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# Journal of Life Science and Biomedicine (2251-9939)

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Volume 2 (5); September 15, 2012

Research Paper

**Study of the Structure of the Gastric Mucosa of the Mouse (Cell Population)**

Dare WN, Oyinbo CA, Izunya AM.

*J. Life Sci. Biomed.*, 2(5): 182-186, 2012; pii:S225199391200035-2

**ABSTRACT:** Seven male adult albino mice, each weighing 30-40g and 11months old were used to study the gastric mucosa of the mice. Cell types, their population and percentage densities in the entire gastric mucosa and in each region were determined microscopically. It was observed that mucous producing cells (mucous cells) had the highest population and percentage densities in the gastric mucosa. These were the dominant cell types in both cardiac and pyloric regions of the stomach. In contrast, the body of the stomach is dominated by zymogenic cells. These cells were second in abundance, followed by surface epithelial cells; and parietal cells. Although other cell types were also present in the gastric mucosa but the investigators could not identify them easily. Population and percentage densities of each cell type as calculated by the investigators were as follows: Surface epithelial cells =  $99 \pm 9.076/200,000\text{cm}^3$  (13%): Mucous cells =  $340 \pm 4/200,000\text{cm}^3$  (45.39%): Parietal cells =  $51 \pm 42/200,000\text{cm}^3$  (6-8%): Zymogenic cells =  $259 \pm 17/200,000\text{cm}^3$  (34.60%).

**Keywords:** Mice, Gastric Mucosa, Surface Epithelial cells, Mucous Cells, Parietal Cells, Zymogenic Cells.



Research Paper

**Determination of Quality and Shelf life of Three Marine Fishes (Coral trout, Greasy grouper and Red mouthed bream) Based on Total Volatile Nitrogen test (TVN)**

Adam SuliemanHM, Abdel Bari LO and Abdel Hafiz M.

*J. Life Sci. Biomed.*, 2(5): 187-191, 2012; pii:S225199391200036-2

**ABSTRACT:** This study was carried out to evaluate the quality and Shelf life of three marine fishes (Coral trout, Greasy grouper, and Red mouthed bream) based on total volatile nitrogen test (TVN). The studied fish was collected newly caught from commercial sale point at Khartoum center- Sudan, kept under  $-4\text{ C}^\circ$  and immediately transferred to laboratory for further analysis. The total volatile basic nitrogen (TVB-N) test was performed to assess the shelf life period and quality status of product at intervals time of 5days extended for 40 days. The results revealed that the total volatile basic nitrogen (TVB-N) ratio in the first two species (coral trout and greasy grouper) reached the recommended limit (30mg/100g) at interval time of 25 days, while the third one (Red mouthed bream) reached the recommended limit in interval time of 20days as the limits of TVN for fishery products in Commission Regulation (EC) NO 2074/2005, which was ranged between 25 to 35 milligrams of nitrogen/ 100grams of fish flesh. It could be concluded that this result can comply with Europe Unite (EU) standard which was widely used in many world countries.

**Keywords:** quality, Shelf life, coral trout, greasy grouper, red mouthed bream, total volatile nitrogen test.



Research Paper

**Commercial Ostrich Farming in Botswana: A Case Study of Dibete Ostrich Multiplication Unit**

Moreki J.C., Kebonye N.M., Tiroesele B.

*J. Life Sci. Biomed.*, 2(5): 192-195, 2012; pii:S225199391200037-2

**ABSTRACT:** Commercial ostrich population in Botswana has declined by about 74.36% from 7800 in 1996 to 2000 currently, indicating that the industry is performing poorly. A study was conducted to ascertain challenges faced by Dibete Ostrich Multiplication Unit (DOMU), a government owned and operated farm. Data were collected through oral interviews of DOMU staff, direct observation and by examining secondary sources of data such as monthly and annual reports from May to July 2011. The challenges faced by DOMU included *inter alia* high feed costs, poor quality feeds, inadequate extension service, prolonged closure of the ostrich abattoir and high bird mortality. It, however, appears that the prolonged closure of the abattoir is the main contributor to poor performance of the industry. The challenges in this study pointed to the poor performance of DOMU and the ostrich industry in its entirety.

**Keywords:** quality, Shelf life, coral trout, greasy grouper, red mouthed bream, total volatile nitrogen test.



Research Paper

**Some Behavioral traits of Striped Hyaena under Captive Conditions**

Mohamed Ahmed F.A., Takona N.Y., Yousif R.A. and Mohamed Salih R.R.

*J. Life Sci. Biomed.*, 2(5): 196-199, 2012; pii:S225199391200038-2

**ABSTRACT:** This study was conducted to observe some behavioral traits of Striped Hyaena under captive conditions. The observations have been carried during the period 5- 15 July, 2009, for 8 equal time period, extending for 24 hours from 0600 p.m hour to 0600 p.m hour next day. The Hyaena flack consisted of two adult males, kept in the Collage farm (Kuku



zoo) Khartoum north, in a cage joined to a fence to not allow for free movement. The recorded behavioral activities included: sleeping and rest, movement, clean other, eating, drinking, urination and gonad secretion. It was noticed that the most time consuming activities were sleeping and rest, movement, drinking, and urination. The longest period of the time budget was taken in sleeping and rest (6.7%), (11.15%) respectively in 12hours and 24 hours systems. The shortest fraction of the time budget was spent in gonad secretion maneuvers (0.22%), (0.29%) respectively in the two systems. The main objective of the study was to provide hyena breeders with useful information for better management.  
**Keywords:** Behavior, Budget, Hyena, Captive Conditions

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### Research Paper

#### Study of Media Influence on the Male - Female Students Relationship

Riazi Rad, N.

*J. Life Sci. Biomed.*, 2(5): 200-202, 2012; pii:S225199391200039-2

**ABSTRACT:** Purpose of present study was to study media influence on the undergraduate male - female student's relationships. This study used a descriptive correlational design and statistical population includes all students of Islamic Azad University of Kerman, Iran. 350 undergraduate students were selected using simple random sampling. Researcher made questionnaire was used for data collection. Results show that the mass media such as TV, Internet and Satellite influence on the undergraduate male - female student's relationships. Results of this study may create necessary insight for university managers in planning for leisure time of students.

**Keywords:** Media influence, Male - female student's relationships, Correlative study



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### Research Paper

#### A Survey on the Amount of Psychological Disorders of Condemned Individuals of Bride-Price and Alimony in Comparison with Prosperous Spouses

Zeynalpur, M. Manzari H. Alimoradi, A. and Boroomand, R.

*J. Life Sci. Biomed.*, 2(5): 203-206, 2012; pii:S225199391200040-2

**ABSTRACT:** Purpose of present study was to investigate and compare psychological disorders of dowry and alimony convicts and successful couples in Bandar Abbas. Statistical population of this study includes all individuals sentenced to pay dowry and alimony and successful couples (not convicted) who lived in Bandar Abbas. 60 individuals (30 convicts and 30 successful couples) were selected using simple random sampling. SCL-25 personality questionnaire was used for data collection. Results show that the most common mental disorder among people convicted to pay dowry and alimony is obsessive-compulsive disorder with average of 2.1, and least important mental disorder among convicts is anxiety disorder with average of 3.1. Among successful couples (non- convicts), most important mental disorders is also compulsive disorder and hypochondrias both of which have average value of 1.13. Results of this study may create necessary insight for treatment and prevention of mental disorders to help families, family therapists, counselors and family training teachers.

**Keywords:** Psychological disorders, Condemned Individuals, Casual-comparative study



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### Research Paper

#### A Comparative Study of the Correlation between Intellectual Capital, the Capital Employed Efficiency and Profitability in Firms Accepted at the Tehran Stock Exchange

Ashouri, S., Vakilifard, H., and Talebnia, G.

*J. Life Sci. Biomed.*, 2(5): 207-215, 2012; pii:S225199391200041-2

**ABSTRACT:** The intellectual capital approach in organizations leads to improved decision making by users, enhanced internal management, better reports being issued out of the organization, transactions of this capital within the firm and developed accounting performances. Furthermore, the role and significance of the output resulted by intellectual capitals employed in firms' profitability and continual stability is nowadays regarded as higher than the output of financial capitals. This research primarily aims to make a comparative study of the correlation between intellectual capital, the capital employed efficiency and profitability in firms accepted at the Tehran Stock Exchange. The statistical sample consists of 5 industrial groups of firms accepted at the Tehran Stock Exchange and the time period involves 2008 to 2010. Multiple regression tests have been used in order to test the hypotheses and examine the correlation between the variables. The obtained results indicated a direct correlation between intellectual capital and the efficiency of the capital employed and the firms' operating profit. Furthermore, according to the results, firms that make more use of intellectual capital have higher net operating profits than firms which use less intellectual capital. The findings of the present research suggest that intellectual capital can be considered as an effective factor in the efficacy of venture units. This finding can come to the attention of the shareholders and managers of these units and encourage them to endeavor, by making managerial modifications, to take the existence of intellectual capitals into consideration and take measures toward using them correctly.

**Key words:** Intellectual capital, The capital employed efficiency, Net operating profit



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### Research Paper

#### Relationship of Personality Traits with Marital satisfaction in Women

Golestani, E. Manzari Tavakoli A., and Manzari Tavakoli H.



*J. Life Sci. Biomed.*, 2(5): 216-218, 2012; pii:S225199391200042-2

**ABSTRACT:** Present article examined the relationship between personality traits and marital satisfaction of women. The statistical population of study is women who were married in Bandar Abbas that 100 subjects were selected by random sampling. Data collection instruments were NEO-PI-R personality traits and marital satisfaction (IMS). In order to analyze the data, mean, standard deviation, Pearson correlation test and multiple regressions is used. The results showed that each of the personality components has a significant relationship with marital satisfaction. In the end of paper, results are discussed and useful recommendations are suggested.

**Key words:** Personality traits, Marital satisfaction, Women

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### Research Paper

#### Study of Family Influence on the Male - Female Students Relationship

Riazi Rad, N., Manzari Tavakoli, A. and Dadvar, R.

*J. Life Sci. Biomed.*, 2(5): 219-222, 2012; pii:S225199391200043-2

**ABSTRACT:** Purpose of present study was to study family influence on the undergraduate male - female student's relationships. This study used a descriptive correlational design and statistical population includes all students of Islamic Azad University of Kerman, Iran. 350 undergraduate students were selected using simple random sampling. Researcher made questionnaire was used for data collection. Results show that the family influence on the undergraduate male - female student's relationships. Results of this study may create necessary insight for family counselors in counseling with families.

**Keywords:** Family influence, Male - female student's relationships, Correlative study



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### Research Paper

#### The Investigation of the Impact of Participation in Extracurricular Activities on the Students' Academic Motivation and Social Adjustment at Non-profit Schools in Shiraz

Khosravi, Z.

*J. Life Sci. Biomed.*, 2(5): 223-227, 2012; pii:S225199391200044-2

**ABSTRACT:** The objective of the present study was to investigate the impact of participation in extracurricular activities on the students' motivation for achievement and social adaptation at non-profit schools in Shiraz in the academic year 2011-2012. The samples were selected through multistage random cluster sampling. First, 4 high schools were selected from among girls' schools, then, 4 from among boys' schools. Sixty students (30 girls and 30 boys), who participated in extracurricular classes, and 60 students (30 girls and 30 boys), who did not participate in extracurricular classes, were selected. The research method was quasi experimental. The research project (pretest and posttest), which was carried out through random selection, had a control group. Two questionnaires were distributed among the students to get information. The covariance analysis of the data obtained was analyzed by the use of SPSS software package and application of the statistical methods of T-test for independent groups, and the following results were achieved. The results from covariance analysis showed a significant difference between the amount of motives for achievement in experimental and control groups in the posttest after elimination of the impact of pretest and the results from the T-test showed a significant difference between the social adaptation level of the students who had participated in the extracurricular classes and those who had not.

**Keywords:** Extracurricular activities, Academic motivation, Social adjustment



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### Research Paper

#### On-Farm Evaluation of Mixture of Noug Seed Cake and Wheat Bran Supplementation for Fattening of Oxen in Bahir Dar Zuria District of Western Amhara

Bitew A., Abebe Y., Yitayew A., Kebede A. and Tsega W.

*J. Life Sci. Biomed.*, 2(5): 228-230, 2012; pii:S225199391200045-2

**ABSTRACT:** Fattening trial of draught oxen was conducted at two rural villages (Robit Bata and Sometu Yenesa) in Bahir Dar Zuria district to evaluate the contribution of mixture of noug seed cake and wheat bran supplementation compared to farmers feeding practice on body weight changes and economic return. Final body weight and average daily gain (ADG) from 1-45 days were significantly ( $P < 0.05$ ) higher for the concentrate supplemented oxen. Though body weight gain, ADG from 1-15 days & 1-75 days were higher for the supplemented oxen, the differences were not statistically significant. Economic analysis showed significantly ( $P < 0.05$ ) higher gross and net return from supplemented oxen than non-supplemented oxen. Therefore, in areas where industrial by-products (noug seed cake and wheat bran) could be purchased in relatively low price, fattening of draught oxen through concentrate supplementation could generate better income from increased body weight and improved body condition of the animals.

**Keywords:** Draught oxen; Fattening; Supplementation



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### Research Paper

#### Survey and analysis on content of Primary Education Textbooks from life skills training point of view.

Sarmad, Gh. Habiby, Sh. And Arvantan, M.



*J. Life Sci. Biomed.*, 2(5): 231-238, 2012; pii:S225199391200046-2

**ABSTRACT:** The current research is intended to give information about Life Skills which have been considered by the researcher(s) in Primary Education Textbooks and their interpretation and analysis that was carried out within Content Analysis framework and by means of different sources. Statistical population of this study was selected as all textbooks in Primary Education Course except for Quran Training Book and Lets' Read Persian book where they included totally 26 volumes. The analysis criteria have been formulated based on: Analysis of text, images, stories, questions, exercises, verses, fluently reading, reading chorally and designs of front and back of book cover. Researching tool was sentence that was selected as the smallest unit of analysis and recording unit was utilized to measure frequencies where by counting them it was referred to the rate of paying attention to life skills by means of aforesaid books. Persian sources, theses and the related studies have been adopted to deal with theoretical frameworks of the given research and due to lack any previous sample in order to be compared with this study; thus, no test has been carried out in this content analysis while descriptive statistics was utilized like preparation of appropriate tables, frequency distribution, percentage and diagram for this purpose. Results came from this study showed that of total 2775 sentences, the relevant images or phrases in 12 topics of life skills in textbooks, the maximum frequency has belonged to Creative- Critical Thought Skill with 488 cases and ratio of 17.55%, while the minimum frequency has belonged to Political Skill with 47 cases and rate of 1.69%.

**Keywords:** life skills, Primary education, Topic, Content analysis

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### Research Paper

#### The Relationship between Alexithymia and Emotional Intelligence with Social Adjustment in female Secondary School Students



Falatooni, F. Maktabi, G, Mehrabizadeh Honarmand, M. Aali Pour Birgani, S. and Morovati, Z.

*J. Life Sci. Biomed.*, 2(5): 239-242, 2012; pii:S225199391200047-2

**ABSTRACT:** The purpose of the present study was to examine the relationship between alexithymia and emotional intelligence with social adjustment in female Secondary School Students. The statistical population of this study consisted of the entire female Secondary School Students of Dezful city (Khuzestan Province, Iran) within the academic years of 2011-2012. The sample of this study included 265 female secondary school students who were selected using a multi-stage random method. Data were collected using Alexithymia questionnaire for children, the Bar-On Emotional Quotient Inventory, Youth Version (EQ-I: YV) and California Personality Inventory (CPI). The results of the simple correlation showed that the alexithymia had a negative and significant relationship with social adjustment while the emotional intelligence revealed a positive and significant relationship. The results of regression analysis also showed that emotional intelligence and alexithymia orderly played a major role in predicting social adjustment.

**Keywords:** Alexithymia, Emotional intelligence, Social adjustment.

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### Research Paper

#### Investigation of Psychological-Social Factors Predictive of Traffic Accidents in Shiraz city



Refahi, Zh. Rezaei, A., Aganj, N. and Moradi Birgani, R.

*J. Life Sci. Biomed.*, 2(5): 243-251, 2012; pii:S225199391200048-2

**ABSTRACT:** This study was conducted to investigate of psychosocial factors predict traffic accidents in Shiraz city. In this study, 1,853 regular and professional drivers were selected randomly. The tools of research were five questionnaires, demographic characteristics, Manchester Driver Behavior (MDB), Personality Characteristics (NEO), Attitudes to Driving and Social Health. Data analysis showed that the predictive role of attitude to driving is stronger than other variables. Personality traits as intermediary variables can indirectly effect on driving behavior. The findings also showed that there is negative significant correlation between personality characteristics (neuroticism) and driving behavior. The social health of all aspects of driving behavior has a significant negative relationship and this variable explains 23% variance in driving behavior.

**Keywords:** Psychological-social factors, Traffic accidents, Personality characteristics

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### Research Paper

#### Simple and Multiple Relationships between Relative Deprivations, Satisfaction of Needs and Lack of Patriarchal Power with Marital Satisfaction



Sadeghi, M. and Ghadimi, M.

*J. Life Sci. Biomed.*, 2(5): 252-254, 2012; pii:S225199391200049-2

**ABSTRACT:** The purpose of the present study was to examine the relationship between relative deprivations, satisfaction of needs, and lack of patriarchal power with marital satisfaction. The statistical population of this study consists of all the student couples in Abhar city (Zanjan Province in Iran) within the academic years of 2010-2011. The sample of this study included 75 couples who were selected using simple random method. Data were collected using the researcher-made questionnaire. The results of the simple correlation showed that the satisfaction of needs and lack of patriarchal power have a positive and significant relationship with marital satisfaction and the relative deprivations has a negative and significant relationship with the marital satisfaction. The results of regression analysis also showed that while predicting the marital satisfaction, the variables of relative deprivations, satisfaction of needs and lack of patriarchal power play a major

**Keywords:** Relative deprivations, Satisfaction of needs, Lack of patriarchal power, Marital satisfaction

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## Research Paper

### The role of the hidden curriculum on social education of high school students

Hashemii, A. Fallahi, V. Aojinejad, A. and Samavi, A.

*J. Life Sci. Biomed.*, 2(5): 255-259, 2012; pii:S225199391200050-2



**ABSTRACT:** The aim of present research was to study the role of hidden curriculum on social education of high school students in Bandar-Abbas city. The method of research was descriptive-after event (causal- comparative) in sort. The statistical society was high school students in Bandar-Abbas city which is a 370 people were selected by random cluster sampling. In order to collect information, two questionnaire: hidden curriculum is adapted from Babery and the questionnaire of social education retrieved from the questionnaire of evaluation of high school teenagers' responsibility, the Teenage Inventory of Social Skills was used. The validity of the questionnaires was determined before and in current research. The validity of the questionnaires was determined by experts and for the reliability of them, Chronbach's alpha was used, so the reliability of the hidden curriculum questionnaire was 0.88 and social education questionnaire was 0.85. The results from analyzing data showed that: students in open-atmosphere schools have got more social and took better scores in performing educational and civil duties. Also students in open-atmosphere schools have better level in social moralities and social skills. Among components of hidden curriculum, organizational structure could better predict the social skills of students.

**Keywords:** Social education, Social skills, Social responsibility, Hidden curriculum

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## Research Paper

### Relationship between family communication patterns with creativity and the sense of competence of the pre-university male students in Bandar Abbas

Hajizadeh, H. Refahi, Zh, Tabe Bordbar, F. and Haghighi, H.

*J. Life Sci. Biomed.*, 2(5): 260-266, 2012; pii:S225199391200051-2



**ABSTRACT:** The aim of this study was investigated the relationship between family communication patterns with creativity and the sense of competence of the pre-university in students Bandar Abbas city. The sample of research was 278 pre-university students of Bandar Abbas selected by a multi-step random sampling selected during the academic (2011-2012). Measurement tools used in research involving questionnaires: revised family communication patterns Koener and Fitzpatrick, creative Abedi and feelings of adequacy. Results indicated that family communication patterns between component conversation orientations with components, sense of competence (general, physical, familial, social) there is a significant relationship. The component of conformity orientation has significant relationship only components of the component of general sense of competence but there isn't a significant relationship with other components. There is a significant positive relationship between the conversation orientations with creativity. All components of sense of competence have significant relationship with creativity except physical competence hasn't significant relationship with creativity.

**Key words:** Family communication patterns, Creativity, Sense of competence, Students

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## Research Paper

### Role of Personality Dimension in Predicting of General Health in Overseas Students: Presenting of Regression Model

Bidi, F. 2012.

*J. Life Sci. Biomed.*, 2(5): 267-273, 2012; pii:S225199391200052-2



**ABSTRACT:** Providing and maintaining of health is one of the great goal of mankind that has approach relation with personality. This research has been done to determine the role of five personality traits in predicting of students general health. It was a description and correlation method. The Population was all of students in overseas university in Dubai city that included Shahid Beheshti, Islamic Azad University and Payam-e-Noor University in 2010. Through Cochran's formula selected 78 students with simple random. The used tools contained short form personality traits questionnaire with 60 questions (NEO-FFI-60) and reliability 0.75 and general health questionnaire (GHQ-28) with reliability 0.82. Data analyzed by stepwise procedure regression analysis. According to  $\beta$  coefficients, from predictor variables, neuroticism had the most correlation with general health (-0.33), then extraversion (0.32), openness (0.28) and agreeableness (0.21); but relation between conscientiousness and general health wasn't significant. Generally four personality traits explained 45 percent from general health variance. Personality traits can be good predictors for general health. This research has effective results in university period that is a sensitive age from decision making aspects in their future.

**Key words:** Personality, Personality traits, General Health, Overseas students

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## Archive

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### Aims and Scope

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## Original Article

## Study of the Structure of the Gastric Mucosa in the Mouse (Cell Population)

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## ABSTRACT

Seven male adult albino mice, each weighing 30-40g and 11 months old were used to study the gastric mucosa of the mice. Cell types, their population and percentage densities in the entire gastric mucosa and in each region were determined microscopically. It was observed that mucous producing cells (mucous cells) had the highest population and percentage densities in the gastric mucosa. These were the dominant cell types in both cardiac and pyloric regions of the stomach. In contrast, the body of the stomach is dominated by zymogenic cells. These cells were second in abundance, followed by surface epithelial cells; and parietal cells. Although other cell types were also present in the gastric mucosa but the investigators could not identify them easily. Population and percentage densities of each cell type as calculated by the investigators were as follows: Surface epithelial cells =  $99 \pm 9.076/200,000\text{cm}^3$  (13%); Mucous cells =  $340 \pm 4/200,000\text{cm}^3$  (45.39%); Parietal cells =  $51 \pm 42/200,000\text{cm}^3$  (6-8%); Zymogenic cells =  $259 \pm 17/200,000\text{cm}^3$  (34.60%).

**Key Words:** Mice, Gastric Mucosa, Surface Epithelial cells, Mucous Cells, Parietal Cells, Zymogenic Cells.

## INTRODUCTION

A good number of researchers have studied the histology of the gastric mucosa of mammals. Histologically, it has been shown that the glands of mammalian stomach contain various types of cells and that these glands and their cell types are grouped into 3 distinct areas in the gastric mucosa [1, 2, 3]. The mucosa of pre-stomach, like that of the oesophagus is composed of keratinized stratified squamous epithelium and that the lamina propria has no glands [4, 5]. They also established that the mucosa of the stomach proper is lined by simple columnar epithelium. The pits of the gastric glands are lined by cells producing mucous. The isthmus contains mucous neck cells and immature undifferentiated cells.

The stomach is designed anatomically into three regions; cardiac, body and pylorus [6, 7]. This division is also applicable to gastric mucosa of the rat and mouse. It has also been established that the cardiac glands contain mucous cells and parietal cells [4, 8]. The glands of the body of the stomach contain zymogenic cells, parietal cells and mucous neck cells. Pyloric glands are characterised by mucous cells [8, 9]. There are about five cell types present in the gastric mucosa and each of these cells performs different functions. These cells are surface epithelial cells which lined the surface of the gastric mucosa; mucous cells found in all regions of the stomach; parietal cells also present in all regions of the gastric mucosa but most numerous in the body; Zymogenic cells which are found in abundance in the base of the glands of the body and enterochromaffin cells present in all regions [8, 10]. This study is aimed at investigating further the structural architecture of the gastric mucosa of the mouse; total and regional cell population and percentage densities of the different cell types.

