

Article

Maladaptive Perfectionism and College Adjustment of International Students in Korea: A Moderated Mediation Model of Social Support

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Abstract: Due to the increasing demand for international education, the number of international students in Korea has been rapidly increasing. Accordingly, well adjusting to college has been a main interest for both academic institutions and international students as it is key to their success. Previous studies have revealed that maladaptive perfectionism (MP) hampers the college adjustment (CA) of international students, yet little is known about its underlying mechanism. To fill in this gap, this study examined the mediating effect of acculturative stress (AS) in between maladaptive perfectionism and college adjustment; the moderating effect of social support (SS) in the relation between acculturative stress and college adjustment; and the moderated mediating effect of social support in the causal pathway from maladaptive perfectionism to acculturative stress to college adjustment. Results showed a partial mediating effect of acculturative stress, a moderating effect, and a moderated mediating effect of social support. This implies that social support is an essential factor that helps international students better adjust to the new collegiate environment by alleviating their stress caused by maladaptive perfectionism and acculturative stress.

Keywords: maladaptive perfectionism; acculturative stress; social support; college adjustment; international students; Korea

1. Introduction

In the wave of globalization, international education has become a crucial part of higher education. In 2016, the number of students who enrolled in foreign educational institutions pursuing a tertiary degree has skyrocketed to nearly five million, which is more than triple of that in 1990 [1]. South Korea (hereafter Korea) is no exception. Along with globalization and the surge of international education, there has been a massive influx of international students. As of 2018, approximately 150,000 international students enrolled in higher education institutions, those who mostly came from developing countries including China ($n = 68,537$, 48.2%), Vietnam ($n = 27,061$, 19.0%), Mongolia ($n = 6768$, 4.8%), followed by Japan ($n = 3977$, 2.8%) and the United States ($n = 2746$, 1.9%) [2]. In light of the growth of international student numbers and their significance on Korean society, the Ministry of Education recently revamped its plans to increase the numbers of international student enrollment to 200,000 by 2023, which will then mark 5% of higher education enrollment. On the other hand, while the number of international students in Korea has been rising, their difficulties in transitioning and adjusting to the unfamiliar environment have also emerged as a major interest.

In particular, college students are given mounting missions such as completing assignments, getting certificates, and building new relationships. Because these developmental tasks must be

performed successfully, college students are found to have a strong tendency to be perfectionists during this time [3,4]. However, unlike adaptive perfectionists, maladaptive perfectionists tend to equate perfect performance with self-worth and view imperfect performance as a personal failure [5]. They focus on negative aspects of their performance, finding it difficult to accept their limitations. As a result, many of these international students experience depression, inconsistency, and a sense of failure that their performance has not reached a certain standard [6].

The challenges faced by international students are inevitably greater than those of domestic students. While international students are already overwhelmed by academic tasks, they are also pressured to perform well in order to succeed. In addition to such academic stress, the language barrier is found as a major challenge, which creates a feeling of inferiority [7]. This sense of inferiority, frustration, and depression experienced by international students usually serves as a major factor in acculturative stress.

Acculturative stress refers to the problems of individual behavior and mental health that arise in the course of personality changes that occur through direct and continuous contact between two cultures [8]. Acculturative stress includes subfactors of perceived discrimination, hostility, nostalgia, fear, cultural shock, inferiority, and communication problems, among which results are presented that fear, nostalgia, guilt have a negative effect on college adjustment [9–12]. Previous research supported that acculturative stress is closely related to the emotional difficulties of international students and graduate students [13–15]. The majority of prior research has shown that difficulties in college adjustment of graduate students are similar to that of undergraduate students [16]. That is, a series of recent studies has indicated that there was no difference in the level of acculturative stress between graduate and undergraduate students. Wei's study also reported the similar result [7]. Rather than the level of degree, the difference that arises as the length of study and residence increases is conceivably related to the overcoming of language barriers and seems to have a deeper relationship with reducing acculturative stress. Some variables, including the length of residence and linguistic barriers, seem to increase acculturative stress in connection with the individual's internal characteristics related to perfectionism [7].

However, some acculturative stressors are related to external factors (e.g., discrimination) and may not always be easily handled by internal sources alone [7]. In such cases, attempts to reduce stress only by relying on internal resources may not be effective. Reasonably, external support such as social support could be a crucial factor for international students in overcoming acculturative stress and well adapting to college life.

This study aims to examine the maladaptive perfectionism (MP) -college adjustment (CA) associations and understand major stress factors that hamper or assist international students' adjustment in this relationship. For this purpose, this study tests the mediating effect of acculturative stress (AS) using the case of international students in Korea. For the moderating effect and the moderated mediating effect, this study selected social support (SS), namely, support from family, friends, and school resources, as the moderator that helps students lower their stress caused by maladaptive perfectionism and acculturation that eventually leads to better college adjustment. Among a number of research questions that might be raised, this study asks the following:

Research Question: Is social support a facilitator for international students in lowering their stress caused by maladaptive perfectionism and acculturation so they can eventually better adjust to college?

2. Literature Review

College adjustment and student success have been a major area of interest among scholars for several decades, in which student development models and theories have served as a foundation for this field. One of the most well-acknowledged models is the Student Integration Model by Tinto, that emphasized the importance of academic and social integration within higher education [17]. While most other researchers mainly focused on the influence of students' individual attributes on their success, Tinto looked beyond these characteristics and delved into students' interactions within a

broader scope. According to this model, student success and retention depend on the amount of student engagement with the academic institution and society. That is, the more students successfully integrate into both systems, the better they adjust to the new college environment and the higher the rate of their persistence. Similarly, Astin postulated that the extent of students' involvement in college reflects their development. In his theory, Astin defined student involvement as "the amount of physical and psychological energy that the student devotes to the academic experience" [18] (p. 518). For example, the more time students spend on studying, the more academically and socially they are proficient. It can also be viewed as the more actively students interact with others on/off campus whether it be faculty, staff or peers, the more they thrive. As proved in previous studies, the development of a student continuously changes depending on the different influential factors and their surroundings. Therefore, it is crucial to understand the key factors that affect international students and to create a meaningful and supportive environment.

