



Can cognitive stress appraisal moderate the link between family cohesion and academic engagement among undergraduate students?

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Abstract

The study explored whether the association between family cohesion and academic engagement was affected by students' perceptions of cognitive pressure. Participants were 168 undergraduate students (84 males and 84 females, Mean age = 18.21, SD = 2.07 years), randomly drawn from a tertiary educational institution in South-eastern Nigeria. Measures for data collection were the Students Engagement Instrument (SEI), Family Cohesion Scale (FCS), and Presentation of a Cognitive Appraisal Scenario (CAS). We employed the Hayes PROCESS macro for SPSS, which has a regression-based path-logical frame in data analyses. Results showed that family cohesion had a positive association with academic engagement, but cognitive stress appraisal had no significant association with academic engagement. Cognitive stress appraisal moderated the association between family cohesion and academic engagement. Family cohesion has an association with greater academic engagement for students especially in the challenge cognitive stress appraisal condition, than those in the threat cognitive stress appraisal condition, but not for those in the control cognitive stress appraisal condition. The finding suggests that having a challenging cognitive stress appraisal and threatening cognitive stress appraisal has a link with increasing family cohesion, and contributing to higher levels of students' academic engagement. The findings may help advance the educational engagement of students in utmost institutions of advanced literacy.

Keywords: Family cohesion; cognitive stress appraisal; academic engagement; undergraduate students; moderation.

Introduction

Family cohesion, parental inclusion, warmth, and positive involvement in the general welfare of children go a long way in predicting children's adaptation to school climate. Family cohesion has been described as the emotional bonding in family members which goes a long way in representing the level of unity and togetherness found within a family (Leidy et al., 2012; Olson et al., 1982). Family cohesion has also been described as the way family members, especially parents stand by with support, care, and emotional closeness among family members (Tolan et al., 1997).

Family cohesion has been found to indirectly link students' academic competency through their learning-related behaviors such as self-reliantly engaging and persisting on academic tasks as well as enjoyment of academic tasks (Wenke et al., 2020). Family cohesion helps to stimulate positive relationships with peers and teachers which in turn predict students belonging while conflicts with classmates and faculties bring down an individual belonging especially where there is no family cohesion which has built resilience (Leidy et al., 2012; Maurizi et al., 2013). Where a student enjoys the cohesive nature of family status, parents will be more engaged in their education, and will more likely keep a close eye on them while guiding them on how to think, interact with friends and deal with other social problems, since there is bound to be an open communication system among the family members. And this will in turn restrict children from misconduct.

Family cohesion and parental inclusion, therefore, encourage children to acquire social skills, become well-received among peers, and develop strong school belonging students from cohesive families tend to respond adaptively to social challenges and manage negative emotions effectively (Morris et al., 2007; Sijtsema et al., 2013). On a different note, students from divorced and much less cohesive families experience excessive degrees of emotional misery and emotional dysregulation as they are far much less supervised with the aid of their dad and mom, and other household members. They tend to be more inclined to aggression, hostility, and trouble behaviors, which in turn makes them less famous amongst friends, and more inclined to social troubles and lesser academic engagement in school (Carthy et al., 2010; Hamama & Arazi, 2012). Moreira et al.(2014) have opined that students from cohesive families tend to show more prosocial behavior and better social inclusion, they have been noted to get more involved in school-based activities and tend to develop stronger school belonging.

Stress is a life-draining factor and has major socioeconomic implications for all spheres of life. Stress is a trigger for depression, it leads to absenteeism in classes, reduces turnover and productivity, it depreciates morale, and ultimately can lead to suicide. When a student experiences stress-responses over protracted periods it tends to cause a reduced ability to focus and a diminished concentration level as well as a reduced immune function (Ursin & Erikson, 2007). Cognitive stress appraisal has been described as a self-care strategy based on how individuals evaluate their perception of stressors (Lazarus, 1984). In primary appraisal, an individual's evaluations are divided into 'threat' and 'challenge'; threat describes anticipated harm/loss, and challenge describes a threat that can be met or overcome. Thus, college or university students have either fine or poor expectations about tasks they are exposed to, about the outcomes.

Academic engagement can be described as the extent to which students are committed to and involved in the curriculum of study and the school (Tilbury Creed et al., 2014). Academic engagement, an arm of school engagement is perceived as a multidimensional construct that has emotional, behavioral, and cognitive components and is widely influenced by contextual and relational factors, including relationships with peers, teachers, and family members, and is predictive of a wide range of academic trajectories and outcomes, (Miranda-Zapata et al., 2018). Emotional and behavioral engagement describes the student's level of emotional response or emotional bond to the school, school-related activities, teachers, classmates, and students' interactions and responses in academic, social, or extracurricular activities in school, indicated by class attendance, absence of disruptive behavior, effort and persistence with schoolwork, finishing set tasks,

mean overall grades and participation in extracurricular activities respectively (Moreira et al., 2018, Zhu et al., 2019).

