

## Academic Self-Efficacy and Hardiness among College Students – An Exploratory Study

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Academic success is central to college life due to the role it plays in the future of a student. There are many factors that influence college success among which academic self-efficacy and hardiness are found to play a significant role. The current study has explored the relationship between academic self-efficacy and hardiness among Indian college students. The moderating roles of age and gender on the impact of hardiness on academic self-efficacy and its components are investigated in this study. This is an exploratory study done using self-administered questionnaires on a sample of college students in the age range of 18 – 25 years studying in undergraduate and post-graduate years. Academic Self-efficacy Scale (Gafoor & Ashraf, 2006) and short Hardiness Scale (Bartone, 1995) was used in measuring academic self-efficacy and hardiness respectively. Moderated regression analysis revealed a significant positive relationship between academic self-efficacy and hardiness. Age and gender, not only show direct impact on academic self-efficacy but also moderates the relationship between hardiness and self-efficacy. Intervention programmes to increase hardiness will be of a huge help to college students to enhance their levels of academic self-efficacy there by to have a better academic performance.

**Keywords:** Academic self-efficacy, hardiness, academic performance, college students

College life is a transition period in life from a student to a fully functional independent adult. College exposes the students to infinite possibilities and plays a huge role in shaping the self. This encompasses a major shift in perspective, where learning becomes more self-regulated. The key role of a college life is to get a successful education which helps in further life of a student. Extensive researches carried out in the area are suggestive of many factors influencing college success among which academic self-efficacy and hardiness are talked about.

### **Academic self-efficacy:**

Perceived self-efficacy refers to people's beliefs about their capabilities to exercise control over events in life and to put in their capabilities to bring designated levels of performance (Bandura, 1994). This would involve the social, behavioural and cognitive skills that are to be put together into integrated courses of action to serve various purposes (Bandura, 1982). Ever since the introduction of the concept by Bandura, self-

efficacy was extensively studied across a range of areas in Psychology. Academic functioning is one such area, where the influence of self-efficacy was studied in depth. Self-efficacy, defined as belief in one's own capabilities to reach desired goals is of prime importance in academic performance as this would have an impact on the choices learner's make and the specific courses of action they take to meet the specific academic goals (Mutlu, 2018). Self-efficacy perceptions related to academic performance is often referred to as academic self-efficacy, which in turn can be defined as student's judgment of their ability to set learning goals and take necessary course of action to implement it. Academic self-efficacy is central to success in college as it influence a student's motivational factors, learning strategies, career choices and academic success (Greco et al., 2022). It exudes self-confidence, self-reliance and self-trust that promotes self-regulated learning habits which contributes to academic success (Matovu, 2020). Many studies have

identified academic self-efficacy as positively related to academic achievement (Fakhrou & Habib, 2021; Matovu, 2020; Basith, Syahputra & Ichwanto, 2020; Honicke & Broadbent, 2016). Achievement expectancy, value of the subject, satisfaction expectancy with process and cost expended on passing the subject were found to be the motivational variables mediating the relationship between self-efficacy and academic performance (Betoret, Rosello & Artiga, 2017). A meta-analysis conducted by Nauvalia (2021) identified family factors, friendship factors and teacher support as the external factors significantly influencing academic self-efficacy. Internal factors like self-regulation, perceived social support, resilience and life satisfaction were found to have an impact on academic self-efficacy (Sari, Gelbal & Halil, 2020). Gender differences favoured female students in some of the studies conducted earlier (Pajarus & Valliante, 2002; Greco et al., 2022). However, there were also studies which showed higher academic self-efficacy in male students (Kassaw & Astatke, 2017; Huang, 2013)

### **Hardiness**

Hardiness concept is defined as a personality trait associated with continued good health and performance under stress (Kobasa, 1979). According to Kobasa (1982) there are three existential concepts specifically relevant to this optimistic orientation namely commitment, control and challenge. Commitment is the ability to involve oneself completely in many life situations such as family, work, social situations and interpersonal relationships. Control is the tendency to believe and function in a way that one can influence the course of life events. Challenge refers to viewing world as constantly changing and hence perceiving stressful situations as opportunities for growth instead of viewing stress as threat to one's stability. People with higher levels of hardiness are buffered against stress inducing life situations as they engage in specific cognitive, affective and behavioural responses (Mund, 2016). Maddi (2006) provided empirical support for hardiness conceptualization as the motivation and courage to deal with natural and imposed life circumstances through hardy actions that turn the aversive circumstances into growth

