Summary

Career decision is among the most important decisions one has to make and it is significant for both the individual and the society as a whole. Making a career decision is a complex task. Choosing a career does not begin with the selection of the career itself, but first with an understanding of oneself in relation to work, and then with finding a career at which one could excel. The construct of career indecision is one of the cornerstones of career development theory. Career indecision has been the focus of increasing attention in the field of vocational psychology because of two emerging trends: the incidence of vocational indecision among high school and college students has been increasing and undecided students seeking help with vocational decisions comprise a large part of the clientele of most university counseling centers.

Career indecision is an issue for both high school and college/university students and has even been shown to be a concern for children in their pre-teens. It is associated with a range of personal variables, such as age, gender and interpersonal variables. Career indecision has demonstrated empirical relationships with emotional factors such as low self esteem, anxiety and cognitive factors such as external decision-making style, low problem solving confidence, external appraisal of control and greater self appraised pressure and barriers. Researchers have also identified associations between career indecision and task-specific self-efficacy, family interaction patterns, students’ perceptions of the parental relationship and career decision-making. Thus, a large number of factors influence career indecision. Although the investigator wanted to see the influence of all these factors on career indecision of adolescents but due to paucity of time and resources, out of various variables influencing career indecision, the present study is taken up to investigate the career indecision of undergraduates in relation to career decision making self-efficacy, family interaction patterns and vocational identity.

Career indecision, in the present study, is operationally defined as uncertainty in career decision making. Even the career decided students may fall in the continuum of career indecision because they may lack information about requirements of a particular career or experience and have high conflict and external barriers. Career indecision was measured by using Career Decision-Making Inventory (CDMI; Singh,
It contains 18 items which measure the degree of certainty and uncertainty that students feel in having made a career decision.

People guide their lives by their beliefs of personal efficacy. Such beliefs influence the courses of action people choose to pursue - how much effort they put in given endeavors, how long they will persevere in the face of obstacles and failures, their resilience to adversity, whether their thought patterns are self-hindering or self-aiding, how much stress and depression they experience in coping with taxing environmental demands, and the level of accomplishments they realize. Thus, an important factor that may affect a person’s ability in making a career decision is his or her perceived career decision making self-efficacy.

In the present study, career decision making self-efficacy is operationally defined as the beliefs or confidence in one’s capabilities to successfully engage in the activities of selection and planning of occupational goal, gathering information regarding professional courses and occupations, solving various problems regarding choice of majors/occupations, planning for future and self evaluation of abilities and values. Career decision making self-efficacy was measured by using the Career Decision Self-Efficacy Scale-Short Form (CDSE-SF; Betz et al., 1996b). It contains five 5-item subscales reflective of career choice competencies: goal selection, gathering occupational information, problem solving, planning for the future and accurate self-appraisal.

The influence of the family on career decision making has long been recognized as an important factor by most vocational theorists. Interactions between parents and children and among siblings are a powerful influence. Interactions can include positive behaviors such as showing support and interest and communicating openly. Parental support and guidance can include specific career or educational suggestions as well as experiences that indirectly support career development. The absence of support, guidance and encouragement can lead to floundering, the inability to develop and pursue a specific career focus. Thus, family interaction patterns may also influence career decision making of undergraduate students.

*Family interaction patterns*, as operationally defined in the present study, is degree of openness and closeness in the family behavior, in terms of competitive framework, cohesion, expressiveness, independence, moral orientation, organization of family responsibilities and recreational orientations. It was measured by using
Family Environment Scale (FES; Vohra, 1997). It gives information about the family environment in a rapid, objective and standardized manner. This scale uses seven clearly defined independent dimensions to measure family environment.

The vocational identity is crystallized as a result of some processes of self exploration and exploration of the environment. As a result of these, the adolescents and the young adults become aware of their own interests, values, skills, competences on the one hand, and the preference for certain types of activities, working and interaction styles and working environments, on the other hand. The multiple learning and working experiences have an important influence on the formation of vocational identity. Failure to form a stable vocational identity often results in career indecision. Links between identity development and career decision processes have been proposed in theoretical literature and have been supported with empirical studies.

*Vocational identity*, in the present study, is operationally defined as the possession of a clear and stable picture of one’s goals, interests, talents, strengths and various occupations and world of work. It was measured using Vocational Identity subscale (VIS) of My Vocational Situation (Holland et al., 1980a). The VIS consists of eighteen true-false questions which measure degree of clarity and stability of interests, strengths, abilities and information of world of work one possesses.