## MATERIALS AND METHODS

Seven male adult albino mice, each weighing 30 – 40 g were obtained from the Animal House of the Faculty of Natural Sciences of the University of Port- Harcourt. The animals were maintained under normal laboratory conditions in a cage in a room with a temperature of 25°C, had free access to water *ad libitum*. In order to avoid diurnal variations, the mice were sacrificed between 9.00am and noon by guillotine decapitation. Midline incisions were made in the abdomen to expose the stomach. The stomach was removed by cutting across both

oesophageal and pyloric orifices and was cut open with a knife along the greater curvature. A saline wash was done to remove food and other debris. Each region of the stomach was fixed in 10% formalin for 3 days. On the 3<sup>rd</sup> day specimen were removed from the fixative and transferred to increasing (ascending) grades of alcohol for dehydration and were cleared with xylene, embedded in a paraffin wax overnight. Each region of the gastric mucosa was serially sectioned at 5cm thickness with a rotary microtome. Every section was mounted on a glass slide and stained with Haematoxylin and Eosin (H&E). Slides were mounted on ocular grid and viewed for structural arrangement and different cell types counted on each region of the gastric mucosa. Statistical analysis was done using mean (m) and standard deviation of mean (s.d.m) to test the observations.

## RESULTS

We observed that the gastric mucosa is found to be composed of glands which are simple tubular in shape. These glands contain different types of cells. These cells are: surface epithelial, which lined the entire surface of the gastric mucosa; mucous cells among other cells immediately below the surface epithelial cells; parietal cells scattered among mucous and zymogenic cells. The later cells are found in the base of the glands of the body of the stomach.

**Table 1.** Showing Mean  $\pm$  S.D.M. of regional cell population and percentagedensity of cell types in the gastric mucosa of mouse

Cell types	Cardiac region	Fundic (Body) region	Pyloric region
Surface epithelial cells	42 $\pm$ 1.41/200,000cm <sup>3</sup> 9.4%	127 $\pm$ 5.19/200,000cm <sup>3</sup> 21.49%	127 $\pm$ 4.24/200,000cm <sup>3</sup> 30.60%
Mucous cells	387 $\pm$ 48.15/200,000cm <sup>3</sup> 86.58%	300 $\pm$ 105.04/200,000cm <sup>3</sup> 50.76%	332 $\pm$ 62.46/200,000cm <sup>3</sup> 80%
Parietal cells	35 $\pm$ 16.06/200,000cm <sup>3</sup> 7.83%	99 $\pm$ 56.87/200,000cm <sup>3</sup> 16.75%	19 $\pm$ 1.53/200,000cm <sup>3</sup> 4.58%
Zymogenic cells	Nil 0%	239 $\pm$ 9.98/200,000cm <sup>3</sup> 100%	Nil 0%

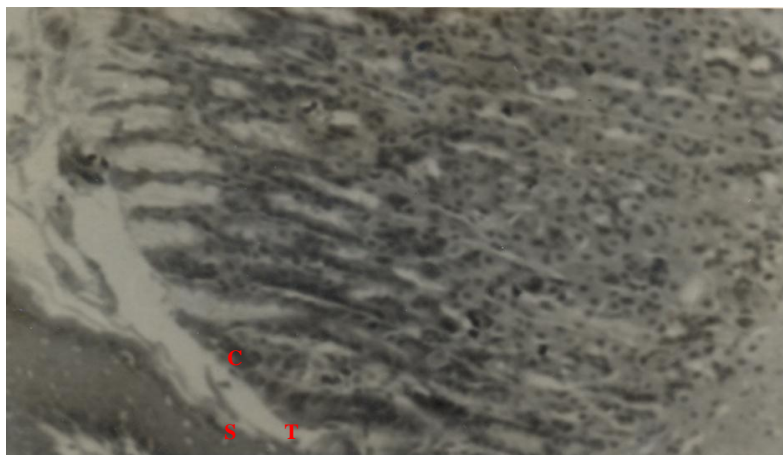
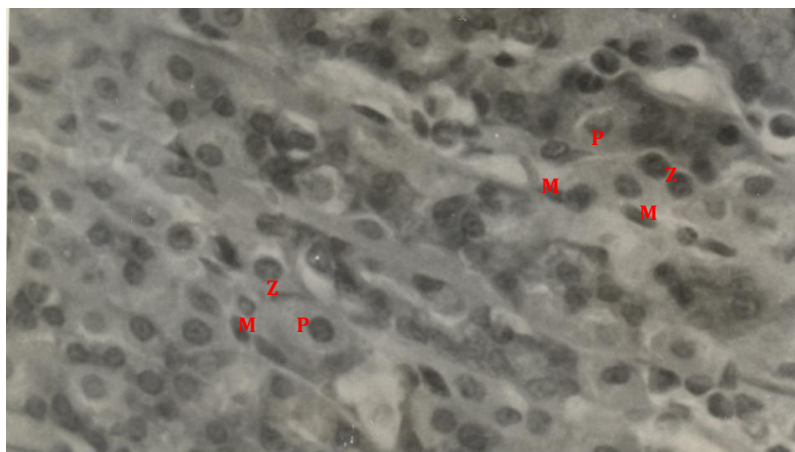
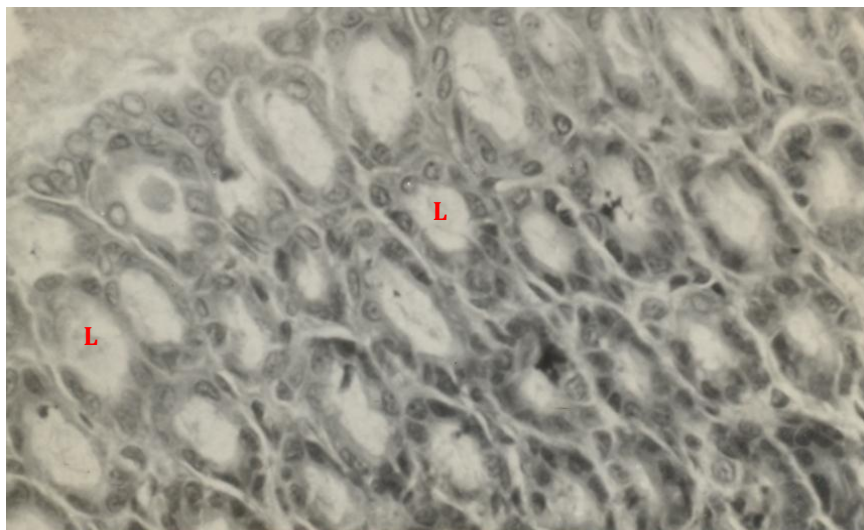


Figure 1. Photomicrograph showing mucous cells, parietal cells and surface epithelial cells of the cardiac glands. Also shown is the transition zone T from stratified squamous epithelium of the esophagus S to columnar type of epithelium C of the stomach proper.



**Figure 2.** Photomicrograph of the fundic glands showing zymogenic cells Z, parietal cells P and mucous neck cells M.



**Figure 3.** Photomicrograph showing glandular lumen of the zymogenic or fundic glands L cut at right angles. The cells surrounding the lumen are clearly shown.

**Surface Epithelial Cells:** These cells are tall, columnar in shape, have nuclei placed towards the base, the cytoplasm appears blue with H&E stains. The lateral cell boundaries were not distinct with the light microscope in our investigation. These cells constitute approximately  $99 \pm 49 / 200,000\text{cm}^3$  and 13% of the total cell population in the gastric mucosa.

**Mucous Cells:** These cells were also seen as columnar in shape, but shorter and smaller in size than surface epithelial cells. They are not so distinct under the light microscope due to their small size, but were identified by their nuclei. The nuclei of these cells are round and oval in shape and are placed towards the base. The cytoplasm appears whitish with H&E stains. In the body of the stomach, they are known as mucous neck cells because of their large number in the neck of the gland. In other parts of the stomach, cardiac and pyloric regions, they are known as mucous cells (in relation to function) because they produce mucous. The nuclei appear blue with H&E stain. These cells are the most numerous in the gastric mucosa. They constitute approximately  $340 \pm 44 / 200,000\text{cm}^3$  and 45.39% of total number of cells in the gastric mucosa.

**Parietal Cells:** These cells are round to triangular in shape, most numerous in the glands of the body, especially the neck of the gastric glands. The diameter of these cells at the isthmus and towards the surface of the gland appears to be greater than those found in the neck and base of the glands. The cytoplasm appears pinkish and clear with H&E stain. Granules are not seen in the cytoplasm; the nuclei appear blue. The periphery of the nuclear membrane appears granular and the central region of the nuclei in some of these cells appears vacuolated except the nucleoli. Nucleoli are centrally placed but not visible in some of the cells. A clear whitish region is also present in the cytoplasm of some of the cells. These cells are scattered among other cell types in the body of the stomach. They are the most prominent but fewest cells in the gastric mucosa. They constitute approximately  $51 \pm 42 / 200,000\text{cm}^3$  and (6-8%) of total number of cells in the gastric mucosa (population and percentage densities).

**Zymogenic Cells:** These cells are found at the base of the zymogenic glands of the body of the stomach with few parietal cells scattered between them. The cytoplasm appears granular under the light microscope but individual granules could not be identified. Their nuclei appear blue, spherical or oval in shape, basally placed, but not touching the basal membrane. They appear darker than other cell types in the gastric mucosa. Closest to the lamina propria at the base, they surround the gland. They constitute population and percentage densities of  $259 \pm 0.00 / 200,000\text{cm}^3$  and 34.58% of cells in the gastric mucosa.

## DISCUSSION

The writers findings of the distribution of cells in the gastric mucosa of the mouse quite agrees with those of previous investigators who worked on quantitative distribution of the different cell types of this organ, but the absolute values both in terms of density and percentage may differ. Mucous producing and surface epithelial cells

dominate the glands of the cardiac region of the stomach. The abundance of surface epithelial cells on the surface of the entire gastric mucosa could be tied up with their function of absorption of some food substances. The dominance of mucous cells in the cardiac region of the gastric mucosa is an indication that large quantities of mucous is produced in this region to neutralize the damaging corrosive effect of acid produced by the parietal cells in the stomach. Mucous cells do not produce digestive enzymes but mucous. This is evidence that digestion of food does not occur in this part of the stomach. Presence of few parietal cells in this region indicates that little quantity of acid is produced here. The abundance of mucous cells in the entire gastric mucosa is also an evidence of the protective function of these cells; protecting the mucosa from the erosive effect of hydrochloric acid produced by parietal cells. We observed also that mucous cells were fewest in the body of the mucosa. This could be attributed to the most abundant presence of parietal and zymogenic cells in this region. Mucous cells are the most numerous in the gastric mucosa of the mouse; constituting 45% approximately. The pyloric region is also dominated by mucous producing cells. The approximate mucous cell population and percentage densities in this area are  $332 \pm 62.46/200,000 \text{ cm}^3$  and 80%. It recorded the fewest parietal cell population of the gastric mucosa. Parietal (oxyntic) cells are most numerous in the glands of the body of the gastric mucosa. This observation in relative terms agrees with the findings of previous investigators [3, 11, 12, 13]. They are most numerous in the neck, fewer in the isthmus and fewest in the base of the gland. The abundance of parietal cells signifies that the greatest volume of hydrochloric acid is produced in this region of the stomach. This is the region most prone to gastric ulcer [14,15]. Hydrochloric acid produces an enzyme precursor which converts pepsinogen to pepsin to commence digestion of protein. These cells constitute 6 - 8% of the entire population of cells in the gastric mucosa and 16.75% of the body region. Fewness of parietal cells in the cardiac and pyloric regions signifies that little acid is produced in these areas [16,17]. It may be that the acid produced in the body region is not enough to carry out complete conversion of pepsinogen to pepsin [18]. Another likely reason may be that when food leaves the body of the mucosa not all the pepsinogen had been converted to pepsin so the few parietal cells in the pyloric region produce little quantity of acid to convert the unconverted pepsinogen to pepsin to continue the digestion of protein [18, 19]. Relatively, parietal cells are most numerous in the body, fewer in the cardiac region and fewest in the pyloric region of the stomach [8]. Zymogenic cells (chief cells) are located at the base of the glands of the body of the gastric mucosa. Reason for these cells being located at the base of the glands is not very clear to the investigators [13, 20, 21, 22]. These cells have large number of granules placed in the supranuclear region of their cytoplasm. These cells are said to secrete the digestive enzymes of the stomach. The presence of acid secreting cells (parietal cells) and digestive enzyme secreting cells (zymogenic cells) suggests that the main digestive portion of the stomach is the body. Other regions of the stomach function to neutralize the effect of the acid secreted in the body and help for the lubrication of food for the enzyme to act upon. Electron microscopic reports have revealed that zymogenic cells have all the characteristics of secretory cells [9, 23]. These characteristics are; presence of abundant mitochondria to provide energy for the cell; presence of endoplasmic reticulum to synthesize proteins, that is enzymes in this case; prominent Golgi apparatus etc. Zymogenic cells are hardly seen in both cardiac and the pyloric regions of the stomach. These cells constitute approximately about 34.58% of cells in the gastric mucosa. In conclusion, we observed that the most numerous cell type in the gastric mucosa of mouse are mucous secreting cells (45 %), followed by zymogenic cells (35%), next, surface epithelial cells (13%), and least parietal cells (6 - 8%).

## REFERENCES

1. Hogben CA, Kent TH, Woodward PA, and Sill AJ, 1974. Quantitative histology of the gastric mucosa of man, dog, guinea pig and frog. *Gut* 67: 1143-1154.
2. Fawcett DW. In: Jensch RP, ed. *Bloom and Fawcett, 1994: A Textbook of Histology*. 599-616. Chapman & Hall. New York.
3. Rindi G, Necchi V, Savio A, Torsello A, Zoli M, Locatelli V, Raimondo F, Cocchi D and Solcia E, 2002. Characterisation of gastric ghrelin cells in man and other mammals: studies in adult and fetal tissues. *Histochem and Cell Biol* 117, (6):511-519.
4. Lee ER, Trasler J, Dwivedi S and Leblond CP, 1982. Division of the mouse gastric mucosa into zymogenic and mucous regions on the basis of gland features. *Am. J. Anat.*, 164: 187-207.
5. Owen DA. *Stomach*, 1992. In: Sterenberg SS, ed. *Histology for Pathologists*. Raven 533-545. New York.
6. Langer P 1984. Comparative anatomy of the stomach in mammalian herbivores. *Quarterly J Exp Physiol*. 69, 615-625.
7. Leeson TS, Leeson CR and Paparo AA. *Text/atlas of histology*, 1988:421- 434. Saunders. Philadelphia USA
8. Karam SM, Straiton T, Hassan WM and Leblond CP, 2003. Defining Epithelial Cell Progenitors in the Human Oxyntic Mucosa. *STEM CELLS*, 21: 322-336.
9. Kataoka K, 1984. Electron microscopic observations on cell proliferation and differentiation in the gastric mucosa of the mouse. *Arch Hist Jpn* 47: 209-221.
10. Odegaard S, Nesje LB, Hoff DA, Gilja OH, Gregersen H, 2006. Morphology and motor function of the gastrointestinal tract examined with endosonography. *World J Gastroenterol* 12:2858-2863.

11. Helander H, Leth R, Olbe L, 1986. Stereological investigations on human gastric mucosa: I. normal oxyntic mucosa. *Anat Rec* 216: 373–380.
12. Karam SM, Leblond CP, 1992. Identifying and counting epithelial cell types in the “corpus” of the mouse stomach. *Anat Rec* 232: 231–246.
13. Fayed MH, Elnasharty M and Shoaib M, 2010. Localization of Sugar Residues in the Stomach of Three Species of Monkeys (*Tupaiaidaeglis*, *Nycticebuscocangand* *Callithrixjacchus*) by Lectin Histochemistry. *Advances in Biological Research* 4 (1): 01-09.
14. Gower WR Jr, Premaratne S, McCuen RW, Arimura A, McAfee Q, Schubert ML, 2003. Gastric atrial natriuretic peptide regulates endocrine secretion in antrum and fundus of human and rat stomach. *Am J PhysiolGastrointest Liver Physiol.*284:G638–G645
15. Donnellan C, Sharma N, Preston C, Moayyedi P, 2007. Medical treatments for the maintenance therapy of reflux oesophagitis and endoscopic negative reflux disease. *Cochrane Database Syst Rev.*CD003245
16. Joseph IMP, Zavros Y, Merchant JL, Kirschner D, 2003. A model for integrative study of human gastric acid secretion. *J Appl Physiol.* 94:1602–1618
17. Richter JE, 2007. The many manifestations of gastroesophageal reflux disease: presentation, evaluation, and treatment. *GastroenterolClin North Am.*36:577–59
18. Schubert ML, 2008. Control of Gastric Acid Secretion in Health and Disease, *Gastroenterology* 134: 7, 1842-1860.
19. Chandrasoma P, 2005. Controversies of the cardiac mucosa and Barrett's oesophagus. *Histopathology* 46:361–373
20. Lipkin M, 1985. Growth and development of gastrointestinal cells. *Annu Rev Physiol* 47: 175–197.
21. Cornaggia M, Capella C, Riva C, Finzi G, Solcia E, 1986. Electron immunocytochemical localization of pepsinogen I in chief cells, mucous neck cells and transitional mucous neck/chief cells of the human fundic mucosa. *Histochemistry* 85: 5–11.
22. Waalewijn RA, Meuwissen SG, Pals G, Hoefsmit EC, 1991. Localization of pepsinogen (A and C) and cellular differentiation of pepsinogen-synthesizing cells in the human gastric mucosa. *Eur J Cell Biol* 54: 55–60.
23. Gray's Anatomy 39th edition 2008. Stomach and Abdominal Esophagus Microstructure pp1152- 1155. Elsevier Churchill Livingstone. UK

*Original Article*

## Determination of Quality and Shelf life of Three Marine Fishes (Coral trout, Greasy grouper and Red mouthed bream) Based on Total Volatile Nitrogen test (TVN)

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### ABSTRACT

This study was carried out to evaluate the quality and Shelf life of three marine fishes (Coral trout, Greasy grouper, and Red mouthed bream) based on total volatile nitrogen test (TVN). The studied fish was collected newly caught from commercial sale point at Khartoum center-Sudan, kept under -4 C° and immediately transferred to laboratory for further analysis. The total volatile basic nitrogen (TVB-N) test was performed to assess the shelf life period and quality status of product at intervals time of 5days extended for 40 days. The results revealed that the total volatile basic nitrogen (TVB-N) ratio in the first two species (coral trout and greasy grouper) reached the recommended limit (30mg/100g) at interval time of 25 days, while the third one (Red mouthed bream) reached the recommended limit in interval time of 20days as the limits of TVN for fishery products in Commission Regulation (EC) NO 2074/2005, which was ranged between 25 to 35 milligrams of nitrogen/ 100grams of fish flesh. It could be concluded that this result can comply with Europe Unite (EU) standard which was widely used in many world countries.

**Key words:** quality, Shelf life, coral trout, greasy grouper, red mouthed bream, total volatile nitrogen test.

### INTRODUCTION

Fish are an important part of a healthy diet since they contain high quality protein, but typically have unsaturated fatty acids when compared to other meat. In addition, most fish contain omega 3-fatty acids and other essential nutrients (FAO, 1995).

Fishery products presents an important part of international trade, currently worth more than US\$ 50 billion, indicating the increase of consumer interest in the commodity from time to time. Fish products are more perishable than animal products, quality of fish is often more difficult to control due to variations in species, sex, age, habitats and action of autolysis enzymes as well as hydrolytic enzymes of microorganisms on the fish muscle Venugopal2002.

The fresh water fishery resources in Sudan distributed in an area of about 100,000km<sup>2</sup>, while the Red Sea, which represents the marine fisheries has coast line of more than seven hundred kilometers (AbuGideiri, 1973). These two water bodies can land up to 110,000 tons/year General Administration Fisheries Report-Khartoum, Sudan, (2006) which is consumed fresh or processed for later marketing and distribution. It was noted that most of the fish landings from this sector were subjected to very poor condition because of lacking facilities, bad handling and processing which negatively affected quality and the value of the products. Therefore, international cooperation in the formulation of quality standards for fish and fishery products and adoption of these standards by individual countries and organizations were significantly increased and noted in line with, many developing countries attempt to set up standards for their fishery product in order to comply with requirement of international trade and markets (Bremner, 1985).

Quality assessment of fishes has more to do with the determination of its shelf life or storage life which is the amount of time that sea foods remain palatable. Different species of fishes have different shelf life which also

varies depending on the oil levels, catch area, season, and duration of rigor mortis, intrinsic conditions of the fish and how it was captured and handled Huss, 1995.

There are two main methods of assessing fish quality to determine its freshness and shelf life. These are sensory and non-sensory methods. Sensory methods rely mostly on appearance, odour, texture and taste of the fish whether to be acceptable or rejected while non-sensory methods use physical, biochemical, chemical and microbiological means Huss, 1995.

Shelf life of food is defined as the maximum length of time a given product is fit for human consumption. For fish, shelf life is the time from when it is taken from the water until it is no longer fit to eat. In marketing, the shelf life of fresh and frozen fish is a very important consideration John, 1995. Knowing the remaining shelf life allows the processor and retailer to plan the length of time a product can be held, allowing control of their market. Adding one or two days to the shelf life allows the market to get top dollar and assure repeat sales John, 1995.

Temperature and handling practices are the most important factors in determining the shelf life of all species of fish. If the fish product is handled carefully, the temperature at which it is held controls its useful life. Temperature will control the rate of bacterial spoilage and enzyme breakdown, the higher the temperature the faster fish spoils (John, 1995, Bagge-Ravn *et al.*, 2003, Beuchat, 1995 and De Rover, 1999).

Several biochemical methods have been suggested and designed by many authors (Bremner, 1984, Bremner, *et al.*, 1987, and Ronsivalli, *et al.*, 1975), to measure one or a group of quality index and use the result as an indication for fish spoilage. Biochemical Total Volatile Nitrogen test which is the common test for fish freshness has been selected and used in this research in order to assess quality and progressive decline in shelf life of some fishes collected from marine origin, namely Coral Trout (*Plectropomus maculatus*, local name; Najil), Greasy grouper (*Epinephelus areolatus*, Local name; Hamoor), and Red mouthed bream (*Lethrenius spp*; local name; Shouar) kept in a refrigerator.

## MATERIALS AND METHODS

### Sample treatment:

Three fish species included Coral Trout (*Plectropomus maculatus*, local name; Najil), Greasy grouper (*Epinephelus areolatus*, Local name; Hamoor), and Red mouthed bream (*Lethrenius spp*; local name; Shouar) were collected as frozen products in plastic bags. Each sample was identified with a properly marked strip of masking tape. Name of sample, date, time of collection were recorded. The samples immediately were submitted to the laboratory in an ice isolated box chest. During transportation and handling the temperature of the samples were maintained at -4 C°. As soon as the samples arrived at the laboratory the general physical condition of the container was inspected for tears, pin holes and puncture marks in order to verify safety of the sample. Thereafter, the samples were kept in a refrigerator at waiting for testing.

### Preparation of sample:

The representative sample was thoroughly comminuted in a food processor and 10 g portion of the sample was weighed in order to be tested for total volatile nitrogen.

### Procedure for determination of (TVN):

For determination of total volatile nitrogen the magnesium oxide method was used in which the samples which contain (ammonia, mono-methyl amine, diethyl amine and tri-methyl-amine and other volatile amine). Samples were blended with magnesium oxide and distilled into boric acid. The boric acid was titrated to its original with strong acid (H<sub>2</sub>SO<sub>4</sub>) at low concentration to determine the amount of the base distilled, which correlated to the total volatile nitrogen as described by AOAC (1990).

- 10g of sample was added to the heating flask containing 300 ml distill water plus 2 gm magnesium oxide and anti-bumping granules.
- In the receiving flask 25 ml of boric acid (2%), a few drops of methyl red indicator was added.
- The two flasks (heating & receiving) were connected to the evaporator and the water bath was managed.
- After 25 minutes, distillation was stopped.
- The content of the receiving flask was transferred to another flask and titrated to the end point by very weak acid 0.05 (H<sub>2</sub>SO<sub>4</sub>).
- The total volatile nitrogen was determined as follows:

$$TVN = \frac{(V \times N \times 100 \times 14)}{W}$$

Where:

V=volume (ml) H<sub>2</sub>SO<sub>4</sub> used for sample.

N=normality of H<sub>2</sub>SO<sub>4</sub>.

W=weight of sample in grams.

### Statistical Analysis

The data was analysed using statistical package (IBM SPSS version 19.0).

### RESULTS AND DISCUSSION

The present study was carried out to investigate and to determine the quality and Shelf life of three marine fishes (Coral trout, Greasy grouper, and Red mouthed bream) based on total volatile nitrogen test (TVN).

Table (1) and figures (1, 2, 3 and 4) show the total volatile nitrogen test parameter was consecutively carried out over study period at interval of five days. The result revealed a continuous increasing in the level of total volatile nitrogen with time of experiment among the studied species.