Previous literature has explored the prevalence of stress in international students' lives and found that the stress level of international students is higher than that of non-international students [19]. Such effects of stress can be serious as it is strongly linked with the students' psychological and physical condition as well as one's behavior leading to negative effects. Furthermore, it may hinder active engagement in academic activities, reduce students' academic performance, and even lead to failure of completing one's program. As a result, the adjustment process can be an extreme challenge as stress renders students ineffective.

Among the various stressors closely associated with international students, perfectionism and acculturative stress are listed among the top concerns [20,21]. Along with this, it is noted that the mere act of sharing one's problems is a way of relieving stress and receiving support is a way of re-energizing and refining one's coping resources. Moreover, it was proven that social support facilitates and buffers international students' college adjustment, which is seminal for their success both personally and academically as well as for their well-being. This section provides a theoretical overview on the concepts of maladaptive perfectionism, acculturative stress, social support, and college adjustment.

2.1. Perfectionism and College Adjustment

Perfectionism is defined as setting lofty goals and unrealistic standards striving for excellence, combined with relentless self-criticism, self-doubt, and fear of failure [22]. Once considered monolithic [23], there is now a growing consensus that perfectionism is multidimensional [6,24]: adaptive or maladaptive. Adaptive perfectionists are healthy perfectionists [5] who take their weaknesses into account and set goals within the scope of their abilities. In contrast, maladaptive perfectionists are driven by extreme and unrealistic levels of excellence, relentless about mistakes and are in endless fear of failure [22]. They "view imperfect performance as personal failure, and focus on the negative aspects of their performance" [7] (p. 386). Under these circumstances, maladaptive perfectionists believe nothing is ever good enough.

Students who study abroad experience many demands from universities to perform well. In order to successfully accomplish these tasks, students are likely to develop maladaptive perfectionism [3]. A study by Curran and Hill [4] showed that college students have become more pursuing of perfectionism and the increases in perfectionism have the potential to explain some of the increase in the prevalence of psychopathology. The fear of failing to meet the demands triggers psychopathology such as depression and anxiety, which hinder their performance [25] and interpersonal relationships [5], all of which appear to make it difficult to adapt to college [26].

Previous literature found that maladaptive perfectionism leads to low academic performance [27], emotional maladjustment [28,29], substance abuse, and relationship problems [30]. Not to mention that maladaptive perfectionism exacerbates under stressful situations, it has been found that, at times, even seemingly adaptive perfectionism may become maladaptive [31]. Likewise, innumerable studies emphasized the destructive nature of maladaptive perfectionism among students in college.

In Korea, studies focused more on the psychological aspect of maladaptive perfectionism. Most studies viewed perfectionism as a maladaptive trait that led to high levels of depression, anxiety, negative affect, and mental disorders [29,32–34] as well as low levels of life satisfaction [29]. In sum, in Korea and abroad, many studies emphasized the destructive nature of maladaptive perfectionism in the student body.

2.2. Acculturative Stress and College Adjustment

Acculturation is “the dual process of cultural and psychological change that takes place as a result of contact between two or more cultural groups and their individual members” [8] (p. 698). Rooted in the process of acculturation, acculturative stress is psychological, psychosocial, and physical discomfort when adapting to the new environment [35]. A majority of international students suffer from acculturative stress in the adjustment process. A vast body of research confirmed this by recognizing major acculturative stressors, namely discrimination; homesickness; perceived hate; fear; guilt; culture shock; loss of social support; language barriers; and financial challenges [36,37].

The case of acculturative stress is more unique in Korea. Having been an ethnically homogeneous country, the level of accepting diversity is rather quite low. According to the globalization index, Korea ranked 37 among 100 countries [38]. Although Korea is the eleventh largest economy in the world [39], the level of globalization and cultural integration cannot compare. Due to such contextual circumstances, acculturative stress was found as the biggest obstacle in the adjustment process of foreigners, those including international students [40]. Among the various acculturative stress factors that affected international students studying in Korea, discrimination ranked as a top stressor [41] as a large number of international students reported that they were treated differently, sensing a much stronger wall when interacting with Koreans. Given the uniqueness of the Korean context and previous literature that has identified acculturative stress as a negative predictor of international students’ college adjustment [42], it is important to study this relationship.

2.3. Social Support and College Adjustment

Social support is the emotional, physical, and material support from one’s social network. It is crucial as it may lessen one’s stress and help them better adjust in various settings. A considerable body of research studied the main sources of support: family, friends, and significant others. While family and friends were the major sources of support on many occasions [43], international students knocked on the doors of counseling centers, international student offices, and international student organizations [44] as faculty, staff members, classmates and even tangible support such as friendly environment and facilities were found to substantially help students by making them feel welcomed and accepted [45].

With regard to the role of social support, Cohen and Wills [46] drew a distinction between social support as a facilitator and that as a buffer against deleterious effects. The former was labeled the “main-effect model” that directly helps individuals adapt well. On the other hand, the latter was termed the “buffering model” as social support plays a moderating role by controlling stress factors in challenging situations. In this study, social support is viewed as a buffer that helps international students cope with stress and better adjust to college.

Numerous studies have reported that social support mitigates stress of international students leading to better adjustment [13,47]. In fact, social support is proved as one of the most powerful factors that help students reach their optimal functioning by overcoming different types of stress [48,49]. Congruent with this, it was noted that students who received sufficient support experienced lower levels of stress, while those who did not receive much support felt helpless and overwhelmed [50]. It is therefore possible to assume that social support is a crucial factor that promotes positive college adjustment of international students.

