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Research Article

Influences On Undergraduate College Students' Choice Of Major

Refah Aldawsari*

*Department of Education and Psychology, College of Education, University of Hafr Al Batin, P.O. Box 1803, Hafar Al Batin 39524, Saudi Arabia, Raldawsari@uhb.edu.sa

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ABSTRACT

This study investigates factors that influence the selection of majors by students at a public university located in the eastern region of Saudi Arabia. A total of 453 students studying in the university were surveyed to gather insights on the factors influencing their choice of paths. Participants were asked to provide the top factors influencing their choice of an academic major and minor. The findings revealed that social influences, encouragement from family members, ease of study, and the influence of friends play a significant role in shaping their decision-making process. These results suggest that students heavily rely on their social circles due to personal experience. Other influential factors include aligning with preferences and choosing a college close to home, indicating a strong respect for familial guidance. In contrast, elements like social status and future earnings held less sway over their decisions. The study underscores the importance of increasing awareness among students about the long-term impacts of their chosen majors and stresses the role of institutions in helping students make informed choices that align with both personal aspirations and job market demands. Statistical analyses were conducted to explore variations based on various factors. The results are discussed and recommendations are made based on the data analysis and conclusion.

Keywords: factors, college students, academic majors, universities, higher education, undergraduate, Saudi Arabia.

1. Introduction

Higher education has undergone significant transformations driven by evolving societal needs, technological advancements, and economic shifts. These changes have highlighted the importance of aligning academic programs with emerging industries and workforce demands, prompting students to consider labor market trends, salary expectations, and skill relevance when choosing their university major. The process of choosing a university major is complex and multifaceted. Students often experience anxiety and confusion after graduating from high school as they are caught between their personal interests and inclinations, their family's expectations, and the financial resources available to them. Furthermore, having a counselor available to advise on the most appropriate major to pursue is important. Key factors influencing the choice of a university major include the university's reputation and standing, the student's passion for and inclination toward a specific academic field, parental education levels and family influences, the family's economic situation, and the university's proximity to home. Such a decision is one of the most important life choices a student makes since it has a lasting impact on the rest of their life.

Given the complexities of the factors influencing students' university major choices, a thorough understanding of these influences is critical for promoting informed decision-making and improving student success in higher education. Recognizing the multifaceted nature of these influences is critical for educators, policymakers, stakeholders, and decision-makers in higher education. The purpose of this study is to identify the factors that influence students' decisions to pursue a particular university major and to determine which factors are most influential in realizing the underlying motivations that drive students to specific fields of study.

Selecting a college major is a pivotal decision that significantly shapes the academic and professional trajectory of undergraduate students. Studies have shown that students' major choices are influenced by various factors, and have determined that the reputation of the university influences students' choice and shapes their perceptions of college majors. Several studies have revealed that campus culture, resources, faculty

mentorship, and academic advising determine students' choices of academic majors (Kim et al., 2021; Taylor & Martinez, 2020; Wang & Zhang, 2022). Importantly, research indicates that universities can influence students' decision-making processes (Liu et al., 2021). Similarly, Aucejo and James (2021) confirm that students are often drawn to institutions that are highly ranked and well-regarded, particularly those providing robust program offerings and comprehensive resources. This body of research collectively emphasizes the critical role that institutional characteristics play in shaping students' academic choices, ultimately impacting their future success.

In another study, Kuhail et al. (2022) indicated that passions and personal interests are other primary factors when choosing a college major. College students who select majors that align with their passions are more inclined to successfully complete their college education within the expected timeframe (Sheehy, 2013). Several recent studies emphasize the importance of family influences as a key determinant of choosing college majors (Garcia et al., 2022; Stock & Stock, 2019). Parents play a crucial role in assisting their offspring's choice of college major. Consistent with Patnaik et al.'s (2021) findings, siblings and close family members can determine choices of majors by sharing their experiences. Some scholars list media as being a significant determinant that plays a crucial role in shaping students' perceptions of various majors' pathways (Fishbein, 2022; Jones & Smith, 2020). Before admission, social media, allows students to inquire about specifics within the college, especially whether they offer certain majors (Fishbein, 2022).