Table1 Mean  $\pm$  SE Total volatile nitrogen (mg/100g) levels over interval time (days) for the three marine fish species

Interval Time (day)	1st	5th	10th	15th	20th	25th	30th	35th	40th	Main Effect on fish sp.
<b>Fish Species</b>										
<b>Coral trout</b>	7.7 $\pm$	15.6 $\pm$	18.5	21.3	25.2	28.6 $\pm$	31.3	33.7 $\pm$	37 $\pm$	**
<b>Mean <math>\pm</math> SD</b>	0.200	1.4	$\pm$ 2.1	$\pm$ 2.1	$\pm$ 2.5	1.8	$\pm$ 1.7	2.9	1.4	
<b>Greasy grouper</b>	8.3 $\pm$ 0.26	16.2 $\pm$	19.7	23.9	25.9	28.5 $\pm$	31.2	33.9 $\pm$	37.9 $\pm$	
<b>Mean <math>\pm</math> SD</b>		1.2	$\pm$ 1.2	$\pm$ 1.2	$\pm$ 1.4	1.5	$\pm$ 1.9	3.2	2.4	
<b>Red mouthed bream</b>	11.2 $\pm$ 0.25	17.6 $\pm$	20.7	24.7	26.9	31.4 $\pm$	34.8	39.9 $\pm$	42 $\pm$	
<b>Mean <math>\pm</math> SD</b>		.61	$\pm$ 1.3	$\pm$ 1.1	$\pm$ 2.4	1.7	$\pm$ 2.4	3.8	4.2	

\*\* = High Significant (P<0.01). SE = standard error

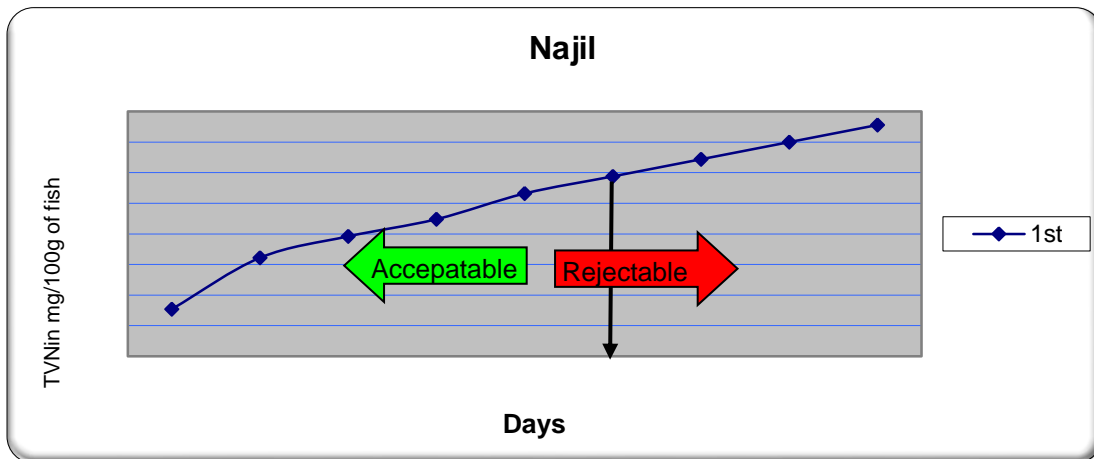


Figure1. Shows the acceptable & rejectable level of TVN ( mg/100g) for Coral Trout fish at different interval days

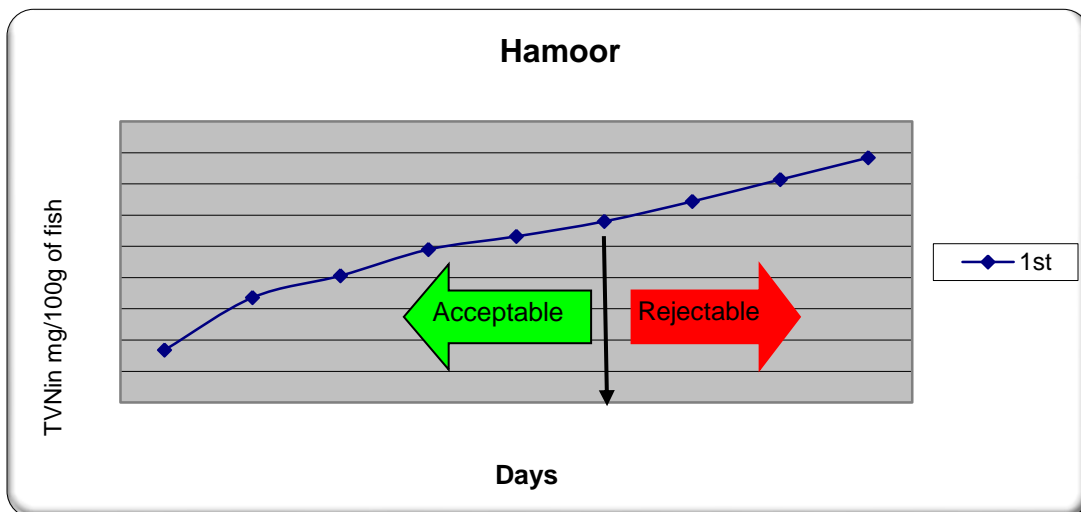
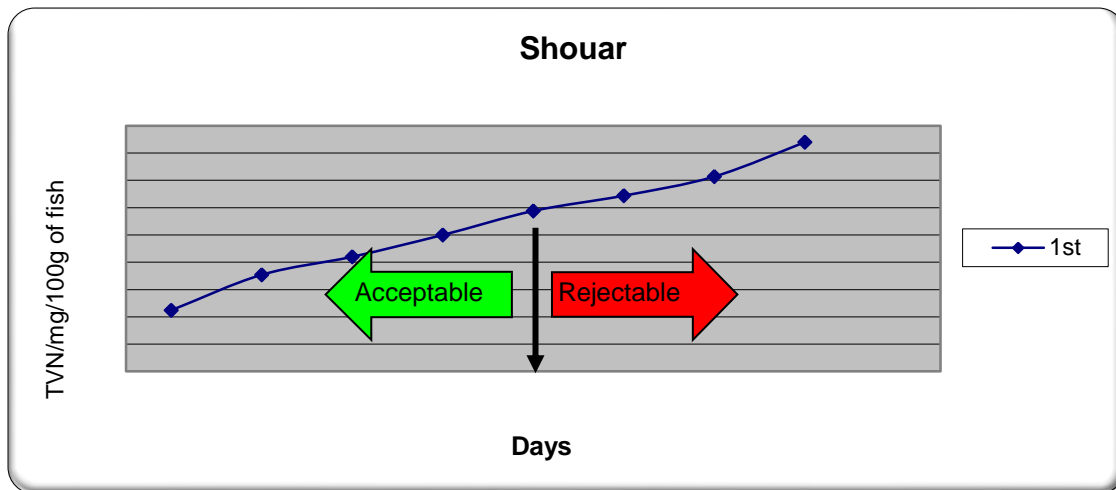
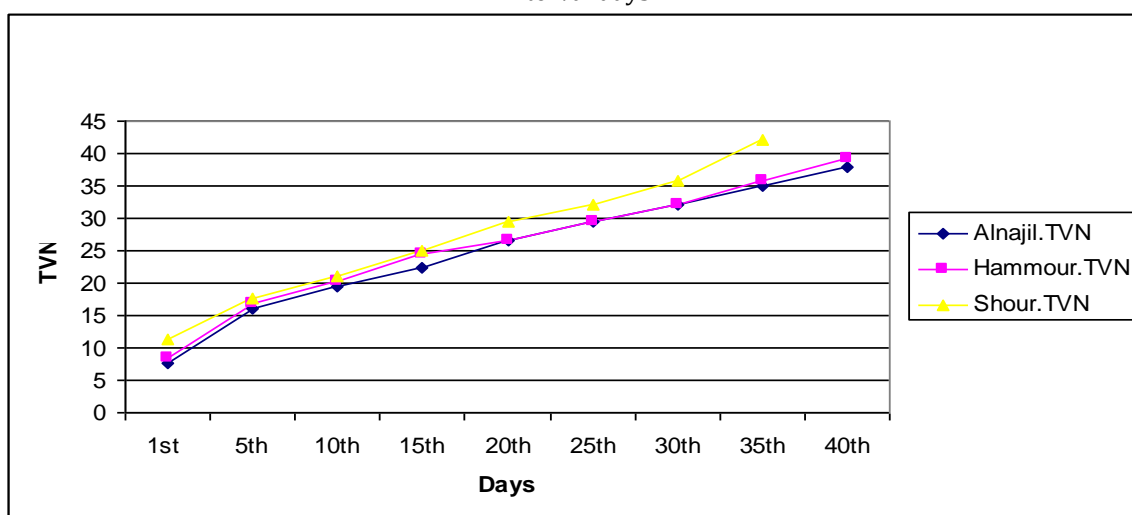


Figure2. Shows the acceptable & rejectable level of TVN (mg/100g) for Greasy grouper fish at different interval days





**Figure 3.** Illustrates acceptable and rejectable level of TVN (mg/100g) for Red mouthed bream fish at different interval days



**Figure 4.** Status of the development of TVN in mg/100g over interval time for three marine fish species of fishes

Total volatile nitrogen of Coral trout (*Plectropomusspp*) fish at the first day of collection was recorded 7.7mg/100g and after interval time of 25 days was found to be 29.4mg/100g. These results were considered as acceptable level as set by many international organizations such as European Unit (EU). The highest value of TVN was observed when the interval time was increased at 40 days (37.8 mg/100g) this result was beyond the Maximum Recommended Limits (MRLs) which set at 30 mg/100g for most of the world countries. The consecutive test of total volatile nitrogen of Greasy grouper fish also show progressive declined in the quality over time. The first test of Total volatile nitrogen was estimated at 8.4mg/100g. After 25 days from collection the TVN increased and reached its marginal acceptable limit (29.4 mg/100g). This level led the product became at rejected limit (more than 30 mg/100g), which probably occurred at interval time 30 days from collection time. These findings in agreement with Pons-Sanchez-Cascade *et al.* (2006) as recommended TVBN levels of 10 mg/100g or less for fresh fish and 20-30 mg/100g for beginning of spoilage and over 30 mg/100g for spoilage fish. Total volatile nitrogen result for the Red mouthed bream fish (Shour) in Table 1 at the first day was recorded at 11.2 mg/ 100g value, but when was exceeded the 20th day the total volatile nitrogen was reached its marginal acceptable limit (29.4 mg /100g). This result was confirmed that the product become deteriorated after mentioned period. This might be referring to many factors such as handling, storage or biological enzymes activity. The finding of TVN values were agrees with recommendations of Huss, 1995 who pointed that the shelf life of most marine fishes have been predicted to range between 2-24 days when kept in ice. The finding of this study also agree with the finding of Ola and Ladipo, 2004 who found the shelf life of Croaker fish (*Pseudotolithus elongates*) in Nigerian marine water could be predicated at 20 days in ice.

In this study it worth to mention that the value of TVN for the three species were showing significant increase in the second interval time (increase by 8mg/100g) and this may be due to temperature dropping while thawing product from freezing -18°C to 5°C. However, after that the value of TVN showed to some extent constant rate of increasing by (3 mg/100g).

The result of this study is complying with the maximum recommended limits set by the European commission regulations (EC) NO 2074/2005 this set the range of TVN for the acceptable fish at 25-35mg/100g of fish.

## CONCLUSION

We could conclude that, the safe use of refrigerated fish products should be within (20-25) days when kept at constant temperature below 4°C. The study also revealed the acceptability of three studied fish "Coral Trout, Greasy group and Red mouthed bream" as refrigerated product can last for 15 days as a good quality and 25 days as marginal acceptable products. The total volatile nitrogen not exceeds maximum recommended limit set (30mg/100g) by international organization Codex Alimentaries, EU Standard and regulators countries.

## REFERENCES

1. Abu Gideiri, YB. 1973. Fisheries in the Sudan, present and future. Paper presented for food and Nutrition's specialized Agencies, Khartoum, Sudan Ist Nation of Food sciences(pp20-25).
2. AOAC 1990. Official Methods of Analysis. Association of Official Analytical chemists, 3<sup>rd</sup> edition. Washington, D.C.
3. Bagge-Ravn, D, Ng Y, Hjelm, M, Christiansen, NJ, Johansen C and Gram, L 2003. The microbial ecology of processing equipment in different fish industries-analysis of the micro flora during processing and following cleaning and disinfection. *International Journal of Food Microbiology*. 87: 239-250.
4. Bremner, A1984. Quality—An Attitude of Mind. *In Australian Fishing Industry Today and Tomorrow*. The Australian Maritime College, Launceston, Tasmania, Australia, 10-12 July 1984, pp. 244-269.
5. Bremner, HA 1985. A convenient easy to use system for estimating the quality of chilled seafood' in Scott D N and Summers C, Proceedings of the fish processing conference, Nelson, New Zealand, 23–25 April 1985. *Fish Processing Bulletin* , 7, 59–703.
6. Bremner, HA, J Olley and AMA Vail 1987. Estimating Time-Temperature Effects by a Rapid Systematic Sensory Method. *In Seafood Quality Determination*.
7. D.E. Kramer and J. Liston, eds., Elsevier, Amsterdam, pp. 413-436.
8. Beuchat, LR 1995. Pathogenic microorganisms associated with fresh produce. *Journal of Food Protection*. 59: 204-216.
9. De-Roeever, C 1999. Microbiological safety evaluations and recommendations on fresh produce. *Food Control*. 9: 321-347.
10. FAO 1995. Quality and changes in fresh fish. *FAO Fisheries Tech.Pap.348*, Iss.NO-429-9342.
11. John, PD 1995. Seafood shelf life as a function of temperature. Alaska Sea grant marine advisory programme No. 30-1989, 2<sup>nd</sup> printing 1995.
12. Huss, HH 1995. Quality and quality changes in fresh fish. Food Agriculture Organisation (FAO). Fisheries Technical Paper 348. Rome: FAO.
13. Ola, JB., Oladipo AE. 2004. Storage life of Croaker (*Pseudolithophilus senegalensis*) in Ice and Ambient temperature. *African J. Biochem. Res.* 2004; 7(1):13-17.
14. Pons-Sanchez-Cascado S, Veciana-Nogues MT, Bover-Cid S, Marine-Font A, Vidal-Carou MC 2006. Use of volatile and non-volatile amines to evaluate the freshness of anchovies stored in ice. *J. Sci.Food Agric.* 86: 699-705.
15. Ronsivalli, LJ and SE Charm. 1975. Spoilage and Shelf Life Prediction of Refrigerated
16. Fish. *Marine Fisheries Review* 37(4):32-34.
17. Venugopal, V 2002. Biosensors in fish production and quality control. *Biosensors and Bioelectronics*. 17: 147-157.



## Commercial Ostrich Farming in Botswana: A Case Study of Dibete Ostrich Multiplication Unit

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### ABSTRACT

Commercial ostrich population in Botswana has declined by about 74.36% from 7800 in 1996 to 2000 currently, indicating that the industry is performing poorly. A study was conducted to ascertain challenges faced by Dibete Ostrich Multiplication Unit (DOMU), a government owned and operated farm. Data were collected through oral interviews of DOMU staff, direct observation and by examining secondary sources of data such as monthly and annual reports from May to July 2011. The challenges faced by DOMU included *inter alia* high feed costs, poor quality feeds, inadequate extension service, prolonged closure of the ostrich abattoir and high bird mortality. It, however, appears that the prolonged closure of the abattoir is the main contributor to poor performance of the industry. The challenges in this study pointed to the poor performance of DOMU and the ostrich industry in its entirety.

**Keywords:** Biosecurity, Botswana, challenges, DOMU, ostrich farming

### INTRODUCTION

Botswana has the world's largest population of wild ostriches, indicating that the local climate is suitable for ostrich production (Moreki and Koloka, 2010), which Johnson (2008) estimated to be 77 000. Dzoma et al. (2009) pointed out that the large population of wild ostriches clearly dictates Botswana to be a potential candidate for rearing ostriches. Commercial ostrich production is still in its infancy in Botswana (Moreki and Koloka, 2010; Sunday Standard, 2012) despite the suitable climate and existence of an ostrich abattoir which was built by government in 2002 and thereafter given to the Ostrich Company to operate. The abattoir has the capacity to slaughter 20 000 ostriches per year but has lacked throughput since its inception resulting in frequent closures (Moreki and Koloka, 2010) leading to closure of most farms. Mushi et al. (1999) opined that the construction of the ostrich abattoir together with the securing of export markets would persuade more people to join the potentially lucrative farming business. This has, however, not happened as the population of farmed ostriches has declined over time. In 1996 domesticated ostriches were estimated to be 7800 (European Commission, 2001), 6000 in 2010 (Regonamanye, 2011) and about 2000 currently. From 1996 to date, ostrich population has declined by 74.36%. This sharp decline indicates that the industry is on the brink of collapse.

On realising that the industry is performing poorly, the Ministry of Agriculture (MoA) resolved to revive the ostrich industry by establishing Ostrich Multiplication Unit at Dibete (about 100 km north of Gaborone), popularly known as Dibete Ostrich Multiplication Unit (DOMU). The objectives of DOMU are (1) to assist in reviving the ostrich industry by acting as a catalyst, (2) to provide research, training, practical demonstration and extension services by establishing satellite farms around Dibete that will be directly supervised by DOMU, and (3) to provide breeding stock and chicks, as well as, hatching services. Of all the objectives set, it appears that DOMU has only been able to fulfill the objective of providing breeding stock and chicks.

Commercial ostrich production in Botswana is faced with a number of challenges despite efforts by government to revive the industry in order to diversify the agricultural sector (Regonamanye, 2011). Therefore, a study was conducted to identify the major challenges faced by DOMU in its endeavour to achieve its objectives.

### MATERIALS AND METHODS

#### Study area

The study was carried out at DOMU from May 2011 to July 2011. Dibete Ostrich Multiplication Unit is located in Dibete in the Central district of Botswana. It lies within latitude 22° S and 24° S north of Gaborone (the capital city of Botswana) and longitude 26° W and 28° W. The location comprises trees and bush savannah vegetation which favour ostrich production.

### Data collection and analysis

Data were collected through oral interviews of DOMU staff, direct observation and by examining secondary sources of data such as monthly and annual reports.

## RESULTS AND DISCUSSION

This study identified some major challenges that DOMU faces including poor quality feeds, high feed costs, irregular supply of feeds, shortage of transport, prolonged closure of the ostrich abattoir, high bird mortality, lack of hatching services, predation, inadequate technical expertise, unsatisfactory working conditions and shortage of staff accommodation.

In the current study, ostriches were fed diets of relatively poor quality resulting in poor performance in terms of growth rates and egg production. Leg deformities and retarded growth were observed in chicks and juveniles, indicating that the nutritional requirements of ostriches were not met, especially calcium and phosphorus requirements. Calcium and phosphorus are important minerals in bone formation, as well as, egg shell formation. This calls for Botswana Bureau of Standards (BOBS) to intensify monitoring quality of ostrich feeds through regular visits to the manufacturing plants and regular sampling of feeds for laboratory analysis.

Ostrich feeds are expensive as most of the ingredients (*e.g.*, fish meal, maize and sorghum) used in their manufacture are imported from the neighbouring countries. Sorghum is imported from South Africa, Zambia and lately Australia, whereas maize is from Zambia (Morula, 2012). According to Botswana Daily News (2012), Botswana produces 24% (47 932 MT) of its annual maize and sorghum requirements of 207 150 MT. On average a 50 kg bag of feed costs BWP230 (equivalent of USD30.67). Despite the unsatisfactory quality of feeds, their price continues to escalate, thus making ostrich production unprofitable given that ready-to-slaughter birds cannot be slaughtered because the abattoir has been closed since 2008 resulting in escalation of feed costs. This challenges DOMU to consider mixing its own feeds and also to consider growing fodder crops such lucerne.

It was observed that feed supply to the farm was irregular resulting in the birds going for some days without feed or alternatively feed intake being reduced in order to keep birds alive. This scenario leads to poor growth rates, low egg production, higher incidence of bone deformities and high mortalities. Additionally, underfeeding breeding stock is likely to result in low fertility, poor eggshell quality, poor hatchability, reduced egg size, emaciation and finally death.

The prolonged closure of the sole ostrich abattoir has affected the performance of DOMU and the ostrich industry in its entirety given that some birds are not slaughtered when they reach market age but are kept on the farm beyond slaughter age resulting in them developing into breeders thus encouraging inbreeding. Again, failure by DOMU to slaughter birds upon reaching slaughter age contributes to overcrowding and escalation of production costs, thus rendering the farm not economical viable. In addition, overcrowding will result in poor performance of birds, increased spread of diseases and high bird mortalities. The prolonged closure of the abattoir has resulted in the abattoir losing its EU status (*i.e.*, the license to export EU market).

Currently, DOMU does not hatch its own eggs; instead hatching services are provided by Goldiggers (now Botalana Ventures) in the Tuli Block area following two agreements signed between government and Botalana Ventures. In the first agreement, eggs were hatched at Talana farms at a cost of P150 an egg. In addition, Botalana Ventures provided practical training to DOMU staff and cared for chicks up to seven days of age and thereafter chicks were transferred to DOMU to be sold or for rearing up to slaughter age, *i.e.*, usually up to 9-10 months (Moreki, 2009). In the second agreement, government took 60% of the chicks hatched and Botalana Ventures 40% (Ngatangue, 2010). Again, chicks were raised at Botalana Ventures up 5-7 days prior to dispatch to DOMU.

Wild animals such as hyenas tend to kill birds during the night. Additionally, baboons disturb the birds as they feed and drink resulting in birds becoming stressed and sustaining bruises, as well as, breaking their legs. Glatz et al. (2008) noted that ostriches are docile birds and that stress factors that would result in deaths due to trauma would contribute to increased mortality.

Table 1 shows bird mortality at DOMU during 2010/2011 (*i.e.*, April 2010 to March 2011). According to Table 1, the mortality of females was higher than that of males. Dibete Ostrich Multiplication Unit experiences high mortality in chicks aged less than three months as they are susceptible to heat and cold stresses as well as, transport stress from Talana Farms to DOMU. Minka and Ayo (2007) reported that road transportation of ostrich chicks for four hours during early hours of the day appears to have no adverse effects on health and performance. In adult birds, mortality was usually attributable to trauma, fence traps and injuries sustained within pens.

Human and vehicular traffic into the farm is not strictly controlled, indicating that diseases are likely to occur on the farm. Although not operational, the hatchery is located adjacent to the chick sheds suggesting that biosecurity is likely to be a major concern with the possibility of disease outbreaks occurring frequently. Again, backyard chickens are kept in the government camp adjacent to DOMU and also by some ostrich attendants. Anon

(2003) stated that no other poultry (*e.g.*, chickens, ducks geese, emus, pet birds etc.) must be kept on the property as a way of minimizing disease outbreaks.

**Table 1: Mortality of adult male and female breeders during 2010/2011**

Months	Males died	Females died	Percent mortality	No. of birds
April	1	2	0.5	619
May	0	1	0.2	618
June	0	0	0.0	618
July	4	1	0.8	613
August	0	5	0.8	608
September	0	1	0.2	607
October	2	5	1.2	600
November	1	3	0.7	596
December	2	0	0.3	594
January	0	2	0.3	592
February	0	4	0.7	588
March	2	4	1.0	582
<b>Total</b>	<b>12</b>	<b>28</b>	<b>6.7</b>	<b>582</b>

Furthermore, employees should not have contact with any other poultry, caged birds, racing pigeons and pigs. Wild and domestic animals, as well as, pets should not be in contact with ostriches. As mentioned earlier, there are baboons and hyenas on the farm which are likely to be vectors.

Other challenges include inadequate technical skills, inadequate staff accommodation and shortage of transport. Regonamanye (2011) ascribed the poor performance of the ostrich industry to lack of expertise and experience by Ministry of Agriculture. In addition, staff accommodation is inadequate resulting in government being forced to pay farm employees poor housing allowance, which also contributes to the farm becoming uneconomic to operate. Transport shortage remains one of the major challenges on the farm considering the fact that most vehicles are old and are frequently sent for repairs. This results in disruption of some farm activities such as feeding of birds with the possibility of birds not being fed at times.

### RECOMMENDATIONS

- There is need for Ministry of Agriculture and Ministry of Environment and Tourism to collaborate in order to reduce losses due to predation.
- Training extension staff in ostrich farming through workshops and seminars would lead to increased productivity.
- There is need for Botswana Bureau of Standards to intensify monitoring quality of livestock feeds including ostrich feeds in order to ensure compliance with the standard for ostriches - BOS 8-2:2002 (Botswana Bureau of Standards, 2002).
- DOMU should open its hatchery facility soon. This should reduce the costs of transporting eggs to Botalana Ventures, as well as, the costs of transporting chicks from Botalana Ventures to DOMU. This should contribute to increased hatchability and a decline in chick mortality.

