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The Influence of Grit, Family Type, and Perceived Stress on Resilience among Undergraduate Students:
The Mediating Role of Life Satisfaction

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Abstract
Examining how life satisfaction acts as a moderator between grit, family structure, and stress on resilience in undergraduates was the focus of this study. A sample of 302 undergraduate students from a university in Nigeria completed a survey that included measures of grit, family type, perceived stress, life satisfaction, and resilience. Results of structural equation modeling revealed that level of study, life satisfaction, perceived stress, and gender significantly predicted resilience. However, family type, grit and type of sponsorship did not significantly predict resilience. Additionally, results revealed that life satisfaction significantly mediated the relationship between grit, perceived stress, and resilience. These findings suggest that interventions that aim to increase life satisfaction may be beneficial for promoting resilience among undergraduate students.

Keywords
Sponsorship types, Sex, Nigeria, Socio-demographic factors, Well-being

INTRODUCTION
Resilience is defined as an individual's ability to overcome negative events and adapt to adversity (Cazan & Truta, 2015). Life satisfaction can serve as a mediator of psycho-social factors related to university life style variables and subsequent level of resilience among student (Cazan & Truta, 2015; Haider et al., 2022). Meanwhile, life satisfaction is described as an individual's cognitive and affective evaluations of their life and strongly influences overall well-being (Haider et al., 2022).Existing evidence suggests that life satisfaction tends to decrease among medical students during their time in medical school, which can be attributed to various stressors such as academic pressures, heavy workloads, and poor relationships (Haider et al., 2022). Resilience has been found to partially mediate the relationship between stress and life satisfaction, indicating that higher levels of resilience and lower levels of stress are associated with greater life satisfaction (Wang et al., 2022; Abolghasemi & Varaniyab, 2010). These findings indicate that individuals with higher levels of resilience and lower perceived stress tend to experience greater life satisfaction, leading to a better overall sense

of well-being (Abolghasemi & Varaniyab, 2010). Resilience acts as a protective factor, helping individuals cope with stress and develop resources for living well (Abolghasemi & Varaniyab, 2010). The primary purpose of this research is to discover possible moderating variables that may alter interactions between antecedents of resilience and resilience itself (Chen et al., 2021). Grit (Duckworth et al., 2007), family type (Liu et al., 2020), perceived stress (Lazarus & Folkman, 1984), and life satisfaction (Diener et al., 2010) are only few of the elements that may impact resilience, according to previous research. However, the function that life satisfaction may play in regulating the association between these characteristics and resilience among undergraduate students is not well recognised. The word grit is used to describe an individual s doggedness and dedication to achieving their long term objectives there are two main categories for families nuclear and non nuclear an individual s level of perceived stress depends on how they evaluate the expectations made of them and how well they believe they can meet those demandsThe capacity to overcome hardship without losing one's equilibrium is what psychologists call resilience. To be happy and content with one's life is what we mean when we talk about life satisfaction the purpose of this research was to examine the relationship between a number of variables and the resilience of undergraduates attending military schools in Ibadan. These variables were family background, grit, academic level, life satisfaction, perceived stress, sex, and sponsorship. To better understand how these characteristics combine to predict resilience among students in military schools was the goal of this research. The purpose of this research was to investigate these associations and to discover moderators that might have an effect on them in the context of resilience. The purpose of this research was to investigate what characteristics aid undergraduate students in maintaining their resilience students need the character characteristic of resilience to help them cope with the pressures and difficulties of higher education However, it is not well recognised what particular elements contribute to resilience among college students. The primary purpose of this research is to analyse the connections between a number of variables including family background perseverance education level happiness stress levels sexual orientation and sponsorship type and resilience in undergraduates the research also seeks to determine whether or not any moderating variables like happiness exist The primary purpose of this research is to discover possible moderating variables that may alter interactions between antecedents of resilience and resilience itself(Chen et al., 2021). Grit (Duckworth et al., 2007), family type (Liu et al., 2020), perceived stress (Lazarus & Folkman, 1984), and life satisfaction (Diener et al., 2010) are only few of the elements that may impact resilience, according to previous research. However, the function that life satisfaction may play in regulating the association between these characteristics and resilience among undergraduate students is not well recognised. 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METHOD

The study is a cross-sectional research which looks at the function of life satisfaction as a mediator in the link between several psychosocial characteristics and resilience levels among college students. The research investigates how characteristics such as life happiness, perceived stress, and gender affect resilience, as well as the effect of family type, grit, sponsor type, and sponsorship type on resilience among university students.