Another pertinent factor is location. In their study, Patterson et al. (2023), demonstrated that the choice of major is determined by factors such as the proximity of college to home, which impacts students' preferences. Since some majors require dedication and time with full physical attendance, students may decide to select them based on this fact; especially those who prefer comfort may opt for less demanding choices.

Moreover, job prospects are a significant determinant in choosing a college major. Wiswall and Zafar (2021) and Bayer et al. (2020) opine that in a competitive job market, students are often concerned about selecting a major that aligns with their career goals and offers favorable employment prospects. Kuhail et al. (2022) also support that students often mirror the salaries payable for careers they will hold upon completing their majors. While some may not have realistic income expectations, their choice often aligns with their expectations (Kuhail et al., 2022). Bleemer and Mehta (2022) confirm this from their findings wherein economics as a major attracted the highest enrollment because it leads one to better opportunities.

2. Methods

This study used a quantitative research design to investigate the factors that influence undergraduate college students' major choices. A survey was used to gather information from a diverse group of undergraduate students. The survey instrument was a structured questionnaire designed to assess the factors that influence students' major choices. The questionnaire was created following a thorough review of existing literature and consultation with subject matter experts. This research was motivated by a major research question: What factors influence a student's decision to choose an academic major?

Participants in this study comprised undergraduate students at a 4-year public university with an age range of 18 to 21 years. The study was conducted in a public university in the eastern region of Saudi Arabia. All participants were full-time students in the academic year 2023–2024. The sample included 453 (84 male and 369 female) college students from different colleges. Data collection covered the period from October 2023 to June 2024.

Questionnaires were submitted electronically to the study population. A total of 453 questionnaires were retrieved; no questionnaire was excluded after the preliminary evaluation since all complied with the required criteria. The 18-item questionnaire was organized in three parts. The first part included the demographic data of participants such as gender, age, the environment in which the student lives, cumulative GPA, father's educational level, and mother's educational level, while the second part comprised seven university colleges, as follows: College of Business Administration, College of Applied Medical Sciences, College of Engineering, College of Computer Science and Engineering, College of Arts, College of Education, and College of Science. The third part assessed the factors that influence students' decision to choose their majors and comprised 11 items: 1) Family encouragement; 2) Influence of friends; 3) Encouragement from relatives; 4) Provides a suitable income; 5) Provides appropriate social status; 6) Proximity of the college to my residence; 7) Offers rapid career advancement post-graduation; 8) My cumulative GPA and overall high school grades; 9) Prepares me to assist my parents in their work; 10) Ease of studying the major; and 11) Aligns with my parents' preferences.

Table (1): Distribution of the Study Sample According to Its Variables

Independent Variable	Level	Frequency	Percentage
Gender	Male	84	18.5%
	Female	369	81.5%
	Total	453	100.0%
Age	18–19	45	9.9%

	20–21	204	45.0%
	Above 21	204	45.0%
	Total	453	100.0%
Student's Environment	Al-Badia	7	1.5%
	Village	68	15.0%
	City	378	83.4%
	Total	453	100.0%
Cumulative GPA	GPA 4.50 or above out of 5.00	135	29.8%
	GPA from 3.75 to less than 4.50	153	33.8%
	GPA from 2.75 to less than 3.75	125	27.6%
	GPA from 2.00 to less than 2.75	40	8.8%
	Total	453	%100
Father's Education Level	High school or less	287	63.4%
	Diploma	28	6.2%
	Bachelor's	121	26.7%
	Master's or Doctorate	17	3.8%
	Total	453	%100
Mother's Education Level	High school or less	305	67.3%
	Diploma	42	9.3%
	Bachelor's	99	21.9%
	Master's or Doctorate	7	1.5%
	Total	453	%100

Table (1) shows that female participants provided the highest percentage of responses, with a total of 369 respondents, accounting for 81.5% of the sample for the gender variable. In terms of age, participants aged 20–21 and those over 21 had the highest response rate, accounting for 45.0% of the total, with 204 in each group. In terms of the environment in which the students live, students living in urban areas provided the majority of responses (83.4%, totaling 378 respondents). Furthermore, students with a cumulative GPA ranging from 3.75 to less than 4.50 on a 5.00 scale had the highest response rate, with 153 respondents (33.8% of the sample). In terms of father's education level, the majority of responses came from students whose fathers had a high school diploma or less, accounting for 287 respondents and 63.4% of the sample. Similarly, 305 students, or 67.3% of the sample, responded to the question about their mother's education level.