### CONCLUSION

Dibete Ostrich Multiplication Unit is not performing to its full potential due to a number of challenges; hence failure to achieve its objectives. These challenges include *inter alia* high feed costs, poor quality feeds, shortage of transport, prolonged closure of the ostrich abattoir and high bird mortality. Outsourcing hatching of eggs at Botalana Ventures has contributed to the number of ostriches increasing on the farm but it appeared to be costly in terms of high transportation costs, low hatchabilities and high mortality rates. It seems that the prolonged closure of the abattoir is the major contributory factor to the poor performance of the ostrich industry in its entirety and also to the failure and/or collapse of the majority of ostrich operations across the country.

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### REFERENCES

- Aganga AA, Aganga AO, Omphile UJ (2003). Ostrich Feeding and Nutrition. Pak. J. Nutr. 2 (2): 60 – 67.  
 Anon (2003). National Biosecurity Manual Contract Meat Chicken Farming, Version 1, June 2003. Retrieved on 7<sup>th</sup> September 2012, from <http://www.chicken.org.au/files/biosecuritychickenfarming.pdf>

- Anon (2008). Ostrich farming must be rescued. Botswana Gazette Newspaper, 18 March 2008.
- Botswana Bureau of Standards (2002). Poultry feeds – Part 2: Ostrich Feeds – Specification.
- Botswana Daily News (2012). Local production covers 24% of needs. 10 April 2012. Retrieved 01 October 2012, from <http://www.dailynews.gov.bw/cgi-bin/news.cgi?d=20120410>
- Dibete Ostrich Multiplication Unit annual reports 2010/2011. Department of Animal Production, Ministry of Agriculture. Gaborone, Botswana.
- Dzoma BM, Motshegwa K (2009). A retrospective study of egg production, fertility and hatchability of farmed ostriches in Botswana. *Int. J. Poult. Sci.* 8 (7): 660 – 664.
- European Commission Report (2001). Final Report of a Mission Carried out in Botswana from 2 to 4 May 2001 concerning live ratites and farmed feathered game meat - DG (SANCO)/3248/2001 – MR Final. Retrieved October 2<sup>nd</sup> 2012, from [http://ec.europa.eu/food/fs/inspections/vi/reports/botswana/vi\\_rep\\_bots\\_3248-2001\\_en.pdf](http://ec.europa.eu/food/fs/inspections/vi/reports/botswana/vi_rep_bots_3248-2001_en.pdf)
- Glatz P, Miao Z (2008). Reducing mortality rates in ostrich chicks. South Australia. Union Offsets Publishers, Canberra.
- Johnson HE (2002). Aerial survey on ostriches of Botswana. Department of Animal Production, Ministry of Agriculture. Gaborone, Botswana.
- Minka NS, Ayo J (2007). Road transportation effect on rectal temperature, respiration and heart rates of ostrich (*Struthio camelus*) chicks. *Veterinarski Arhiv.* 77(1): 39-46.
- Modikwa, O (2008). Government revives ostrich farming. Mmegi Newspaper, November, 14, 2008: retrieved August 1, 2011 from <http://www.mmegi.bw>
- Moreki JC, Koloka OA (2010). A critical review of Botswana's ostrich industry. Retrieved September 8, 2010 from <http://www.world-ostrich.org/pastnewsletters/news90.htm>
- Moreki, J.C. (2009). Livestock Production in Botswana: A Review. Botswana Business Diary. November 27, 2009. Retrieved November 27, 2009 from <http://www.thebusinessdiary.co.bw/?p=53>
- Morula, M (2012). Botswana to import sorghum from Australia. Sunday Standard. 12 May 2012. Retrieved October 1, 2010 from <http://www.sundaystandard.info/article.php?NewsID=13948&GroupID=3>
- Mushi EZ, Isa JFW, Chabo RG, Modisa L, Kono P (1999). Commercial ostrich farming in Botswana. *S. J. Afr. Sci.* 29(3): 262-266.
- Ngatangue E (2010). Dibete Ostrich Multiplication Unit. Retrieved September 4, 2012 from <http://www.gov.bw/en/PrintingVersion/?printid=6248>
- Regonamanye J (2011). Minister admits ostrich farming industry is in disarray. Sunday Standard 31 March 2011. Retrieved August 1, 2011 from <http://www.sundaystandard.bw>.
- Sunday Standard (2012). Ostrich farmers association praying EU grants abattoir license. 30-07-2012. Retrieved October 1, 2012 from <http://www.sundaystandard.info/article.php?NewsID=14621&GroupID=3>



## Some Behavioral traits of Striped Hyena under Captive Conditions

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### ABSTRACT

This study was conducted to observe some behavioral traits of Striped Hyena under captive conditions. The observations have been carried during the period 5- 15 July, 2009, for 8 equal time period, extending for 24 hours from 0600 p.m hour to 0600 p.m hour next day. The Hyena flack consisted of two adult males, kept in the Collage farm (Kuku zoo) Khartoum north, in a cage joined to a fence to not allow for free movement. The recorded behavioral activities included: sleeping and rest, movement, clean other, eating, drinking, urination and gonad secretion. It was noticed that the most time consuming activities were sleeping and rest, movement, drinking, and urination. The longest period of the time budget was taken in sleeping and rest (6.7%), (11.15%) respectively in 12 hours and 24 hours systems. The shortest fraction of the time budget was spent in gonad secretion maneuvers (0.22%), (0.29%) respectively in the two systems. The main objective of the study was to provide hyena breeders with useful information for better management.

**Keywords:** Behavior, Budget, Hyena, Captive Conditions

### INTRODUCTION

Botswana has the world's largest population of wild ostriches, indicating that the local climate is suitable for ostrich production (Moreki and Koloka, 2010),

The Striped Hyena (*Hyaena hyaena*) is a carnivorous mammal of the family Hyaenidae. It lives in Africa, the Middle East, Pakistan and western India. It is extinct in Europe, but can occasionally be spotted in Anatolia, Turkey. Striped Hyenas are largely scavengers, but will also eat small animals, fruit and insects. Larger subspecies are known to hunt animals as large as wild boar. They are nomadic, moving from water hole to water hole, but never straying more than 6 miles from one. Striped hyenas hunt in solitude but do congregate in small family groups (Wozencraft, 1993 and Di Silvestre, 2000).

Although establishing pairs of striped hyenas is generally easy, the female being dominant over the male, establishing a pair of brown hyenas can be difficult. Brown hyenas have a unique social order in nature that is seldom broken in captivity (Mills, 1982; Owens and Owens, 1979).

In nature some young males leave the "clan" to live solitary lives. Other males remain with their natal group. Those males that remain with the natal clan become non-breeders, tolerating periodic visits of nomadic males. Conversely, nomadic males periodically visit various clans to breed with estrus females. In captivity, most males assume the role of a clan male. If breeding does occur, reproduction usually ceases long before either animal is old, the male showing little interest in mating (East et al., 2001).

Although very hardy under the simplest of husbandry regimes, hyena exhibits must be stout enough to withstand their destructive tendencies. Longevities exceeding 20 years are not uncommon. Spotted hyenas have reached 41 years of age (Jones, 1982).

In the wild, striped hyenas have been studied during their day and two nightly activity foraging peaks. The activity budget is highly variable for these social animals depending on the social status the individual has in its clan. A radio-collared Ngorongoro female spent 84% of the time inactive (lying down), with the rest of the time spent sharing kills by other clan members. In the Kalahara, inactivity was less than 70% with the rest of the time involving extensive travel of over 15 miles and foraging Hyena (Specialist Group, 2000).

When more than one animal is maintained within the same cage, at least two feeding areas should be used to reduce aggression. Because hyenas are highly adapted to consuming bones, successful breeders recommend including several bones in their diet every day (Berger and Frank, 1992).

The target of the research work was to study some behavioral traits of striped hyena under captive conditions.

## MATERIALS AND METHODS

This study was carried out at the farm of College of Veterinary Medicine and Animal Production Sudan University of Science and Technology. Two individuals male of striped hyaena 5-years old (*Hyaena hyaena*) were included in the study. They had been living in unit for at least 2 years.

The part of unit used for the study consisted of two rows of three identical outdoor paddocks, separated by an inspection corridor 6.5 meter wide. The paddocks were 6.5 m × 5 m (32.5 m<sup>2</sup>) in size and delimited by 6 m high wire mesh. Each paddock had a steel shelter of about 4 m<sup>2</sup> (three sides and roof), and contained pond at the middle of the paddock's 2 m length 120 wide cm in inside the cage.

The ground was natural. Behavioral activities which were observed and recorded included: sleeping and rest, movement, clean other, eating, drinking, urination, and gonad secretion. The finding data of this experiment were analyzed by T- test (student test) and SPSS version 17 as described by Comez and Comez (1984).

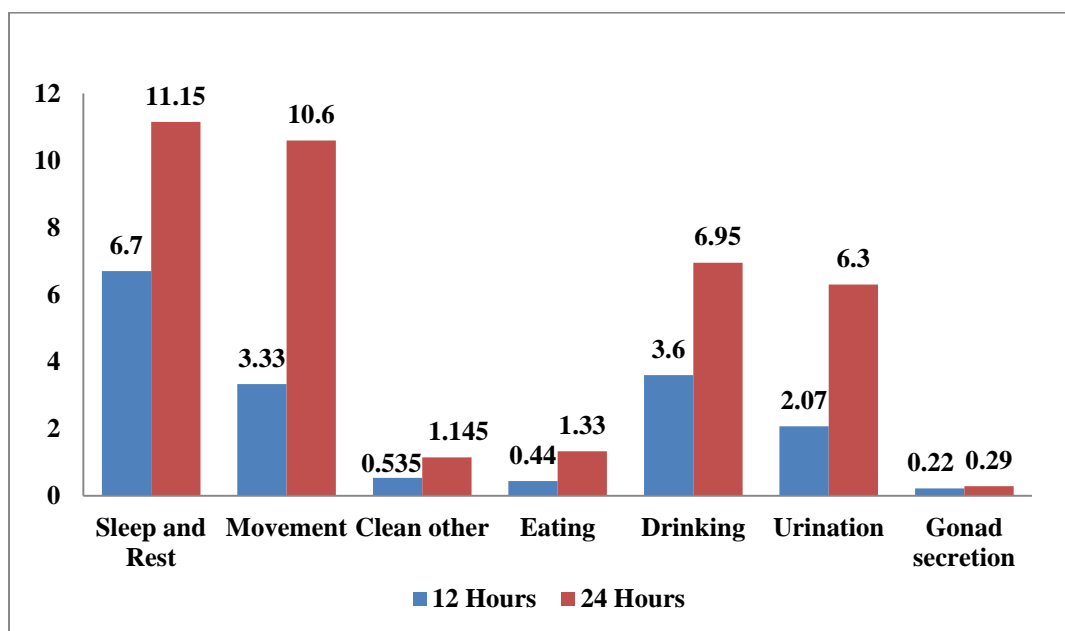
## RESULTS

As shown in table1, and figure1. The total observation duration for the two individual hyaena as a whole is 60 hours in 12 hours system and in 24 hours system was 120 hours. Both hyena males were recorded equally. Both male were mostly involved in similar activities. The sleeping and rest behaviors took up 6.7 % and 11.15 % of time in 12 h and 24 h respectively, movement 3.33 % and 10.6 in the two systems. Hyena also spent 0.55 % and 1.55% of time in clean other, 0.44% and 1.33% in eating and 3.6% and 6.95% in drinking water. On the other hand, hyena was involved for 2.07% and 6.3 % of time in urination, 0.22% and 0.29% of time respectively in two systems in gonad secretion.

**Table 1.** The duration in minutes of some behaviors displayed by Striped Hyena in 12 h and 24h for 10 day.

Parameter	Area	12 hours system	24 hours system	Significant
		M±SD	M±SD	
Sleeping and rest		6.70±0.28	11.15±0.92	NS
Movement		3.33±1.15	10.60±1.84	NS
Clean other		0.54±0.08	1.15±0.50	NS
Eating		0.44±0.11	1.33±0.33	NS
Drinking		3.60±0.42	6.95±0.92	NS
Urination		2.07±0.09	6.30±1.41	NS
Gonad secretion		0.22±0.014	0.29±0.014	NS

NS: Not significant; M: Means; SD: Standard deviation



**Figure 1.** The duration in minutes of some behaviors displayed by Striped Hyena in 12 h and 24h for 10 day.



## DISCUSSION

Behavioral studies have been widely used as means of assessing the activity of wild animal in natural habitat and in captivity.

The main target of this study is comparison the behavior of Striped Hyaena in two systems 12 hours and 24 hours in Kuku zoo the animal collected from Neyala town Eastern Sudan the results obtained revealed no significant different ( $p < 0.05$ ) in all behavioral budget in the present study.

In cause of sleeping and rest there was no significant different in sleeping and rest behavior between 12 hours systems and 24 hours systems, sleeping and rest in 12 hours systems and 24 hours systems ( $6.70 \pm 0.28$ ), ( $11.15 \pm 0.92$ ) respectively in the studies hyena behavior were similar to the findings of (Estes et al0, 1991)

In the movement behavior there was no significant different in movement in cage between 12 hours systems and 24 hours systems, movement behavioral in 12 hours systems and 24 hours systems were at range ( $3.33 \pm 1.15$ ), ( $10.60 \pm 1.84$ ) respectively in this study were agree to the findings of (Jones, 1982). Wozencraft, (1993) reported that Striped Hyenas are largely scavengers, but will also eat small animals, fruit and insects. Larger subspecies are known to hunt animals as large as wild boar. They are nomadic, moving from water hole to water hole, but never straying more than 6 miles from one. Striped hyenas hunt in solitude but do congregate in small family groups.

The result revealed that there was no significant different in clean other behavior between the Hyaena behavior in 12 hours system and Blue 24 hours system ( $p \leq 0.05$ ). Clean other activities in this study were at the range ( $0.54 \pm 0.08$ ), ( $1.15 \pm 0.50$ ) respectively in present study. Mills, (1982); Owens and Owens, (1979) reported that although establishing pairs of striped hyenas is generally easy, the female being dominant over the male, establishing a pair of brown hyenas can be difficult. Brown hyenas have a unique social order in nature that is seldom broken in captivity.

The results revealed no significant different in eating activities in the two systems eating activities in this study were at the range ( $0.44 \pm 0.11$ ), ( $1.33 \pm 0.33$ ) respectively in 12 hours systems and 24 hours system, but this budget take short time in the overall activities and this may be due to bad feeding. Study finding in agreement with Berger and Frank, (1992) who reported that when more than one animal is maintained within the same cage, at least two feeding areas should be used to reduce aggression. And this may be the reason that reduce eating budget.

Also in cause of drinking budget there were no significant different between 12 hour systems and 24 hour systems, the drinking activities in 12 hour systems and 24 hour systems were ( $3.60 \pm 0.42$ ), ( $6.95 \pm 0.92$ ) respectively in this study were in agreement to Wozencraft (1993) and Di Silvestre, (2000) who reported that the hyena are nomadic, moving from water hole to water hole, but never straying more than 6 miles from one. Striped hyenas hunt in solitude but do congregate in small family groups.

The result also obtained that no significant different in urination between 12 hours systems and 24 hours systems. The urination in 12 hours and 24 hours were ( $2.07 \pm 0.09$ ), ( $6.30 \pm 1.41$ ) respectively and this be due to similar environment.

The short time budget shown in this result is the gonad secretion in the two systems and in this cause time activities of gonad secretion were ( $0.22 \pm 0.014$ ), ( $0.29 \pm 0.014$ ) respectively in 12 hours and 24 hours systems.

In the wild, striped hyenas have been studied during their day and two nightly activity foraging peaks. The activity budget is highly variable for these social animals depending on the social status the individual has in its clan. A radio-collared Ngorongoro female spent 84% of the time inactive (lying down), with the rest of the time spent sharing kills by other clan members. In the Kalahara, inactivity was less than 70% with the rest of the time involving extensive travel of over 15 miles and foraging Hyena (Specialist Group 2000).

## REFERENCES

- Berger DMP Frank LG and Glickman SE (1992). Unraveling ancient mysteries: Biology, behavior, and captive management of the spotted hyena, *Crocuta crocuta*. 1992 Proceedings Joint Meeting Aazv/Aawv: 139-147.
- Di Silvestre I O Novelli G Bogliani, (2000). Feeding habits of the spotted hyena in the Niokolo Koba National Park, Senegal. *African Journal of Ecology*, 38: 102-107
- East MH Hofer (2001). Male spotted hyenas (*Crocuta crocuta*) queue for status in social groups dominated by females. *Behavioral Ecology*, 12/5: 558-568.
- Estes RD Richard (1991). *The Behavior Guide to African Mammals*, by Richard Despard Estes; University of California Press.
- Gomez K A and Gomez A A (1984). *Statistical procedures for agricultural Research* 2 ed, wiley sons, Inc.
- Hofer HM East (2003). Behavioral processes and costs of co-existence in female spotted hyenas: a life history perspective. *Evolutionary Ecology*, 17: 315-331.
- Hyena Specialist Group (2000). *Hyaena hyaena*. 2006 IUCN Red List of Threatened Species. IUCN 2006. Retrieved on 11 May 2006.
- Jones M (1982). Longevity in captive mammals. *Der Zoologische Garten*. 52: 113-128.
- Mills MGL (1982). The mating system of the brown hyaena, *Hyaena brunnea*, in the southern Kalaharia. *Behavioral Ecology and Sociobiology*. 10:131-136.

- Owens DD and Owens MJ (1979). Communal denning and clan associations in brown hyenas (*Hyaena brunnea* Thunberg) of the central Kalahari Desert. *Africa Journal of Ecology*. 17:35-44.
- Weigl Richard (2005). Longevity of Mammals in Captivity; from the Living Collections of the World. *Kleine Senckenberg-Reihe* 48: Stuttgart, Germany.
- Wozencraft WC (1993). Carnivora. In: Wilson, D.E., Reeder, D.M. (Eds.), *Mammal Species of the World: A Taxonomic and Geographic Reference*. Smithsonian Institution Press, Washington, DC, pp. 279–348.



## Study of Media Influence on the Male - Female Students Relationship

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### ABSTRACT

Purpose of present study was to study media influence on the undergraduate male – female student's relationships. This study used a descriptive correlational design and statistical population includes all students of Islamic Azad University of Kerman, Iran. 350 undergraduate students were selected using simple random sampling. Researcher made questionnaire was used for data collection. Results show that the mass media such as TV, Internet and Satellite influence on the undergraduate male – female student's relationships. Results of this study may create necessary insight for university managers in planning for leisure time of students.

**Key words:** media influence, male – female student's relationships, correlative study

### INTRODUCTION

The world is evolving. Data are progressing in a nonstop way. Scientific exchanges enter a new age every moment. Today, human cannot understand this new phase appropriately and he will understand it when there is no chance of compensation. Certainly, humanity will not experience a period of ignorance via discovery of the age of communication because he always considers new prospects. Media are the most important factors in the formation of public opinion. Today, countries and societies at high and significant level in terms of quality and quantity, media and number of educated people are called developed countries.

Today, the communication technology provides an appropriate situation in order to influence the religious beliefs of the young people. Today, despite many useful benefits of the communication technology, unfortunately there are moral hazards of the communication technology penetrated in many families. It causes somehow the distortion of the religious beliefs of the youth by the satellite misleading programs [1].

Unfortunately, a youth behavioral pattern is constantly changing by a magic called media. These changes convert the pattern of love for martyrdom to sin, monotheism to Satanism and self-scarification to hurt others, serve to people and community- centered behavior to self-centered behavior that provides a situation not only for the deviation but also for changing of the psychological nature of today's young people [2]. One of the most effective strategies to achieve more revenue and profit is the use of sexual attraction for the audience in the advertisement industry [3].

Durkheim believed that members of a society are likely to accept values and norms if there is the social solidarity, i.e. a tensile strength that connects all social members. In this point of view, the behavioral deviation is a kind of behavior that forms along with other behaviors through interaction. Like compliance, deviation can also be learned from other people and transmitted to others. Origin of this belief refers to sociologists tin him beginning of the twentieth century who found that variations have continued in the same region and they found that the transfer of deviant behavior is associated with the repeated communication, duration of communication, severity of communication and the age of communication [4]. Sutherland believes that no one is born deviant behavior and human do not have deviant behavior when he born. Deviant behaviors are learned gradually. Sutherland considers effect of repetition, duration, priority and intensity of values on deviant behavior [5].

Brainwashing or washing of brain is a technique or process that influences people to accept reality of what already considered wrong and deny reality of what they considered right before. Indeed, brainwashing is the strong form of the advertising often imposed under the emotional states without the body punishment [6]. Some people including Pavlov believe that it is possible to influence people by advertising in order to make them to follow certain beliefs. They believed that people can be controlled by psychological pressure for changing of anyone's attitude [7].

Durkheim believed that influence of the religion could be reduced with the emergence and development of modern societies. Scientific thinking is increasingly replaced by theological explanations while ritual and ceremonial activities play only a very small role in the life of people. Durkheim & Marx suggested that traditional religion, i.e., the religion containing the divine forces and gods, is going to be destroyed. Durkheim wrote, "The old Gods are dead". However, he says that probably religion will be continued in another direction or panel. Even modern societies require rituals to maintain their coherence and unity and strengthen or stabilize their internal values [7]. Farmand [9] in his study indicated that internet is considered as an efficient medium for global communication and international cooperation with a decisive role in the transmission of information and culture. Countries of the world are classified in to two groups in terms of the use of this technology: producers and consumers. Today, the highest amount of the use of the media is contributed to youth. Moreover, internet technology has interactive positive and negative effects. These effects in terms of the gender for amount of using media, user type and impact of the Internet on young girls are investigated. Results of this study suggest that the threat of female identity, internet addiction, acculturation by Internet, engaging in the virtual love and sexual abuse are considered as serious threats for female users.

Findings of Mahkam study [10] show importance of marriage and families in most communities for its effects on various aspects. Experts of various fields investigate factors influencing the decreased and increased rate of the marriage. According to some experts, communication media including television can influence thoughts, attitudes and actions of people through providing different subjects in different video formats (movies, series,). They show positive or negative exaggerated videos or represent a moving mirror like picture of everyday social realities, either good or bad ones. They make films based on cultural conditions and atmosphere of the community, different issues including those related to the relationship of young boys and girls. This mutual impact can be seen in other images as well. Zamiri study [quoted in 9] indicated that today science communication experts mention profound effect of the mass media in the formation of opinions, attitudes, and the behavior of young people. They perform many studies on measuring the amount and kind of these media impacts. They suggest that the mass media may threat intellectual and moral health of the young people and establish patterns of aberrant behavior by negative functions and violation of media ethics. On the other hand, they can reduce amount of social distortions based on the efficiency of the media. In this study, some of the above applications are explained. Finally, some suggestions are proposed to reinforce positive functions of the social media to prevent distortions.

Jencitrz [10] in his study found that main reasons of changing the identities of young people and their relationships are as follows: The lack of attention to the emotional and passionate needs and demands of the youth, lack of attention to their vitality, lack of attention to local culture, lack of availability of the mass media especially Internet and familiarity with various cultures. Based on previous studies, this study examines the role of the media and the relationship between boys and girls according to the role of the media in modern societies and their pervasive influence on human life.

## MATERIALS AND METHODS

This study was a descriptive study performed by a correlation method. Statistical population of this study included 13000 students of Kerman Azad University in the academic year of 2011-2012. Cochran formula was used to calculate the sample size. Statistical sample of this study included 350 male and female students who were selected by random sampling. In this study, two methods of data collection were used. Evidence method was used to gather theoretical data and researcher made questionnaire was used to test research hypotheses. The questionnaire was prepared and approved based on approval of advisor professor and assistant professor as well as four other professors considering validity of the questionnaire with regard to content that is compatible with the purpose of the study. Cronbach's alpha coefficient was used to determine the reliability of the questionnaire. Reliability coefficient was equal to 0.82. After gathering data by the questionnaire, spss software was used to analyze the mean, standard deviation, and multiple regression values.

## RESULTS

Findings of Table 1 show the average value of the relationship with the opposite sex as 1.46 (SD = 0.499). The average value of the role of TV, satellite and Internet are 1.61 (SD 0.626), 1.17 (SD 0.382) and 1.18 (SD 0.389), respectively. Table 2 shows the analysis of the variance at Sig level lower than 0.05. This indicates that the regression model can explain the variations in the dependent variable.

**Table 1.** Mean and standard deviations of the investigated variables

Item	Relationship with opposite sex	TV	Satellite	Internet
Mean	1.46	1.61	1.17	1.18
SD	0.499	0.626	0.382	0.389
Max	2	2	2	2

**Table 2.** Analysis of the variance of dependent variable changes in the model

Item	Sum of Squares	DF	Mean Square	F	P
Regression	37.163	3	4.645	31.824	<b>0.001<sup>a</sup></b>
Residual	49.777	346	0.146		
Total	86.940	349			

Results of the regression test in Table 3 shows that highest amount of the explained relationship between girls and boys is related to the satellite with beta coefficient of 0.14 and lowest one is contributed to the Internet with a beta coefficient of 0.07.

