to the willing respondents immediately after the class lecture. The questionnaire took approximately 15-20 minutes to finish. The accomplished questionnaires were given to the professor or to the researchers directly.

The data were encoded in Microsoft Excel to readily get the descriptive statistics (means, frequencies, and percentages) of the variables. The Spearman Correlation Coefficient was used to determine the relationships among the levels of connectedness to nature, depression, and grit.

RESULTS AND DISCUSSION

Socio-demographic Characteristics of the Respondents

There was a total of 116 respondents, 60.34% were females while 39.66% were males (Table 1). The average age of the respondents was 19.6 years with nearly half in their junior year. More than three-fourths were living with their parents while studying. Majority reported that their parents' marriage was intact.

Table 1. Sociodemographic characteristics of the respondents

Characteristics Sex	f	% (N=116)
Male	46	39.66
Female	70	60.34
Age		
18	8	6.89
19	50	43.10
20	40	34.48
21	13	11.21
22 up	5	4.31
Academic level		
1st	3	2.59
2nd	20	17.24
3rd	52	44.83
4th	41	35.34
Living with parents		
Yes	90	77.59
No (dorm/apartment)	26	22.41
Parent's marriage intact		
Yes	101	87.07
No	15	12.93

Level of Connectedness to Nature of the Respondents

The average level of the connectedness to nature of the respondents is 50.99 (s.d.=5.97). Majority of the respondents' scores were in the average range (Table 2). The statements with the average highest levels of agreement were the following: Statement 3- I recognize and appreciate the intelligence of other living organisms (4.38); Statement 8 - I have a deep understanding of how my actions affect the natural world (4.07); and Statement 2- I think of the natural world as a community to which I belong (3.87). The agreement levels suggest that the adolescents respect other living things, are aware of the consequences of their behaviors, and have a sense of belongingness to the natural world. Their lowest level of agreement was with Statement 12-When I think of my place on Earth, I consider myself to be a top member of a hierarchy that exists in nature (2.99). This validates the above-mentioned results in that the respondents generally, know their sense of place within the natural world.

Table 2. Distribution of scores for level of connectedness to nature of the respondents

Scores	f	% (N=116)
Low (0-44)	18	15.52
Average (45-57)	83	71.55
High (58-70)	15	12.93

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Grit Levels of the Respondents

The average of the grit level of the respondents is 3.06 (s.d.=0.52). Nearly two-thirds of the respondents' scores were in the average range or "somewhat gritty" level, meaning that they have an average passion and perseverance for long term goals but can be discouraged by setbacks (Table 3). The items which showed the average highest agreement that these described the respondents as such were Statement 6 - I am a hard worker (3.59); Statement 1- I have overcome setbacks to conquer an important challenge (3.55); and Statements 9- I finish whatever I begin and 12- I am diligent (3.41). All these statements are in the perseverance of effort subscale which reflects the respondents' ability to sustain their efforts in the face of difficulties and challenges in order to achieve their goal.

Table 3. Distribution of scores for grit level of the respondents

Scores	f	% (N=116)
Low (1-2.51)	19	16.38
Average (2.52-3.55)	75	64.66
High (3.56-5.0)	22	18.97

Depression Levels of the Respondents

The average of the depression level of the respondents is 23.45 (s.d.=10.67). Majority of the respondents' scores were in the average range (Table 4). The items with the highest frequency of experiencing the symptoms were for Statement 4- I felt I was just as good as other people (1.78); Statement 7 - I felt that everything I did was an effort (1.66); and Statement 5- I had trouble keeping my mind on what I was doing (1.49). The first statement shows positive affect some of the time or occasionally. The last two items manifest somatic or retarded activity some of the time or occasionally. Generally, the average of the scores per item shows that the respondents felt these symptoms some or a little of the time only (one-two days) in the past week.

Table 4. Distribution of scores for depression level of the respondents

Scores	f	% (N=116)
Low (0-11)	13	11.21
Average (12-35)	84	72.41
High (36-60)	19	16.38

The Relationships among the Levels of Connectedness to Nature, Grit and Depression of the Respondents

Connectedness to Nature and Grit

The connectedness to nature and grit levels have a weak and positive relationship (Table 5). The correlation produced a p-value of 0.006 ($p < 0.05$) which is significant. Thus, as connectedness to nature increases, grit levels also increase.

There were no studies found relating connectedness to nature and grit per se but there have been studies on connectedness to nature and conscientiousness, which is part of the Big Five personality traits. Both conscientiousness and grit are in the domain of self-regulation and grit has been pointed out as a lower-level trait that is in the domain of conscientiousness (Duckworth et al., 2007). Persistence is a major component of grit and it has been identified as an important element of conscientiousness (Duckworth et al., 2007). The difference between conscientiousness and grit lie in two areas: grit focuses more on long-term persistence in achieving consistent goals even without feedback (Duckworth et al., 2007) and grit is more significant for goals where there are considerable options for the individual (Ivcevic and Brackett, 2014).