Table (2): Distribution of the Study Sample According to the Major Variable

Major	Frequency (N)	Percentage (%)
College of Business Administration	120	26.5%
College of Applied Medical Sciences	52	%11.5
College of Engineering	40	8.8%
College of Computer Science and Engineering	95	21.0%
College of Arts	58	12.8%
College of Education	1	%2
College of Sciences	87	19.2%
Total	453	100.0%

Table (2) shows that students in the College of Business Administration provided the most responses, accounting for 26.5% of the total sample with a frequency of 120 respondents. In contrast, students from the College of Education submitted the fewest responses, accounting for only 2% of the sample and having only one respondent. Upon completing the responses to the questionnaire from the study sample, the verbal response scale was converted into a quantitative scale. A three-point Likert scale was employed, with response options being: (1) Strongly Agree, (2) Agree, and (3) Disagree. The three-point Likert scale was used to determine the degree of agreement, where a score of 3 represents "Strongly Agree," a score of 2 represents "Agree," and a score of 1 represents "Strongly Disagree."

To evaluate the mean scores, the range of the scale was calculated as 2 (3-1=2). This range was divided by the largest value, resulting in a value of 0.67 (2/3). Adding this value to the lowest scale value helps to define the range for each level of the scale. This methodology is summarized in the following table:

Table (3): Limits and Categories for Estimating Sample Responses to the Questionnaire Items

Mean Value		Likert Scale Level	Significance Level
From	To		
Greater than 2.33	3	Strongly Agree	High Agreement
Greater than 1.67	2.33	Agree	Moderate Agreement
From 1.00	1.67	Strongly Disagree	Very Low Agreement

The study instrument (the questionnaire) was validated and standardized using the following measures of validity and reliability. The questionnaire's validity was ensured using the two following methods. 1) Validity through Expert Review: After the preliminary development of the study instrument, the questionnaire was distributed to experts in the educational administration field who comprised four faculty members from various universities. Their task was to evaluate the questionnaire's clarity, relevance to the subject area, and the appropriateness of the scaling criteria used to measure the survey items. They were also invited to suggest any additional items they deemed necessary but missing from the initial version. Based on the feedback from these experts, the researcher made revisions to the questionnaire, incorporating agreed-upon modifications, whether it involved rephrasing certain items, removing them, or adding new items deemed relevant by the reviewers. 2) A pilot sample of 30 students who were not part of the main study sample was administered the questionnaire to ensure internal consistency. Pearson's correlation coefficient was used by the researcher to determine the relationship between the score of each item and the overall score of the domain to which it belongs. SPSS statistical software was used to perform this analysis, which realized the following results.

Table (4): Internal Consistency Validity Results for Questionnaire Items (N = 30)

Item #	Statement	Pearson's Correlation Coefficient	Significance Value	Statistical Significance
1	Family encouragement	0.714**	0.000	Significant at the .010 level
2	Influence of friends	0.611**	0.000	Significant at the .010 level
3	Encouragement from relatives	0.521**	0.000	Significant at the .010 level
4	Provides a suitable income	0.646**	0.000	Significant at the .010 level
5	Provides appropriate social status	0.726**	0.000	Significant at the .010 level
6	Proximity of the college to my residence	0.523**	0.000	Significant at the .010 level
7	Offers rapid career advancement post-graduation	0.728**	0.000	Significant at the .010 level
8	My cumulative GPA and overall high school grades	0.617**	0.000	Significant at the .010 level
9	Prepares me to assist my parents in their work	0.727**	0.000	Significant at the .010 level
10	Ease of studying the major	0.600**	0.000	Significant at the .010 level
11	Aligns with my parents' preferences	0.660**	0.000	Significant at the .010 level