**Table 3.** Results of the regression test between the relationship of girls and boys with media

Model	Unstandardized Coefficients		Standardized Coefficients	T	P
	B	Std. Error	Beta		
(Constant)	2.040	0.244		8.371	<b>0.000</b>
Internet	0.094	0.057	0.073	1.639	<b>0.102</b>
Satellite	0.193	0.076	0.148	2.552	<b>0.011</b>
TV	-0.109	0.063	-0.126	-1.734	<b>0.084</b>

## DISCUSSION

This study was conducted to investigate the role of the media in the relationship between boys and girls. The results of this study indicated that most explanations and the greatest role in explaining the relationship between boys and girls contributed to the satellite. According to some experts, communication media including television can influence thoughts, attitudes and actions of people through providing different subjects in different video formats (movies, series...). They show positive or negative exaggerated videos or represent a moving mirror like picture of everyday social realities, either good or bad ones. They make films based on cultural conditions and atmosphere of the community, different issues including those related to the relationship of young boys and girls. This mutual impact can be seen in other images as well. Because of much higher superiority of the satellite in terms of luxury and modern appearance design and quality in comparison with broadcast networks or the Internet, it seems that it has Girls tend a significant role in tendency of girls for having an unallowable relationship with the opposite sex. On the other hand, the internet has the lowest representation in the relationship between boys and girls. Virtual community on the Internet has not been successful in creation of boys and girls tendency to have relationship with the opposite sex due to the lack of proper transfer of real emotions. Jencitrz, in his study [10] found that main reasons of changing the identities of young people and their relationships are as follows: The lack of attention to the emotional and passionate needs and demands of the youth, lack of attention to their vitality, lack of attention to local culture, lack of availability of the mass media especially Internet and familiarity with various cultures. Results of this study may create necessary insight for university managers in planning for leisure time of students.

## REFERENCES

1. Sotodeh, H., & Kamali, I. 2004. Sociology. Tehran: Nedaye Ariana Press.
2. Jean Marie, P. 2010. Education Non-Violente. Editions Saint-Augustin.
3. Marstein, B. 1980. Mate Selection in the 1970's. Journal of marriage and the family, 19, 3, 657-663.
4. Aghajani, N. 2004. Diversity of violent street harassment. Journal of Women and Social Research Council, 6, 23, 160- 164.
5. Esmaili, A. 2010. Sociology causes of young boys and girls relationship in the Golestan province. Journal of Sociology and Youth Studies, 1, 2, 169-174.
6. Golmohammadi, A. 2005. The effect of premarital cohabitation on marriage collapse. Journal of Women and Social Research Council, 7, 27, 360- 364.
7. Girens, A. 2009. Sociology. Translated by Chavoshian Hasan. Tehran: Nay Press.
8. Farahmand, S. 2008. Girls and Internet usage. Master's thesis, Islamic Azad University, Bandar Abbas Branch.
9. Mahkam A. 2004. Image of Marriage and relationship between boys and girls in national media. Master's thesis, Islamic Azad University, Bandar Abbas Branch.
10. Jencitrz, R. 1999. Ways of coping with cultural invasion in youth. Translated by Ahmadi Torajyar. Tehran: Shirazeh Press.



## A Survey on the Amount of Psychological Disorders of Condemned Individuals of Bride-Price and Alimony in Comparison with Prosperous Spouses

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### ABSTRACT

Purpose of present study was to investigate and compare psychological disorders of dowry and alimony convicts and successful couples in Bandar Abbas. Statistical population of this study includes all individuals sentenced to pay dowry and alimony and successful couples (not convicted) who lived in Bandar Abbas. 60 individuals (30 convicts and 30 successful couples) were selected using simple random sampling. SCL-25 personality questionnaire was used for data collection. Results show that the most common mental disorder among people convicted to pay dowry and alimony is obsessive-compulsive disorder with average of 2.1, and least important mental disorder among convicts is anxiety disorder with average of 3.1. Among successful couples (non-convicts), most important mental disorders is also compulsive disorder and hypochondrias both of which have average value of 1.13. Results of this study may create necessary insight for treatment and prevention of mental disorders to help families, family therapists, counselors and family training teachers.

**Key words:** psychological disorders, Condemned Individuals, casual-comparative study

### INTRODUCTION

Personality is among most fundamental concepts in psychology, in relation to human and his behavior analysis. Personality psychology is a field in which individual characteristics including emotional, affective and behavioral characteristics will be investigated. They are usually constant and predictable characteristics that can be easily tracked and evaluated in everyday life.

Human is affected by many stimuli during his personality growth and development that may endanger mental health seriously and eliminate human healthy personality.

Mental disorder concepts, like many concepts in medicine and other sciences, have no constant practical definition that covers all diseases.

Perhaps most accepted definition of mental disorder is that each mental disorder is considered as clinically significant behavioral or psychological syndrome or pattern that occurs in an individual. Mental disorder is associated with discomfort, painful symptom or disability (one or several important aspects of function degradation) or significantly increased risk of death, pain, discomfort and disability. Moreover, this syndrome or pattern must not be only an expectable or confirmed cultural response against special events such as death of person of interest.

Whatever to be the main reason of this behavior, it should be considered as manifestation of a biological, behavioral or psychological functional disorder in individual (2, 3).

What today is called as personality disorder or mental-behavioral problem actually refers to injuries individual encounters in the course of his personality development. Result of these mental injuries is occurrence of behaviors with serious problems for person's personal and social life. These behaviors weaken personal and social functions strongly. Finally, it makes individual away from reality and puts him in a special mental space during which no necessary control over thoughts, emotions and individual behavior will exist. Such a person will believe in any behavior that violates law, norms and standards accepted by society (4, 5 and 6). First attempts for classification of mental disorders classified these disorders into two groups of neurosis and psychosis in terms of

its intensity and weakness. Neurosis is a mental disorder excluding main characteristic functions and individuals are aware of them. Among very popular and well known types of neurosis are anxiety, obsessive, morbid fears and hysteria. Neurotic individuals generally have common features. For example, they feel sad, forget their social roles, and are aggressive against others, have problems in sleep patterns and sexual dysfunction and they seem very tired. Neurosis is considered as active behavioral disorders for which there is no known biological reason and no injury in brain or nervous system. Psychosis class refers to severe mental disorders in which patient relationship with reality stops, his relationships with other people is severely damaged and must be hospitalized for social conflicts. Unlike neurotics, psychotics are not aware of their personality disorders and they are living in their own totally special world.

Next part provides a more complete classification of mental disorders followed by initial classification of mental disorders. Most important classification is a list of international fatality (ICD-10). Fourth classification is Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) that provides a multi-axial classification of mental disorders (8).

No single reason can be considered in investigation of mental disorders because mental disorders are result of various psychiatric, biological, psychological, cognitive and social factors. Therefore, it is important to consider expert views in every field to understand causes of mental disorders in behavior analysis.

Considering causes and factors of mental disorders helps us to treat and cope with disorder. How to deal with its causes, treatment and coping with the disorder is. As already mentioned, three categories of biological, psychological and social factors are considered as determinants of mental disorders occurrence. In Biological agent's patterns, it is believed that mental disorders are physical ailments. Psychotic model considers abnormalities as result of inner character conflict and in learning pattern, it is believed that we learn to be abnormal and its focus is on social factors.

There are little studies performed on investigation of mental disorders among convicted people especially those sentenced to dowry and alimony. There are also few studies in Iran performed on psychiatric disorders and personality disorders among prisoners. In Bolhari et al studies, 87.5 percent of 1201 prisoners were selected among 7 prisons in 5 various provinces of country diagnosed with mental disorders. Moreover, in Yashkani et al study, 75.1% of tested samples were qualified in terms of mental disorders. In Shariyat et al study, investigated prevalence of psychiatric disorders in 351 prisoners. 9.46 percent reported that most observed disorders were mood and adaptive disorders with 13.7% and 12.6 %, respectively (10).

Mahdavi and Naserzadeh investigation[15], entitled survey of mental health in population over fifteen years old in Tehran, indicates that prevalence of this disorder is about 21% among which depression and anxiety disorders are more prevalent. In addition, it is shown that this amount of prevalence increases with increased age (5). According to previous studies and available theoretical frameworks, present study investigates amount of depression, hypochondrias, psychosis, anxiety, obsessive compulsive, interpersonal sensitivity, hostility and paranoia in people convicted to dowry and alimony and successful couples.

## MATERIALS AND METHODS

This study is a quantitative analysis with descriptive and casual-comparative approach. Statistical population of this study includes all individuals sentenced to pay dowry and alimony and successful couples (not convicted) who lived in Bandar Abbas city. 60 individuals (30 convicts and 30 successful couples) were selected using simple random sampling. SCL-25 personality questionnaire was used for data collection. This questionnaire is a standardized questionnaire. SCL-25 questionnaire is short form of SCL-90 questionnaire that includes 25 questions in 9 scales containing physical complaints, obsession, and sensitivity in interpersonal relationships, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychosis. In this tool, cut-off point based on a survey conducted by Noorbala is 0.7. Reliability and validity of this test was confirmed by Mirzaei and Bagheri Yazdi. In mentioned studies, reliability of re-test was  $r = 0.97$  compared with a psychiatric interview based on DSM-R criteria with sensitivity of 0.94 and features of 0.98 (11). To analyze collected data of this study, descriptive statistics such as frequency, percentage, frequency, mean and standard deviation were used. T-test was also used in inferential statistics for independent groups.

## RESULTS

In descriptive part, first frequency and percentage of participants' age and their age at time of marriage have been calculated. This information is presented in tables 1 and 2. Table 3 provides mean and standard deviation scores of two groups in subscales of study questionnaire. Moreover, average value of two groups in each sub-scale is compared by statistical t-test.

Findings show that the most common mental disorder among people convicted to pay dowry and alimony is obsessive-compulsive disorder with average of 2.1, and least important mental disorder among convicts is anxiety disorder with average of 3.1. Among successful couples (non- convicts), most important mental disorders is also compulsive disorder and hypochondrias both of which have average value of 1.13. Least important mental

disorder among them was hostility disorder with average of 0.5. Comparison of two groups' average in subscales of questionnaire shows that in all mental disorders examined in this study, those convicted to dowry and alimony had significantly higher levels of mental disorders than that of successful couples. In fact, situation of above table indicates that there is a significant difference in confidence level of 99% between mental disorders of those convicted to dowry and alimony compared with successful couples while null hypothesis is rejected.

**Table 1.** Statistical distribution of age in Condemned Individuals of Bride-Price and Alimony in Comparison with successful Spouses

Current age	Bride-Price and Alimony		Successful Spouses		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
20 - 25 years	3	10	1	3.3	4	6.7
26-35 years	7	23.3	14	46.7	21	35
36-45 years	12	40	7	23.3	19	31.7
Above 46 years	8	26.7	8	26.7	16	26.7
<b>Total</b>	<b>30</b>	<b>100</b>	<b>30</b>	<b>100</b>	<b>60</b>	<b>100</b>

**Table 2.** Statistical distribution of age at time of marriage in Condemned Individuals of Bride-Price and Alimony in Comparison with successful Spouses

Age at time of marriage	Bride-Price and Alimony		Successful Spouses		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
20 - 25 years	14	46.7	14	46.7	28	46.7
26-35 years	13	43.3	12	40	25	41.7
36-45 years	3	10	4	13.3	7	11.7
Above 46 years	0	0	0	0	0	0
<b>Total</b>	<b>30</b>	<b>100</b>	<b>30</b>	<b>100</b>	<b>60</b>	<b>100</b>

**Table 3.** Summary of t test of SCL sub-scales

Variable	Groups	N	Mean	SD	T value	P
Psychosis	Alimony	30	1.5	0.508	3.87	0.05
	Successful	30	0.96	0.556		
Anxiety	Alimony	30	1.3	0.534	2.86	0.05
	Successful	30	0.9	0.547		
Depression	Alimony	30	1.93	0.691	7.64	0.05
	Successful	30	0.83	0.379		
Sensitivity	Alimony	30	1.8	0.484	6.82	0.05
	Successful	30	0.86	0.571		
Phobia	Alimony	30	1.43	0.678	4.38	0.05
	Successful	30	0.8	0.406		
Obsession	Alimony	30	2.1	0.922	4.39	0.05
	Successful	30	1.13	.722		
Hostility	Alimony	30	1.76	0.678	8.17	0.05
	Successful	30	0.5	0.508		
Hypochondrias	Alimony	30	1.5	0.508	3	0.05
	Successful	30	1.13	0.434		
Paranoid	Alimony	30	1.6	0.855	3.29	0.05
	Successful	30	0.96	0.614		

## DISCUSSION



Purpose of present study was to investigate and compare psychological disorders of dowry and alimony convicts and successful couples in Bandar Abbas city. Results of various studies indicated that success rate of marital life has a significant impact on mental pathological level of individuals. (12 and 13). Results of this study also indicated that there is a significant difference between mental disorders of those sentenced to dowry and alimony and successful couples. On the other hand, convicts of dowry and alimony who have problems with their partner, have multiple psychiatric disorders. This group has no good mental health. Mental disorders, obsessive compulsive and depression are among most common disorders among them. Research results have shown that prevalence of mental disorders is common among convicts. This issue is confirmed in Bolhari et al studies. Maltby et al found that people with higher level of life satisfaction will use more appropriate and effective coping styles, they experience more deeply positive feelings and emotions and they have higher public health. Marital life dissatisfaction is correlated with poorer health status, symptoms of depression, personality problems, inappropriate behaviors and poor social status (14). Depression is one of the most common mental disorders among convicts pointed out in Mahdavi and Nasir Zadeh (15) studies. Research results have shown that marital relationship problems and personal problems may affect each other in individuals with mood disorders, substance abuse and some anxiety disorders especially diffuse anxiety disorders (16). Results of this study may create necessary insight for treatment and prevention of mental disorders to help families, family therapists, counselors and family training teachers. In this regard, future researches can also investigate effects of training of stress and depression coping skills on marital satisfaction in couples.

### REFERENCES

1. Kaplan H, Sadock B J, Sadock V. A. 1996. Synopsis of psychiatry. Translated by: N Porafkari, F Rezai. Tehran: Arjmand.
2. Pourafakari, N. 1995. Synopsis of psychiatry. Tehran: Amir Kabir.
3. Sapington A. Mental health. Shahi baravati H. 2001. (Persian translator) 1st ed. Tehran; Ravan Publication
4. Boroomand R. & Shaikhi Fini A. 2009. Study of physical and mental status of veterans with mental in Hormozgan. Educational studies, 6, 9.
5. Emamhadi M, Jalilvand, M., & Salhi, M. 2006. Prevalence of mental disorders in the criminal murder. Journal of Social Welfare, 5, 20.
6. Hasanshahi, M. 2008. Prevalence of psychiatric disorders in the city of Arsanjan. MA thesis, Shiraz University.
7. Pourafakari, N. 2007. Signs of mental illness. Azadeh Publication.
8. Kaplan H, Sadock B J, Sadock V. A. 2008. Synopsis of psychiatry. Translated by: N Porafkari, F Rezai. Tehran: Shahrab.
9. Shamloo, S. 2004. Psychopathology. Tehran: Roshd.
10. Arasteh, M. & Sharifi B. 2008. Rates of psychiatric disorders in prisoners in Sanandaj. Fundamentals of Mental Health Journal, 10, 40.
11. Mirzaii, R. 1980. Reliability and validity of SCL scale in Iran. MA thesis, Tehran University.
12. Shackelford R, Besser M, Goetz D. F. 2007. Or better or for worse: Marital well-being of newlyweds. Journal of Counseling Psychology, 14: 223- 42.
13. Halford W. K. 2005. Brief therapy for couples: Helping partners help themselves. Tabrizi M, Kardani M, Foroogh J. (Persian Translators) 1st ed. Tehran; Fararavan Publication: 30-1.
14. Maltby J, Day L, McCutcheon LE, Gillett R, Houran J, Ashe D. D. 2004. Personality and coping: a context for examining celebrity worship and mental health. Br J Psychol. 95(4): 411-28.
15. Mahdavi, M., & Naserzade, H. 2004. Study of Mental health status of the population over 15 years in Tehran, Hakim Journal, 12, 36-42.
16. Florez J. A. 2005. The epidemiology of mental illness in Canada CANADIAN public policy- ANALYSE DE politiques, vol, XXXI supplement/ Numero special.



## A Comparative survey of the Correlation between Intellectual Capital, the Capital Employed Efficiency and Profitability in Firms Accepted at the Tehran Stock Exchange

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### ABSTRACT

The intellectual capital approach in organizations leads to improved decision making by users, enhanced internal management, better reports being issued out of the organization, transactions of this capital within the firm and developed accounting performances. Furthermore, the role and significance of the output resulted by intellectual capitals employed in firms' profitability and continual stability is nowadays regarded as higher than the output of financial capitals. This research primarily aims to make a comparative study of the correlation between intellectual capital, the capital employed efficiency and profitability in firms accepted at the Tehran Stock Exchange. The statistical sample consists of 5 industrial groups of firms accepted at the Tehran Stock Exchange and the time period involves 2008 to 2010. Multiple regression tests have been used in order to test the hypotheses and examine the correlation between the variables. The obtained results indicated a direct correlation between intellectual capital and the efficiency of the capital employed and the firms' operating profit. Furthermore, according to the results, firms that make more use of intellectual capital have higher net operating profits than firms which use less intellectual capital. The findings of the present research suggest that intellectual capital can be considered as an effective factor in the efficacy of venture units. This finding can come to the attention of the shareholders and managers of these units and encourage them to endeavor, by making managerial modifications, to take the existence of intellectual capitals into consideration and take measures toward using them correctly.

**Key words:** intellectual capital, the capital employed efficiency, net operating profit

### INTRODUCTION

By being involved in knowledge economy, knowledge has been preferred to other production factors such as land, capital and machinery. In economy, knowledge is regarded as, in fact, the most important production factor and the most significant competitive factor among organizations. Furthermore, as advanced technology marched on speedily, in particular in fields such as communications, computers and bioengineering, global economic growth patterns began to change as of the 1970s; consequently, knowledge became the most important capital instead of physical and monetary capitals. [1]

One of the characteristics of knowledge is intangibility, which makes it difficult to measure and evaluate. In the past, on the other hand, organizations were able to make thorough calculations of their assets and production by means of accounting methods. Today, however, such accounting methods lack the necessary efficacy. Knowledge is regarded as one of the most important components of intangible assets. In the past, most of the organizations' assets were tangible, whereas nowadays, organizations mostly have intangible assets. [2]

The modern world has surpassed knowledge economy, and now focuses upon knowledge-based economy. Knowledge-based economy is an economy in which the production and use of knowledge plays the most significant role in the process of creating wealth. One of the distinctive characteristics of knowledge-based economy is the immense trend of investment in human capital and information and communication technology. Modern knowledge economy potentially presents unlimited resources, for the human capacity for generating knowledge has no boundaries. Intangible assets and intellectual capital quickly complement physical assets.

Intellectual capital means the total capital, the possessive right based on the knowledge owned by the firm. In other words, intellectual capital implies the development and employment of resources of knowledge in firms. Thus, in the third millennium, in which intellectual capital – rather than financial capital – forms the basis of a firm's future dynamic ability, and the firm's future status lies in knowledge economy; thus, it is necessary for organizations' key resources and performance and merit stimuli be determined by managers, for higher knowledge and the employment of intellectual capital helps firms be more efficient, more effective, more productive and more innovative. Furthermore, the competitive success of firms depends more upon the strategic management of intellectual capital rather than the strategic allocation of physical and financial resources. [3]

During the industrial age, cost prices for properties included equipment and raw material, and was regarded as important to the success of a business; nowadays, however, it is the effective use of intellectual capacity that is usually decisive in the success or failure of an organization [4]. In fact, Bhardwaj has called intellectual capitals and properties as a firm's most valuable and most important intangible resources. He believes that tangible assets can easily be copied or purchased at the free market. Hence, they cannot be the firm's strategic assets or create competitive advantage for it. Intellectual capitals, on the contrary, are usually created internally, and lie within the skills and businesses of the firm staff. Due to the specific characteristics of these assets, a firm's intellectual resources are unique and exclusive; they cannot be copies, which is what makes them valuable and able to generate competitive advantage for the firm. [5]

Thus, using the intellectual capital approach in organizations brings about improved decision making by users, enhanced internal management, better reports being issued out of the organization, transactions of this capital within the firm and developed accounting performances. Furthermore, the role and significance of the output resulted by intellectual capitals employed in firms' profitability and continual stability is nowadays regarded as higher than the output of financial capitals. In other words, in today's knowledge-oriented societies, financial capitals are of less importance in determining sustainable profitability compared to intellectual capitals. Thus, the question rises whether intellectual capital and the capital employed efficiency by firms is correlated to their profitability or not.

The term "intellectual capital" was used by John Kenneth Galbraith for the first time in 1969. He believed that intellectual capital steps beyond "thinking in the form of mere thinking," and also involves an extent of intellectual action. In this sense, intellectual capital is not only a static, intangible asset in its own self, but also an ideological process and means to achieve the goal. When research on intellectual capital began in the early 1980s, various definitions were presented for intellectual, all of which conveyed general concepts, for it is difficult to present an exact definition for intellectual capital. Hence, despite a great amount of effort by researchers on intellectual capital, there is no universally approved definition for intellectual capital, and all of the definitions presented are more or less alike. These definitions and basic concepts provide a useful basis for understanding intellectual capital. [6] However, they lack the required features for identification, categorization and measurement. For instance, Lodhi believes that the categorized plans provided by research aids the understanding of the components of intellectual capital. By comprehending the various components of intellectual capital, enhanced management and its use in operational and strategic levels can be achieved. The most common categorization plan divides intellectual capital into three parts – human capital, structural capital and customer capital. Furthermore, studies on innovation capital are a new subject that has seldom been examined in accounting literature and studies. [7]

Chen studied the correlation between intellectual capital and the financial performance of the firms accepted at the Taiwan Stock Exchange from 1992 to 2002. The results of the hypotheses tests indicated that intellectual capital has a positive impact upon market value and financial performance, and may be a criterion for future performance. Furthermore, the evidence presented implied that expenditures on research and development provide further information on structural capital and enjoy a positive correlation with profitability and market value. [4]

Using value added intellectual coefficients and moderated value added intellectual coefficients; Chang studied the impact of intellectual capital on market value (market-to-book value and price-to-earnings ratios) and profitability (return on asset, return on shareholders' equity, basic earning power and profit margins) upon the information technology industry in Taiwan from 2001 through 2005. His results indicated that intellectual capital and its components only have a positive, significant correlation with profitability and market value throughout the whole industry mentioned above. [5]

Anvari Rostami et al. [8] examined the correlation between intellectual capital and the market value of the stock of firms accepted at the Tehran Stock Exchange. In this research, various methods were suggested and used for measuring intellectual capital. The research findings indicated that only two of the suggested methods have high, significant correlations with the market value of the firms included at the stock exchange.

In his doctoral dissertation, Rahnoumai [9] has studied the correlation between intellectual capital and modern variables of performance assessment based on generating values such as the economic value added, market value added and the shareholder value added by means of comparing six models of intellectual capital evaluation. The results of his research convey the existence of a correlation between the scale of intellectual capital and the added market value.

Intellectual capital existing within the venture unit is one of the most significant intangible properties that have come to great attention among venture units through the recent years. Intellectual capital is important to firms because it makes it possible for firms to maintain their competitive capability among other firms through innovative strategies, for venture units need to select and pursue one of the leadership strategies on prices or distinction and innovation in order to maintain their activity. Success in each of these strategies leaves positive, desirable impacts upon corporations' efficiency and performance [6]. Thus, it is predicted that intellectual capital has a direct, significant correlation with firms' financial performance. Hence, this research presents the three following hypotheses:

The First Hypothesis: There is a positive, significant correlation between intellectual capital and net operating profit.

The Second Hypothesis: There is a positive, significant correlation between the capital employed efficiency and net operating profit.

The Third Hypothesis: Firms making more use of intellectual capital enjoy higher net operating profits compared to firms which use intellectual capital less.

## MATERIALS AND METHODS

This research is of the descriptive, correlational type. It is descriptive because it aims to describe the circumstances or phenomena studied and also to provide more knowledge of the existing conditions; on the other hand, it is correlational because the research concerns the correlations between variables. The present research has endeavored to examine the correlations between variables and confirm the existence of these correlations in current circumstances based upon historical data. Thus, it can be regarded as an ex-post facto research. Ex-post facto studies deal with the study of causes and effects (dependent and independent variables) after their occurrence. In such studies, there is a statistical correlation between the variables, which the research aims to study. Moreover, the data cannot be manipulated. This research aims to study the correlation between intellectual capital and the profitability of the firms accepted at the Tehran Stock Exchange. Thus, the data for the sample firms is collected over a five-year period from 2005 through 2010. Subsequently, the research variables are measured and the hypotheses are tested.