opportunities and not disasters. Psychological hardiness was found to have a significant impact on academic performance of college students (Abid, Bajwa, Batool & Ajmal, 2019; Nguyen, Shiltz & Westbrook, 2012). Certain studies have found hardiness commitment in specific to have a significantly positive correlation with academic performance (Sheard, 2009; Sheard & Golby, 2007). There were also studies which showed no significant direct relationship between hardiness and academic performance (Mirzaee & Harandi, 2020; Vinothkumar, Vindhya & Rai, 2016; Patton, 1996; Dillard, 1990). However, strong research base existed for hardiness clearly showed the positive relationship with coping and reduced burnout and stress levels which in turn had a positive influence on academic performance of college students. Sheard (2009) studied gender differences in hardiness among university students and found that female students had a significantly higher hardiness commitment as compared to male counterparts. In yet another study by Tisdall (2001) on college students it was found that older students (30 and over) had higher levels of hardiness as compared to younger students (17 – 20 years).

### **Academic self-efficacy and hardiness**

The relationship of self-efficacy and hardiness on educational progression of sophomore girl students in high schools was studied by Shekarey, Moghadam, Amiri and Rostami (2010). The results showed a meaningful relationship between hardiness and self-efficacy beliefs. Further, multivariate analysis of variance showed self-efficacy and hardiness to have a decisive role in education progression. Jang and Liang (2016) investigated the perceptions of academic hardiness and academic self-efficacy among Taiwanese university students. They found that there was a strong positive relationship between academic self-efficacy and academic hardiness. Also, for junior and senior year student's academic hardiness served as significant predictor for self-efficacy. Similar results were observed in another study conducted by Cheng, Tsai and Liang (2019) where commitment, control of affect and challenge dimensions of hardiness acted as strong predictors of academic self-efficacy among graduate students.

Factors contributing to college success is a well-researched topic. There are many studies exploring psychological, cognitive and non-cognitive factors influencing a successful college life. Research clearly shows academic performance as the most powerful factor having a positive relationship with college retention. Even though academic self-efficacy and hardiness are widely discussed about in making college a success and leading to better academic performance, there are only very few studies which has tried to explore the relationship between these two variables. Among the few studies which has tried to investigate the relationship between academic self-efficacy and hardiness, the role of possible mediating or moderating effects were rarely discussed. Moreover there is dearth in Indian literature trying to explore academic self-efficacy and hardiness of college students. This study had tried to address the gaps in literature by exploring hardiness and academic self-efficacy in Indian college students and also has tried to explore the moderating effect of age and gender on the relationship between these two variables.

#### **Research questions:**

What is the relationship between different dimensions of academic self-efficacy and hardiness?

Does the age and gender serve as moderating variables in explaining the relationship between academic self-efficacy and hardiness?

#### **Method**

##### **Participants and data acquisition:**

This study is an exploratory cross sectional study conducted among Indian college students. Sample consisted of 193 college students, both men and women in the age range of 18 – 25 years. Purposive sampling mostly using snow ball technique was used for data acquisition. Study was conducted as online survey using Google form. Consented students were directed to the form with statements and response alternatives, to which they had to read the statement and click on the alternative best fitting with their behaviour.

#### **Measurement:**

*Academic self-efficacy:* It was measured using Academic self-efficacy scale developed by Gafoor and Ashraf (2006). This is a 40 item Indian self-report scale designed to assess efficacy of students in several dimensions of academic work which would contribute to their academic self-efficacy. The different dimensions of academic work assessed are reading, comprehension, learning process, curricular activities, memory, Teacher-student relationship, time management, utilization of resources, peer relationships, goal orientations, examination and adjustment. There were 20 positive and negative statements each contributing to the total of 40 items altogether. Items were all anchored with response alternatives in a five point Likert scale. Positive items were scored as five score for "Exactly true", 4 for "Nearly true", 3 for "Neutral", 2 for "Nearly false" and 1 for "Exactly false". Negative items were scored in the reverse order. Higher scores are indicative of higher levels of academic self-efficacy. The scale had a test-retest correlation co-efficient of 0.85 and split half reliability of 0.90. Concurrent validity against General Self-efficacy scale was 0.68, which is a promising evidence for reliability and validity.