**Correlation is significant at the 0.01 level (1-tailed)

Table (4) shows that the connections between each question and the overall score of the survey are statistically significant at the 0.01 level. The relationships range from 0.521 to 0.728, suggesting a link. This implies that all questions in the survey are reliably measuring the same thing. Simply put, the responses from the group consistently pinpoint the factors affecting students' choices of college majors and their level of importance. Additionally, Cronbach's alpha coefficient was used to determine the questionnaire's reliability. Thus, the researcher calculated Cronbach's alpha (α) for data collected from the exploratory sample. The findings are as follows:

Table (5): Reliability of the Questionnaire Using the Cronbach's Alpha Method (N = 30)

Instrument	Number of Items	Cronbach's Alpha (α)
Overall Instrument (Factors Influencing Major Choice)	**11**	**0.761**

In table (5), the questionnaire's overall reliability coefficient was determined to be 0.761 using Cronbach's alpha. This value indicates a level of consistency affirming the instrument's reliability and suitability for use.

3. Results and Discussion

To address the research inquiry of "What factors influence a student's decision to choose an academic major?", the researcher reviewed responses from the study sample. This examination included analyzing frequencies, percentages, averages, and standard deviations and ranking the scores for each survey item. The results are outlined in table (6)

Table (6): Descriptive Statistics of Sample Responses on Factors Influencing Students' Major Choice and Identifying the Most Influential Factors

No	Statement		Strongly Agree	Agree	Strongly Disagree	Mean	Standard Deviation	Response Level	Rank
3	Family encouragement	**C**	316	112	25	2.642	.5830	High	1
		%	%69.8	%24.7	%5.5				
10	Influence of friends	**C**	288	91	74	2.472	.7590	High	2
		%	%63.6	%20.1	%16.3				
2	Encouragement from relatives	**C**	238	149	66	2.379	.7260	High	3
		%	%52.5	%32.9	%14.6				
11	Provides a suitable income	**C**	249	88	116	2.293	.8490	Medium	4
		%	%55.0	%19.4	%25.6				
9	Provides appropriate social status	**C**	217	88	148	2.152	.8850	Medium	5
		%	%47.9	%19.4	%32.7				
6	Proximity of the college to my residence	**C**	215	73	165	2.110	.9100	Medium	6
		%	%47.5	%16.1	%36.4				
7	Offers rapid career advancement post-graduation	**C**	109	115	229	1.735	.8230	Medium	7
		%	%24.1	%25.4	%50.6				
1	My cumulative GPA and overall high school grades	**C**	113	96	244	1.710	.8400	Medium	8
		%	24.9%	%21.2	%53.9				
5	Prepares me to assist my parents in their work	**C**	85	130	238	1.662	.7740	Low	9
		%	%18.8	%28.7	%52.5				
4	Ease of studying the major	**C**	72	148	233	1.644	.7400	Low	10
		%	15.9%	32.7%	51.4%				
8	Aligns with my parents' preferences	**C**	85	117	251	1.633	.7800	Low	11
		%	%18.8	%25.8	%55.4				
Overall Mean for Study Instrument						**2.039**	**0.430**	**Medium**	

Table (6) displays the viewpoints of the university students on the factors influencing their choice of majors and the motivations guiding them toward specific fields. The average score on the study tool was 2.039 out of 3.0 falling within the category on a three-point scale. This suggests that most participants acknowledging factors affecting their decisions and significant driving forces toward fields generally responded with "Agree" or "Moderate." When examining statements, mean scores for the impact of factors on students' major choices varied from 2.642 to 1.633 on a three-point Likert scale aligning with response options like "Strongly Agree" and "Agree."

Three statements identified as influential in selection received mean scores in the "Agree" range, averaging between 2.642 and 2.379. Statement 3, "Encouragement from relatives," ranked highest with a score of 2.642 and a standard deviation of 0.583, followed by "Ease of studying" (Statement 10), with a score of 2.472 and a standard deviation of 0.759.

"Influence of friends" was ranked third with a score of 2.379 and a standard deviation of 0.726. This indicates the significance of influences on students, showing how they are affected by their peers and family members, possibly because they trust their opinions and lack experience, leading them to follow the preferences of those close to them.