### The Statistical Population and the Study Sample

In the present research, classified and audited financial data for firms accepted at the Tehran Stock Exchange have been used in order to test the hypotheses of the study. The statistical population of this research consists of 5 industrial groups among the firms accepted at the Tehran Stock Exchange:

1. The group of main metal firms
2. The group of automobile and auto parts firms
3. The group of pharmaceutical materials and products firms
4. The group of cement, lime and plaster firms
5. The group of chemical products firms

Based on the following conditions and considerations, the statistical population is narrowed down, and a statistical sample is extracted.

1. The firm's fiscal year must end at the end of Esfand.
2. The firm studied must not undergo changes in its fiscal year.
3. The firm needs to be present at the stock exchange during the years 2005 to 2010.
4. The firm's exchange symbol must be active and must not have remained inactive for over three months per year.

5. The financial data for the firm studied must be available.

Thus, systematic elimination (screening) sampling has been used; according to the circumstances mentioned above, a number of the firms included in each industry were selected, and the financial data for each were collected. As a result of the conditions and considerations made in systematic elimination sampling, 102 firms were selected for the tests from the statistical population. The study period is 5 years; therefore, the final sample volume consists of 510 *year-companies* (5 x 102).

### The Research Variables and the Method for Their Calculation

The most significant and the most useful way for variable categorization is to classify them into dependent and independent ones.

### Independent Variables

In this study, intellectual capital and the capital employed efficiency are the independent variables. The method for the measurement and quantification of these variables is one of the most important and the most considerable parts of this research, for the correct and logical measurement of these concepts can provide numerous implications to supplement the theoretical background relevant to the subject of the study.

### The Method for Measuring Intellectual Capital

Known as an organization's intangible asset, intellectual capital is a valuable form of capital. Modern economy is based on intellectual capitals, the goods of which are knowledge and information. Intellectual capital consists of knowledge, information, intellectual assets and experiences which can be used to create wealth. Such an assembly includes intellectual power or useful knowledge. To calculate intellectual capital, the calculated intellectual value (CIV) method is used. In this approach, a firm's excess return, such as the excess return to the industry's average return, is resulted from intellectual capital (Firer, S. and William S.M., 2003). Measuring intellectual capital by means of this method consists of several steps, which are as follows:

At first,  $\overline{EBT}_t$ ,  $\overline{TA}_t$ , and  $\overline{ROTA}_t$  are separately calculated for each of the selected firms.

$$\overline{EBT}_t = \frac{\sum_{t-1}^{-3} EBT}{3}$$

$$\overline{TA}_t = \frac{\sum_{t-1}^{-3} TA_t}{3}$$

$$\overline{ROTA}_t = \frac{\overline{EBT}_t}{\overline{TA}_t}$$

EBT<sub>t</sub>: earnings before tax during the period t

TA<sub>t</sub>: the firm's tangible fixed assets during the period t

ROTA<sub>t</sub>: the rate of return on tangible fixed assets during the period t

Subsequently,  $\overline{EBTI}_t$ ,  $\overline{TAI}_t$ , and  $\overline{ROTAI}_t$  are separately calculated for all industries the firms belong to.

$$\overline{EBTI}_t = \frac{\sum_{t-1}^{-3} EBTI}{3}$$

$$\overline{TAI}_t = \frac{\sum_{t-1}^{-3} TAI_t}{3}$$

$$\overline{ROTAI}_t = \frac{\overline{EBTI}_t}{\overline{TAI}_t}$$

In this stage, the return on asset figures for the firms in the statistical sample are compared with the runs on assets of the industries each of these firms belong to ( $ROTA_t$  and  $ROTAI_t$ ). As in the intangible method, if a firm's return on assets exceeds the assets of the industry, it is due to the existence of intellectual capital in the specific firm, which has caused the firm's physical capital efficiency to be higher than the standard results expected by the industry.

$$ER_t = (ROTA_t - \overline{ROTAI}_t) \times \overline{TA}_t (1 - t)$$

$$IC_t = \frac{ER_t}{1 + WACC}$$

IC: the firm's intellectual capital

ER<sub>t</sub>: the firm's excess return on assets compared to the industry concerned

WACC<sub>it</sub>: the weighted average company capital, which is calculated as:

$$WACC_t = \frac{L_t}{L_t + E_t} \times K_d (1 - t) + \frac{E_t}{L_t + E_t} \times K_e$$

L<sub>t</sub>: the firm's total bad debts

E<sub>t</sub>: total stockholders' equities

K<sub>d</sub>: the interest rate for securities issued by the Central Bank

K<sub>e</sub>: return rate expected by stockholders, calculated as follows:

$$K_e = \frac{D_o (1 + g)}{P_o} + g$$

D<sub>o</sub>: dividends per share

P<sub>o</sub>: selling price for each share of the firm at the beginning of the fiscal period

g: profit growth rate per share of the firm

### Measuring the Capital Employed Efficiency

In order to calculate the capital employed efficiency, the firm's value added is used.

$$CEE = \frac{VA_{it}}{CE_{it}}$$

CEE: the capital employed efficiency

CE: the capital employed, equal to the book value of all of the firm's assets minus its intangible assets

VA<sub>it</sub>: the firm's added value, which is calculated by means of the following formula:

$$VA_{it} = GM - SgaE_{xp} + LE_{xp}$$

GM: the firm's gross profit (the difference between sales earnings and the cost for goods and services)

SgaExp: total selling, general and administrative expenditures

LE<sub>xp</sub>: labor expenses

### The Dependent Variable of the Study

In the present study, the dependent variable is the net operating profit, a criterion for the firm's financial performance arising from mainstream and continual activities during the fiscal period.

The figures for this variable are obtained from the audited income statement of the firms in the statistical population, and to make them compatible with the other variables, they are divided to the book value for all of the firm's assets at the onset of the period.

$$ONI = \frac{ONI_{it}}{TA_{it-1}}$$

### The Method for Testing the Hypotheses

Multi-variable regression models are used to test the hypotheses in this study. In these models, the firm's net operating profit is regarded as a function of the independent variables – intellectual capital and the capital employed – and the control variables of the study. In the present research, in order to further clarify the correlation between the independent variables and the dependent ones, three controlling variables – the sales growth rate, firm size and the market-to-book ratio – have been used.

### The Model for the First Hypothesis

In the first hypothesis of the research, it has been claimed that a positive, significant correlation exists between intellectual capital and the net operating profit. To test this hypothesis, a regression model has been used in which the net operating profit is regarded as a function of the intellectual capital level of the firms included in the statistical sample and the control variables of the study. The regression model mentioned is as follows:

$$OIN_{it} = \beta_0 + \beta_1 IC_{it} + \beta_2 SIZE_{it} + \beta_3 GROW_{it} + \beta_4 MTB_{it} + \varepsilon_{it}$$

OIN: the firm's net operating profit

IC: the firm's level of intellectual capital

SIZE: the size of the firm as a controlling variable (the natural logarithm of the firm's assets)

GROW: the sales growth rate as a controlling variable

MTB: the market-to-book ratio

In the regression model above, the coefficients  $\beta_2$  to  $\beta_4$  show the correlation between the control variables and the dependent variables. Furthermore, the coefficient  $\beta_1$  reflects the correlation between the intellectual capital and the net operating profit. In accordance with the claim mentioned above, the following statistical assumptions can be made about this coefficient:

$$H_0: \beta_1 \leq 0$$

$$H_1: \beta_1 > 0$$

### The Model for the Second Hypothesis

The second hypothesis concerns the correlation between the net operating profit and the capital employed. As in the model for testing the first hypothesis, a regression model has been used in which the net operating profit is regarded as a function of the intellectual capital level of the firms included in the statistical sample and the control variables of the study. The regression model is as follows:

$$OIN_{it} = \beta_0 + \beta_1 CEE_{it} + \beta_2 SIZE_{it} + \beta_3 GROW_{it} + \beta_4 MTB_{it} + \varepsilon_{it}$$

In the regression model above, the coefficients  $\beta_2$  to  $\beta_4$  show the correlation between the control variables and the dependent variables. Furthermore, the coefficient  $\beta_1$  reflects the correlation between the capital employed and the net operating profit. In accordance with the claim mentioned above, the following statistical assumptions can be made about this coefficient:

$$H_0: \beta_1 \leq 0$$

$$H_1: \beta_1 > 0$$

### The Method for Testing the Third Hypothesis

The third hypothesis of the study predicts that firms making more use of intellectual capital enjoy higher net operating profits than firms who use intellectual capitals less. In order to test this prediction, all of the firm-years in the statistical population are categorized into two groups – firms with high and low intellectual capital – based on the obtained amounts. The basis for this categorization is the average amounts for the calculated intellectual capital for all year-firms in the statistical sample. Thus, if the intellectual capital of a firm is higher

than the average mentioned above, the firm is regarded as one with high intellectual capital; otherwise, it is categorized as a firm with low intellectual capital. Having done this categorization, the net operating profits for the two groups mentioned above are compared by means of the analysis of variance (ANOVA) test (the comparison of means). The statistical assumptions concerning the test of the comparison of means are as follows:

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu_2$$

$\mu_1$ : the average operating profit for firms with low intellectual capital

$\mu_2$ : the average operating profit for firms with high intellectual capital

## RESULTS

The first hypothesis of the study emphasizes a significant correlation between intellectual capital and net operating profit. This hypothesis can be expressed in the form of the following research hypotheses:

H0: There is no positive, significant correlation between intellectual capital and net operating profit.

H1: There is a positive, significant correlation between intellectual capital and net operating profit.

To examine the precision of this hypothesis, the regression model presented in Chapter 3 has been used. The results for the regression fitting have been displayed in Table 1.

**Table 1.** Statistical analysis of the first hypothesis test

$OIN_{it} = \beta_0 + \beta_1 IC_{it} + \beta_2 SIZE_{it} + \beta_3 GROW_{it} + \beta_4 MTB_{it} + \varepsilon_{it}$					
R <sup>2</sup> Adjusted	Durbin-watson test		F	P	
0.292	1.54		66.63	0.001	
Variable	$\beta$	T value	P	Collinearity Statistics	
				Tolerance	VIF
IC	0.117	3.503	0.001	0.999	1.001
SIZE	-0.009	-0.276	0.782	0.999	1.001
GROW	0.318	9.517	0.001	0.996	1.004
MTB	0.407	12.191	0.001	0.996	1.004

The first part of the table above shows the results for the statistical analysis on the validity of the regression model. The coefficient of determination for the model is 0.292. Thus, the fitted regression has accounted for 29.2 percent of the changes in operating profit by means through changes in independent variables. The results show that the Durbin-Watson statistic is between 1.5 and 2.5; therefore, there is no intense correlation between the errors of the regression model itself. The last two columns in Table 1 show the results for the regression variance analysis, which is decided upon based on the F statistic, for the regression fitness model given in the test for the first hypothesis of the study. The statistical assumptions of the variance analysis for the regression model are as follows:

H0:  $\beta_i = 0$  The regression model is not significant

H1:  $\beta_i \neq 0$  The regression model is significant

The level of significance of the statistic F is lower than the error level of the test ( $\alpha = 0.05$ ); thus, the hypothesis H0 is nullified, and the fitted regression is, therefore, statistically significant, and the variables have linear correlation.

The statistical analysis results for each of the independent and controlling variables in the model for the test of the first hypothesis have been displayed in Table 1. The results show the estimated statistics for the multicollinearity tests to be approximately 1 for all of the variables. Therefore, there is no intense multicollinearity between the independent variables of the regression model, and the hypothesis of the lack of multicollinearity between independent variables – one of the basic assumptions of regression for the fitted model – is true. As for the analysis of the results obtained for the coefficients for independent and controlling variables, the following statistical assumptions can be made based upon the claim stated:

H0:  $\beta_1 \leq 0$

H1:  $\beta_1 > 0$

In other words, the first hypothesis can be accepted if the intellectual capital coefficient ( $\beta_1$ ) is positive and significant. The results show the estimated coefficient for this variable to be 0.117 with a 0.001 level of significance. This finding indicates a direct, significant correlation between the level of intellectual capital and the operating profit (or loss) of the firms included in the statistical sample during the research period; this shows that employing more intellectual capital increases the firm's profitability. This finding implies the positive role of intellectual capital in the firms included in the statistical sample during the research period, indicating that firms

with higher levels of intellectual capital have enjoyed more profitability. The results of this test are in conformity with the theoretical background of the study, which emphasize that employing physical capital with the desired efficiency and efficacy depends on the existence of appropriate intellectual capital in the venture unit, by which the maximum efficiency and efficacy can be achieved using the resources available. The results obtained by the statistical tests confirm the above mentioned theoretical background.

Regarding the controlling variables of sales growth rate and the market-to-book ratio, the results indicate a direct, significant correlation between these variables and operating profit (or loss). These findings imply that firms with higher sales growth rates and also higher market-to-book ratios are more profitable. Furthermore, as for the variable of firm size, the results do not show a significant correlation between this variable and operating profit (or loss).

All in all, the results indicate the lack of convincing evidence for accepting the hypothesis  $H_0: \beta_1 \leq 0$ ; moreover, during the research period, there has been a significant correlation between the level of intellectual capital and operating profit (or loss). Therefore, the first hypothesis of the research is accepted with 95 percent certainty.

In the second hypothesis of the study, the correlation between the capital employed efficiency and the net operating profit is considered. This hypothesis can be defined in the form of the following research assumptions:

$H_0$ : There is no positive, significant correlation between the capital employed efficiency and the net operating profit.

$H_1$ : There is a positive, significant correlation between the capital employed efficiency and the net operating profit.

To examine the precision of this hypothesis, the regression model presented in Chapter 3 has been used. The results of the regression fitting have been displayed in Table 2.

**Table 2.** Statistical analysis of the second hypothesis test

$OIN_{it} = \beta_0 + \beta_1 IC_{it} + \beta_2 SIZE_{it} + \beta_3 GROW_{it} + \beta_4 MTB_{it} + \varepsilon_{it}$					
Adjusted R <sup>2</sup>		Durbin-watson test		F	P
0.628		1.515		270.75	0.001
Variable	$\beta$	T value	P	Collinearity Statistics	
				Tolerance	VIF
CEE	0.63	24.43	0.001	0.876	1.141
SIZE	0.04	1.645	0.101	0.992	1.008
GROW	0.165	6.609	0.001	0.934	1.07
MTB	0.264	10.58	0.001	0.938	1.066

The coefficient of determination for the model for testing the second hypothesis is 0.63, which is higher than the coefficient of determination for the model for testing the first hypothesis and indicates that the fitted regression has accounted for 63 percent of the changes in operating profit by means of the changes in independent variables. This finding shows that the variable of the capital employed efficiency has had a more intense impact on the profitability of the firms in the statistical sample compared to the effect of the intellectual capital. Moreover, the results show that the Durbin-Watson statistic is between 1.5 and 2.5; therefore, there is no intense correlation between the errors of the regression model itself. The level of significance for the statistic F as a criterion for the general significance of the fitted regression implies that the fitted regression is statistically significant and that at least one significant independent variable exists in the regression model.

The results show that the estimated statistics approximate 1 in the multicollinearity tests for all variables. Therefore, there is no intense multicollinearity among the independent variables of the regression model, and the assumption of the void of multicollinearity among the independent variables – one of the basic assumptions of regression in the fitted regression model – is true.

The statistical analysis results for the independent variable coefficients show the coefficient for the capital employed efficiency variable to be 0.63 with a 0.001 level of significance. This finding implies a direct, significant correlation between the efficiency level of the capital employed and the operating profit (or loss) of the firms included in the statistical sample throughout the period of the study, indicating that an increase (or reduction) in the capital employed efficiency leads to higher (or lower) profitability for the firms included in the statistical sample.

The results obtained by the test for the second hypothesis are in conformity with the claim made in this hypothesis and also with the theoretical background of the test, indicating that the capital employed efficiency can leave desired effects upon firms' profitability. Hence, attention on venture unit managers' behalf toward this issue can enhance the performance of these units by means of making correct use of physical resources. As for the controlling variables, the results are similar to the findings obtained by the test for the first hypothesis, indicating



that sales growth rates and market-to-book ratios are the results of direct, significant correlations between these variables and operating profit (or loss). Furthermore, as for the variable concerning firm size, the results convey no significant correlation between this variable and operating profit (or loss).

All in all, the results indicate that during the research period, there has been a significant correlation between the level of efficiency of the capital employed and the operating profit (or loss). Therefore, the second hypothesis of the research can be accepted with a 95 percent level of certainty.

The third hypothesis is defined as:

H0: The net operating profit of firms making more use of intellectual capital is not higher than firms making less use of intellectual capital.

H1: The net operating profit of firms making more use of intellectual capital is higher than firms making less use of intellectual capital.

Thus, the statistical assumptions for the third hypothesis can be defined as follows:

H0:  $\mu_1 = \mu_2$

H1:  $\mu_1 \neq \mu_2$

$\mu_1$ : the average operating profit for firms with low intellectual capital

$\mu_2$ : the average operating profit for firms with high intellectual capital

In the third hypothesis of the present research, it is predicted that firms making more use of intellectual capital enjoy higher net operating profits than those who use intellectual capital less. To test this hypothesis, using the approach discussed in the descriptive analysis, the firms in the statistical sample were divided into two groups – firms with high intellectual capital and those with low intellectual capital – and subsequently compared through the means comparison test. In the categorization, the number 1 indicates the group of firms with high intellectual capital. The results obtained from the test mentioned above have been displayed in Table 3.

**Table 3.** Summary of t test between groups with high and low intellectual capital

Groups	N	Mean	Mean difference	Levene's Test for Equality of Variances		t-test for Equality of Means	
				f	sig	t	sig
0	422	0.1379	-0.1012	30.079	0.000	-7.37	0.000
1	218	0.2391					

The results obtained by the test indicate a -0.1012 difference between the mean operating profits of the firms subjected to the study. This comparative test of the means aims to determine the significance or insignificance of the above-mentioned difference. The assumption for this test was the equality of the variances of the two groups of data studied, which is done by means of Levene's test. The statistical assumptions for the equality of the variances are as follows:

H0:  $\delta_1 = \delta_2 = \delta_3 \dots = \delta_n$

H1:  $\delta_1 \neq \delta_2 \neq \delta_3 \dots \neq \delta_n$

The results imply that the level of significance of the Levene's test statistic F is less than 0.05; thus, hypothesis H0 cannot be accepted. Hence, the results of the test of comparison of means assuming variances as unequal come to our attention. The statistical assumptions concerning the test of the comparison of means are as follows:

H0:  $\mu_1 = \mu_2$

H1:  $\mu_1 \neq \mu_2$

$\mu_1$ : the average operating profit for firms with low intellectual capital

$\mu_2$ : the average operating profit for firms with high intellectual capital

The results show the t-test statistic to be -7.37 with a 0.001 level of significance. Such a finding indicates that there is a statistically significant difference between the net operating profit for firms with high intellectual capital and those with low intellectual capital. These results are in conformity with the theoretical background of the research and the prediction made in the third hypothesis. This finding also confirms the results obtained by the first hypothesis of the research, showing that higher intellectual capital has led to statistically higher profitability in the firms included in the statistical sample during the study. The existence of a significant difference between the net operating profit of firms with high intellectual capital and those with low intellectual capital implies that intellectual capital can be regarded by managers and investors as an effective factor in the profitability of venture units. Considering the results presented in Table 3, no convincing evidence is obtained to accept the hypothesis H0. Thus, the third hypothesis of the research and its claim is accepted with a 95 percent level of certainty.

## DISCUSSION

The results of the statistical analyses indicated a direct correlation between intellectual capital and the capital employed and the firm's operating profit. Furthermore, according to the results, firms making more use of intellectual capital enjoy a higher net operating profit than firms who use intellectual capital less. Based on these findings, intellectual capital appears to be an effective factor in the efficiency of venture units. This conclusion can be of attention to the managers and stockholders of these units, and encourage them to take intellectual capitals in their units into consideration and, by making a few managerial modifications, create strategies to make correct use of them. Such an approach may enhance managers' awareness and hence lead to the enhancement of positive, desirable effects resulting in by the intellectual capacity. Furthermore, it should be noted that the capital employed efficiency is influenced by the level of the venture unit's intellectual capital; clearly, these two variables are directly correlated. The capital employed efficiency is, in fact, a part of the intellectual capital, and these two variables change in the same general way. Thus, it can be expected that in firms with the potential levels of intellectual capital, employing physical capital can provide the efficiency needed to achieve the desired performance. Godinho et al [10] have reasoned that such efficiency is correlated to two factors exclusive to any firm – managerial characteristics and the firm's specific characteristics. Hence, the manager's operational capabilities and his/her insight into evaluating the operating environment of the firm in order to achieve maximum values is probably a major part of the capital employed efficiency. Moreover, as stated by Godinho et al [10], characteristics exclusive to firms, such as size, opportunities for growth and the power to access financial resources outside the firm can be influential in the capital employed efficiency.

### Suggestions Concluded from the Research

1. Based on the results of the first hypothesis, it is suggested – in the practical domain – that joint-stock firm managers endeavor to update their knowledge and awareness of factors such as intellectual capital and use such strategies in order to enhance their firms' output and as well as creating higher values for stockholders.
2. Based on the results obtained for the second hypothesis of the research, it is recommended that venture unit managers calculate the amount of efficiency the resources employed have had and compare them with indices and characteristics relevant to the industry, so that any inefficiencies can be identified and resolved, thus paving the way for achieving desired levels of efficiency.
3. Moreover, in accordance with the results obtained from the first and third hypotheses, investors are advised to examine the criteria relevant to the capabilities of the manager and the staff of venture units – such as their experience and expertise – when making investment decisions. The results of this research depict that firms with higher intellectual capital prove to be more profitable. Hence, including the variable of intellectual capital in decision-making and evaluation models of joint-stock firms can lead to better investment decisions.

## REFERENCES

1. Chen Goh, P. 2005. Intellectual Capital Performance of Commercial Banks in Malaysia. *Journal of Intellectual Capital*, 6, 3, 385-396.
2. Sullivan P. 2000. *Value-driven Intellectual Capital: How to convert intangible corporate assets into market value*. Wiley Press.
3. Zinkowski, D. & Ramona, K. 2000. The Measurement and Management of Intellectual Capital: an Introduction. *Management Accounting*, 78, 2, 32-36.
4. Chen, M. C. 2005. An empirical investigation of the relationship between intellectual and firm's market value and financial performance. *Journal of Intellectual capital*, 6, 2, 79.
5. Chang, S. L. 2007. *Valuing Intellectual Capital and Firms Performance: Modifying Value Added Intellectual Coefficient (VAICTM) in Taiwan IT Industry*. Doctoral Dissertation, Golden Gate University.
6. Bontis, N. 1998. Intellectual capital: an exploratory study that develops measures and models. *Management Decision*, 36, 2, 63-76.
7. Luthy, D. H. 1998. Intellectual Capital and its Measurement. <http://www3.bus.osaka-cu.ac.jp/apira98/archives/htmis/25.htm>.
8. Rostami Anvari, A. 2005. Measuring intellectual capital and investigate the relationship between intellectual capital and value stocks of companies in Tehran Stock Exchange. *Review of accounting and auditing*, 39, 49 - 54.
9. Rahnmai Roudposhti, F. & Hemmati, H. 2009. The relationship between intellectual capital performance evaluations based on the new variable value. *Financial Studies*, 2, 111 - 134.
10. Godinho, M., Mendonca, S., Pereira, T., (2003). Mapping Innovation System: A Framework Based on Innovation Data and Indicators, International Workshop on Empirical Studies on Innovation in Europe.



## Relationship of Personality Traits with Marital satisfaction in Women

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### ABSTRACT

Present article examined the relationship between personality traits and marital satisfaction of women. The statistical population of study is women who were married in Bandar Abbas that 100 subjects were selected by random sampling. Data collection instruments were NEO-PI-R personality traits and marital satisfaction (IMS). In order to analyze the data, mean, standard deviation, Pearson correlation test and multiple regressions is used. The results showed that each of the personality components has a significant relationship with marital satisfaction. In the end of paper, results are discussed and useful recommendations are suggested.

**Key words:** personality traits, marital satisfaction, women

### INTRODUCTION

One of the most important factors which affect the effective performance of a family is the consent of family members of each other, especially spouses [1]. In addition, dissatisfaction in the relationships of spouses results in reducing the mental health, the level of life satisfaction [2] and causes difficulty in their social relationships [3].

According to definition, the marital satisfaction is a state in which the couples are happy and satisfied with their marriage [1, 4]. Winch et al believe that the marital situation is the consistency between the current situation and the expected one. According to this definition, the marital satisfaction is achieved as the current situation of marital relationship is consistent with the expected situation. Ellis expressed that the marital satisfaction is the subjective feeling of happiness, satisfaction and pleasure experienced by the husband or wife, as they consider all aspects of their marriage [5].

According to Hudson, perception of the husband or wife about the severity and extent of the problems in the relationship reflect their marital satisfaction level [6].