It is imperative to study the determinants of career indecision for understanding the pattern of their influence on career indecision so that this may help the career counselors and teachers in their jobs.

**The Need for the Study**

One major reason of the Indian college students’ career uncertainty is the educational system in India. The students are encouraged to perform well on a variety of achievement tests in order to earn admission to excellent universities. The students spend too much time in study and do not have enough opportunities for self-exploration, nor do they have the chance to explore the world of work. At the college and university stage, the students suddenly feel uncertain about what they really want to do or what they might be able to do regarding a career. Also, careers are destined to change dramatically with the infusion of currently available and emerging technology. Thus, there is need to understand educational/vocational decision making of first year
students of colleges and explore the predictors of career uncertainty so that effective interventions can be developed to address the multidimensional and crucial career counseling issues of career indecision.

The present study is an attempt in this direction. This study was conducted to examine the role of career decision making self efficacy, family interaction patterns and vocational identity in predicting career indecision of undergraduate students in Doaba Region of Punjab (India).

**Statement of the Problem**

**PREDICTING CAREER INDECISION AMONG UNDERGRADUATES: THE ROLE OF CAREER DECISION MAKING SELF-EFFICACY FAMILY INTERACTION PATTERNS AND VOCATIONAL IDENTITY.**

**Objectives of the Study**

The specific objectives of the study are:

1. To identify status of career indecision among the undergraduate students.

2. To examine the impact of gender and stream of study on career indecision, career decision making self-efficacy, family interaction patterns and vocational identity.

3. To study gender wise and stream wise relationship among career indecision, career decision making self-efficacy, family interaction patterns and vocational identity.

4. To find out the predictors of career indecision from among the independent variables of career decision making self-efficacy, family interaction patterns and vocational identity.

5. To suggest the implications of the findings for career counseling.

**Hypotheses of the Study**

On the basis of above mentioned objectives following null hypotheses were proposed to be tested:

\(H_01\) Students at undergraduate level do not exhibit career indecision.

\(H_02\) Students at undergraduate level do not exhibit significant difference in career indecision, career decision making self-efficacy, family interaction patterns
and vocational identity with regard to demographic variables of gender and stream of study.

This hypothesis covers the following domains:

**Gender**

\( H_{02.1} \) Students at undergraduate level do not exhibit significant gender difference in career indecision.

\( H_{02.2} \) Students at undergraduate level do not exhibit significant gender difference in career decision making self-efficacy.

\( H_{02.3} \) Students at undergraduate level do not exhibit significant gender difference in family interaction patterns.

\( H_{02.4} \) Students at undergraduate level do not exhibit significant gender difference in vocational identity.

**Stream of Study**

\( H_{02.5} \) Undergraduate students from various streams of study do not differ significantly on the variable of career indecision.

\( H_{02.6} \) Undergraduate students from various streams of study do not differ significantly on the variable of career decision making self-efficacy.

\( H_{02.7} \) Undergraduate students from various streams of study do not differ significantly on the variable of family interaction patterns.

\( H_{02.8} \) Undergraduate students from various streams of study do not differ significantly on the variable of vocational identity.

**Relationship among career indecision, career decision making self-efficacy, family interaction patterns and vocational identity**

\( H_{03.1} \) There is no significant relationship among career indecision, career decision making self-efficacy, family interaction patterns and vocational identity in case of total sample of undergraduate students.

\( H_{03.2} \) There is no significant relationship among career indecision, career decision making self-efficacy, family interaction patterns and vocational identity in case of male undergraduate students.
There is no significant relationship among career indecision, career decision making self-efficacy, family interaction patterns and vocational identity in case of female undergraduate students.

There is no significant relationship among career indecision, career decision making self-efficacy, family interaction patterns and vocational identity in students from Arts stream.

There is no significant relationship among career indecision, career decision making self-efficacy, family interaction patterns and vocational identity in students from Commerce stream.

There is no significant relationship among career indecision, career decision making self-efficacy, family interaction patterns and vocational identity in students from Science stream.

Predicting career indecision from among the independent variables of career decision making self-efficacy, family interaction patterns and vocational identity

Career decision making self-efficacy does not predict the career indecision of undergraduate students.

Family interaction patterns do not predict the career indecision of undergraduate students.