#### **Hardiness**

A short Hardiness scale developed by Bartone (1995) was used for measuring the hardiness. This is a 15 item scale including both positive and negative keyed items measuring three important facets of hardiness namely commitment, control and challenge. This is a four point scale, scored as zero for "Not at all true", 1 for "A little true", 2 for "Quite true" and 3 for "Completely true" for positive items. Negative items were scored in the reverse order. Cronbach Alpha co-efficients ranging from 0.70 to 0.77 for the facets and 0.83 for the whole scale was established by the author, which clearly shows the scale to be reliable. The scale also demonstrated appropriate predictor and criterion related validity, tested among individuals with respect to both health and performance under stress conditions (Bartone, 1995).

### Results and discussion

This study has tried to investigate the relationship between academic self-efficacy and hardiness among Indian college students. The study has also tried to explore the moderating roles of hardiness, age, gender and interaction effects on academic self-efficacy.

**Table 1 shows the age and gender distribution of the sample**

Attributes	Categories	Frequency	Percent
Age in categories	Younger	101	52.3
	Older	92	47.7
	Total	193	100.0
Gender	Female	88	45.6
	Male	105	54.4
	Total	193	100.0
Age x Gender	Younger female	36	18.7
	Younger male	65	33.7
	Older female	52	26.9
	Older male	40	20.7
	Total	193	100.0

Table 1 shows the age and gender distribution of the sample. The total sample size was 193, consisted of 45.6 per cent female and 54.4 per cent male students in the age group of 17 – 25 years. The sample was further categorized as younger female (18.7 per cent) and younger male (33.7 per cent) in the age group of 17 – 19 years and older female (26.9 per cent) and older male (20.7 per cent) in the age group of 20 and above years of age.

Table 2 shows mean, standard deviations and inter-correlations of variables of the study. Hardiness was found to be have a significant positive relationship with academic self-efficacy ( $r = 0.270$ ) in total and with learning process ( $r = 0.237$ ), memory ( $r = 0.160$ ), curricular activities ( $r = 0.204$ ), teacher student relationship ( $r = 0.223$ ), utilization of resources ( $r = 0.181$ ), peer relationship ( $r = 0.345$ ), goal orientation ( $r = 0.171$ ) and examination ( $r = 0.289$ ) sub-

dimensions of academic self-efficacy. It was found that higher the level of hardiness, higher is the capability to set learning goals and bring in designated levels of academic performance. This is in lieu with studies conducted earlier stating a positive relationship between self-efficacy and hardiness (Liang, 2016; Vinothkumar, Kousalya & Rai, 2016). Hardiness was found to have a significant impact on a student's beliefs in one's ability to comprehend and study subjects, finish assignments and projects on time, perform in tests with minimal levels of anxiety and the quality of relationships with teachers and peers. It should be noted that hardiness is a personality trait that aids in functioning under stressful situations by enabling the person to stay committed to goals, having control over controllable aspects of life and seeing stressful situations as opportunities for growth in disguise. The results were similar to a study conducted by Shekarey, Moghadam, Amiri and Rostami (2010) where they found that self-efficacy had a direct and meaningful relationship with hardiness. Hardiness was found to be associated with lower levels of trait and state anxiety and lesser levels of uncertainty leading to an enhancement in academic performance (Likhacheva, Ognev & Kazakov, 2013). Hence both academic self-efficacy and hardiness may serve as motivational factors promoting better academic performance in students and has decisive roles in education progression (Shekarey, Moghadam, Amiri & Rostami, 2010).

Table 3 showing Moderator regression: Hardiness on academic self-efficacy (total and components) by age, gender and age x gender. Hardiness along with age, gender and interactions accounted for 15.7 per cent of variance in academic self-efficacy ( $F = 4.923$ ,  $p < 0.01$ ). It has to be noted that females had a higher level academic self-efficacy as compared to male counterparts. This is in agreement with the research works conducted earlier where females had higher levels of academic self-efficacy in comparison with males (Penzar, Shia & Edwards, 2021; Baji, 2020; Sachithra & Bandara, 2017). The gender differences in the current study may be due to higher levels of trust in one's own learning process, reading, comprehension and memory, better