Connectedness to nature, like conscientiousness and grit, is an individual characteristic or trait (Cervinka et al. 2012). Some studies have looked into the relationship of the Big Five personality traits with connectedness to nature and similar constructs like nature relatedness and environmental engagement. Nisbet et al. (2009) found that nature relatedness was significantly related to conscientiousness. Milfont and Sibley (2012) found that environmental engagement such as protection of the environment, conservation of resources, and value for the environment was also related to conscientiousness. Further, Tam (2013), Di Fabio and Bucci (2016), Zhang et al. (2014), and Di Fabio and Rosen (2019) found that connectedness to nature was positively related to conscientiousness. These studies show that specific personality traits can predict connectedness to nature.

An individual who is emotionally connected to nature has been described as likely to be adventurous, outgoing, sociable, laid back, relaxed, and more environment-friendly (Nisbet et al., 2009). A conscientious individual is careful, organized, responsible, and future-oriented (Milfont and Sibley, 2012); adheres to norms and rules, goal-directed, and takes their obligations seriously (Leary, 2018). Conscientious individuals may be expected to follow social norms and rules related to pro-environmental actions, be more concerned about the future consequences of their actions on the environment, and plan activities which may

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benefit both humans and the natural environment (Milfont and Sibley, 2012). The statements of the CNS scale with the highest levels of agreement, in fact, centered on appreciation of other living organisms and understanding the effects of one's actions on the natural world. Di Fabio and Rosen (2019) emphasized that carefulness, diligence, being organized, being self-disciplined, planned behaviors, and aiming to achieve one's goals are related to expressions of concern for nature. Valuing the natural world and one's connections to it are related to responsible planning and diligent work, which may explain the link between these two constructs.

Table 5. Associations among levels of connectedness to nature, depression and grit of the respondents

Variables	Depression	Grit
Connectedness to nature	$r = -0.2090^*$	$r = 0.2319^*$
Depression		$r = -0.2439^*$

* Significant at $p < 0.5$

Connectedness to Nature and Depression

For connectedness to nature and depression levels, there is a weak and negative correlation between them (Table 5). Their correlation is deemed significant with a p-value of 0.0119 ($p < 0.05$); meaning, as connectedness to nature increases, depression levels decrease.

Pass more and Howell (2014) discussed the perspective called Eco-Existential Positive Psychology which posits that strengthening our innate tendencies to affiliate with nature can heighten our sense of well-being by looking into "existential anxieties" which they specified as identity, happiness, isolation, freedom, meaning in life, and death. In their literature review, they pointed out that there is substantive evidence for the restorative potential of connecting to nature and in addressing existential anxieties concerning various forms of happiness and well-being. Elements such as the natural patterns of ocean flow, night and day, and the seasons show humans that nature persists as it is.

Studies have shown the importance of exposure to nature on mental health and well-being. Walsh (2011) talked about therapeutic lifestyle changes (TLCs) such as a good diet, exercise, spiritual involvement, service to others, and time in nature which can have significant contributions to mental health as effective as medications and psychotherapy. Berman et al. (2012) found that their participants, diagnosed with major depressive disorder (MDD), showed significant improvements in mood or positive affect after engaging in a 50-minute nature walk as compared to a walk in an urban setting. Despite being asked to think of a negative event prior to the walk, there was an increase in positive mood. The participants, though they were ruminating on the negative event, may have thought about it adaptively while walking. Similarly, Korpela et al. (2016) found a significant increase in positive mental well-being and decrease in depression over the eight-week intervention program and even, three months after. Participants experienced nature walks during the intervention program and these led to increased positive mental well-being which facilitated the decrease in depression.

Wind horst and Williams (2015) found that nature connectedness was positively associated with well-being measures. Spending time in an accessible, expansive natural place with trees and/or body of water which was quiet and quite removed from man-made stimuli and urban sounds helped to increase mental health benefits. Based on the qualitative data gathered, the respondents pointed to the following elements of the natural places which led to better mental health: stimulus for self-reflection and becoming attuned to the self, provision of a sense of relaxation and calmness, and being far from daily life stressors. Recently, White et al. (2017) found from their study that when people visit nature places regularly, they felt happier and that life was meaningful. These nature places could be the neighborhood with green places or the coast. With individuals who visit nature places on a daily basis, the level of well-being was higher.