Vocational identity does not predict the career indecision of undergraduate students.

Instruments Used

Following four standardized scales were used to measure career indecision, career decision making self-efficacy, family interaction patterns and vocational identity:

- Singh’s Career Decision-Making Inventory (1999)
- The Career Decision Self-Efficacy Scale-Short Form (Betz, Klein & Taylor, 1996)
- Family Environment Scale (Vohra, 1997)
- Vocational Identity subscale of My Vocational Situation (Holland, Daiger & Power, 1980)
Sampling

In the present study, multistage as well as incidental sampling techniques were employed. Population of undergraduate students in Panjab was divided into strata of different regions and only Doaba region of Panjab was chosen for survey. Doaba region of Panjab is divided into four strata or districts viz. jalandhar, Hoshiarpur, Nawanshahar and Kapurthala. Only two degree colleges from each district were chosen randomly. The representativeness was ensured with respect to class and availability of Arts, Commerce and Science streams in the degree colleges. In the first session, data was collected from 1334 students enrolled in first year of undergraduation of Arts, Commerce and Science stream. Only undecided or tentatively undecided students were chosen for second session of data collection. Thus, the technique of sampling in the present investigation was multistage sampling.

Sampling was incidental in nature as only those students were taken who were present on the day of data collection. In the present study, the final sample consisted of 306 students studying in first year of under graduation.

Statistical Techniques Employed

Statistical analysis, using the Statistical Package for Social Sciences (SPSS) version 19.0 for Windows and AMOS 19.0, was undertaken to process the raw data obtained from the questionnaires. Following statistical techniques were employed in the study:

- **Demographic analysis** was used to study the demographic profile of the sample. Demographic characteristics included variables such as gender and stream of study (Arts, Commerce and Science).

- **Descriptive analysis** such as mean and standard deviation were computed to study the nature of distribution of scores for each variable across gender and stream of study.

- **Inferential analysis** included univariate, bivariate and multivariate data analysis.

**Univariate Analysis: T-test** was used to find significant differences between the means of groups across gender for career indecision, career decision-making self-efficacy, family interaction patterns and vocational identity. **ANOVA** (analysis of variance) was used to find significant differences
between the means of groups across three streams of study - Arts, Commerce and Science for career indecision, career decision-making self-efficacy, family interaction patterns and vocational identity.

**Bivariate Analysis:** Pearson’s product moment correlation was used to find significant relationships between different variables - career indecision, career decision-making self-efficacy, family interaction patterns and vocational identity.

**Multivariate Statistics:** Structural Equation Modeling (SEM) was used to study the relationship between the constructs and to find out the predictors of career indecision from among the independent variables of career decision making self-efficacy, family interaction patterns and vocational identity.

**Conclusions of the Study**

Following conclusions were drawn after analyzing the data:

**Conclusions based on demographic data of sample.** Results obtained after categorizing total sample into decided, undecided and tentative groups on the basis of scores in Career Decision Making Inventory (Singh, 1999) revealed that 65% of undergraduate students were decided, 16% undergraduate students were undecided and 19% were tentative about their career decision. Thus, career indecision was found in about 35% students who reported uncertainty in career decision making due to lack of information about requirements of a particular career or experience and high conflict and external barriers. Thus, the null hypothesis $H_{01}$ that students at undergraduate level do not exhibit career indecision, was found to be rejected. In cross cultural research evidence, it is acknowledged that career indecision is increasing in colleges and universities from year to year (Crites, 1981; Gordon, 1982; Taylor, 1982; Salters, 1985).

**Conclusions based on descriptive analysis.** The descriptive analysis indicated the level of career indecision, career decision making self-efficacy, family interaction patterns and vocational identity in the overall sample with regard to gender and stream. Conclusions based on the descriptive analysis are as follows:

**Across the gender**

- The total value of mean score for career indecision and career decision making self-efficacy did not differ much in case of male and female students.
- Differences were found in the mean value of family interaction patterns and vocational identity across the gender in the present sample.

**Gender wise across the stream**

- Career indecision was found to be maximum in Arts students among all the streams in total sample and also in both the genders.

- Career decision making self-efficacy was found to be maximum in Science students in the sample of male students and in Commerce students in the sample of female students.

- From among the sample of male undergraduates, Commerce students were found to be higher in case of competitive framework, cohesion and moral orientation dimensions of family interaction patterns as compared to Arts and Science stream. However, Arts students were found to be high on expressiveness, organisation and recreational orientation dimensions.