2.4. Maladaptive Perfectionism, Acculturative Stress, and College Adjustment

Previous literature has supported the mediational role of stress in the associations between maladaptive perfectionism and adjustment. With a sample of young and middle-age adults, Chang [51] examined the mediating effect of stress in between perfectionism and psychological functioning: both positive (e.g., life satisfaction) and negative (e.g., worry, negative affect). Results of the study showed that stress fully mediated life satisfaction, while partially mediated worry and negative affect. Similarly, in a study that compared Black and White female college students, Chang et al. [52] hypothesized that stress may mediate the association between perfectionism and psychological functioning. Results of this model showed complete and partial mediation.

Later, Rice et al. [53] found stress as a partial mediator in between maladaptive perfectionism and depression, a full mediator in maladaptive perfectionism and hopelessness, as well as a full mediator in maladaptive perfectionism and academic adjustment of honor students in college. Lastly, Rice et al. [54] found that maladaptive perfectionism was associated with stress, which in turn partially mediated the association in between perfectionism and college adjustment. Given the fact that students with high levels of maladaptive perfectionism suffer more due to acculturative stress during the adjustment process, it is imperative that this relationship be explored to better understand and assist international students studying in Korea. For this reason, it is proposed that acculturative stress is a key mediator in college adjustment of international students with high levels of maladaptive perfectionism.

2.5. Acculturative Stress, Social Support, and College Adjustment

In most cases, international students leave their major social support network behind in their home countries. What is worse, even when they want to seek support from other sources, they feel hesitant because of language barriers or fear of not being understood. Such acculturative stress limits the range of their social interaction and support, which results in maladjustment [55]. Altogether, this becomes a hindrance in accessing further social support from others. For these reasons, international students are exposed to stress that is more severe and amplified than their peers. Nevertheless, it was proven that social support when available “provides a powerful coping resource for persons experiencing stressful life changes, including the stress of adjusting to an unfamiliar culture” [49] (p. 71). This means that social support may function as a great buffer in moderating acculturative stress during one’s adjustment.

A bulk of empirical studies has proved that social support moderates acculturative stress of international students’ adjustment [13,46]. When dealing with extreme acculturative stress, social support was proved as a tremendously helpful coping strategy [56]. On the contrary, O’Reilly, Ryan, and Hickey [57] found that, even with high levels of social support, students were struggling with adjustment difficulties. In the same vein, McClelland and Judd [58] failed in confirming social support as an effective buffer.

Most results obtained from past literature regarding acculturative stress in college adjustment underscore the significance of studying the moderating variable that leads to positive adjustment. Yet, despite the theoretical centrality of social support in the adjustment process and the long track record of research on the buffering effects of social support, studies on the case of Korea do not exist. Thus, the present study examined the moderating effects of social support in between acculturative stress and college adjustment of international students in Korea.

2.6. Moderated Mediating Effect of Social Support

People with high maladaptive perfectionism tend to avoid interpersonal relationships as they are sensitive to others’ evaluations. Consequently, they tend to lack social support [59]. What is worse, maladaptive perfectionists find it difficult to ask for or receive social support due to their belief that they can only obtain approval and recognition if they meet the excessive and unrealistic standards imposed

on them by people who are meaningful to them [60]. However, when maladaptive perfectionists realize that support lacks in their relationships, the level of psychological well-being decreases drastically [61].

Based on the findings of previous studies, the authors hypothesized that, even when the level of maladaptive perfectionism is high, if social support is provided, this would lessen acculturative stress, which would eventually increase students' adaptation to college. Conversely, in cases of low levels of social support, maladaptive perfectionism will aggravate acculturative stress, making it harder for students to adjust well. That is, this study hypothesized that social support would not only moderate the relationship between acculturative stress and college adjustment, but would also have a moderated mediation effect in which social support moderates the entire causal pathway from maladaptive perfectionism to acculturative stress to college adjustment.

A moderated mediation model is a combination of a mediation model and a moderation model called the conditional indirect effect [62]. It means that the effect of an independent variable on an outcome variable via a mediator variable will differ depending on the level of the moderator variable. This analysis can be used to understand how the mediating effect depends on the specific conditions of the moderator variable. Through the moderated mediation effect, this research will examine how maladaptive perfectionism affects college adjustment through acculturative stress. Based on the conceptual overview, hypotheses of this study are as follows:

Hypothesis 1. *Acculturative stress would mediate the relationship between maladaptive perfectionism and college adjustment.*

Hypothesis 2. *Social support would moderate the relationship between acculturative stress and college adjustment.*

Hypothesis 3. *Social support would moderate the mediating effect of acculturative stress in the relationship between maladaptive perfectionism and college adjustment.*

3. Method

The present study is designed to examine the relationships between maladaptive perfectionism and college adjustment, testing acculturative stress as a mediator and social support as a moderator and moderated mediator in this relationship. The schematic diagram of the conceptual framework in this study is shown in Figure 1.

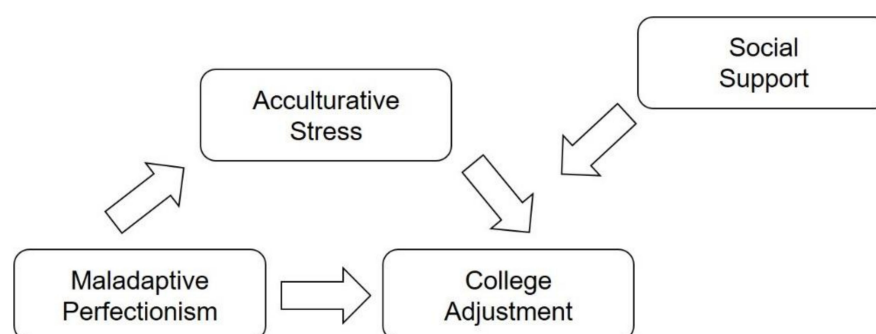


Figure 1. Conceptual Framework.