Cognitive engagement goes a long way to describe the perceptions and beliefs university students have concerning themselves, their institution, their lecturers, and their fellow students, perceptions, and beliefs concerning their self-concepts, future aspirations, and expectancies (Moreira et al., 2018).

The present study

In this current study, various portions of literature have been reviewed and most of them point out that academic engagement has a lot of intertwining variables which encompass family-related, peer-related, child-related variables, and school-related factors such as academic self-concept. Findings from empirical studies suggest that family-related variables play a decisive role in children's adjustment to school either by directly influencing children's academic achievement or indirectly by affecting the children's perception of their academic competencies, which in turn may impact children's engagement with school-related activities. According to the main-effect model (Cohen & Wills, 1985), pleasant relationships with the family can provide help for people under stress and promote wholesome bodily and mental development. Therefore, the present study aimed to investigate the moderating role of cognitive stress appraisal on family cohesion and academic engagement among undergraduate students. We look forward to providing valuable information about the importance of family cohesion and school engagement in undergraduate students and have practical implications for parents, family members, and psychologists to increase students' adjustment with the school.

It is, however, hypothesized in this study that; family cohesion will significantly be associated with academic engagement among undergraduates, cognitive stress appraisal will significantly be associated with academic engagement among undergraduates, and cognitive stress appraisal will significantly moderate the association between family cohesion and academic engagement among undergraduates.

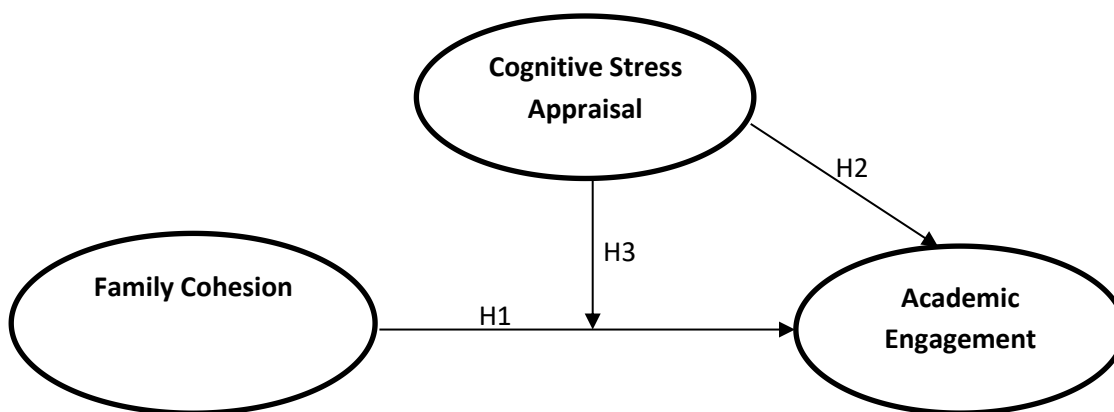


Figure1: *Conceptual model – Cognitive stress appraisal as a moderator of the link between family cohesion and academic engagement.*

Method

Sample and procedure

The study surveyed 168 undergraduate students drawn from Alex Ekwueme Federal University, Ndufu-Alike, Ebonyi State, Nigeria. Participants were 84 males and 84 females and their ages ranged from 16 years to 23 years with a mean age of 18.21 years and a standard deviation of 2.07. All procedures performed in this study followed the ethical principles with the 1964 Helsinki declaration and its later amendments in October 2013 or comparable ethical standards.

A cover letter and instructions attached to each questionnaire explained the objective of the study, which stated that participation in the study was voluntary and assured participants of the confidentiality of their responses. Each participant experimented individually, with each session lasting about 30 min. After they signed the consent form, participants responded to a family cohesion scale as pre-task questionnaire items. During the experiment, the researchers then read aloud one of two instructional units to the participants. The challenge instructions, similar to those used by Tomaka et al. (1997), focused on participants' ability to perceive the engagement task "as a challenge to be met and overcome" and to perceive themselves as someone "capable of meeting that challenge". Also, the threat instructions, similar to those used by Tomaka et al. (1997), focused on the difficulty of the engagement task and the participants' need to work "as quickly and efficiently as possible." The instructions emphasized the importance of both speed and accuracy.