Participants

The participants in this study were 302 undergraduate students from a university in the south western Nigeria. The sample was selected through convenience sampling, with students recruited from various academic departments. The participants were aged between 17 to 30 years old, with a mean age of 22.16 years. The sample was composed of 63.9% females and 36.1% males. The sample was also diverse in terms of ethnicity and their level range from 100 to 400 L of study.

Measures

Data were collected through self-report measures, including the Resilience Scale, Grit Scale, Life Satisfaction Scale, Perceived Stress Scale, and demographic questions. The demographic profile include age, gender, level of study, Religion, Marital status, level, Family type, Ethnicity, and Education sponsorship.

The Resilience Scale (RS) was developed by Wagnild and Young (1993) and has been widely used in research on resilience. The scale consists of 25 items that measure an individual's ability to cope with stress and adapt to change. The items are rated on a 5-point Likert scale, with a score range of 0 to 40. The scale has been found to have high internal consistency, with a Cronbach's alpha of 0.89 (Wagnild & Young, 1993). Test-retest reliability of the scale was found to be high, with a correlation coefficient of 0.80 (Wagnild & Young, 1993).

The Grit Scale (GS) was developed by Duckworth and colleagues (2007) and is a measure of perseverance and passion for long-term goals. The scale consists of 12 items that are rated on a 5-point Likert scale, with a score range of 1 to 5. The scale has been found to have high internal consistency, with a Cronbach's alpha of 0.82 (Duckworth, Peterson, Matthews, & Kelly, 2007). Test-retest reliability of the scale was also found to be high, with a correlation coefficient of 0.70 (Duckworth et al., 2007). The Life Satisfaction Scale (LSS) was developed by Diener and colleagues (1985) and is a measure of overall satisfaction with life. The scale consists of 5 items that are rated on a 7-point Likert scale, with a score range of 1 to 7. The scale has been found to have high internal consistency, with a Cronbach's alpha of 0.87 (Diener, Emmons, Larsen, & Griffin, 1985). Test-retest reliability of the scale was also found to be high, with a correlation coefficient of 0.80 (Diener et al., 1985). The Perceived Stress Scale (PSS) was developed by Cohen and colleagues (1983) and is a measure of the extent to which situations in one's life are appraised as stressful. The scale consists of 14 items that are rated on a 5-point Likert scale, with a score range of 0 to 56. The scale has been found to have high internal consistency, with a Cronbach's alpha of 0.85 (Cohen, Kamarck, & Mermelstein, 1983). Test-retest reliability of the scale was also found to be high, with a correlation coefficient of 0.82 (Cohen et al., 1983). In addition to these measures, a socio-demographics inventory was used to collect information on participants' sex, age, ethnicity, family type, level of study, type of sponsor and type of sponsorship. These variables were used to provide a more detailed understanding of the sample and to control for potential confounding effects in the analysis

Procedure

The study was approved by the ethics committee of the Federal University of Oye-Ekiti, Ekiti State, Nigeria, and all participants provided informed consent prior to participation. Participants were asked to complete a socio-demographic inventory, the PSS, the Grit Scale, the SWLS, and the Resilience Scale. Data were collected over a period of two weeks.

DATA ANALYSIS

The data were analyzed using SmartPLS 4.0, a statistical software that uses partial least squares (PLS) structural equation modeling (SEM). PLS-SEM is a statistical technique that allows for the estimation of path coefficients, standard errors, and t-values. It also allows for testing of hypotheses and the examination of the causal relationships between variables. The data were analyzed in two stages. First, the reliability and validity of the measurement model were evaluated. Reliability was assessed using Cronbach's alpha and composite reliability. Validity was assessed using factor loadings, average variance extracted (AVE), and the measurement model's goodness-of-fit. Second, the structural model was evaluated using bootstrapping. Bootstrapping is a statistical technique that uses repeated random sampling to estimate the distribution of a statistic. In this study, bootstrapping was used to estimate the distribution of the path coefficients, standard errors, and t-values. Bootstrapping was also used to test hypotheses and to examine the causal relationships between variables.