3.1. Sample and Data Collection

For data collection, a survey was administered at a university in Sejong city, Korea. The process began with the submission of a written request by the authors seeking permission to conduct the survey at the university. Through this process, the research was approved by the university's Ethics Committee. After the authors obtained approval, the students affairs division provided assistance with distributing survey information to international students through electronic mail and the university

website. Questionnaires written in English were distributed to students a week before the midterm period at the end of all Korean language classes, as most international students at the university were enrolled in these classes. At the university, all programs are conducted in English and students are screened rigorously with regard to their English language skills during the application process. For this reason, most students were expected to fully understand the items being asked as they were proficient in English. Confidentiality of the information gained through the survey was assured and participants were given 15–20 min to complete the questionnaires. Students returned completed surveys at the time of distribution as part of the class. There was no compensation for the participants. Out of a total of 236 questionnaires, twenty-two questionnaires without completion were eliminated in order to raise the reliability of the study. Thus, a total of 214 samples were observed.

3.2. Variable Measurement

In the survey, demographic information such as age, gender, country of origin, marital status, length of residency in Korea, and the program they are enrolled in was measured with four key concepts in this study: maladaptive perfectionism, acculturative stress, social support, and college adjustment.

3.2.1. Maladaptive Perfectionism (MP)

Perfectionism was measured by Frost's Multi-Dimensional Perfectionism Scale (FMPS) [24]. The F-MPS consists of 35 items using a 5-point Likert-type scale from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating higher perfectionism. The scale consists of six subscales: Concern Over Mistakes (CM); Personal Standards (PS); Parental Expectations (PE); Parental Criticism (PC); Doubts About Actions (DA); and Organizations (O). Frost et al. [63] proposed a bidimensional structure for the six subscales: the evaluative concerns dimension (CM, DA, PE, PC) and the positive striving dimension, so-called goal/achievement orientation (PS, O). The two sub-dimensions are divided into positive and negative dimensions, and multidimensional perfectionism is studied in various aspects [4]. As the current study only focused on the maladaptive aspects of perfectionism, four subscales, namely, concern over mistakes (9 items); doubts about actions (4 items); parental expectations (5 items); and parental criticism (4 items) were measured (a total of 22 items). Other subscales (PS, O) designed to measure adaptive perfectionism were eliminated. For reliability of the study, Cronbach's alpha coefficients ranged from 0.90 to 0.92 [24,64] and the coefficient alpha in this study was 0.89.

3.2.2. Acculturative Stress (AS)

Acculturative stress was measured by the Acculturative Stress Scale for International Students (ASSIS) developed by Sandhu and Asrabadi [37]. The scale contains 36 items on seven subscales rated on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating greater levels of acculturative stress: Perceived Discrimination (8 items); Homesickness (4 items); Perceived Hate/Rejection (5 items); Fear (4 items); Stress due to Change/Culture Shock (3 items); Guilt (2 items); and Nonspecific items (10 items). Perceived hate/rejection was removed as, when compared with society in general, there are various efforts made on campus to embrace international students than to reject them; fear about one's personal safety was removed as the college setting is considered a relatively safe environment; and guilt of leaving family and friends behind was removed as many international students would eventually return to their home countries after they get a degree. This is backed up by previous studies conducted in Korea. Since the original scale is intended for international students studying in the United States, there were some aspects that were not suitable for international students living in Korea. Therefore, most research in Korea either used the scale partially [65–67] or modified the original scale to fit the domestic situation [10,68,69]. In Ju's study [69], four subscales were selected that fit well with the case of Korea. This was based on interviews with international students living in Korea who stated that their life in Korea is safe and that most of them do not feel guilty about going back home. Following the findings of this study, the present research also focused on only four subscales: Perceived Discrimination; Homesickness;

Stress due to Change/Culture Shock; and Nonspecific items that are well suited to the Korean culture. The reported Cronbach's alpha for this scale ranged from 0.87 to 0.95 [37,70] and the coefficient alpha reliability for the modified scale in this study was 0.90.

3.2.3. Social Support (SS)

Social support was measured by the Multidimensional Scale of Perceived Social Support (MSPSS) rated on a 7-point Likert-type scale with 12 items [71]. The responses range from 1 (very strongly disagree) to 7 (very strongly agree), representing that higher scores indicate higher levels of social support. MSPSS has three subscales that measure support from family, friends, and special support. Special support means meaningful support by significant others. For example, in research that studied social support for patients, doctors' support can generally be understood as special support [72,73]. In this sense, it was judged that special support in this study could be viewed as support from the school. Accordingly, the authors modified the scale by replacing items that measure "social support from significant others" with items that measure "social support from school resources." School resources refer to faculty, staff members, counseling services, student organizations, and other students as the study was conducted at the college setting. Also, item 10 (e.g., There is a special person in my life who cares about my feelings.) was removed from the scale as school resources do not accurately apply to this case. An exploratory factor analysis was conducted to verify that the factor structure of the revised scale and the original scale were the same. Results showed to have three identical factor structures and the items for each factor were the same. For the original scale, Cronbach's alpha coefficients ranged from 0.87 to 0.93 [71,74], with the present study reporting a coefficient alpha reliability of 0.86 of the 11 items.

3.2.4. College Adjustment (CA)

The Student Adaptation to College Questionnaire (SACQ) includes 67 items rated on a 9-point Likert-type scale from 1 (applies very closely to me) to 9 (does not apply to me at all) and comprises four dimensions of university adjustment: Academic Adjustment (24 items); Social Adjustment (20 items); Personal-Emotional Adjustment (16 items); and Institutional Attachment (7 items) [75]. As items of institutional attachment overlap with those of social adjustment [54], the subscale was eliminated in this study. In prior research, the coefficient alpha ranged from 0.73 to 0.91 for the subscales [74,75]. In the present study, the coefficient alpha reliability was 0.91 of the 61 items.

3.3. Analysis

For data analysis of this study, SPSS 22.0 and SPSS Macro were used. The reliability of the measured variables was evaluated after calculating the Cronbach's coefficient alpha, and correlation analysis was conducted to find out the correlation between the variables. Hierarchical regression analysis was executed to investigate the mediating effect and the moderating effect. A moderated mediation model was analyzed using SPSS Macro as suggested by Preacher, Rucker, and Hayes [62].