- From among the sample of female undergraduates, Arts students scored maximum on competitive framework and recreational orientation dimensions of family interaction patterns. However, Science students scored maximum in cohesion and expressiveness. Commerce students were found to be more on moral orientation and organization dimensions.

- In the total sample, vocational identity was found to be highest in students of Science stream among all the streams. However, in the sample of male undergraduates, Commerce students exhibited maximum vocational identity and in the sample of female students of Science stream were found to exhibit highest vocational identity.

**Conclusions based on inferential analysis**

**Results obtained from Independent samples t-test**

- There was no significant difference between the mean score for male and female students for career indecision. The level of uncertainty in making relevant career decision did not differ in male and female undergraduate students. Thus, the null hypothesis $H_{02.1}$ that students at undergraduate level do not exhibit significant gender difference in career indecision was accepted. In cross cultural research evidence, it was acknowledged that Barnes and
Carter (2002), Akos et al. (2004), McCoy (2004) as cited in Talib and Aun (2009), Hampton (2006) and Salami (2008) found no gender difference with regard to career indecision. However, contradictory findings were reported by Patton and Creed (2001), Zhou and Santos (2007) who found that males and females had different levels of career indecision.

There was no significant difference between the mean score for male and female undergraduate students for career decision making self-efficacy and its dimensions. Both the genders exhibited same level of confidence in their capabilities to successfully engage in activities of choosing a career. These activities involve selection and planning of occupational goal, gathering information regarding professional courses and occupations, solving various problems regarding choice of majors/occupations, planning for future and self evaluation of abilities and values. Thus, the null hypothesis $H_{02.2}$ that students at undergraduate level do not exhibit significant gender difference in career decision making self-efficacy was found to be accepted. Similar results were reported by Betz and Hackett (1981); Lent et al. (1986); Church et al. (1992) and Betz et al. (1996a).

There was significant difference between the male and the female undergraduate students in perception of cohesion, expressiveness, independence and moral orientation dimension of family interaction patterns. No significant difference was found between the male and the female students in perception of competitive framework and recreational orientation. The sample of male students was found to have significantly higher independence from their families. They are more assertive, self sufficient and make their own decisions. However, cohesion, expressiveness and moral orientation were significantly higher in the sample of female students. They support each other and they have a strong feeling of togetherness. They are encouraged to act openly and express feelings directly. Comparatively more emphasis was given to ethical, moral and religious issues and values by female students. Thus, the null hypothesis $H_{02.3}$ that students at undergraduate level do not exhibit significant gender difference in family interaction patterns was found to be accepted in case of competitive framework and recreational orientation.
and not accepted in case of cohesion, expressiveness, independence and moral orientation.

- There was no significant difference between male and female undergraduate students for vocational identity. They showed no difference in possession of a clear and stable picture of goals, interest, talents and strengths for various occupations. Hence, null hypothesis $H_{02.4}$ that students at undergraduate level do not exhibit significant gender difference in vocational identity was found to be accepted. Similar results were reported by Lucas et al. (1988). However, Gushue et al. (2006) and Skorikov and Vondracek (1998) found small gender differences.

Results obtained from analysis of variance

- Career indecision was not significantly different for different streams of study. Students belonging to different streams of study experienced same status of career uncertainty. Hence, null hypothesis $H_{02.5}$ that undergraduate students from various streams of study do not differ significantly on the variable of career indecision was found to be accepted. In Indian research evidence, it is acknowledged that Kaur (2007) and Sharma (2012) found no significant difference on the variable of career indecision between Science, Arts and Commerce students. However, in cross cultural research evidence, it is acknowledged that significant differences were found among levels of career decision status based on the stream of Economics and Arts (Khasawneh et al., 2007).

- Career decision making self-efficacy of students was not significantly different across the stream. Students belonging to different streams of study exhibited same level of confidence in one’s capabilities to successfully engage in the activities of selection and planning of occupational goal, gathering information regarding professional courses and occupations, solving various problems regarding choice of majors/occupations, planning for future and self evaluation of abilities and values. Hence, null hypothesis $H_{02.6}$ that undergraduate students from various streams of study do not differ significantly on the variable of career decision making self-efficacy was found to be accepted.
- There existed significant difference between the students belonging to different streams of study for competitive framework and independence. Undergraduate students who chose to study Arts subjects had the maximum levels of competitive framework and the students who chose Science stream had the lowest scores on competitive framework. It indicates that the activities (such as school and work) of students belonging to Arts stream are cast into an achievement oriented competitive framework to the larger extent.