RESULTS

Table 1 shows that 36.1% of the respondents were males while 63.9% were females. Their age ranges from 17 – 30 years (M_{age} = 22.16, *SD* = 2.63). The majority of the undergraduates were 21 (54 (17.9%), 20 (61 (15.6%), 23(38 (12.6%) and 22(33 (10.9%) years old. The respondents were in 100L (41 (13.6%), 200L (96 (31.8%), 300L (74 (24.5%), 400L (70 (23.2%) and 500L (21(7.0%). More than two-thirds (211 (69.9%) were Christians, 29.1% (88) were Muslims and 1.0% (3) Traditional worshipers. More than four-fifth (266 (88.1%) were singles, married were 9.9% (30), 1.3% (4) were separated and 0.7% (2) widowed.

There were two phases to the data analysing procedure. The analysis of data is twofold. First, the measurement model was verified and shown to be accurate. Cronbach's alpha and composite reliability were used to assess consistency and stability. Cronbach's alpha analyses each construct based on item correlations, while composite reliability analyses the construct as a whole. These metrics assess the accuracy of measurement models. The validity of a measuring model refers to how effectively it represents structures. Several methodologies were used to investigate validity. The item dependability to its underlying notion was investigated using factor loadings. The extracted average variance (AVE) compares measurement error to construct variation. The result of the reliability and validity is presented in Table 2- 4, while preliminary data analysis which include descriptive statistics and exploratory correlational analysis was carried out to examine the relationship among the variables in Table 5 and 6: The hypotheses and model evaluation followed with Bootstrapping which examines the interdependence of the structural model's linkages. Bootstrapped t-statistics are statistically significant. Bootstrapping has the potential to enhance structural model linkage predictions in Table 7-8.

Table 1 Distribution of respondents based on socio-demographic characteristics

Variable	Category	N	%	*M*	*SD*
Sex	Male	109	36.1%		
	Female	193	63.9%		
Age	17.00	8	2.6%	22.16	2.63
	18.00	9	3.0%		
	19.00	25	8.3%		
	20.00	47	15.6%		
	21.00	54	17.9%		
	22.00	33	10.9%		
	23.00	38	12.6%		
	24.00	24	7.9%		
	25.00	22	7.3%		
	26.00	22	7.3%		
	27.00	13	4.3%		
	28.00	6	2.0%		
	30.00	1	0.3%		
Religion	Christianity	211	69.9%		
	Islam	88	29.1%		
	Traditionalist	3	1.0%		
Marital status	Married	30	9.9%		
	Widowed	2	0.7%		
	Separated	4	1.3%		
	Single	266	88.1%		
Level	100L	41	13.6%		
	200L	96	31.8%		
	300L	74	24.5%		
	400L	70	23.2%		
	500L	21	7.0%		
Family type	Extended/Joint	25	8.3%		
	Polygamous	47	15.6%		
	Nuclear	230	76.2%		
Ethnicity	Hausa	5	1.7%		
	Igbo	44	14.6%		
	Yoruba	253	83.7%		
Education sponsorship	Self-sponsored	40	13.2%		
	Parent sponsored	232	76.8%		
	Relatives/External body sponsorship	30	9.9%		