According to Glosser, the failure of most couples is due to the difference between the extents of basic needs of spouses as well as the use of external control trait. Glosser believes that all human beings are born with five genetic needs and all our behaviors are for fulfilling these needs. The needs include: the need for love and belonging, freedom, power, recreation and the need for survival. If the married people understand that they are affected by their five basic needs and if they employ the "Choice Theory" and try to satisfy these needs from the beginning of their common life, a remarkable progress will develop in their marital relationships. Recognition of these needs is the main key for improving strong and permanent emotional relationships of spouses. In the other words, the main objective of "Choice Theory" is to teach couples to understand their basic needs and avoid using external control psychology and try to have better choices considering the concept of general behavior [6].

Carl Jung, Karen Horney, Adler, Eric Fromm and Henry Murray proposed the new approach of psychoanalysis [7]. Eric Erikson introduced the social-psychological stages for different ages in the life span approach [8]. Humanist theorists, such as Maslow and Rogers have paid attention to human thoughts and desires and depicted an optimistic and pleasant picture for human beings.

The cognitive approach emphasizes on the perception, assessment and cognition of human about him/herself and the environment [8]. The behavioral approach rejects the internal processes in human beings with emphasis on exact quantifying of stimulus and response variables [9]. The social learning approach was proposed by Bandura and Rotter. This approach focused on clear behaviors, but unlike behaviorists, it considers the internal cognitive variables which mediate between the stimulus and response [10].

Shokrkon et al conducted a study on 128 couples seeking a divorce and 129 normal couples in Ahvaz, I. R. Iran. They found that the personality traits, social skills and demographic variables such as culture, age, mutual

respect, beliefs and cognitive patterns, intimacy, religious orientation, economic issues and problem solving skills affect the couples' satisfaction prediction and the prosperity of marital relationship [7].

Accordingly, the objective of the present study is to investigate the relationship between women's personality traits and their marital satisfaction.

## MATERIALS AND METHODS

The present research is a descriptive-correlational study. The statistical population was all married women residing in Bandar Abbas. Among them, 100 women were selected using simple random sampling method. The research tools include:

**The NEO-PI-R Personality Traits Inventory:** the NEO-PI-R test is the revised form of NEO Personality Inventory and its alternative which has been developed by Paoletti Costa and Robert R. McCrae in 1985 [15].

**Index of Marital Satisfaction (IMS):** This index has two cut off score including 30 (+5) and 70 cut-off scores. The scores less and more than 30 indicate the absence of clinical signs of complications and significant clinical problems, respectively. The scores more than 70, always indicate severe stress and the possibility of using some kinds of violence for problem-solving. In this study, both cut-off points were used. The test reliability of 0.96 was obtained using re-test method. [16]. The collected information was statistically analyzed using descriptive statistical methods of mean, the standard error of the mean, standard deviation, minimum, maximum and inferential statistics of Pearson correlation coefficient and multivariable regression using SPSS software.

## RESULTS

Table 1 represents the marital satisfaction of the sample in terms of clinical problems. According to the Table, among total 100 samples, 60 women have good marital satisfaction with the mean value of 14.94, In fact, they have no clinical problems. However, 40 women have clinical problems with the mean satisfaction of 43.33.

**Table 1.** The marital satisfaction of the sample in terms of clinical problems

Variable	Lack of clinical problems	Clinical problems	Severe stress
Mean	14.94	43.33	-
Std Error of Mean	0.938	1.523	-
SD	7.271	9.632	-
least satisfaction	4.67	32.67	-
Most satisfaction	27.33	67.33	-
N	60	40	-

Table 2 shows the status of personality traits of the sample. The table shows that the highest and lowest mean value of 104.45 and 84.75 are related to the neurosis and extroversion of women.

**Table 2:** The status of personality traits of the sample

Variable	Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
Mean	104.45	84.75	104.14	97.86	93.89
Std Error of Mean	1.136	0.996	0.884	0.732	0.664
SD	11.367	9.969	8.846	7.32	6.645
least satisfaction	79	56	78	84	80
Most satisfaction	128	104	126	122	108
N	100	100	100	100	100

Table 3 shows the correlation coefficient between the personality traits and marital satisfaction of women.

**Table 3:** The correlation matrix of women's personality traits with their marital satisfaction

Variable		Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
Marital	r	-0.495	0.396	-0.422	-0.15	-0.097
Satisfaction	p	0.001	0.001	0.001	0.1	0.3

The results showed that there is a significant inverse (negative) relationship between the personality traits of women's neurosis and resilience with their marital satisfaction. There is also a significant direct (positive)

relationship between extraversion and the marital satisfaction of women. However, there was no significant relationship between pleasantness and the conscientious of women with their marital satisfaction.

## DISCUSSION

The present study was conducted to determine the relationship between the personality traits of women and their marital satisfaction. The results showed that the women's extroversion is one of factors which affect the marital satisfaction. This means that given the existing components of extroversion, those who have sociality aspects or those who have traits and tendencies such as loving people, preferring large groups and gatherings, being courage and talkative, tendency to sexual arousal and stimulating and those who are cheerful, energetic and optimistic have high marital satisfaction. The results of present study are consistent with the results of the Moradi et al [11] and Mahdavi [7] who found the effectiveness of communication skills and sociality on marital satisfaction. On the other hand, the results of current study are consistent to a great extent with the results of Askari et al [12] and Kaplan and Maddux [13].

Therefore, it can be said that the extroversion of couples or the community orientation (group orientation), intimacy (warmth), sensation seeking, activity and the other components of extroversion affect the marital satisfaction. According to previous studies, the women pleasantness which actually composed of personality components such as trust, candor, sympathy, companionship, humility and mercifulness has a negative impact on their satisfaction. On the other words, the couples with personality traits such as trust, candor, sympathy, companionship, humility and mercifulness have lower marital satisfaction. In fact, these personality traits have a negative impact on marital satisfaction of women. These results are not consistent with the results of other studies including Ehteshamzadeh et al [14], Bakhshayesh and Mortazavi, Roohani and Manavipour [15].

The study of couples' personality traits shows that the neurosis is at a higher level than other examined personality traits. This could be worrisome from different aspects. Neurosis as an undesirable personality trait has certain psychological and behavioral outcomes. Neurosis has negative social consequences in addition to failure of balance and consistency and developing undesired relationships, so that many individual and social problems in the family and community are due to neurosis trait. Consequently, addressing the neurosis of couples should be the priority of Mental Health authorities.

## REFERENCES

1. Sinha, P. & Mukerjee, N. 1991. Marital adjustment and space orientation. *Journal of social psychology*, 130, 633-639.
2. Nock, S. L. 1995. A Comparison of Marriage and Capability Relationship. *Journal of Family Issue*, 16, 53-76.
3. Niolon, R. 2000. Communication Style and Problem Solving. Retrieved from: [www.Psychopage.com](http://www.Psychopage.com) December, 15, 2007.
4. Mirahmadzadeh, A., Nakhaii, N., Tabatabaaii, S., & Shafii, R. 2003. Marital satisfaction and its influential factors in Shiraz. *Thought and Behavior*, 8, 4, 56 – 63.
5. Solaimanian, A. 1994. Relationship of irrational thoughts with marital satisfaction in married student. Master thesis, Tarbiat Moallem University.
6. Sanaei B. 2000. Measures of family and marriage. Tehran: Beesat Press.
7. Mahdavi, M. 1996. Factors affecting the spouse's satisfaction. Tehran: Mobtakeran Press.
8. Sarokhani, B. 1991. Introduction to the Sociology of Families. Tehran: Sorosh Press.
9. Haidari, P., Latifnejad. R. 2010. Psychosocial factors associated with marital satisfaction in infertile women. *Journal of Qazvin University of Medical Sciences*, 14, 54, 26 – 32.
10. Kaplan, M. & Maddux, j. E. 2002. Goals and Marital Satisfaction: Perceived Support for personal and Collective Efficacy for Collective Goals. *Journal of social and clinical Psychology*, 21, 2, 157-164.
11. Moradi, Z., Shafiabadi A., & Sodani M. 2008. Effectiveness of communication training on marital satisfaction in mothers of elementary school students in the city of Khorramabad. *Educational Bulletin*, 5, 17, 97 – 114.
12. Askari, P. 2010. Relation between marriage satisfaction whit Personality characteristic and satisfaction of married life among nurses in Ilam. *Woman and family Magazine*.
13. Kaplan, M. & Maddux, j. E. 2002. Goals and Marital Satisfaction: Perceived Support for personal and Collective Efficacy for Collective Goals. *Journal of social and clinical Psychology*, 21, 2, 157-164.
14. Ehteshamzadeh, P., Makvandi, B., & Baqeri, A. 2009. Relationship of forgiveness, perfectionism and intimacy with the marital satisfaction in veterans and their spouses. *New findings in psychology*, 4, 12, 123 – 136.
15. Bakhshayesh, A., & Mortazavi, M. 2009. The relationship between sexual satisfaction, of public health and marital satisfaction in spouses. *Applied Psychology*, 4, 12, 73 – 85.
16. Roohani, A., & Manavipour, D. 2008. Relationship between religious practice with happiness and marital satisfaction among undergraduate students. *Applied Psychology*, 3, 10, 189 – 206.



## Study of Family Influence on the Male - Female Students Relationship

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### ABSTRACT

Purpose of present study was to study family influence on the undergraduate male – female student's relationships. This study used a descriptive correlational design and statistical population includes all students of Islamic Azad University of Kerman, Iran. 350 undergraduate students were selected using simple random sampling. Researcher made questionnaire was used for data collection. Results show that the family influence on the undergraduate male – female student's relationships. Results of this study may create necessary insight for family counselors in counseling with families.

**Key words:** family influence, male – female student's relationships, correlative study

### INTRODUCTION

Unlimited freedom is a burning desire that becomes greatly forceful with youth. Young people despise any talk of reason, laws, regulations, or what is to their best interest; what appeals to youth is for them to freely fulfill their instincts, which they pursue with enthusiastically [1]. The family is the most important institution capable of feeding the society and affecting its well-being or lack of well-being as well as the society's compatibility or incompatibility. The family constitutes the first school of education and environment for growth. Therefore, its customs, patterns and laws are highly influential on people [2].

As the first environment in which children develop, the family is remarkably influential in their future behavior. In fact, some sociologists have even regarded the family as the factor leading to the well-being or ill health of individuals in the future, in particular its extreme consequences in youth. Sociologists have found deviations to be correlated with family life; people's destinies are affected by their family events [3].

Psychologists and sociologists believe that human societies consist of a variety of forms of families rather than a single kind. This variety lies in how families treat their children [4]. Some social schools of thought have paid special attention to the family, and have provided laws for the family; however, they have failed to achieve family prosperity and happiness. In Islam, on the other hand, the family is of high importance, and a system of laws has been set to ensure people's prosperity. The family is thus a member of the community, and cannot be happy unless the community is a happy one. Therefore, Islamic laws concerning the family are comprehensive. Nowadays, however, family bonds and relationships are insufficient, and the resulting division and separation are due to numerous factors. Perhaps one of the most significant of such factors is the weakness of modern developmental systems which, instead of taking religious and moral development into consideration, have focused wholly upon pure materialism, thus ignoring spiritual and mental issues as well as the modification and moderation of evil, animal instincts [5].

A variety of theories have been presented on the relationship between boys and girls; in general, they can be categorized into extremist, profligate and authoritative theories. As Freud, an extremist theorist has stated, "After a great deal of doubt and thought, I concluded that there are no more than two basic instincts: the instinct for life, or love, and the instinct for death, or destruction. The instinct for love aims to create and maintain bonds and enhance unity – in a word, to connect [6].

Feminists believe that sexual desires are formed by culture and socialization. They have drawn attention to some of the most important aspects of this in Western societies, i.e. the parents' critical role in the process of socialization. In Western cultures, the proper behavior expected of young girls often prevents them from having relationships with the opposite sex, whereas in boys, it is allowed or overlooked [7].

Radical feminists see deviant behaviors and maladjustments in women as an intellectual reaction to experiences of sexism in the workplace, marriage or interpersonal relationships. They believe some crimes

committed by women are brought about by illiteracy, the lack of job opportunities and clichéd expectations of women [8].

According to role theory, each individual in the society occupies a position, in proportion to which he/she will have a role. The family is like a theatrical play in which the members play and develop specific roles. The roles undertaken by family members vary with changes in conditions. When roles change or are transferred, the relationship between husbands and wives and also sons and daughters may be influenced, and even fall into conflict. Thus, based on this theory, if any of these individuals fails to play the role as well as expected, relationships will change, and conflict and violence may thus arise [9].

Durkheim aimed to find social reasons for social events; he did not see biological or mental reasons as having any role. He believed social factors such as unsuitable conditions of families, the lack of affection, incompatible parents, divorce, delinquent parents, immigration, mass media, weak beliefs and religious faith, unsuitable economic conditions in the family, political factors, war, etc. to have a critical role in the deviation of individuals [10].

Kozer's interpretation of conflict still stands as one of the most comprehensive of existing interpretations. Kozer et al see conflict as a way to enhance personal benefits rather than a consequence of differences in benefits. They also cite Wurf's opinion that organized groups make less use of rebellious tools than non-organized groups do [11]. According to the social learning theory, social damage is the result of learning deviant norms and values, in particular in subcultures and peer groups. This theory believes that boys and girls learn the pathology while interacting with others [12]. In the symbolic interactionism theory, on the other hand, the focus is on methods that establish communication between family members. Generally, dynamic interactions between family members can be achieved in two ways:

1. Dynamic interactions through establishing contact and rapport, by which each family member communicates with others.
2. Dynamic interactions through expressing affection, which varies among family members. In some families, due to the divorce or separation of the spouses, there is less affection in the dynamic interactions between family members, and the relationships between the parents and the children fall into conflict [9].

According to the theory of functionalism, a society consists of interrelated parts, and each society member has a function and contributes to the establishment of the society. Functionalists accentuate the importance of the family in maintaining social stability and the well-being of the members of the society, including boys and girls [5].

Based on extensive research on changes in individual and groups of people, the 3-step model presented by the social psychologist Kurt Lewin categorizes change into a process of three steps. The first step, known as freezing, is when people feel there is need for change in the existing situation. The responsibility in this step is to provide the necessary motivation for boys and girls to realize the need for change and also find new solutions to face the existing challenges and forms; thus, boys and girls will find in themselves the need to have relationships with the opposite sex.

In the second step, known as change, by using appropriate methods and techniques, the required changes are made in the aspects concerned; girls and boys are actually involved in these changes. The third step, freezing, is when it is assured that the changes have found order, and boys and girls interpret things differently.

The results of the study conducted by Weston et al, *Premarital Cohabitation and Subsequent Marriage Instability*, indicates that couples who have experienced premarital cohabitation face a higher risk of divorce compared to those who have not, contrary to the idea that premarital cohabitation provides couples with better opportunities to know each other better [12].

Yengton and Martin have pointed out those authoritarian parents, permissive parents and those who use punishment to establish discipline and education result in youth with anti-social behavior. On the other hands, warm, receptive parents who use reasonable dialog to establish discipline and convey rules raise children with the highest of social capabilities and control over their relationships [13].

In his research, Baumrind concluded that youth under strict scrutiny by their parents seldom find chances to make decisions, and are more eager to defy their parents' orders. He also concluded that the stricter the parents and the more limited the chances are for decision making, the more interest young people will find in their peers, the more distant they will become from their families, and the less consultation they will also seek from their families [14].

Moreover, in his study on the ways to fight cultural invasion in youth, Jencitrz found that the main reasons why young people undergo change in identity and relationships lie in the lack of attention to the youth's enthusiastic needs and desires, the lack of attention toward native and local cultures, access to mass media and particularly the Internet, and familiarity with numerous cultures [15].

This research aims, based on the results obtained from previous studies and the theoretical basics available, to study the role of permissive, authoritative and authoritarian families in the male – female student's relationships.

## MATERIALS AND METHODS

This research is of the descriptive type, and has been conducted by means of the correlation method. The statistical population consisted of students at the Kerman branch of Azad University during the academic year 2011-2012; 350 students were selected as the research study samples through random sampling methods. To collect data, documentary and field methods have been used. In the documentary method, in order to access background research and compile research literature, the latest possible sources of libraries, various articles, websites and also theses relevant to this study were used. On the other hand, a researcher-made questionnaire was used to collect data in the field method. The questionnaire met the approval of our supervisors, advisors, and also four other professors in order to ensure its validity. Cronbach's alpha was used to determine the reliability of the research questionnaire, which led to a reliability coefficient of 0.722. Having collected the data from the questionnaires, the data were analyzed by using SPSS software. Means and standard deviation were used for the descriptive statistics, whereas the Spearman rank correlation was used for the inferential statistics section.

## RESULTS

Hypothesis 1: There is a correlation between permissive families and relationships between boys and girls.

The results displayed in the following table indicate a negative, -0.168-level correlation between permissive families and relationships between boys and girls. This correlation is significant with a 99 percent level of confidence (P=0.01).

**Table 1.** Correlation between permissive family and male – female student's relationships

Variables	R	P
Permissive family	-0.168	<b>0.01</b>
Male – female student's relationships		

Hypothesis 2: There is a correlation between authoritative families and relationships between boys and girls. The results displayed in the table 2 show a positive, 0.211-level correlation between authoritative families and male – female student's relationships. This correlation is significant with a 99 percent level of confidence (P=0.001).

**Table 2.** Correlation between authoritative family and male – female student's relationships

Variables	R	P
Authoritative family	0.211	<b>0.001</b>
Male – female student's relationships		

Hypothesis 3: There is a correlation between authoritarian families and male – female student's relationships. The results displayed in table 3 point out a positive, -0.379-level correlation between authoritarian families and relationships between boys and girls. This correlation is significant with a 99 percent level of confidence (P=0.001).

**Table 3.** Correlation between authoritarian family and male – female student's relationships

Variables	R	P
Authoritarian family	- 0.379	<b>0.001</b>
Male – female student's relationships		

## DISCUSSION

This research has been designed to determine the role of the family in the male – female student's relationships. The results of this study showed that permissive families have a negative, significant relation with the male – female student's relationships. The results of this study show, as a matter of fact, that in regard to the first hypothesis, boys and girls raised in permissive families have fewer relationships with the opposite sex. These results are in agreement with those of studies conducted by Aghajani, Almond, Esmaili, Ramazan Nargesi, Gharibi, Mohebibi and Weston et al. This hypothesis is also in conformity with the interactionism point of view. Integrationists pay attention to the communicative processes in the family and the roles played by family members. They study the roles of husbands, wives and children involuntarily expressing their internal feelings among themselves and to others. As seen by sociologists such as Berger and Kolner, interactions between people lead to common realities based upon which they redefine their identities in the process. The development of this common reality is an ongoing process not only in the family but also in any group involving men and women.



Integrationists explain family relationships based on the mental concepts and interpretations people make of their everyday lives.

The results of the second hypothesis pointed out a positive, significant relation between authoritative families and the male – female student's relationships. This indicates, in fact, that boys and girls from authoritative families have higher tendencies toward relationships with the opposite sex. These results are in conformity with those of studies conducted by Esmaili, Hassani and Khalili. Moreover, this theory is also in accordance with the social learning theory. According to this theory, social pathologies are brought about by learning deviant norms and values, in particular in subcultures and peer groups. As seen in this theory, boys and girls learn pathologies during their interactions with others [16].

The results of the third hypothesis, on the other hand, indicated a negative, significant relation between authoritarian families and the male – female student's relationships. In other words, boys and girls raised in authoritarian families have less relationship with the opposite sex. The results of this study are in conformity with those of studies conducted by Baumrind), Ramazan Nargesi, Zinati, Sarvarian, Shayegan and Yengton. In his research, Baumrind concluded that youth under strict scrutiny by their parents seldom find chances to make decisions, and are more eager to defy their parents' orders. Furthermore, he concluded that the stricter the parents and the more limited the chances are for decision making, the more interest young people will find in their peers, the more distant they will become from their families, and the less consultation they will also seek from their families [14].

Finally, it is recommended that people strengthen their faith and beliefs in order to keep safe from social disorders and avoid simply falling for other people's tumultuous desires. It is the enhancement of piety and religious insight in youth, particularly in girls, that can provide their immunity.

## REFERENCES

1. Akbari, M. 2010. Girls and harassment. Qom: Fatian Press.
2. Akbari, M. 2011. Boys, lessons and warnings. Qom: Golestan Adab Press.
3. Mazaheri, H. 1991. Looking to family issues. Tehran: Tablighat Eslami Press.
4. Sharif Qoraishi, B. 2010. Family in Islam. Tehran: International Press.
5. Sotodeh, H., & Bahari, S. 2007. Family pathology. Tehran: Nedaye Ariana Press.
6. Anderson, K. L. 1997. Status, gender and domestic violence: An Integration of Feminist and Family Violence Approaches. *Journal of marriage and the family*, 59, 3, 655-669.
7. Baqaii, K. 2006. Sociology of Population. Tehran: Digar Press.
8. Saqeb, M. 2002. Introduction to Sociology. Tehran: Qoqnoos Press.
9. Saief, S. 2007. Family development theory. Tehran: Alzahra Press.
10. Durkheim, E. 1999. Suicide. Translated by Solaimanzadeh, N. Tehran: Allameh Press.
11. Bersani, C. A. & Chen, H. T. 1988. Sociological Perspective in Family Violence. In V. B. Van Hasselt (Ed). *Hand book of family*.
12. Golmohammadi, A. 2005. The effect of premarital cohabitation on marriage collapse. *Journal of Women and Social Research Council*, 7, 27, 360- 364.
13. Jean Marie, P. 2010. Education Non-Violente. Editions Saint-Augustin.
14. Baumrind, D. 1967. Child Care Practices Antecedent tree pattern of preschool behavior. *Genetic Psychology Monographs*.
15. Jencitrz, R. 1999. Ways of coping with cultural invasion in youth. Translated by Ahmadi Torajyar. Tehran: Shirazeh Press.
16. Esmaili, A. 2010. Sociology causes of young boys and girls relationship in the Golestan province. *Journal of Sociology and Youth Studies*, 1, 2, 169-174.



## The Investigation of the Impact of Participation in Extracurricular Activities on the Students' Academic Motivation and Social Adjustment at Non-profit Schools in Shiraz

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### ABSTRACT

The objective of the present study was to investigate the impact of participation in extracurricular activities on the students' motivation for achievement and social adaptation at non-profit schools in Shiraz in the academic year 2011-2012. The samples were selected through multistage random cluster sampling. First, 4 high schools were selected from among girls' schools, then, 4 from among boys' schools. Sixty students (30 girls and 30 boys), who participated in extracurricular classes, and 60 students (30 girls and 30 boys), who did not participate in extracurricular classes, were selected. The research method was quasi experimental. The research project (pretest and posttest), which was carried out through random selection, had a control group. Two questionnaires were distributed among the students to get information. The covariance analysis of the data obtained was analyzed by the use of SPSS software package and application of the statistical methods of T-test for independent groups, and the following results were achieved. The results from covariance analysis showed a significant difference between the amount of motives for achievement in experimental and control groups in the posttest after elimination of the impact of pretest and the results from the T-test showed a significant difference between the social adaptation level of the students who had participated in the extracurricular classes and those who had not.

**Key words:** extracurricular activities, academic motivation, social adjustment

### INTRODUCTION

With the intention of helping the students to achieve their goals such as developing the motives for achievement, social adaptation and similar cases, the students' are expected to participate in extracurricular activities voluntarily.

According to Shoarinejad [1], one of the features of advanced education is paying special attention to students' activities done outside the class. The activities which are nearly freely selected affect students' comprehensive growth and development more than formal or class activities. The word *motive* has different concepts, but all psychologists agree that a motive is an internal factor which stimulates an individual's behavior, leads it to a certain direction and makes it consistent. A motive is not directly observable, but its existence is inferred from the individual's behavior; or anyway, such a concept is necessary to justify the behavior [2].

Feld, Ruhland and Gold [quoted in 3] believe that the motive for achievement means a comprehensive inclination towards evaluation of one's performance given the supreme criteria, attempt for success in performance, and having the feeling of happiness and joy associated with success in performance.

Gage and Berliner [4] believe the motive for achievement means enthusiasm and interest in success in all fields, or a special field, and seeking superiority at work.

In Philadelphia Mental Health Center, Shure and Spivak [5] stated that lots of the problems related to behavioral incompatibility in adolescents and children are to some extent the result of the deficiency in their cognitive skills to solve interpersonal problems. Conducting a study on a group, the two researchers found that the adolescents who have learned the cognitive skills to solve problems made a reasonable expression of excitement, and they were less impulsive or shy [3].

At the age of stress and rapid social changes, adaptation with new and diverse conditions is not easy. The studies conducted by Atinkson [quoted in 3] show that any changes in life, whether pleasant or unpleasant, necessitate a kind of re-adjustment. Adjustment and resistance to the impacts of stressors stimuli are basic requirements for living and continuation of life. In this changing community, every day, a human is necessarily of practicing adjustment and compatibility.