On the other hand, five statements received a level of agreement with average scores ranging from 2.293 to 1.710. The statement "Aligns with my parents' wishes" ranked first, scoring an average of 2.293 with a deviation of 0.849. The statement "Qualifies me to help my parents in their work" closely followed, averaging at 2.152 with a deviation of 0.885. "Proximity of the college to my residence" ranked third, scoring an average of 2.110 with a deviation of 0.910. Finally, "Provides career advancement after graduation," which had an average score of 1.735 and a standard deviation of 0.823."Encouragement, from family" ranked eighth, scoring an average of 1.710 with a standard deviation of 0.840. Students' respect for and trust in their family's decisions along with their willingness to support their families post-graduation reflect a sense of bonds. It also appears that many students may not have career goals, leading them to rely on recommendations from family and friends rather than specific criteria.

In the survey, three statements were strongly disagreed upon with ratings ranging from 1.662 to 1.633. "Having an appropriate social status" (Statement 5) ranked ninth, averaging at 1.662 with a standard deviation of 0.774. "Earning an income" (Statement 4) followed closely, averaging at 1.644 with a standard deviation of 0.74. The statement regarding GPA and high school performance (Statement 8) received a score of an average of 1.633 and a standard deviation of 0.78, indicating students may lack awareness about career prospects and market demands. These findings highlight the importance of providing students with career guidance aligned with their choices to fulfill both the university's mission and strategic objectives effectively.

To assess the variations in responses based on factors such as gender, age, living environment, GPA, and parental education levels, ANOVA (Analysis of Variance) was employed by the researcher. The goal of this analysis is to pinpoint variations in responses based on the factors studied.

Table (7): Descriptive Statistics (Means and Standard Deviations), and t-Values for Determining the Significance of Differences between Responses of the Sample

Variable	Group	N	Mean	Standard Deviation	Degrees of Freedom	t-value	Sig	Statistical Significance
Gender	Male	84	2.1158	.39117	1	1.533	.2160	Not statistically significant
	Female	369	2.0224	.43785				
Age	18–19	45	2.0848	.33927	2	5.494	.0040	Statistically significant
	20–21	204	1.9666	.45025				
	Above 21	204	2.1029	.41896				
Student's Environment	Bedouin	7	2.0519	.36687	2	.031	.9690	Not statistically significant
	Village	68	2.0281	.35375				
	City	378	2.0416	.44496				
Cumulative GPA	GPA 4.50 or above out of 5.00	135	2.0963	.42506	3	1.631	.1820	Not statistically significant
	GPA from 3.75 to less than 4.50	153	2.0339	.41789				
	GPA from 2.75 to less than 3.75	125	1.9796	.43977				
	GPA from 2.00 to less than 2.75	40	2.0591	.45875				
Father's Education Level	High school or less	287	2.0361	.42364	3	1.330	.2640	Not statistically significant
	Diploma	28	2.1396	.51692				
	Bachelor's	121	2.0060	.42604				

Variable	Group	N	Mean	Standard Deviation	Degrees of Freedom	t-value	Sig	Statistical Significance
	Master's or Doctorate	17	2.1765	.41718				
Mother's Education Level	High school or less	305	2.0393	.43074	3	1.411	.2390	Not statistically significant
	Diploma	42	2.1039	.42096				
	Bachelor's	99	1.9963	.42021				
	Master's or Doctorate	7	2.2857	.59016				

The results presented in table (7) indicate that there are no statistically significant differences at the (α ≥ 0.05) level between the mean estimates of the study sample for the variable of gender. The t-value was (1.533) with a significance value of (.216), which is greater than (0.05). Therefore, the differences are not statistically significant at the (α ≥ 0.05) level. This may be attributed to the fact that gender, regardless of its level, does not influence the responses of students at the university concerning the factors affecting their decisions in choosing a university major and identifying the most influential factors, as both genders are exposed to similar environments and conditions.