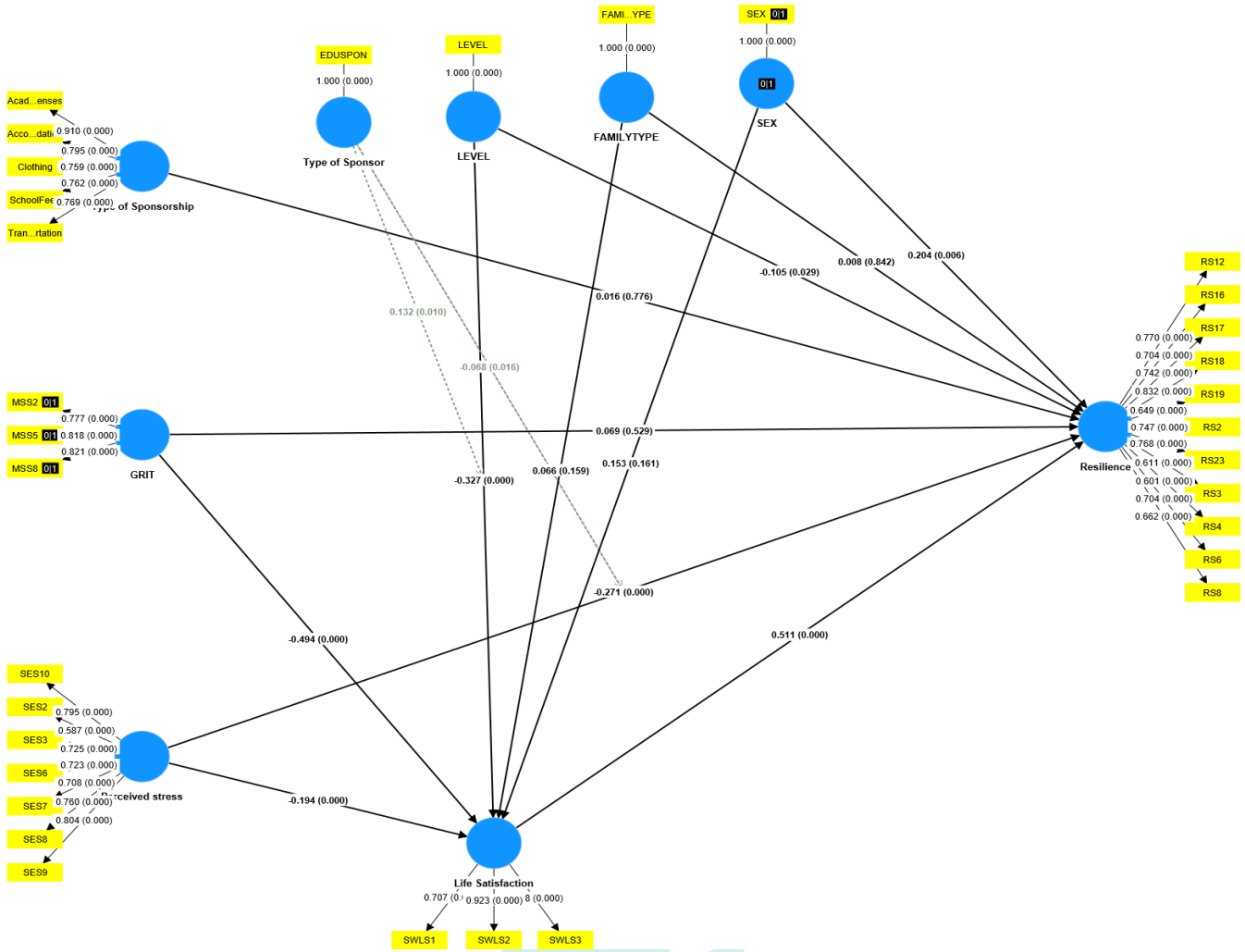

Fig. 1 PLS-SEM Algorithm showing the estimated student resilience model

Table 2 Reliability, convergent validity, and discriminant validity

	Type of Sponsorship	GRIT	Life Satisfaction	Perceived stress	Resilience	VIF	Cronbach's alpha	Composite reliability	Composite reliability	Average variance extracted (AVE)
Academic Expenses	0.908					1.948				
Accommodation	0.8					3.924				
Clothing	0.753					2.415	0.89	1.2	0.9	0.7
School Fees	0.767					3.719				
Transportation	0.766					2.879				
MSS2		0.776				1.248	0.73	0.74	0.85	0.6
MSS5		0.819				1.776				
MSS8		0.822				1.703				
SWLS1			0.71			1.403				
SWLS2			0.92			1.779	0.7	0.83	0.83	0.6
SWLS3			0.72			1.36				
SES10				0.8		1.992				
SES2				0.59		1.461				
SES3				0.73		1.814				
SES6				0.72		1.731	0.86	0.88	0.89	0.5
SES7				0.71		1.696				
SES8				0.76		1.787				
SES9				0.8		2.071				
RS12					0.76	2.451				
RS16					0.69	2.505				
RS17					0.74	2.434				
RS18					0.83	3.687				
RS19					0.64	2.11				
RS2					0.76	2.673				
RS23					0.77	2.221	0.9	0.91	0.92	0.5
RS3					0.63	2.447				
RS4					0.61	1.747				
RS6					0.7	1.764				
RS8					0.66	1.64				