**Table 2 shows the means, Standard deviations and Inter-correlations of variables of the study (N=193)**

	Mean	Sdv	LRP	RED	CPM	MEM	CAR	TMG	TSR	UTR	PER	GOO	ADJ	EXM	ADSE	HARD
Learning Process (LRP)	8.03	1.256	1	.325**	.461**	.268**	.400**	0.075	.206**	.217**	.272**	.279**	.463**	.484**	.551**	.237**
Reading (RED)	11.42	2.842	.325**	1	.644**	.312**	.391**	.408**	0.130	.407**	.198**	.259**	.479**	.538**	.691**	0.122
Comprehension (CPM)	10.52	2.398	.461**	.644**	1	.534**	.551**	.446**	.247**	.499**	.169*	.392**	.613**	.642**	.821**	0.141
Memory (MEM)	9.76	1.925	.268**	.312**	.534**	1	.436**	.261**	.271**	.376**	0.082	.235**	.493**	.483**	.620**	.160*
Curricular Activities (CRA)	14.74	2.678	.400**	.391**	.551**	.436**	1	.251**	.423**	.284**	.250**	.450**	.520**	.527**	.713**	.204**
Time Management (TMG)	5.32	1.955	0.075	.408**	.446**	.261**	.251**	1	0.089	.532**	-0.062	.218**	.317**	.345**	.511**	-0.003
Teacher Student Relationship (TSR)	7.35	1.680	.206**	0.130	.247**	.271**	.423**	0.089	1	.190**	.232**	.334**	.358**	.313**	.457**	.223**
Utilization of Resources (UTR)	9.27	2.417	.217**	.407**	.499**	.376**	.284**	.532**	.190**	1	0.132	.323**	.388**	.492**	.635**	.181*
Peer Relationship (PER)	7.84	1.474	.272**	.198**	.169*	0.082	.250**	-0.062	.232**	0.132	1	0.114	.283**	.285**	.347**	.345**
Goal Orientation (GOO)	7.88	1.837	.279**	.259**	.392**	.235**	.450**	.218**	.334**	.323**	0.114	1	.391**	.430**	.559**	.171*
Adjustment (ADJ)	19.91	3.687	.463**	.479**	.613**	.493**	.520**	.317**	.358**	.388**	.283**	.391**	1	.646**	.807**	0.124
Examination (EXM)	23.23	4.593	.484**	.538**	.642**	.483**	.527**	.345**	.313**	.492**	.285**	.430**	.646**	1	.853**	.289**
Academic Self-efficacy (ADSE)	135.26	19.460	.551**	.691**	.821**	.620**	.713**	.511**	.457**	.635**	.347**	.559**	.807**	.853**	1	.270**
Hardiness (HARD)	23.62	5.187	.237**	0.122	0.141	.160*	.204**	-0.003	.223**	.181*	.345**	.171*	0.124	.289**	.270**	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

**Table 3 shows Moderator regression: Hardiness on academic self-efficacy (total and components) by age, gender and age x gender**

Dependent Variables	Hardiness (HARD)		Age		Gen		Age x Hard		Gen x Hard		Age x Gen x Hard		Model Fit		
	β	p	β	p	β	p	β	p	β	p	β	p	R-sq	F (7,185)	P
Academic self-efficacy (ADSE)	0.965	0.000	-0.419	0.879	-7.156	0.010	-1.058	0.045	0.395	0.454	-0.431	0.681	0.157	4.923	0.000
Learning process (LRP)	0.049	0.005	0.099	0.580	-0.533	0.003	-0.241	0.482	0.002	0.952	-0.028	0.681	0.142	4.382	0.002
Reading (RED)	0.055	0.162	-0.541	0.184	-1.644	0.000	-0.152	0.052	0.085	0.277	0.011	0.946	0.134	4.092	0.000
Comprehension (CPM)	0.051	0.123	-0.279	0.417	-1.295	0.000	-0.145	0.028	0.068	0.303	-0.093	0.480	0.129	3.917	0.001
Memory (MEM)	0.057	0.038	0.063	0.824	-0.695	0.015	-0.073	0.176	0.016	0.775	0.193	0.076	0.087	2.512	0.017
Curricular activities (CRA)	0.110	0.004	-0.209	0.595	-0.540	0.173	-0.052	0.493	0.129	0.088	0.057	0.705	0.085	2.454	0.020
Time management (TMG)	-0.013	0.645	0.235	0.414	-0.771	0.008	-0.065	0.243	0.045	0.418	-0.063	0.568	0.079	2.262	0.031
Teacher student relationship (TSR)	0.086	0.000	0.100	0.683	0.584	0.018	-0.005	0.923	0.044	0.345	-0.032	0.734	0.102	3.001	0.005
Utilization of resources (UTR)	0.078	0.021	0.085	0.807	-0.785	0.026	-0.149	0.027	0.045	0.500	-0.096	0.479	0.115	3.428	0.002
Peer relationship (PER)	0.092	0.000	0.137	0.510	-0.274	0.189	0.000	0.940	0.088	0.027	-0.095	0.231	0.162	5.108	0.000
Goal orientation (GOO)	0.077	0.003	-0.522	0.051	0.590	0.029	-0.055	0.281	-0.020	0.701	-0.128	0.211	0.107	3.160	0.004
Adjustment (ADJ)	0.087	0.103	0.205	0.710	-0.731	0.188	-0.150	0.156	0.041	0.699	0.022	0.917	0.053	1.485	0.175
Examination (EXM)	0.237	0.000	0.209	0.749	-1.063	0.107	-0.187	0.137	-0.149	0.236	-0.179	0.476	0.137	4.210	0.000