First, descriptive statistics and correlation analysis of the main variables using Pearson correlation analysis were performed.

Second, a three-step mediation analysis of Baron and Kenny [76] was performed in order to examine the mediating effect of acculturative stress in the causal pathway in which maladaptive perfectionism affects college adjustment. Mediating effect means that mediating variable plays a role of connecting between the independent and the dependent variable. At first, the researchers examined whether the effect of maladaptive perfectionism on college adjustment was significant; and in the second step, whether the effect of maladaptive perfectionism on acculturative stress was significant. In the third step, maladaptive perfectionism and acculturative stress were set as predictive variables, and regression analysis was performed with the dependent variable as college adjustment. Through this process, it was tested whether the causal effect of maladaptive perfectionism alone on

college adjustment decreased and whether the effect of acculturative stress on college adjustment was significant. Bootstrap samples and a confidence interval of 95% were selected.

Third, the moderation effect means that the effect of the independent variable on the dependent variable depends on the moderator variable. After creating an interaction variable, hierarchical regression analysis was conducted to verify the moderation effect of social support in the relationship between acculturative stress and college adjustment. Bootstrapping was performed to verify that the moderation effect was significant.

Fourth, moderated mediation analysis that combines mediation model and the moderation model proposed by Preacher et al. [62] was conducted to investigate whether social support moderated the indirect effect of maladaptive perfectionism on college adjustment through acculturative stress. Bootstrap samples and a confidence interval of 95% were selected. The mediation, moderation, and moderated mediation models were tested using the PROCESS Macro for SPSS.

4. Results

4.1. Descriptive Statistics

A total of 214 samples were observed from 236 participants (Table 1). Regarding the demographic information of participants, the age of participants ranged in between 21 to 42 (mean = 30) and slightly more than half were female students (Female: $n = 109$, 50.9%; male: $n = 102$, 47.7%; and no response: $n = 3$, 1.4%). The participants were from 55 different countries including 68 (31.7%) from Asia, 25 (11.6%) from Africa, 16 (7.4%) from Central and South America, 8 (3.7%) from the Middle East, 3 (1.4%) from North America, 3 (1.4%) from Europe, and nonrespondents ($n = 91$, 42.5%) (Table 2). Also, over half of the participants reported they were single (58.4%), while 30.4% were married, 7.9% in a committed relationship, 0.9% divorced, and 2.3% no response. Their average length of residence in Korea was five months. Among the participants, 91% ($n = 196$) were studying for their master's degree, 1.9% ($n = 4$) for their bachelor's degree, 1.9% ($n = 4$) for their doctoral degree and the rest did not provide such information.

Table 1. Country of origin of the participants ¹.

Country	N	Country	N	Country	N	Country	N
Afghanistan	3	Ecuador	1	Kyrgyzstan	3	Peru	3
Argentina	1	Egypt	2	Laos	6	Philippines	4
Bahamas	2	El Salvador	1	Liberia	1	Russia	2
Bangladesh	2	Eritrea	3	Lithuania	1	SA ³	1
Belize	2	Ethiopia	4	Madagascar	1	SS ⁴	1
Bhutan	3	Gambia	1	Malaysia	5	Sri Lanka	2
Bolivia	1	Ghana	1	Maldives	1	Sudan	1
Brazil	2	India	2	Mexico	2	Tajikistan	1
Cambodia	3	Indonesia	9	Morocco	5	Turkey	2
Cameroon	1	Iran	2	Myanmar	10	Uganda	3
Canada	1	Iraq	1	Nepal	1	Uzbekistan	3
China	1	Japan	1	Nicaragua	1	Vietnam	2
Colombia	1	Kazakhstan	4	Nigeria	1	Yemen	1
DR ²	1	Kenya	1	Pakistan	2	NR ⁵	91

¹ Total: 214. ² Dominican Republic. ³ South Africa. ⁴ South Sudan. ⁵ No response.

Table 2. Demographic characteristics of the participants.

Characteristics	Male	Female	Total
N (%)	102 (47.7%)	109 (50.9%)	214 (100%)
Age			
Range	22–28	21–42	21–42
Mean (SD)	31.06 (5.31)	29.23 (4.92)	30.12 (5.18)
Median	30 (5.00)	29 (8.00)	30 (3.00)
Marital status, N (%)			
Single	51 (23.83)	74 (34.58)	125 (58.4)
In a committed relationship	7 (3.27)	10 (4.67)	17 (7.9)
Married	42 (19.63)	23 (10.75)	65 (30.4)
Divorced	1 (0.47)	1 (0.47)	2 (0.9)
Length of residency in Korea			
Range	1–42	1–32	1–42
Mean (SD)	5.89 (7.05)	4.87 (5.18)	5.37 (6.16)
Median	3 (5.00)	3 (3.00)	3 (4.00)
Program enrolled in, N (%)			
Bachelor	3 (1.4)	1 (0.47)	4 (1.9%)
Master	90 (42.06)	106 (49.53)	196 (91.6%)
Doctoral	4 (1.87)	0 (0.00)	4 (1.9%)

4.2. Main Variables

Descriptive statistics and the result of correlation analysis among main variables (maladaptive perfectionism, acculturative stress, social support, and college adjustment) are presented in Table 3. As shown in Table 3, means, standard deviations, minimum, maximum, and the values of skewness and kurtosis for each variable were calculated to check the study variables. The skewness and kurtosis value of major variables were determined to be free from the normal distribution with a skewness value of under ± 2 and kurtosis value of under ± 7 . Upon the correlation among variables, maladaptive perfectionism was positively correlated with acculturative stress ($r = 0.232$, $p < 0.01$), while negatively correlated with college adjustment ($r = -0.319$, $p < 0.01$). Acculturative stress was negatively correlated with college adjustment ($r = -0.466$, $p < 0.01$) and social support was positively correlated with college adjustment ($r = 0.226$, $p < 0.01$). Likewise, the correlation coefficients were in line with the authors' expectations.