Internal Consistency

One method of determining whether or not findings are stable over items of similar variables is the Internal Consistency (IC) check. If the items used to measure a variable provide comparable results, then the variable is considered comparable. Composite reliability is used to evaluate internal consistency (CR). The CR values for all of the latent variables in this analysis are shown in Table 2. Over the cutoff value of 0.7, which is used to define internal consistency, the values have been found to be consistently high (Hair et al., 2021).

Convergent Validity

Examining the variance extracted (AVE) for each component is one way to determine the level of convergence between two or more measurements of the same construct. Each latent construct's AVE is listed in Table 2. Convergent validity is demonstrated since the values are greater than the required threshold of 0.50. Hair et al. (2021) state that if the value of either the Fornell and Larckers (1981) measure of composite reliability or the Cronbach alpha is more than 0.7, then there is sufficient internal consistency and dependability. Table 2 shows values greater than 0.7, indicating sufficient internal consistency.

Divergent Validity

The discriminant validity test the degree to which that construct differs from all other constructs in the model, are all taken into account. By employing the test offered by Hair et al., (2021)this is accomplished under two circumstances. Firstly, when the square root of each construct's AVE is more than the inter-construct correlation, and secondly, when the AVE loading for the constructs is greater than 0.5, indicating that at least 50% of the measurement variance was captured by the construct. Both of the prerequisites for discriminant validity are met, as seen in Table 2. Henseler, Ringle, and Sarstedt (2015) introduced a new method for assessing discriminant validity (HTMT). HTMT compares latent variables. HTMT values near 1 lack discriminant validity. Comparing HTMT to a preset threshold is a criteria. If HTMT is over this level, discriminant validity is lacking. Authors recommend 0.85.

Table 3 Assessment of discriminant validity using heterotrait-monotrait ratio (HTMT).

	1	2	3	4	5	6	7
Family type	-						
Grit	0.032	-					
Level	0.14	0.147					
Life Satisfaction	0.127	0.342	0.473	--			
Perceived stress	0.083	0.146	0.286	0.35	-		
Resilience	0.114	0.229	0.407	0.704	0.467	-	
Sex	0.056	0.242	0.035	0.042	0.063	0.172	-

Table 3 values indicate that there was no discriminant validity problems based on HTMT 0.85 criteria. The HTMT criterion did not detect any latent construct collinearity (multicollinearity). None of the constructs measure the same thing and contains no overlapping perceptions of affected constructs.

Table 4 Descriptive statistics, Means (*M*), standard deviation (*SD*) and normality test for the study variables

	Mean	Median	Observed min	Observed max	Standard deviation	Excess kurtosis	Skewness	Number of observations used
Family type	0	0.519	-2.711	0.519	1	1.798	-1.756	302
Grit	1.837	1.709	1.244	2.488	0.496	-1.506	0.128	302
Level	0	0.19	-1.549	1.929	1	-0.892	0.173	302
Life satisfaction	0	-0.363	-1.213	3.849	1	-0.406	0.692	302
Perceived stress	0	0.032	-2.807	1.653	1	-0.679	-0.261	302
Resilience	0	-0.243	-1.351	2.287	1	-0.829	0.63	302
SEX	1.639	2	1	2	0.48	-1.672	-0.582	302
Type of Sponsor	0	0.069	-2.013	2.151	1	1.344	-0.092	302
Type of Sponsorship	0	0.216	-2.167	1.058	1	-0.166	-0.878	302

Descriptive statistics of study variables are shown in Table 4. Results indicated that asymmetry ranged from −1.76 to 1.34 and kurtosis ranged from −1.15 to 1.80 which were within the criteria of normality.