time management skills and utilization of study resources of female students as compared to the males. This can be attributed to higher levels of general organizing, study environment structuring and typical study strategies in females as compared to males in promoting self-regulated learning (Ray, Garavalia & Gredler, 2003). Results were also supported by Alghamdi et al (2020) who pointed out that female students tended to have better meta-cognitive abilities and confidence necessary to implement strategies to manage learning and perform tasks effectively. It was also found that the hardiness, age and gender along with interactions emerged as predictors accounting to significant per cent of variance in almost all dimensions of academic self-efficacy namely learning process (14.2%), examination (13.7%), reading (13.4%), comprehension (12.9%), utilization of resources (11.5%), goal orientation (10.7%), teacher-student relationship (10.2%), memory (8.7%), curricular activities (8.5%) and time management (7.9 %) except the adjustment dimension.

There was a significant age and hardiness interaction observed with respect to the academic self-efficacy ( $\beta = -1.058, p = 0.045$ ) as illustrated in the Figure 1. It was found that with an increase in hardiness there was a sharp increase in academic self-efficacy of younger college students compared to the older college students. Even though older college students had higher levels of academic self-efficacy at the start, at higher levels of hardiness younger

college students showed very high levels of academic self-efficacy. This can be attributed to the factors that helps in academic self-efficacy development as researched by Korgan, Durdella and Stevens (2013). They found that family/home environment, peer environment and academic environment were the prime factors shaping academic self-efficacy. In the case of older college students, these environmental influences are already shaped and stabilized which is probably reflected as higher academic self-efficacy at the start. However, for the younger college students adjustment and adapting to the environment is often an on-going process where they are met with new demands in a frequent manner. This may make them deal with stressful situations often leading to make use of one’s hardy personality traits, which may be the contributing factor for a sharp increase in academic self-efficacy provided the positive and meaningful nature of relationship between academic self-efficacy and hardiness.

Similar interaction effect was observed with utilization of resources ( $\beta = -0.149, p = 0.027$ ) as seen in Figure 2. Older college students had higher utilization of resources at the start. However, with an increase in hardiness younger college students had a steep increase in utilization of resources as compared to older college students.

Significant age and hardiness interaction was observed with respect to the reading aspect of academic self-efficacy ( $\beta = -0.152, p = 0.052$ ) as indicated in Figure 3. There was an interesting

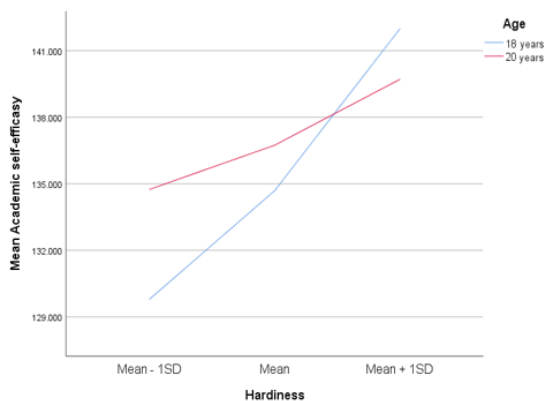


Fig. 1 shows Hardiness X Age interaction on Academic self-efficacy

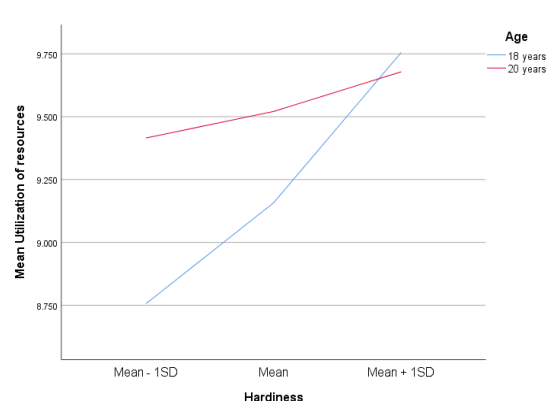
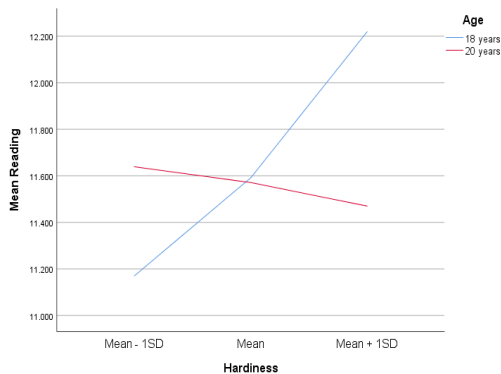