Table 3. Correlations among main variables.

	Maladaptive Perfectionism (MP)	Acculturative Stress (AS)	Social Support (SS)	College Adjustment (CA)
MP	1			
AS	0.232 **	1		
SS	−0.102	−0.067	1	
CA	−0.319 **	−0.466 **	0.226 **	1
M	2.75	2.27	5.34	6.22
SD	0.585	0.540	0.774	0.812
Minimum	1.31	1.00	1.72	3.83
Maximum	4.54	3.80	7.00	7.90
Skewness	0.319	0.295	−0.592	−0.188
	0.166	0.166	0.166	1.66
Kurtosis	0.198	0.260	1.721	−0.231
	0.331	0.331	0.331	0.331

** $p < 0.01$.

4.3. Relationship among Variables

The mediating effect of acculturative stress between maladaptive perfectionism and college adjustment as well as the moderating effect of social support between acculturative stress and college adjustment were tested through the hierarchical regression analysis. Also, the moderated mediating effect of social support was tested. Along with SPSS Macro Process, the Bootstrap method was used for the validity test of each effect.

4.3.1. Mediating Effect

The mediating effect of acculturative stress (the mediating variable) between maladaptive perfectionism (the independent variable) and college adjustment (the dependent variable) is represented in Table 4. Results are shown as follows: In step 1, maladaptive perfectionism negatively predicted college adjustment ($\beta = -0.319$, $t = -4.905$, $p < 0.001$) which means that high levels of maladaptive perfectionism links with low levels of adjustment to college; in step 2, maladaptive perfectionism positively predicted acculturative stress ($\beta = 0.232$, $t = 3.470$, $p < 0.001$); in step 3, after controlling maladaptive perfectionism, results showed that the effect of acculturative stress on college adjustment was significant ($\beta = -0.414$, $t = -6.821$, $p < 0.001$). Regarding the mediating effect, the direct effect of maladaptive perfectionism on college adjustment was significant ($\beta = -0.223$, $t = 3.678$, $p < 0.001$), which was lower than -0.319 when the indirect effect was not considered. Altogether, the results indicate the partial mediating effect of acculturative stress in the relation between maladaptive perfectionism and college adjustment. According to the validity test using the Bootstrap method (Table 5), the indirect effect of the model was -0.1332 with 5000 samples, and the indirect effect of acculturative stress was significant as the confidence interval (CI) did not include at 95% bootstrap CI (H1 is supported). Mackinnon, Lockwood, and Williams [77] reported that decisions made by confidence interval calculated through the bootstrap method yield the most accurate results from the significance verification of indirect effect. Moreover, when the bootstrap method is used in actual research, one must first obtain 95% confidential interval and interpret the indirect effect as statistically significant when this confidence interval does not include '0' [78].

Table 4. Mediating effect of acculturative stress between maladaptive perfectionism and college adjustment.

	Step 1 Dependent Variable: CA			Step 2 Dependent Variable: AS			Step 3 Dependent Variable: CA		
	B (SE)	β	t	B (SE)	β	T	B (SE)	β	t
MP	-0.443 (0.090)	-0.319	-4.905 ***	0.214 (0.062)	0.232	3.470 ***	-0.310 (0.084)	-0.223	-3.678 ***
AS							-0.623 (0.091)	-0.414	-6.821 ***
		$R^2 = 0.102$ $F = 24.061$ ***			$R^2 = 0.054$ $F = 12.043$ ***			$R^2 = 0.264$ $F = 37.881$ ***	

*** $p < 0.001$.

Table 5. Significance of the mediating effect.

	Indirect Effect	Boot SE	95% CI	
			Boot LLCI	Boot ULCI
AS	-0.1332	0.0512	-0.2441	-0.0426

4.3.2. Moderating Effect

The moderating effect of social support between acculturative stress and college adjustment is summarized in Table 6. The interactional effect of acculturative stress and social support were shown to

have a significant effect on college adjustment ($\beta = 0.187$, $t = 3.136$, $p < 0.01$). Particularly, R^2 increased 0.034 due to the interaction, which proved the effect of the moderation beyond the main effects. As can be noted, the effect of acculturative stress on college adjustment differed according to the level of social support, as depicted in Figure 1. The effect of acculturative stress on college adjustment was much lower in groups that received high levels of social support than those who received low levels of social support. Clearly, these results illustrate the moderating effect of social support in the relation between acculturative stress and college adjustment.

Table 6. Moderating effect of social support in acculturative stress and college adjustment.

Dependent Variable: CA									
	Step 1			Step 2			Step 3		
	B (SE)	β	t	B (SE)	β	T	B (SE)	β	t
AS	−0.700 (0.091)	−0.466	−7.666 ***	−0.681 (0.090)	−0.453	7.604 ***	−0.643 (0.089)	−0.428	−7.266 ***
SS				−0.205 (0.062)	0.196	3.288 **	0.221 (0.061)	0.210	3.592 ***
AS × SS							0.363 (0.116)	0.187	3.136 ***
		$R^2 = 0.217$ $F = 58.765$ ***			$R^2 = 0.255$ $\Delta R^2 = 0.038$ $F = 36.149$ ***			$R^2 = 0.289$ $\Delta R^2 = 0.034$ $F = 28.836$ ***	

*** $p < 0.01$.

The validity of the moderating effect was tested as shown in Table 7. Figure 2 presents social support as a moderator in between acculturative stress and college adjustment. This figure shows that the higher the social support, the less negative association between acculturative stress and college adjustment. The slope of the regression line was -0.9243 , -0.6431 and -0.3619 when the level of social support was low (-1 SD), average, and high ($+1$ SD), respectively. The moderating effect of social support was significant as the Bootstrap CI did not contain 0 in all cases (H2 is supported).

Table 7. Significance of the moderating effect.