Table 5 Zero-order correlations among the study variables

Variable	1	2	3	4	5	6	7	8	9
1. Family type	-	-0.004	-0.14	0.116	-0.043	0.105	0.056	0.231	0.244
2. Grit		-	0.122	-0.277	0.078	-0.128	0.207	-0.132	0.007
3. Level			-	-0.41	0.268	-0.403	-0.035	-0.133	-0.372
4. Life Satisfaction				1	-0.298	0.639	0.019	0.012	0.132
5. Perceived stress					1	-0.449	0.029	0.073	-0.112
6. Resilience						1	0.108	-0.008	0.16
7. SEX							1	0.049	0.086
8. Type of Sponsor								1	0.313
9. Type of Sponsorship									1

The result of the correlation analysis among the study variables are presented in Table 5. Family type, life satisfaction and type of sponsorship life satisfaction correlated positively with resilience. Increasing life satisfaction was associated with increasing resilience. Perceived stress, grit and educational level were inversely associated with resilience. The result also demonstrated that life satisfaction correlate with resilience with family type, grit, perceived stress and type of sponsor.

Hypotheses testing and Model evaluation

R-square adjusted, SRMR, and VIF are only few of the assessment metrics included in the first part of the table. These indicators are used to evaluate the model's efficacy and effectiveness. The table's second part details the effect sizes (f^2) of the model's individual variables. In order to gain understanding of the relationship between two variables, it might be helpful to determine the magnitude of that relationship, or the "effect size."

Table 6 Evaluation of the structural model

	Life Satisfaction	**Resilience**
Q^2predict	0.117	0.244
RMSE	1.038	0.872
R-square	0.28	0.511
R-square adjusted	0.263	0.496
SRMR	0.088	0.099
VIF	1.51	2.33
	Effect size (f^2)	***Effect size (f^2)***
FAMILY TYPE	0.008	0
GRIT	0.147	0.019
LEVEL	0.16	0.005
Life Satisfaction	-	0.711
Perceived stress	0.07	0.176
SEX	0.016	0.019
Type of Sponsor	0.031	0.001
Type of Sponsorship	-	0
Type of Sponsor x Perceived stress	-	0.017
Type of Sponsor x LEVEL	0.028	-

All variables' VIF values were utilised to assess the structural model's collinearity problem. VIF values are sometimes viewed as a reciprocal of tolerance. A conventional method bias test based on the VIF data was analysed. According to researchers, a VIF score of 5.00 or below is regarded as biased-free (Hair et al., 2021). This research demonstrates that all VIF values are below 5.00. (Table 6). As a result, it was concluded that the data set did not suffer from a typical bias problem. Also the HTMT (Heterotrait-Monotrait) ratio; advocated that the value of constructs should not exceed 0.9. (Refer to Table 3) which show that 0.703 is the construct's maximum value; as a result, this research is free of multicollinearity problems. The phrase "coefficient of determination" (R^2) also refers to the value of R2 as determined by the PLS-SEM structural model. According to researchers, R^2 accurately predicts the independent variance variable. R^2 of 0.10 is often considered to be high (Min et al., 2020). However, the R^2 value of 0.60 is regarded as significant, 0.33 as moderate, and 0.19 as poor in PLS-SEM. According to this study's R^2 value of 0.511 (refer to Table 5), all the variable together account for 51.1% of the variance in resilience while the variables in the life satisfaction model was 0.28 accounting for 28% of the variance in life satisfaction. According to the value belongs in the category of substantial influence for resilience and slightly moderate for life satisfaction. In this study, the effects of latent variables were measured using the Predictive Relevance (Q2) Effect Sizes: cross-validated redundancy (Q^2). The value of Q^2 greater than zero is considered as the existence of predictive relevance in the model. The values of Q^2 for the present study are presented in Table 5, which is higher than zero. Thus this model has predictive relevance (Min et al., 2020).

In the first model hypotheses H1 – H14 were tested to assess if the level of study, perceived stress, gender, family type, grit, type of sponsor, and type of sponsorship would significantly predict resilience levels and the mediator, life satisfaction. Summary results are presented in Table 7.

Standardized bootstrapping (5000 subsamples) was done with 302 sample observations to determine route coefficient significance. Fig 1 displays the structural equation model estimates with life satisfaction as the mediator (ref Table 7). Bootstrapping and the T-statistic test parameter was used to test hypotheses exceed the crucial threshold (> 1.96).