- Science students had the highest levels of independence and Arts students had the lowest scores on independence. Adolescents who belong to Science stream were highly independent i.e. students usually do their things on their own. They are given freedom to solve their problems themselves. And those students who belong to Arts stream were less independent. Thus, the null hypothesis $H_{0.7}$ that undergraduate students from various streams of study do not differ significantly on the variable of family interaction patterns was not found to be accepted in case of competitive framework and independence.

- There was a significant difference between the mean score for vocational identity of different groups of streams. It is evident that college students who chose to study Science subjects have the highest levels of vocational identity in comparison to students belonging to Arts stream and Commerce stream. Hence, null hypothesis $H_{0.8}$ that undergraduate students from various streams of study do not differ significantly on the variable of vocational identity was found to be rejected.

**Results obtained from correlation analysis.** Following conclusions are revealed in this section:

*Relationship among career indecision, career decision making self-efficacy, family interaction patterns and vocational identity for total sample.* Correlation matrix for overall sample revealed significant strong negative correlation of career indecision with career decision making self-efficacy and moderate negative correlation of career indecision with vocational identity. Thus college students who reported a lower confidence in making accurate self-appraisal, finding occupational information, selecting career goal, planning a career and solving career related problems had high career indecision. Students who possessed a clear and stable picture of one’s goals, interests and talents exhibited lower career indecision.
Only recreational orientation dimension of family interaction patterns showed significant but weak negative correlation with career indecision. It shows that higher the interest of the family in social recreational, political, intellectual and cultural activities, the lower is the career indecision. No other dimension of family interaction patterns showed significant correlation with career indecision. Vocational identity also showed significant moderate positive correlation with career decision making self-efficacy. Thus, college students with high vocational identity report high confidence in making accurate self-appraisal, finding occupational information, selecting career goal, planning a career and solving career related problems. Hence, null hypothesis $H_{03.1}$ that there is no significant relationship among career indecision, career decision making self-efficacy, family interaction patterns and vocational identity in case of total sample of undergraduate students was found to be accepted for the relationship of family interaction patterns with career indecision, career decision making self-efficacy and vocational identity, but not accepted for the relationship among career indecision, career decision making self-efficacy and vocational identity.

In cross cultural research evidence, it was acknowledged that career indecision was found to be related to career decision making self-efficacy by Taylor and Betz (1983); Taylor and Popma (1990); Mathieu et al. (1993); Bergeron and Romano (1994); Arce (1996); Betz and Voyten (1997); Osipow and Gati (1998); Guay et al. (2003); Creed et al. (2004); Betz et al. (2005); Argyropoulou et al. (2007); Nota et al. (2007); and Reed and Skaar (2010).

Eigen et al. (1987); Whiston (1996); Santos and Coimbra (2000); Keller (2007); Nota et al. (2007) and Mojgan et al. (2012) did not found significant relationship between family interaction patterns and career indecision.

Blustein et al. (1989); Wallace-Broscious et al. (1994); Cohen et al. (1995); Vondracek et al. (1995); Leung (1998); and Talib and Aun (2009), and Hocson (2012) found correlation between vocational identity and career indecision and supported the results of present study.

**Relationship among career indecision, career decision making self-efficacy, family interaction patterns and vocational identity for males.** Correlation matrix for male undergraduate students revealed that career indecision had significant strong negative correlation with career decision making self-efficacy and moderate negative correlation with vocational identity. In case of male students, vocational identity
scores also showed significant moderate positive correlation with career decision making self-efficacy scores. Hence, null hypothesis $H_{03.2}$ that there is no significant linear relationship among career indecision, career decision making self-efficacy, family interaction patterns and vocational identity in case of male undergraduate students was found to be accepted for relationship of family interaction pattern with other variables but not accepted for relationship among career indecision, career decision making self-efficacy and vocational identity.