		Effect(b)	Se	T	LLCI(b)	ULCI(b)
SS	−1 SD	−0.9243	0.1172	−7.8883 ***	−1.1553	−0.6933
	Mean	−0.6431	0.0885	−7.2662 ***	−0.8176	−0.4686
	+1 SD	−0.3619	0.1343	−2.6957 **	−0.6266	−0.0972

*** $p < 0.01$.

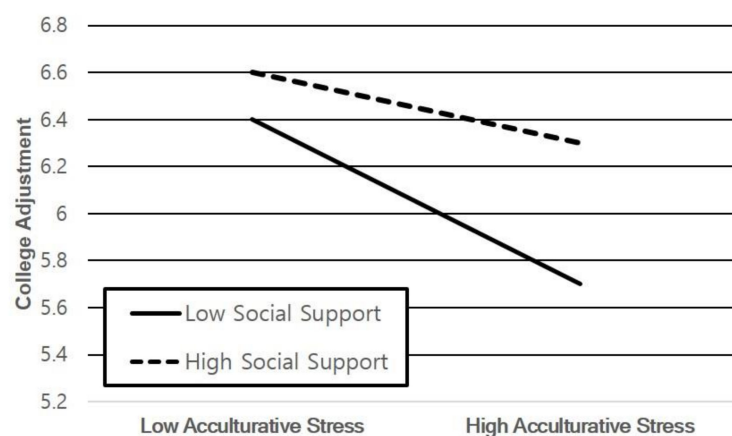


Figure 2. Social support as a moderator between acculturative stress and college adjustment.

4.3.3. Moderated Mediating Effect

After estimating the mediating and the moderating effects, the moderated mediating effect of social support was examined. According to the results in Table 8, the interaction of acculturative stress and social support was positively associated with college adjustment ($= 0.167$, $p < 0.01$), which means that social support moderates the mediating effect of acculturative stress in the relationship between maladaptive perfectionism and college adjustment. In addition, the indirect effect decreased when there was more social support based on the Bootstrap method results (Table 9). To be specific, the indirect effect was -0.1785 , -0.1247 , and -0.0710 when the level of social support was low (-1 SD), average, and high ($+1$ SD), respectively. As the confidence intervals did not contain 0 in all cases, the moderated mediating effect of social support was significant (H3 is supported).

Table 8. Moderated mediating effect of social support by acculturative stress.

		B	S.E.	B	T	LLCI(B)	ULCI(B)	R ²	F
DV: AS	MP	0.214	0.062	0.232	3.470 ***	0.092	0.336	0.054	12.04 ***
DV: CA	MP	-0.262	0.082	-0.189	-3.199 **	-0.424	-0.101		
	AS	-0.583	0.089	-0.388	-6.575 ***	-0.758	-0.408	0.322	24.78 ***
	SS	0.202	0.060	0.192	3.341 **	0.083	0.321		
	AS \times SS	0.325	0.114	0.167	2.846 **	0.100	0.549		

*** $p < 0.001$, ** $p < 0.01$.

Table 9. Significance of the moderated mediating effect.

Social Support	Indirect Effect	S.E.	95% Boot LLCI(B)	95% Boot ULCI(B)
-1 SD (-0.774)	-0.1785	0.0689	-0.3215	-0.0529
Mean	-0.1247	0.0486	-0.2276	-0.0378
+1 SD (0.774)	-0.0710	0.0370	-0.1589	-0.0138

5. Discussion

5.1. Mediating Effect

The results clearly show that acculturative stress is an important factor mediating the relation between maladaptive perfectionism and college adjustment. It is possible to explain the effect of maladaptive perfectionism on college adjustment by acculturative stress, which indicates the developmental mechanism that maladaptive perfectionism negatively affects college adjustment via acculturative stress. This means that acculturative stress can change the effect of maladaptive perfectionism on college adjustment. In other words, the results showed that students with maladaptive perfectionism experienced more acculturative stress, which made college adjustment more difficult.

This finding coincides with previous studies that suggest the full or partial mediating effects of stress in understanding college adjustment of students with high levels of maladaptive perfectionism [51,53]. A study on the relationship between fear of failure and adaptation of college life among international students, including graduate students, showed that the mediating effect of acculturative stress was significant [16]. Also, in the study of Chinese graduate students in the United States, the higher the maladaptive perfectionism, the higher the probability of acculturative stress [7].

There are possible reasons for this association; living in an unfamiliar environment with different cultural norms, discrimination, and a different language, most international students are not free from acculturative challenges. In the new setting, students face both expected and unexpected difficulties, which make the transition a very strenuous task. In the case of students with maladaptive perfectionistic traits, the adaptation process is especially harder as they are extraordinarily sensitive to stress. In the words of Ellis [79], even “under conditions that are equally stressful to others, perfectionists find more stress, less satisfactory solutions, and more prolonged difficulties than non-perfectionists find.” For this

reason, each task is another threatening challenge for them and moving to a new country and dealing with the unfamiliar circumstances are indeed a minacious stressor for maladaptive perfectionists that deteriorate their adaptation.

Furthermore, as maladaptive perfectionists are defined as those who have unrealistic standards and high expectations, there is usually a huge discrepancy between their expectations and the reality. However, transition to a new country never happens as planned. In short, when maladaptive perfectionists sense this gap and when the gap widens during the acculturation process, the pressures of perfectionism magnifies their acculturative stress and this impedes successful adjustment to the new environment [22].

Lastly, when students are dissatisfied with their performance, maladaptive perfectionism negatively affects acculturative stress. To make matters worse, maladaptive perfectionists interpret the numerous acculturative stress factors as a sign of personal failure or imperfect performance [7], which raise the level of depression [80]. For these reasons, maintaining a satisfactory academic performance as before is not easy and, even when maladaptive perfectionists objectively perform well, they are rarely satisfied. Therefore, to help maladaptive perfectionists well adjust, this finding suggests the need for acculturative stress reduction methods.