Measures

Students Engagement Instrument (SEI): The SEI is a 33-item self-report measure of academic engagement designed to measure the cognitive and affective engagements of university students (Appleton et al., 2008). It was originally designed and validated for ninth-grade students (N=1, 931) in a diverse, urban school district in the upper Midwest (Appleton et al., 2006). Recent research has since validated the structure of the SEI with students from Grade 3 through Grade 12 (Betts et al., 2010; Carter et al., 2012). Presently, the SEI is being used in several school districts across the United States and has been translated into other languages for use around the world (Waldrop et al., 2019). The SEI is thought to measure three subtypes of affective engagement (i.e., teacher-student relationships – 9 items, peer support for learning – 6 items, and family support for learning – 4 items); and two subtypes of cognitive engagement (i.e., control and relevance of school work – 9 items, and future goals and aspirations – 5 items).

These 5 factors/subscales of the SEI are scored on a 4-point Likert-like scale (i.e., 1 = strongly disagree, 2 = agree, 3 = disagree, 4 = strongly agree), where low scores indicate a high level of student engagement. The SEI subscales have correlated as expected with measures of academic performance, (e.g., GPA, reading, and math achievement) and behavior (e.g., school suspensions) (Appleton et al., 2006). Again, coefficient alphas provided evidence of internal consistency across all five factors: teacher-student relationships ($\alpha = .88$), control and relevance of school work ($\alpha = .80$), peer support for learning ($\alpha = .82$), future aspirations and goals ($\alpha = .78$), and family support for learning ($\alpha = .76$; Appleton et al., 2006).

Family Cohesion Scale (FCS): Family cohesion. Family cohesion was measured with the 10-item FACES Cohesion scale (Olson et al., 1985). Farrell and Barnes (1993) have also shown in their study that this scale is a global indicator of social support in a family and that it is linearly related to numerous indicators of psychological functioning of family members. Using a 5-point Likert scale with answers ranging from almost never (1) to almost always (5), respondents described how frequently, for example, family members ask each other for help; family members like to spend free time with each other; when our family gets together for activities, everyone is present; and family togetherness is very important. A factor analysis of the 10 items indicates that all the items loaded on a single factor (Farrell et al., 1995). Again, coefficient alphas provided evidence of internal consistency of .83.

Manipulating Cognitive Appraisals: Under the present investigation, challenge and threat appraisals were experimentally manipulated through task instructions, rather than through spontaneous measurement (Blascovich et al., 1999). Instruction sets similar to those used successfully in eliciting challenge and threat appraisals were utilized (Tomaka et al., 1997).

Tomaka et al. (1997) in their work extended these findings to challenge and threat responses. By varying the instructional set, they were able to obtain physiological responses that suggested either a challenge appraisal or a threat appraisal. A study by Drach-Zahavy and Erez (2002) also varied the instructional set to correspond to either challenge or threat appraisals and found that appraisal instructions led to differences in performance outcomes. Manipulating appraisals would have greater applicability by demonstrating that it may be possible to yield performance effects in a single exposure without false feedback or prior practice.

Data analyses

In this study, age, sex, educational level, family cohesion, cognitive appraisal, and academic engagement were employed for the analysis. Data were entered into the Statistical Package for the Social Sciences (SPSS) version 22©. Regression analysis was used to establish the relationship between the demographic and major variables of interest in the present study. For purposes of this study, PROCESS macro for SPSS was utilized in moderation analysis (Hayes, 2013).

Results

Results of the descriptive statistics and correlation analysis which considered the level of significance and correlation among the study's variables are presented in Table 1, while the Hayes Process Macro regression results can be found in Table 2.

Table 1: Mean, standard deviation, and inter-correlations among study variables ($n = 168$)

Variables	M	SD	1	2	3	4	5	6
1 SEI	79.17	13.76	1.00	-	-	-	-	-
2 Age	18.21	2.07	-.12	1.00	-	-	-	-
3 Sex	1.50	.50	.05	-.16*	1.00	-	-	-
4 AL	1.73	.77	-.06	-.11	.04	1.00	-	-
5 FCS	25.55	8.47	.18*	-.02	.03	-.14*	1.00	-
6 CAS	2.00	.82	-.05	-.06	-.12	-.03	-.06	1.00

Note: * = $p < .05$; ** = $p < .001$; SEI-Academic Engagement; AL-Academic Level; FCS-Family Cohesion; and CAS-Cognitive Appraisal.

Results of correlational analyses showed that among the control variables tested, none was significantly related to academic engagement. The results of the correlational analyses indicate that family cohesion was significantly and positively related to academic engagement ($r = .18$, $p = .009$), while cognitive stress appraisal was not significantly related to academic engagement ($r = -.05$, $p = .251$).