**Relationship among career indecision, career decision making self-efficacy, family interaction patterns and vocational identity for females.** In case of female undergraduate students, career indecision has significant strong negative correlation with career decision making self-efficacy and weak negative correlation with vocational identity. Vocational identity scores also showed significant moderate positive correlation with career decision making self-efficacy scores in female students. Thus, null hypothesis $H_{03.3}$ that there is no significant linear relationship among career indecision, career decision making self-efficacy, family interaction patterns and vocational identity in case of female undergraduate students was not found to be accepted for relationship among career indecision, career decision making self-efficacy and vocational identity but accepted in case of family interaction patterns.

**Relationship among career indecision, career decision making self-efficacy, family interaction patterns and vocational identity for Arts stream.** In case of stream of study, Arts students showed significant strong negative correlation of career indecision with career decision making self-efficacy and weak correlation with vocational identity. Vocational identity scores showed significant positive correlation with career decision making self-efficacy scores. Thus, null hypothesis $H_{03.4}$ that there is no significant linear relationship among career indecision, career decision making self-efficacy, family interaction patterns and vocational identity in students from Arts stream was not found to be accepted in case of relationship of career indecision, career decision making self-efficacy and vocational identity.

**Relationship among career indecision, career decision making self-efficacy, family interaction patterns and vocational identity for Commerce stream.** Significant strong relationship was found between career indecision and career decision making self-efficacy in case of Commerce students. Weak relationship
between career indecision and vocational identity was also found in students from Commerce stream. Vocational identity scores showed significant positive correlation with career decision making self-efficacy scores. Among family interaction patterns, recreation orientation was found to be significantly correlated to career indecision, vocational identity and career decision making self-efficacy in case of students from Commerce stream only. Thus, null hypothesis $H_{03.5}$ that there is no significant linear relationship among career indecision, career decision making self-efficacy, family interaction patterns and vocational identity in students from Commerce stream was not found to be accepted in case of career indecision, career decision making self-efficacy and vocational identity and recreational orientation pattern of family interaction.

Relationship among career indecision, career decision making self-efficacy, family interaction patterns and vocational identity for Science stream. Significant strong relationship was found between career indecision and career decision making self-efficacy in case of Science students. Strong relationship between career indecision and vocational identity was also found in students of Science stream. Vocational identity scores showed significant positive correlation with career decision making self-efficacy scores. Thus, null hypothesis $H_{03.6}$ that there is no significant linear relationship among career indecision, career decision making self-efficacy, family interaction patterns and vocational identity in students of Science stream was found to be accepted only in case of family interaction patterns.

Conclusions based on multivariate analysis

- Structural equation modeling revealed that career decision making self-efficacy was negatively affecting the career indecision and was strong predictor of career indecision with standardized regression weight – 0.747. Thus, null hypothesis $H_{04.1}$ that career decision making self-efficacy does not predict the career indecision of undergraduate students was found to be rejected. In cross cultural research evidence, it is acknowledged that career decision making self-efficacy is a predictor of career indecision (Taylor & Betz, 1983; Betz & Voyten, 1997; Creed et al., 2004; Betz et al., 2005; Lopez & Ann-yi, 2006).

- Structural equation modeling revealed that family interaction patterns were not directly determining the career indecision. Family interaction pattern
significantly determined vocational identity with standardized regression weight of 0.162 which indirectly affected the career indecision through career decision making self-efficacy. The students, who perceived their families to be achievement oriented and competitive in different activities of school and work, committed and supportive to one another, encouraging acting openly, emphasizing ethical, moral and religious issues and values, interested in social recreational, political, intellectual and cultural activities had high vocational identity Hence, family interaction patterns are the indirect predictor of career indecision. The null hypothesis $H_{04-2}$ that family interaction patterns do not predict the career indecision of undergraduate students was found to be accepted. Previous research with college students (Lopez, 1989; Puffer, 1999; Johnson & Buboltz, 1999; Hargrove et al., 2002; Penick & Jepsen, 1992) has also revealed the relationship between family interaction patterns and vocational identity.

- Structural equation modeling revealed that vocational identity was not directly determining the career indecision. Vocational identity indirectly affected the career indecision through career decision making self-efficacy. Hence, vocational identity is the indirect predictor of career indecision. The null hypothesis $H_{04-3}$ that vocational identity does not predict the career indecision of undergraduate students was found to be accepted. Previous research evidences (Hocson, 2012; Talib & Aun, 2009; Gushue et al., 2006) have also revealed relationship between vocational identity and career indecision.