5.2. Moderating Effect and the Moderated Mediating Effect

First, results in this study indicate that social support is an effective moderator in reducing the effects of acculturative stress on college adjustment. The result shows that high levels of social support buffers the association between acculturative stress and college adjustment. Conversely, low levels of social support strengthen the association between acculturative stress and college adjustment. In other words, for college students who experience acculturative stress, social support can serve as a buffer to reduce difficulties during the transition period. This emphasizes the importance of providing appropriate forms and sufficient amounts of social support for international students. Unlike studies that could not find any significant effect of social support [57,58], this study confirms prior studies that demonstrate social support as a buffer that helps minimize the negative effects of acculturative stress on international students' adjustment [13,81,82].

Second, a test of whether there was a change in the mediation effect according to the level of social support showed that there was a moderated mediating effect. This means that international students who receive help from their social network experience less acculturative stress, in consequence, they can better adjust to the new college setting. Likely, the moderated mediating effect of social support was also proven to be significant, implying that maladaptive perfectionists with acculturative stress but with high levels of social support would report better college adjustment than those with low levels of social support. In contrast, when the level of social support was low, the causality caused by the mediating effect became more apparent. This means that maladaptive perfectionism increases acculturative stress, which can make college adjustment a painful task.

In the words of Oberg [83] (p. 177), acculturative stress and more specifically culture shock is "precipitated by the anxiety that results from losing all our familiar signs and symbols of social intercourse." This sense of loss includes separation from family, relatives, friends, and other social support networks that leads to students' deleterious adjustment [84]. In order to help students feel connected in meaningful ways, social support is essential. As perfectionism is a relatively stable personality trait that an individual has and an internal trait that does not change easily [31], social support can be a preferable way to help change circumstances relatively more immediately. In addition, there is a limitation in overcoming the difficulties alone through self-regulation. This implies that external resources such as social support can be extremely helpful tools.

Social support has been proven as an active way to support international students effectively. For example, family and friends can be of immense help when students are suffering from homesickness. More importantly, students will be able to adapt better when the social network is wider [85] and when

various forms of support are jointly provided [86]. This suggests the need to provide various support programs tailored to each international student.

6. Conclusions, Limitations and Future Research

This study is an empirical research to elucidate the moderation mechanism of social support in the relationships among maladaptive perfectionism, acculturative stress, and college adjustment. Assuming that quality college education for international students can be developed through their successful college adjustment and other forms of support to education, this study suggests the following education policy ideas for higher education professionals.

First, colleges and universities should actively seek ways to assist international students to alleviate maladaptive perfectionism and acculturative stress. Institutions can help them by offering sessions on practicing self-assessment, accepting their limitations, lowering their expectations, and setting realistic goals so the discrepancy between their expectations and achievements be narrower. Furthermore, programs focused on stress management techniques, particularly emotion-focused coping strategies and mindfulness-based interventions [87], can help curtail anxiety that is triggered by maladaptive perfectionist beliefs. For acculturative stress related concerns, cultural awareness sessions and cross-cultural activities can be effective methods. As anxiety and fear are frequently triggered by misunderstandings of each other, such exposure may give students the opportunity to learn and acknowledge the differences. In brief, stress triggered by maladaptive perfectionism and acculturative stress can be mitigated through these experiences and students may hopefully be able to transit more smoothly to the new environment.

Second, as social support was found as an important moderator, universities including faculty and administrators should find ways to help international students build and strengthen their support network. Outreach programs such as academic mentorship programs, student mentorship programs, or host friend and family programs can be useful sources of support in dealing with different types of concerns. While academic advisors can assist students with their academic concerns, senior students can help them deal with potential acculturative concerns by sharing adjustment experiences [64]. In addition, host friend and family programs can encourage international students to explore and connect with the community [85]. By tackling each challenge and creating a strong sense of social bonding, international students will find it easier to adjust well. This study has some limitations. The study sample being mostly graduate students may have skewed the results as there might be meaningful differences between undergraduate and graduate students studying in Korea. In Jeong's study [16] that examined the difference in acculturative stress between undergraduate and graduate students, results showed the same factor structure between the two groups. This implies that there were no differences regarding acculturative stress between undergraduate and graduate students. In the same study, the researcher also verified the differences between the two groups in acculturative stress and college adjustment. Again, the findings of this study showed no significant differences in acculturative stress ($F = 0.1381$, $p > 0.05$) and college adjustment ($F = 1.863$, $p > 0.05$). In addition, several studies consider the period of residence as one of the main factors affecting acculturative stress. There is a variety of purposes and methods for graduate students' studies, and the kinds of difficulties involved in adapting to college are significantly different; these are previously unstudied. As numerous factors including the purpose of study may differ between graduate and undergraduate students, a new approach is therefore needed. Future studies should comprehensively take into account the related variables such as the level of degree, purpose of study, and the length of residence. If there is a difference between the two samples, it would be necessary to study the mediating variables that explain why. Future studies should also expand the scope of research by studying the effects of demographic characteristics such as gender, nationality, and length of residence for a more comprehensive overview. For example, Wei et al. [7] has validated the significance of the impact of acculturative stress on the increase in the length of residence. In Wei's research, the average residence period was 2.86 years. In comparison, the average length of residence was relatively short, 5.37 months, in the present

study. Furthermore, group differences in acculturative stress ($F = 0.1388$, $p > 0.05$) and college adjustment ($F = 0.706$, $p > 0.05$) over the duration of residence were not significant. For these reasons, such demographic characteristics were not considered in this study. Even so, as these demographic variables may have meaningful effects, more follow-up research will be needed.

Last but not least, considering the fact that the sample is international students studying abroad, the acculturative stress measure and social support measure were partially revised in accordance with the Korean situation and the understanding of international students. It is possible that these revisions may have jeopardized the validity of the measures and affected the results. Further studies may provide more reasonable results if the analysis is conducted using appropriate metrics that meet the purpose of the study. This study quantitatively examined the relationship between maladaptive perfectionism, acculturative stress, college adjustment, and social support of the international students. Thus, it was not possible to verify sufficient information on qualitative aspects such as international students' engagement, communication and the degree of achievement. This is desirable for future work.

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