Fig. 2 shows Hardiness X Age interaction on Utilization of resources – Academic self-efficacy

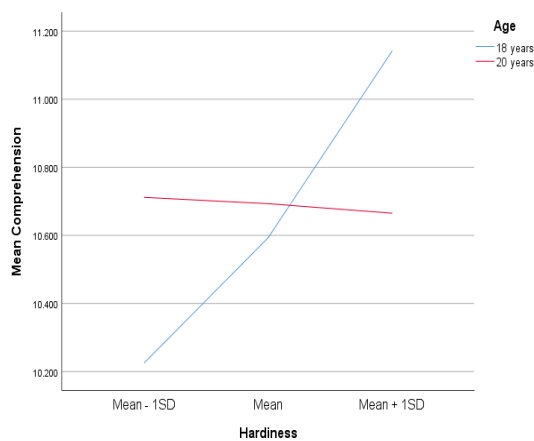


**Figure 3 shows Hardiness X Age interaction on Reading – Academic self-efficacy**

trend observed where it was found that with an increase in hardiness the reading skills slightly dropped for the older college students.

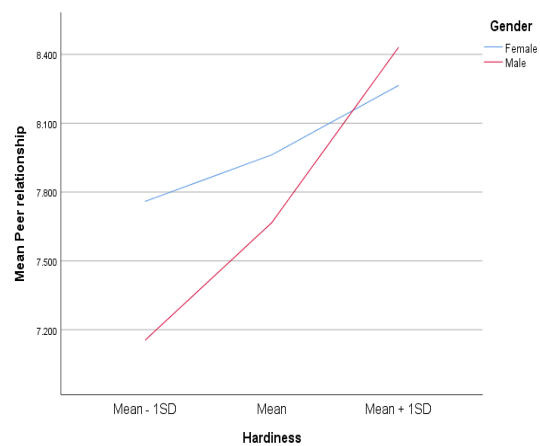
Almost similar trend was observed with the age and hardiness interaction on comprehension aspect of academic self-efficacy ( $\beta = -0.145, p = 0.028$ ) in Figure 4. For increase in hardiness, comprehension skills of younger college students showed a sharp increase. However, for the older college students there was a decrease in comprehension at higher levels of hardiness. Both the trends have to be explored further considering the increase in complexity of the subjects and extracurricular works for older college students.

Hardiness along with age and gender interactions accounted for 16.2 per cent of



**Figure 4 shows Hardiness X Age interaction on Reading – Academic self-efficacy**

variance in peer relationship aspect of academic self-efficacy. There was an interesting hardiness and gender interaction observed with respect to peer relationship aspect of academic self-efficacy as observed in Figure 5. It was seen that with an increase in hardiness males showed higher levels of academic help seeking from peers. Even though the trend was similar in females also, there was a sharp increase observed in the peer relationship academic self-efficacy with increasing hardiness among males as compared to females.



**Figure 5 shows Hardiness X Gender interaction on Peer relationship – Academic self-efficacy**

Contrary to many studies, this study showed that males had better teacher student relationship aspect of academic self-efficacy as compared to females. The earlier research works showed higher stress management skills in males as compared to females who are more likely to be influenced by academic stress and perceived themselves as less able to manage stress (Greco et al., 2022). The current study also revealed higher levels of academic help seeking behaviours both from peers and teachers when faced with difficulties in males as compared to females.

**Implications**

Academic self-efficacy is an established factor contributing to better academic performance. The study revealed a positive and meaningful relationship between academic self-efficacy and hardiness. The impact of age

and gender along with interactions on academic self-efficacy were also identified. The results will be helpful in appraising the factors contributing to academic performance and delineating the problem areas. Intervention programmes on enhancing hardiness giving emphasis on age and gender related concerns will be helpful for the students to achieve college success and thereby to have a better future.

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