Table 2: Regression results predicting academic engagement by family cohesion and cognitive appraisal

Variables	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>	95% <i>CI</i>
Family Cohesion (FCS)	.29	.12	2.36*	.0193	[.05; .53]
Cognitive Appraisal (CAS)	-.71	1.27	-.56	.5784	[-3.21; 1.80]
FCS x CAS	-.37	.15	-2.42*	.0166	[-.66; -.07]

Note: * = $p < .05$; $R^2 = .07$; $\Delta R^2 = .03$

In Table 2, it was found that family cohesion positively predicted academic engagement ($B = .29$, $t = 2.36$, $p = .019$). Cognitive appraisal did not predict academic engagement ($B = -.71$, $t = -.56$, $p = .578$). But, cognitive appraisal moderated the negative association between family cohesion and academic engagement ($B = .37$, $t = -2.42$, $p = .016$), given that the interaction effect between family cohesion and cognitive appraisal on academic engagement was significant. The predictor variable accounted for 7% of the variance in academic engagement, $F(3, 164) = 4.01$, $p < .05$.

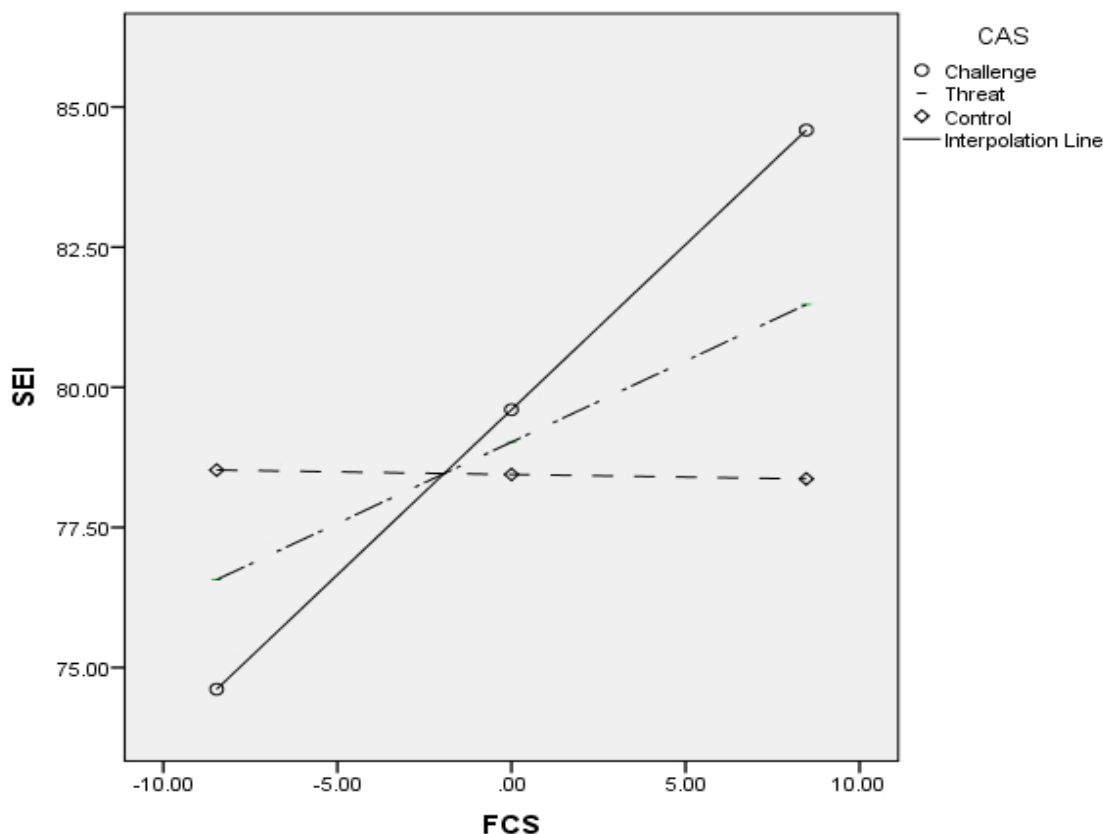


Fig 1: Moderating role of cognitive appraisal in family cohesion and academic engagement.

Table 3: Conditional effects of cognitive appraisal on academic engagement

CAS	Effect	SE	t	p	LLCI	ULCI
Challenge	.5890	.1733	3.3987	.0008	.2468	.9311
Threat	.2898	.1227	2.3628	.0193	.0476	.5320
Control	-.0093	.1750	-.0533	.9576	-.3549	.3363

Slope of the conditional effect of cognitive appraisal on academic engagement (see Fig. 1) indicated that having a challenging cognitive appraisal and threatening cognitive appraisal predicted increased academic engagement $\{B = .59, t = 3.40, 95\% CI = [.25, .93], p = .001\}$ and $\{B = .29, t = 2.36, 95\% CI = [.05, .53], p = .019\}$ respectively, but those without a cognitive appraisal did not predict academic engagement $\{B = -.01, t = -.05, 95\% CI = [-.35, .34], p = .958\}$.