**Overall Conclusions of the Study**

- Based on the above discussion it can be concluded that Career indecision was found in 35% undergraduate students enrolled in different streams viz. Arts, Commerce and Science in degree colleges of Doaba region of Panjab which means they are not certain about their career. Either they have not decided the career they wish to pursue or they are not confident of the choice they have made. This career indecision is experienced by the students because they may not be aware of the requirements which lead to a particular career. They also show inability to correlate their interests and abilities with a career. Sometimes they get confused because of the different suggestions given by others for deciding about a career. No difference was found in students’ career
indecision, career decision making self-efficacy, family interaction patterns and vocational identity with regard to gender except for perception of cohesion (degree of commitment, help and support family members provide for one another), expressiveness (the extent to which family members are encouraged to act openly and express feelings directly), independence (the extent to which family members are assertive, self sufficient and make their own decisions) and moral orientation (the degree of emphasis given to ethical, moral and religious issues and values) of family interaction patterns. The sample of Male students was found to have significantly higher independence from their families as compared to their counterparts. However, cohesion, expressiveness and moral orientation were significantly higher in sample of female students.

- There was no significant difference in students’ career indecision, career decision making self-efficacy and family interaction patterns (except for competitive framework and independence dimensions) among Arts, Commerce and Science stream. There was a significant association between stream of study and competitive framework and independence family interaction patterns of students. Students who chose to study Arts subjects were more competitive and achievement oriented in contrast to students of Science and Commerce stream. Students of Science stream experienced more independence in their families than students of other streams.

- Significant difference was found for vocational identity among different streams. Science students had the highest level of vocational identity in comparison to Arts stream and Commerce stream. Science students exhibited clearer picture of their goals, talents, interests and strengths related to career decision making. They have better knowledge of world of work, different occupations and many other areas of life. They make an occupational choice without any long and difficult problem. They are certain that they would enjoy the career they have chosen.

- Correlation matrix for overall sample revealed significant strong negative correlation of career indecision with career decision making self-efficacy. Similar results have been found in both the genders taken separately and in all the streams viz. Arts, Commerce and Science. Those who had confidence in
performing activities to collect information pertaining to self-appraisal, occupations, goal selection, planning and problem solving are more decided on their career choice. Moderate negative correlation of career indecision was found with vocational identity. Students who possessed clear and stable picture of their strengths, interests, talents and goals regarding their career showed more career decidedness. Among family interaction patterns only recreational orientation dimension showed significant but weak negative correlation with career indecision. The high score on recreational orientation dimension means that family members have varied interest in various recreational activities and they spare time for their hobbies, cultural activities and/or intellectual discussions. Thus, higher the recreational orientation lower is the career indecision among students.

No other dimension of family interaction patterns showed significant correlation with career indecision.

Structural Equation Modeling (SEM) suggests that:
- Career indecision was directly explained by career decision making self-efficacy. Hence, career decision making self-efficacy is strong predictor of career indecision. Lack of confidence in one’s capabilities to successfully engage in the activities of career decision making specifically self-appraisal, occupational information, goal selection, planning and problem solving predicted uncertainty in career decision of undergraduate students.

- Family interaction patterns and vocational identity were indirectly predicting career indecision. Vocational identity predicted career indecision through career decision making self-efficacy and family interaction patterns predicted career indecision through vocational identity. Family interaction patterns measured by competitive framework, cohesion, expressiveness, moral orientation and recreational orientation dimensions had direct relationship with the clarity of goals of an individual regarding career. Students who possessed clear and stable picture of their strengths, interests, talents and goals regarding their career showed confidence in one’s capabilities to successfully engage in the activities of career decision making. Those who had confidence in performing activities to collect information pertaining to self-appraisal,
occupations, goal selection, planning and problem solving are more decided on their career choice.

Thus, the final model suggested that, in this study, career indecision was directly explained by career decision making self-efficacy; whereas family interaction patterns and vocational identity were indirectly predicting career indecision through vocational identity and career decision making self-efficacy respectively.