Table 7 reveals that only hypotheses H3 – H6 were significant for the dependent variable, resilience. It was demonstrated that resilience significantly decreases with level of study ($\boldsymbol{\beta}$ = -0.11, t = 2.25, p= 0.02) (H3), in H4 life satisfaction positively predicted resilience ($\boldsymbol{\beta}$ = 0.51, t = 9.49, p = 0.00), while perceived stress was a negative predictor of resilience ($\boldsymbol{\beta}$ = -0.27, t = 6.85, p = 0.00) in (H5) and H6 reveals that there was significant gender difference in resilience behaviour ($\boldsymbol{\beta}$ = 0.20, t = 2.67, p = 0.01) among undergraduate students sampled in the study. However, there was no significant influence of family type, grit, type of sponsor and sponsorship type on resilience (p<.05) in H1, H2, H7 and H8 respectively. Directly, the study found that the level of study, life satisfaction, perceived stress, and gender i.e being a male, contributed significantly to the development of resilience among the undergraduate students. Similarly, increased level of grit, higher level of study, lower perceived stress, and type of sponsorship i.e self-sponsorship was

found to be significant predictors of life satisfaction. For variables predicting life satisfaction, the mediator; H10 demonstrated that decreasing grit predicted and was significantly associated with increasing life satisfaction (β = -0.49, t = 4.88, p = 0.00), H11 reveals that life satisfaction significantly decreases with level of study (β = -0.33, t = 6.38, p = 0.00), while increasing life satisfaction was associated with lower levels of perceived stress (β = -0.19, t = 3.74, p = 0.00) and in H13 significant differences was observed in the level of life satisfaction based on the type of sponsorship (β = -0.14, t = 2.33, p = 0.00). Further the study analyses were carried out to detect the mediated paths in the study, examining the mediating effects of life satisfaction on the relationships between the variables of grit, level in the university, type of sponsor, perceived stress, and resilience.

Table 7 Path analysis of psycho-social predictors of resilience and life satisfaction

	Path	β	STDEV	T statistics (Bootstrapped)	P values	Low	High	Remark
Dependent variable: Resilience								
H1	Family type -> Resilience	0.009	0.04	0.214	0.831	-0.072	0.086	Rejected
H2	Grit -> Resilience	0.048	0.107	0.452	0.652	-0.139	0.279	Rejected
H3	Level -> Resilience	-0.106	0.047	2.252	0.024	-0.184	0.001	Accepted
H4	Life Satisfaction -> Resilience	0.513	0.054	9.487	0.000	0.43	0.64	Accepted
H5	Perceived stress -> Resilience	-0.27	0.039	6.846	0.000	-0.343	-0.189	Accepted
H6	Sex -> Resilience	0.197	0.074	2.668	0.008	0.05	0.338	Accepted
H7	Type of Sponsor -> Resilience	-0.007	0.036	0.18	0.857	-0.076	0.066	Rejected
H8	Type of Sponsorship -> Resilience	0.016	0.054	0.287	0.774	-0.107	0.12	Rejected
Mediator variable: Life satisfaction								
H9	Family type -> Life Satisfaction	0.066	0.047	1.41	0.159	-0.03	0.151	Rejected
H10	Grit -> Life Satisfaction	-0.494	0.101	4.877	0.000	-0.719	-0.324	Accepted
H11	Level -> Life Satisfaction	-0.327	0.051	6.378	0.000	-0.437	-0.235	Accepted
H12	Perceived stress -> Life Satisfaction	-0.194	0.052	3.739	0.000	-0.308	-0.104	Accepted
H13	Sex -> Life Satisfaction	0.153	0.11	1.393	0.164	-0.064	0.368	Rejected
H14	Type of Sponsor -> Life Satisfaction	-0.144	0.062	2.325	0.02	-0.257	-0.015	Accepted

Table 8 Mediating effect type of life satisfaction on relationship among variables of grit, level in the university, type of sponsor, perceived stress and resilience