Discussion

This study examined the moderating role of cognitive stress appraisal in the link between family cohesion and academic engagement amongst undergraduate students. The findings indicated family cohesion had a positive association with academic engagement. This implies that students with family cohesion are more engaged in their academics as they receive a strong emotional bond and family support, especially from parents. This entails that when close coaching and communication in training is observed, it will eliminate misconduct and distractions amongst students. This is similar to the findings of Mirsadegh et al., (2021) who found a significant direct relationship between family cohesion and academic engagement among high school students. Family roles cannot be neglected and have been seen as among the pillars of every society, and social harm as well. Evidence indicates that psychological and behavioral abnormalities among students have their roots emanate from various families (Mirsadegh et al., 2021), and most families have demonstrated to have a direct and negligible influence on the academic fulfillment of their younger ones (Mirsadegh et al., 2021; Motaghd Larijani, 2015). The emotional bond and positive relationship among family members especially parents affects different aspects of people's lives and their development, including education and high academic achievement.

Cognitive stress appraisal was found to have no significant association with academic engagement among undergraduates. This shows that students' appraisal of stressful conditions as either threats or challenges in their education-related tasks and pursuits does not predict their engagement in their academics. The cognitive appraisal theory of stressor by (Lazarus, 1984) can be used to explain the results, which states that two distinct forms of the appraisal - primary and secondary must occur simultaneously to determine the meaning of events or tasks as neither challenge, stressful, less threatening focuses on minimizing harm. When people have control over events or tasks, and when demands are acceptable there is no need for devising coping strategies or struggling to excel and engage in tasks. This implies that undergraduate students do not perceive academic engagement as a stressor but rather as a challenge appraisal to strive for the accomplishment of a career path upon graduation.

The third hypothesis which stated that cognitive stress appraisal will significantly moderate the association between family cohesion and academic engagement among undergraduates was confirmed. Family cohesion has a positive relationship with greater academic engagement for undergraduates especially in the challenge

cognitive stress appraisal condition, than those in the threat cognitive stress appraisal condition, but not for those in the control cognitive stress appraisal condition.

Implications of the study

The study has some implications for society - students, family, and academia. Family cohesion has a positive association with academic engagement which implies that family bonds and environment contribute greatly to academic engagement and advancement of students. Parents should enforce to maintain and strengthen an excellent emotional state in their homes which invariably affects their ward's engagement in academics and educational pursuits. A good family bond fosters students' good academic engagement leading to academic advancement. The study will assist psychologists and teachers to apprehend the role of family emotional bonds in counseling instances about academic engagement amongst students.

Appraisal of stress is also a strong contributory factor in the determination of a task to be perceived as a threat or challenge which can determine the achievement and engagement of academics among undergraduates. There ought to be programs, policies, and structures in place to minimize the impact of stress (threats) to learning, consequently which will make them be engaged in their academics.

The finding also implies that when the undergraduates were faced with a challenging stress appraisal, they are more likely to be engaged academically than when faced with a threatening or neutral stress appraisal. This increased academic engagement was once seen specifically when an increased family cohesion bond was felt by undergraduates.

Limitations of the study

Possible limitations have been found in the current study. The current study only rated university students in Alex Ekwueme Federal University, Ndufu-Alike, and didn't co-opt students from other institutions of higher learning. Even though the current study enjoyed a moderate population sample, perhaps a considerable and more representative sample could give further answers to the questions posed. The current study employed a mixed-method approach in data gathering. A common challenge, which frequently occurs while employing the self-reporting approach, is the attainable bias of the participants. Although the current study had assured confidentiality and anonymity, there's a threat of social advisability. In other words, students could have been mindful of revealing the factual response may be from the fear of being judged by the experimenters. Nevertheless, the study precisely emphasized individual participation instead of group participation; the peer influence could have been another rationale, which could conceivably have affected the results of the study.

Conclusion

Academic engagement is the determinant of the success and completion of the academic pursuit of an undergraduate student. Emotional bonds from the family play a vital part in determining how a student will be actively engaged and pursue education in the university. Adequate communication with parents and siblings provides students analyzing intended stressors as a challenge cognitive appraisal which helps them adapt easily and remain engaged in their academics while coping appropriately.

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