Educational Implications of the Study

Based on the conclusions of this study, the following theoretical and practical recommendations are put forward:

- Students indicated different levels of career indecision. Hence, it is necessary to facilitate the decision making process and help the individuals to overcome the difficulties they face in choice of majors and career.
- Students have indicated career decision-making problems such as confusion to make a choice because of different suggestions from others, lack of experience to make career decision, inability to relate interests to career plans, uncertainty about requirements of a particular career and difficulty in decision making in spite of the knowledge of abilities of oneself.
- Extensive career exploration experiences will facilitate the students to learn about world of work and enable them to make some initial decisions about education and career direction.
- Various career development activities should be integrated across courses offered in the colleges. Academic subject matter can be infused with information for career decision making. Hardesty (1991) also noted that career interventions such as career courses have been found to be effective in increasing career decidedness (i.e., lower career indecision) among undergraduate students. Hughes and Karp (2004) and Reese and Miller (2006) found that students benefit both vocationally and academically from participation in career courses with increased gains in knowledge of careers as well as their ability to make career-related decisions.
Implications for Career Counselors

It has been diagnosed in the present study that career decision making self-efficacy, family interaction patterns and vocational identity are related to career indecision. These factors can be applied to develop various interventions so that students can implement their decision with more certainty.

- As career decision making self-efficacy has been found to be a strong predictor of career indecision, interventions may be used to enhance career decision making self-efficacy. Bandura (1986) has suggested four ways to acquire career decision making self-efficacy: (a) Performance—individuals tend to have confidence in their ability to perform tasks which they have already performed successfully; (b) Vicarious modeling—observing others successfully performing a task increases individuals' expectations that they, too, can perform that task; and (c) Verbal persuasion—having positive feedback and encouragement from others, particularly significant others (e.g., friend, teacher, spouse), increases individuals' beliefs that they can successfully complete a task; (d) Physiological arousal - stressful and taxing situations generally elicit emotional arousal that, depending on the circumstances, might have informative value concerning personal competency. Based on these approaches interventions could be developed for use in the classroom or by student services.

- Results of the current study suggest that the quality of family interaction patterns impact the vocational identity, which is indirect predictor of career indecision. These findings have implications for career counselors to consider the family interaction patterns of their clients. The information about competitive framework, cohesion, expressiveness, moral orientation and recreational orientation may be particularly useful to assist the students for the development of vocational identity. Findings may also help counselors to facilitate family sessions, where different family interaction patterns can be discussed and students can also participate to improve quality of these interaction patterns.

- For developing vocational identity in students, career guidance program should have the element on how to develop appreciation and positive attitude
towards work. They should provide knowledge on how to locate, evaluate and interpret information about career opportunities, developing skills in selecting exploratory, introductory and instructional programs, developing career problem solving and decision making skills, identifying the career goal and carrying out the plan.

- University vocational centers should be established to prepare the students for career development. Personality, needs, values, abilities and interests of students should be studied and guidance should be provided to students in selecting suitable majors and careers. Students should be prepared vocationally in their early years of education throughout the university years. There should be collaborative efforts of the parents, principals, administrators and high school officials in producing effective and efficient workers.

**Limitations of the Study**

The study contributes significantly in better understanding the relationships between the career indecision and its determinants. However, no generalization of the results is claimed because of the following limitations of the study:

- A larger sample on state level or national level can give better picture. But the researcher restricted the survey to Doaba region of Panjab in India because of lack of time and resources.

- Sample of the study was restricted to first year undergraduate students only. School level, senior secondary and graduate students could also be considered for better understanding of relationships.

- Undergraduate students from Arts, Commerce and Science streams were taken. Students of professional courses of graduations could also be studied for obtaining clear picture of stream wise differences for career indecision, career decision-making self-efficacy, family interaction patterns and vocational identity.

- Sample consisted of students present on the day of data collection.

- The strength of boys was very low in comparison to girls in degree colleges and limited the gender wise comparison of the study.
- The number of Science students was very low as compared to other streams in degree colleges and it may have influenced the stream wise differences of the study.

- Only selected variables of career decision making self-efficacy, family interaction patterns and vocational identity have been included to find out the predictors of career indecision. Many other emotional and cognitive variables could also be studied as predictors.

**Suggestions for Further Research**

The findings of this study suggest some areas to consider for future research.

- Career indecision should be examined for vocationally diverse population and across other grade levels.

- It is also suggested to conduct research on professional colleges and universities for more reliable and valid results.

- Demographic variables other than gender and stream of study can also be studied, for example, rural/urban, parental education level, occupation of parents, socio-economic status and type of high school graduated.

- Qualitative research along with quantitative research is also recommended. Interview schedule can be developed for case studies of undecided students to validate the results.

- Other factors which contribute to career indecision can also be studied to provide insight to educators in improving the career developmental process.