	Simple Mediation	Direct Effects (β)	Indirect Effects (β) (Confidence Interval)	T statistics	VAF	
H15	GRIT -> Life Satisfaction -> Resilience	-0.205	-0.253 [-0.377 --0.124]	3.743	123.41%	Full mediation
H16	LEVEL -> Life Satisfaction -> Resilience	-0.274	-0.168 [-0.235 --0.104]	4.727	61.31%	Competitive partial mediation
H17	Type of Sponsor -> Life Satisfaction -> Resilience	-0.08	-0.074 [-0.14 --0.007]	2.188	92.5%	Full mediation
H18	Perceived stress -> Life Satisfaction -> Resilience	-0.37	-0.099 [-0.151--0.035]	3.291	26.76%	Competitive partial mediation

The results in Table 8, shows that the mediation effects were confirmed as the indirect effects of the independent variables on resilience were verified as four simple mediation hypotheses were supported. The mediation effects were found to be significant when life satisfaction acts as a mediating variable, given that the confidence interval of these effects does not contain zero (Table 9). In hypotheses H15 and H17 life satisfaction fully mediated or suppressed the associations among grit (β = -0.253, t= 3.743, [95%Cl: -0.377 --0.124], type of sponsor (β = 0.168, t= 4.73, [95%Cl: -0.235 --0.104]) and resiliency behaviour. In hypotheses H15 and H17, the relationship between the independent variables (grit and type of sponsor) and the dependent variable (resiliency behavior) is fully mediated by life satisfaction. This means that the direct effects of grit and type of sponsor on resiliency behavior are no longer significant or negligible once the mediating effect of life satisfaction is considered. The mediating effect of life satisfaction becomes the primary pathway through which these independent variables affect resiliency behavior. That is the importance of grit and sponsorship become irrelevant to resilience in the presence of higher life satisfaction among the students.

In hypotheses H16 and H18, life satisfaction significantly and partial mediate the association of level of study and resilience (β = -0.168, t= 4.73, [95%Cl: -0.235 --0.104]) as well as the association of perceived stress with resilience (β = 0.099, t=3.291 [95%Cl: -0.151--0.035]). These results indicate that while the direct effects of the level of study and perceived stress on resilience may be present, a significant portion of their influence on resilience were explained or mediated by life satisfaction. Life satisfaction was substantially responsible for why students despite their level of study and stressors the face demonstrated stronger resilient behaviour.

DISCUSSION

The study's findings show a link between resilience, grit, life satisfaction, perceived stress, and socio-demographic characteristics among undergraduate students. The research discovered that study level, life happiness, perceived stress, and sex were all strongly connected to resilience, while grit and family type were not. Furthermore, the research discovered that grit and study level were adversely connected to life satisfaction, while perceived stress and sponsor type were also negatively related to life happiness. These results are consistent with earlier empirical research that demonstrated resilience to be favourably linked with life satisfaction and adversely associated with perceived stress (Ahola et al., 2008; Lu and colleagues, 2017). This study's findings are consistent with earlier studies on resilience and associated characteristics such as life satisfaction and perceived stress. Lin and colleagues (2018) discovered, for example, that life satisfaction showed a positive association with resilience and a negative link with perceived stress. Similarly, Chen and colleagues (2019) discovered a favourable association between grit and resilience, but no significant correlation between family type and resilience. Previous empirical research that identified comparable connections between these factors (e.g., Fekken, 2013; Lu & Gilman, 2015; Rutter, 2012) supports our results. Furthermore, the study's results corroborate the notion that grit is inversely associated to life satisfaction (Duckworth & colleagues, 2007). The study's results, however, contradict prior research that showed family type and grit to be positively connected to resilience (Liu and colleagues, 2018; Chen and colleagues, 2016). This disparity might be explained by the fact that the present research employed undergraduate students as a sample, while prior studies used adults or children. Furthermore, the present research utilised a different grit metric than earlier studies, which might have resulted in different outcomes.

CONCLUSION

In conclusion, the findings of this research confirm the relevance of perceived stress and life satisfaction as variables connected to resilience among undergraduate students. Furthermore, the degree of study, gender, and kind of sponsor all had a substantial influence on resilience. However, family type, grit, and kind of sponsorship had no effect on resilience. It is crucial to highlight that the sample size in this research was confined to college students in a particular location which may limit the results generalizability furthermore the research relied on self report measures which are susceptible to bias and social desirability effects. More study using a bigger, more varied sample and various data gathering techniques may give a more thorough knowledge of resilience and its associated aspects.

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