The concept of "therapeutic landscapes" or places with healing elements came out in the early 1990s (Gesler, 1992). In the literature review of Berto (2014) on restrictiveness, the concept of "restorative environment" was focused on. These are natural places that help individuals to develop more positive emotional states, cognitive functioning, and behaviors, thus, making it possible for individuals to confront daily stressors adequately. Whatever these places are called, Bierski (2016) proposed that recovery from mental ill-health was an on-going process of learning how to live in one's environment and as part of that environment. That environment could be a place or a state of mind, characterized by calmness and serenity and which becomes a stimulus for recovery. The recovery itself is a continuous interaction or relationship with the environment as one navigates it and experiences the effects of the interactions.

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Depression and Grit

The depression scores were found to have a weak and negative relationship with grit levels (Table 5). The correlation produced a p-value of 0.004 ($p < 0.05$) which is significant. Thus, as depression levels increase, grit levels decrease.

Duckworth et al. (2007) stated that grit is a helpful trait during challenging experiences, which are numerous during university life with all the academic demands and social responsibilities that students have to attend to. These could be sources of psychosocial vulnerabilities which may predispose individuals to develop depression, more so, in the presence of a significant life stressor (Denton et al. 2012).

Grit has been shown to be a protective factor against suicide and depression. In a pioneering study on grit and gratitude as means to reduce suicidal ideations in university students, Kleiman et al. (2013) found that with high grit levels, there was a decline in suicidal ideations and depressive symptoms. They explained that grit helps in persevering at goals even in the presence of challenges, failures, loss or pain. It confers a sense of flexibility in the face of goal obstructions, brings about a sense of hope since grit is future-oriented, and helps in the maintenance of life goals that bring about a sense of purpose in life. Due to these, grit is a source of resiliency in life or a protective factor against suicide and depression (Kleiman et al., 2013). Grit, along with high gratitude levels, enhance meaning in life, acting as a buffer against suicide. Grit can be part of therapeutic interventions since grit can be intentionally cultivated over time (Duckworth et al., 2007). Pennings et al. (2015) found that at high levels of grit, both hopelessness and current suicidal ideation (preparations for suicide) decreased significantly. At low levels of grit, these two variables increased significantly. They pointed to grit as a possible protective factor against suicidal ideation even with feelings of hopelessness in individuals since it may help to inhibit behaviors which are not aligned to one's life goals. Similarly, Blalock et al. (2015) found that high levels of grit reduces the risk for suicidal ideation brought about by negative life events among university students. Grit, as a psychological strength, gives people the drive to push through difficult times and focus on their long-term goals beyond current negative events. Recently, Vainio et al. (2016) found from their study of grit among early adults in the university that grit was moderately and positively related to psychological well-being and satisfaction with life. They explained that grit's focus on the persistent pursuing of long-term goals seems to be linked to psychological well-being and life satisfaction which also focus on long-term events such as personal growth and finding purpose in life.

However, high grit levels do not always produce positive outcomes. Anestis and Selby (2015) found that high grit levels may facilitate suicidal behaviors and non-suicidal self-injury behaviors among university students. If the individual has developed suicidal thoughts, grit may strengthen their persistence through difficult emotional experiences of fear of pain and death during suicide ideation and attempts. When gritty individuals decide to pursue death and make it their goal, grit may facilitate suicidal behaviors.

CONCLUSIONS AND RECOMMENDATIONS

The study aimed to determine the relationship among connectedness to nature, grit, and depression among adolescent college students. The findings show that nearly three-fourths of the respondents were in the average levels for both connectedness to nature and depression while

Around two-thirds had an average grit level. The relationships among the three variables were all significant. As connectedness to nature levels increase, grit levels likewise increase. As connectedness to nature levels and grit levels increase, depression levels decrease. Both connectedness to nature and grit emerge as potential protective factors to lower depression symptoms. The current study points to the possible combined effects of these two trait variables and warrants further research.

The findings support the promotion of engagement with nature as a means for improving mental health and well-being. There are many possible activities involving natural elements or activities in the outdoors for individuals of various ages which can be done at the family, school and community contexts or which can be integrated easily into existing intervention programs. Berman et al. (2012) emphasized how interactions with nature are accessible and affordable. Further, preservation of existing large natural areas and the creation of green spaces could be prioritized by community planners to ensure access to such natural spaces where connectedness to nature can be enhanced.

Likewise, the results support the inclusion of grit enhancement in intervention programs or psychoeducation classes for the youth. Activities to enhance grit can be done by strengthening skills related to its core components of perseverance, goal-setting, and goal-achieving.

Depression awareness campaigns must continue to be implemented in school and community settings with the inclusion of connectedness to nature and grit as potential protective factors.

Some limitations in the present study need to be addressed in future research. First, the sample was limited to university students and cannot be generalized to other samples, thus, replications with adolescents from community samples and older adults are needed. Second, self-report measures only were used and further studies may include interview methodologies for

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more in-depth information. Third, future research can look into causality among the variables or the combined effect of connectedness to nature and grit on lowering depression.

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