Similarly, the results indicate that there are no statistically significant differences between the mean estimates of the study sample concerning the variable of the environment in which the student lives. The t-value was (.031) with a significance value of (.969), which is greater than (0.05). Consequently, this difference is not statistically significant at the (α ≥ 0.05) level. This suggests that the environment has minimal to no impact on students' choices. The results also show no statistically significant differences between the mean estimates of the study sample concerning the variable of cumulative GPA. The t-value was (1.631) with a significance value of (.182), which is greater than (0.05). Thus, this difference is not statistically significant at the (α ≥ 0.05) level. Furthermore, there are no statistically significant differences between the mean estimates of the study sample regarding the variable of the father's education level. The t-value was (1.330) with a significance value of (.264), which is greater than (0.05). Therefore, this difference is not statistically significant at the (α ≥ 0.05) level.

In addition, there are no statistically significant differences between the mean estimates of the study sample for the variable of the mother's education level. The t-value was (1.411) with a significance value of (.239), which is greater than (0.05). This indicates that the mother's education level does not significantly affect the responses of students at the university. However, the results indicate statistically significant differences between the mean estimates of the study sample concerning the variable of age. The t-value was (5.494) with a significance value of (.004), which is smaller than (0.05). Therefore, these differences are statistically significant at the (α ≥ 0.05) level.

To identify the source of differences in responses among the study sample concerning the age variable, the researcher conducted a Scheffé test, as detailed in the table below.

Table (8): Results of the Scheffé Test for Identifying Sources of Significant Differences in Responses among the Sample Based on Age Variable

Age Group	Mean	8–19	20–21	Above 21
18–19	2.0848	-	0.11827	-.01809-
20–21	1.9666	-.11827-	-	-.13636-*
Above 21	2.1029	.01809	0.13636*	-

Table (8) indicates a variation (α = 0.05) in responses between individuals aged (20 to 21) and those (above 21) showing an average variance of 0.13636*. This difference could be linked to the groups' enhanced experience, maturity, and expertise, which probably shape their capacity to evaluate the aspects impacting their choices regarding university majors and recognize the factors and motivations guiding their decisions.

4. Limitations

The limitations of this study are deemed as follows. First, the study's lack of population diversity is a significant limitation. The study was limited to a specific geographical area, namely a single region in Saudi Arabia, and thus may not reflect the wider range of cultural, social, and educational contexts found in other parts of the country. This regional limitation limits the findings' generalizability because the experiences and perceptions of students from different regions, with potentially different educational systems and societal norms, have yet to be explored. Second, the study was further limited by its sole focus on Saudi undergraduate students at a

public university. This narrow scope excludes students from private universities and other educational institutions, where resources, curricula, and academic environments may differ, influencing students' experiences and perspectives. The study's exclusive focus on a public university population limits its ability to provide a comprehensive understanding of the topic in the context of Saudi higher education in general. These limitations highlight the importance of future research using a more diverse and representative sample to improve the findings' robustness and applicability.

5. Recommendations

Based on the findings of this research paper, the following recommendations are made to better assist undergraduate students in their decision-making process when selecting a college major. 1) Educational institutions should invest in improving academic advising and mentoring programs. Advisors and faculty mentors should be trained to provide personalized guidance based on students' personal interests, career goals, and unique circumstances. Tailoring advice to each student's specific needs can help them make better decisions about their academic and professional paths. 2) Institutions should develop and disseminate detailed information about various majors, such as potential career outcomes, necessary skill sets, and alignment with current job market trends. Accessible resources empower students to make choices that are both personally fulfilling and strategically aligned with the future. 3) Encouraging students to begin career planning early in their academic journey can result in more deliberate and informed major decisions. Workshops and seminars on career planning should be included in the university curriculum, especially in the first year of study, to help students align their academic pursuits with their long-term goals. 4) Institutions should work to foster a campus culture that values and encourages diversity in academic choices. Efforts should be made to challenge stereotypes and cultural biases that may shape students' perceptions of specific majors, while promoting inclusivity can help ensure that all students feel empowered to pursue their true interests. These recommendations seek to create an educational environment that encourages students to make knowledgeable, personally meaningful decisions about their academic and professional futures, ultimately improving their overall success and satisfaction with higher education.

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