It should be mentioned here that experts make a distinction between corresponds and adaptation-adaptation refers to the survival of different species; while, adjustment indicates the dominance of one's self on the environment and acceptance of one's self [6].

The impact of participation in extracurricular activities on the motives for achievement and social adjustment is among the issues ignored by education planners and experts in our country. All the objectives of education cannot be achieved merely through formal training classes; but, most of them such as social objectives, observing individual differences in education, providing normal (good) recreational activities can be realized through extracurricular activities.

The educational value of extracurricular activities is not less than that of formal activities, even, it is more in some cases; because both, the teacher and the students have a special sense of freedom in extracurricular activities. Therefore, their interest and enjoyment are enhanced.

Shoarinejad [1] believes, in their numerous studies, teachers and education experts, especially in modern times, found this obvious principle that indirect (informal) education is more effective than direct (formal) education. The environments and factors that are selected by children and adolescents are also more effective in their behaviors than formal environments.

The efficiency of an individual and his high physical and mental fitness are among the main objectives of a society. The studies indicate that the motives for achievement, as social motives, have a significant impact on the social growth; in other words, the increase in the economic growth is the consequence of the increase in the need for achievement (progress) [7].

Adjustment in general refers to the relation any organism makes with its environment in relation to the existing condition. It also implies that the individual involves in a rich and continuous process of showing his talents, a reaction towards the environment and also changing it to a normal and effective form [8].

When experiencing biological, cognitive and physical changes, adolescents must also make themselves compatible with the expectations of their parents, those of their age group, and their teachers. For this same reason, with intense and rapid changes, the compatibility of the individual is questioned; and consequently, contrast, conflict, stress, and bewilderment are inevitable in this period [quoted in 6].

Zahedi [9] states that today's trainees are the administrators to come. On the condition that students participate in school activities and believe in the current methods practiced there, qualified and self-made people will step into society. Students' participation in some extracurricular activities can lead to intimate educational relations. Participation is not only morally and socially acceptable, but also it is an essential need in modern societies.

Hosseini [10] believes that among different strata in a society, students are considered human capital of that society. Given the capacities and available possibilities, any state or nation spends a part of its capacities and energy in educating this huge human capital, and requires them to learn and be educated. So, it is no exaggeration if improvement in education systems be regarded as comprehensive quality improvement of life and human civilization. Conducting research in the field of education, especially students' motives for achievement and social adjustment, is an essential need due to their importance.

Developing the motives for achievement and also social adjustment in students to prepare them for adulthood and living in the society makes the importance of the impact of participation in extracurricular activities on the motives for achievement and social adjustment more clear.

Nancy Simeroth says that in 1937, McCown wrote the first book on extracurricular activities and clearly specified the objectives of these programs and presented recommendations for their realization. According to John P. Strain, Freidrich Froebel established a school in a city in Germany for 3-8 year old children. There was no formal education there. Play, entertainment, poetry, and song were the most important activities done for the children's spontaneous efforts [10]. Based on pervious and theoretical studies, the main questions of the present research are:

- Is there a significant difference between the motives for achievement among the students who participate in extracurricular activities and those who do not?
- Is there a significant difference between the social adjustment among the students who participate in extracurricular activities and those who do not?

## MATERIALS AND METHODS

In 2011, the statistical population of non-profit high schools in Shiraz was 135, from which 65 were girls' school and 70 boys'. The samples were selected through multistage random cluster sampling. First, 4 high schools were selected from among 65 girls' schools, then, 4 from among boys' schools. Sixty students (30 girls and 30 boys), who participated in extracurricular classes, and 60 students (30 girls and 30 boys), who did not participate in extracurricular classes, were selected.

The data required for the project was collected through questionnaires (inventories) on extracurricular activities, the motives for achievement, and social adjustment.

### **The questionnaire questions- extracurricular activities**

The questions of extracurricular activities questionnaire were divided into two main parts, the first of which was related to the students' personal information and the second of which, with 26 questions, concerned the students' viewpoints on extracurricular activities. The above questionnaire was formulated based on the Likert scale. To complete the information in extracurricular activities questionnaire, each subject (participant) selected one of the options of *I agree completely, I agree, I am not sure, I disagree, I disagree completely* for each question in the questionnaire. The validity of this scale was determined by the use of the formal validity through getting the experts' views. Moreover, in the present study, a group of 30 students were appropriately selected in terms of the gender, the field of study, and the area of education, consistent with the case study, and were tested according to the retest method in the interval of 20 days. The correlation coefficient between the two tests was achieved 0.79, which indicates the validity of the test. In addition, the scales' Cronbach's alpha was 0.081, which is an indication of stability and internal consistency of the questionnaire.

### **Assessment tools of educational achievements motives**

To measure achievement motives in the project, Ghiselli's achievement motives scale was used. Ghiselli's self-description inventory consists of 64 items, which measure 13 variables. Each item in the inventory embodies two adjectives. Thirty two items in the first part of the inventory have two desirable adjectives and in any item, the subject should specify the adjective which describes him more. In the second part, the 32 items include two undesirable adjectives and in any item, the subject should specify the adjective which describes him less. Ghiselli's achievement motives scale includes 20 items of 64 items of self-description inventory. In this scale also, each item consists of two adjectives. In half of these compound items, the subject should specify the adjective which describes him more; and in the other half also, he should specify the adjective which describes him less. Scoring Ghiselli's achievement motives scale is done according to a special key. For example, in answering the first question of the test that has the two adjectives *efficient* and *astute*, if the subject selects *efficient* (that is, the adjective above), he gets no score. But, if he selects *astute* (that is, the adjective below), he gets 1 score. In this manner, a score is achieved for achievement motives within the range of 0 to 66 for each subject. As Ghiselli's achievement motives scale includes 20 items of 64 items of self-description inventory, just 20 items were used for evaluation in the present project. So, the range of scores was between 0 and 20. This scale has been used in several projects. Pervious researches got the reliability coefficient 0.72 through Cronbach's alpha, and the reliability coefficients 0.63 and 0.64, respectively, through Gutman and split-half methods. In relation to this scale, it's reported the validity coefficients 0.74 and 0.60, respectively.

To measure social adjustment, the questionnaire includes 90 questions, which examines social adjustment. The questionnaire is developed as it is explained below:

- It consists of 6 scales including:

Social forms- Social skills- Anti-social tendencies- Family relationships- School relationships- Social relationships

- It has 90 Yes/No sub-test questions.

- By the use of Cronbach's alpha computation, the reliability has been reported 0.95.

- Validity. In order to examine the validity of the test, the method of factor analysis with the principal component was used.

The results of this factor analysis indicate the existence of 6 factors, which totally explains 0.68 of the entire test variance. The first factor, with social forms and 61 questions, has explained 44.6% of the entire test variance. The second factor, with social skills and 8 questions, has explained 63.5% of the entire test variance. The third factor, with anti-social tendencies and 8 questions, has explained 5.75% of the entire test variance. The fourth factor, with family relationships and 4 questions, has explained 5.3% of the entire test variance. The fifth factor, with educational (school) relationships and 6 questions, has explained 4% of the entire test variance. The sixth factor, with social relationships and 3 questions, has explained 2% of the entire test variance. To measure and analyze the data, T-test for independent groups and covariance analysis test were used.

## **RESULTS**

*The first question:* Is there significant difference between the motives for achievement among the students who participate in extracurricular activities and those who do not? To investigate the question, covariance analysis test was used. According to the studies conducted, its assumptions were observed. As it is observed in the second row, the amount of *f* was 47.886, which became significant at the level of 0.001 with the freedom degrees (1,117). The acceptable level of significance is less than 0.05; therefore, we conclude that there is a significant difference between the amount of motives for achievement in experimental and control groups in the posttest after the elimination of the impact of the pretest. As it is observed, the achievement motives average of the experimental group was 17.51 after the elimination of the impact of the pretest, and it was 14.58 for the control

group. It is also observed that the achievement motives level of the students who attended the extracurricular classes was higher than that of the students who did not.

**Table1.** The covariance analysis of academic motivation in experimental and control groups

Source	SS	DF	MS	F	P.
Pretest	783.62	1	783.62	146.45	0.001
Extracurricular activities	256.12	1	256.12	47.88	0.001
Error	626.03	117	5.35		

**Table 2.** Mean and standard deviation in posttest of academic motivation of experimental and control groups

Group	N	Mean	SD	Adjusted Mean
Experimental	60	17.37	3.16	17.51
Control	60	14.73	3.72	14.58

*The second question:* Is there significant difference between the social adjustment among the students who participate in extracurricular activities and those who do not? To review the question, the independent T-test was used and its result is in the following Table.

**Table 3.** The comparison between the experimental and the control groups in social adjustment variable

Groups	N	Mean	SD	T value	DF	P
Experimental	60	120.4	7.59	1.31	58	<b>0.19</b>
Control	60	123.1	7.81			

As it is observed, the *t* amount was 1.312, which became significant at the level of 0.195 with the freedom degree of 56. The acceptable level of significance is less than 0.05; therefore, we conclude that there is a significant difference between the social adjustment level of the students who attended extracurricular classes and that of the students who did not.

## DISCUSSION

*The first question:* Is there significant difference between the motives for achievement among the students who participate in extracurricular activities and those who do not? Given the Tables 2 and 3, we conclude that there is a significant difference between the amount of motives for achievement in experimental and control groups in the posttest after the elimination of the impact of the pretest. Additionally, it is also observed that the achievement motives level of the students who attended the extracurricular classes was higher than that of the students who did not. The review of the research background shows that there has not been a project on the investigation of the achievement motives among the students who participated in the extracurricular activities and among those who did not. To explain this assumption, it can be said that the reason for the significant difference between the achievement motives in the students who participated in the extracurricular activities and those in the students who did not is that the students in extracurricular activities participate actively and voluntarily in the activities, and this increases their achievement motives.

*The second question:* Is there significant difference between the social adjustment among the students who participate in extracurricular activities and those who do not? As it is observed in Table (4), the *t* amount was 1.312, which became significant at the level of 0.195 with the freedom degree of 56. The acceptable level of significance is less than 0.05; therefore, we conclude that there is a significant difference between the social adjustment level of the students who attended extracurricular classes and that of the students who did not.

To explain this assumption, it can be said that the reason for the significant difference between the social adjustment in the students who participated in the extracurricular activities and that in the students who did not is that the students who participated in the extracurricular activities, which were done in informal groups, socialized more because they selected these groups freely on their own will. Therefore, they respect the rules of the groups, and this is a practice for acquiring different social skills, which increase their social adjustment. Additionally, the results of the previous research are consistent with the results of the present research [11].

## REFERENCES

1. Shoarinejad, A. 1997. The role of extracurricular activities in adolescent education. Tehran: Ettelaat press.
2. Murray, H. A. 1938. Exploration in personality. New York: Oxford University press.
3. Mussen, P. H., Conger, J.J., Kagan, J. & Huston, A.C. 1984. Child development and personality. New York: Harper & Row.
4. Gage, N. L., & Berliner, D. C. 1998. Educational psychology (6th Ed.). Boston: Houghton Mifflin.
5. Shure, M.B. & Spivack, G. 1980. Interpersonal problem solving as a mediator of behavioral adjustment in preschool and kindergarten children. Journal of Applied Developmental Psychology, 1, 29-44.

6. Najjarian, B. 1998. Abnormal psychology. Tehran: Roshd Press.
7. McClelland, D.C. 1961. The achievement society. Princeton, NJ: Van. Nostrand.
8. Pourafkari N. 1997. Abnormal psychology. Tehran: Azadeh Press.
9. Zahedi, M. 2003. Educational Activities. Amir Kabir Press.
10. Hosseini, A. 1993. Brief review of the quality of the education system. *Journal of Teacher Education*, Shahid Motahari, Shiraz.
11. Hoffman, J. 2002. The Impact of Student curricular Involvement on Student Success. *Journal of College Student Development*.



## On-Farm Evaluation of Mixture of Noug Seed Cake and Wheat Bran Supplementation for Fattening of Oxen in Bahir Dar Zuria District of Western Amhara

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### ABSTRACT

Fattening trial of draught oxen was conducted at two rural villages (Robit Bata and SoseyuYenesa) in Bahir Dar Zuria district to evaluate the contribution of mixture of noug seed cake and wheat bran supplementation compared to farmers feeding practice on body weight changes and economic return. Final body weight and average daily gain (ADG) from 1-45 days were significantly ( $p < 0.05$ ) higher for the concentrate supplemented oxen. Though body weight gain, ADG from 1-15 days & 1-75 days were higher for the supplemented oxen, the differences were not statistically significant. Economic analysis showed significantly ( $p < 0.05$ ) higher gross and net return from supplemented oxen than non-supplemented oxen. Therefore, in areas where industrial by-products (noug seed cake and wheat bran) could be purchased in relatively low price, fattening of draught oxen through concentrate supplementation could generate better income from increased body weight and improved body condition of the animals.

**Key words:** Draught oxen; Fattening; Supplementation

### INTRODUCTION

Ruminant productivity in Sub-Saharan Africa is limited due to the low nutritive value of feeds available for the animals (1). The most abundant feeds in Sub-Saharan Africa are over mature natural grasses and crop residues which are limited both in quantity and quality during the dry season resulting in low growth rates (2, 3). Of all ruminants, cattle have been the most important livestock in the provision of draught power and meat in the highlands of Sub-Saharan Africa (4).

Despite a high cattle population in the region, animal performance and return obtained has been low mainly due to poor nutrition. One of the likely ways of alleviating the problem of insufficient meat production is that of increasing productivity through improved feeding management. Traditional cattle fattening is common in the mixed crop livestock system. As the management and feeding practices are traditional, cattle fattening takes a long time and the animal's productivity is low. Hence there is a need to adopt improved feeding practices to make the traditional fattening practice effective and profitable. Thus, this study was initiated with an objective of evaluating weight gain and economic return of fattening oxen through mixture of wheat bran and noug cake supplementation compared to farmers feeding practice.

### MATERIALS AND METHODS

#### Study area and farmers selection

The trial was conducted in two rural villages (Robit Bata and SoseyuYenesa) in Bahir Dar Zuria district. Twelve volunteer farmers with better fattening experience and who were willing to well manage their oxen (offer hay, water and shelter) have participated in the study.

#### Experimental animals and feeding management

A total of twelve draught oxen (six in each group) were used for this experiment. The oxen selected were dewormed for internal parasites before the commencement of the trial and monitored for their health status

during the experimental period. There were two treatments i.e. concentrate supplemented (49.5% noug cake + 49.5% wheat bran + 1% salt + Basal feed/hay) and non-supplemented (farmers fattening practice). The supplemented group was offered 3 kg/day concentrate feed during the period of the experiment in addition to natural pasture hay used as basal diet. One kilogram concentrate feed costs 2.10 Birr. Participant farmers in the non-supplemented group fed their fattening oxen hay/crop residues and local brewery by-product when available. The oxen were offered water twice daily.

#### Data collection and statistical analysis

Data on initial and final body weights and price of oxen were collected. The average initial body weights for supplemented and non-supplemented groups were 326.4kg and 289.9kg. Body weights of oxen were taken every two weeks to know the live weight change of the oxen during the experiment. Body weight of the oxen was estimated from heart girth (HG) measurement using a prediction equation of  $Y = 4.81HG - 432.73$  ( $r = 0.81$ ,  $p < 0.001$ ,  $n = 573$ ) developed for Boran cattle (5). The feeding trial was conducted for 75 days after 15 days acclimatization period.

Analysis of data on body weights and price of oxen was carried out using the General Linear Model (GLM) procedure of SPSS (6). Treatment was included as classification variable, while initial body weight was included as covariate in the model when it was significant.

The statistical model used was as follows:

$$Y_{ij} = \mu + t_i + b + (\text{Inwt}_{ij} - \text{Inwt}) + e_{ij}$$

Where,  $Y_{ij}$  = the observation on weight gain, price of animal

$\mu$  = the overall mean

$t$  = the effect of treatment

$b$  = linear regression of initial body weight (Inwt) on subsequent body weight gains

$e_{ij}$  = Effect of random error

#### Partial Budget Analysis

The partial budget analysis was based on the calculation of the total cost of the basic ration (hay) and supplemented feed (concentrate) and considering averages of initial and selling price of oxen. Partial budget analysis was employed to compute average cost of production, gross and net income from sale of oxen in each treatment group. Costs (medicament, labor) that were similar in each treatment group were not included in the analysis.

## RESULTS AND DISCUSSION

The oxen showed body weight gain during and at the end of the trial. The difference in average initial body weight between supplemented (326.4kg) and non-supplemented groups (289.9kg) was not statistically significant. At the end of the experiment, weight of the supplemented oxen was 366 kg with an average weight gain of 39.6 kg, while that of the non-supplemented group was 318.4 kg with an average weight gain of 28.5 kg. Final body weight and ADG from 1-45 days were significantly ( $p < 0.05$ ) higher for the concentrate supplemented oxen. Though weight gain, ADG from 1-15 days and 1-75 days were higher for the supplemented oxen, the differences were not statistically significant (Table 1).

**Table 1.** Least square means of initial body weight, final body weight and average daily gain (ADG) at different days for fattening oxen

Parameter studied	Supplemented	Non-supplemented	Level of sig.
Initial heart girth (cm)	153.5 ± 4.08	150.3 ± 5.0	NS
Initial body wt (Kg)	326.4 ± 13.53	289.9 ± 14.12	NS
Final heart girth (cm)	166.7 ± 2.65	155.3 ± 3.24	*
Final body wt (Kg)	366 ± 9.41	318.4 ± 11.56	*
Body weight gain (Kg)	39.6 ± 13.6	28.5 ± 16.7	NS
ADG from 1-15 days (Kg)	1.07 ± 0.38	0.07 ± 0.46	NS
ADG from 1-45 days (Kg)	0.72 ± 0.12	0.15 ± 0.17	*
ADG from 1-75 days (Kg)	0.57 ± 0.09	0.31 ± 0.11	NS

\* = Sig ( $p < 0.05$ ), NS = Not significant

Similar fattening trial conducted by (7) at Adamitulu Agricultural Research Center using Arsi draught oxen supplemented with 2 kg noug seed cake to teff straw showed 46.5 Kg weight gain in 90 days fattening period among the other treatments. The group of animals fed on this ration gave the highest average net return (344 ETB) per animal. In a study conducted at ILRI (International Livestock Research Institute), DebreZeit research station it was also reported that supplementation of wheat bran had a significant effect on final body weight in highland zebu oxen fed teff straw as basal diet (8). The average body weight gain was 459 g/day for medium level of supplementation (2.75 kg/head/day) which performed better in terms of feed conversion efficiency and cost of dry matter per kg body weight.



The difference in estimated initial average price of supplemented (1900 Birr) and non-supplemented (1662 Birr) oxen was not statistically significant (Table 2). Average selling price of supplemented oxen was 3775 Birr, while the non-supplemented group was 2575 Birr. Economic analysis showed significant ( $p < 0.05$ ) difference on gross and net return between supplemented and non-supplemented oxen. The supplemented animals had a gross return of Birr 1875, while the non-supplemented group had a gross return of 913 Birr. Net return was 1065.00 Birr and 463.00 Birr for supplemented and non-supplemented groups, respectively (Table 2).

**Table 2.** Partial budget analysis for fattening oxen supplemented with mixtures of noug seed cake and wheat bran

Parameter studied	Supplemented	Non supplemented	Level of sig.
Average initial price of oxen	1900.00	1662.00	NS
Average selling price of oxen	3775.00	2575.00	*
Gross return	1875.00	913.00	*
Costs	810.00	450.00	*
Concentrate feed	472.50	-	*
Hay	337.50	450.00	NS
Net return	1065.00	463.00	*

\* = Sig ( $p < 0.05$ ), NS = Not significant

## CONCLUSION AND RECOMMENDATION

Economic analysis showed significantly higher gross and net return from supplemented oxen. Therefore, in areas where industrial by-products (noug seed cake and wheat bran) could be purchased in relatively low price, fattening of draught oxen through concentrate supplementation could generate better income from increased body weight and improved body condition of the animals.

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## REFERENCES

1. Van Soest PJ (1982). Nutritional ecology of the ruminant. O & B books, Corvallis, Oregon.
2. Soller H, Reed JD and Butterworth MH (1986). Intake and utilization of feed by work oxen. ILCA Newsletter Vol. 5 No. 2, Addis Ababa, ILCA.
3. Goe MR (1987). Animal traction on smallholder farms in the Ethiopian highlands. PhD dissertation. Department of Animal Science, Cornell University, Ithaca, New York.
4. ILCA, International Livestock Centre for Africa (1981). Animal traction in Sub Saharan Africa. ILCA Bulletin 14, Addis Ababa, Ethiopia.
5. Nicholson MJ and Sayers AR (1987). Relationships between body weights, condition score and heart girth changes in Boran cattle. Trop. Anim. Hlth Prod. (1987) 19, 115-120.
6. SPSS (2007). Statistical Procedures for Social Sciences, Version 16.0, INC, Chicago, USA.
7. Hirpa A and Mengistu A (2005). Economics of different supplement options to teff straw for fattening Arsi oxen. ESAP (Ethiopian Society of Animal Production) 2005. Participatory Innovation and Research: Lessons for Livestock Development. Asfaw Yimegnuhail and Tamrat Degefa (Eds). Proceedings of the 12th Annual conference of the Ethiopian Society of Animal Production (ESAP) held in Addis Ababa, Ethiopia, August 12-14, 2004. ESAP, Addis Ababa, 410pp.
8. Wolde Michael T, Osuji PO, Yimegnuhail A and Yami A (2002). Effect of wheat bran supplementation on feed intake, body weight change and retained energy in the carcass of Ethiopian highland zebu (*bos indicus*) oxen fed teff straw as basal diet. ESAP (Ethiopian Society of Animal Production) 2002. Livestock in Food Security- Roles and Contributions. Proceedings of the 9<sup>th</sup> Annual conference of the Ethiopian Society of Animal Production (ESAP) held in Addis Ababa, Ethiopia, August 30-31, 2001. ESAP (Ethiopian Society of Animal Production) 433pp.

*Original Article*

## Survey and Analysis on Content of Primary Education Textbooks from Life Skills Training Point of View

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### ABSTRACT

The current research is intended to give information about Life Skills which have been considered by the researcher(s) in Primary Education Textbooks and their interpretation and analysis that was carried out within Content Analysis framework and by means of different sources. Statistical population of this study was selected as all textbooks in Primary Education Course except for Quran Training Book and Lets' Read Persian book where they included totally 26 volumes. The analysis criteria have been formulated based on: Analysis of text, images, stories, questions, exercises, verses, fluently reading, reading chorally and designs of front and back of book cover. Researching tool was sentence that was selected as the smallest unit of analysis and recording unit was utilized to measure frequencies where by counting them it was referred to the rate of paying attention to life skills by means of aforesaid books. Persian sources, theses and the related studies have been adopted to deal with theoretical frameworks of the given research and due to lack any previous sample in order to be compared with this study; thus, no test has been carried out in this content analysis while descriptive statistics was utilized like preparation of appropriate tables, frequency distribution, percentage and diagram for this purpose. Results came from this study showed that of total 2775 sentences, the relevant images or phrases in 12 topics of life skills in textbooks, the maximum frequency has belonged to Creative- Critical Thought Skill with 488 cases and ratio of 17.55%, while the minimum frequency has belonged to Political Skill with 47 cases and rate of 1.69%.

**Key words:** life skills, primary education, topic, content analysis

### INTRODUCTION

In modern world where technology is increasingly going to promote and human's knowledge is increased at any moment, it seems such knowledge causes creating some complexities within human's life so one could not generally release from such complexities, but the coping techniques should be trained against them. It is expected that today human to be exposed to life problems with higher ability and potential and to take step effectively and pragmatically toward solving these problems by receiving different fields.

Today, the families take stronger and more effective steps for training their children's intelligence and talent than in the past and also their expectation has raised in the field of their children's effectiveness. They found that in order to accomplish this vital goal i.e. possession of further strong and ability to achieve the higher objectives, they should train thinking in children and adolescents at higher levels. It is better to think in such a way that we should vaccinate children against mental problems and issues. This task will become into practice by training life skills to them. As a result, they are trained how to keep themselves away from dangers and risks in the current advanced and complicated world and to accomplish to viable beliefs about their own abilities. Life skills train people how to throw away vulnerability and to look at life issues as resolvable riddles.

For example, art of establishment of contact and art of dialogue with other people are of those primary skills that if someone is equipped with them, he/ she could keep one's own away from destructive emotions and to enjoy mental health. Most of anxieties, fears, and protests in children may be reduced by conversation and contact with them and they should receive greater social ability. With healthy communications, children and

teenagers may grow better and enjoy further supporting- emotional sources. Sensitivity, fastidiousness and self-denial may be eliminated and by which they will acquire more value and repute for themselves.

If children are able to think and purpose new ideas, they enjoy creative thought. Encouraging them to thinking instead of giving prompt and empty responses and free of any deliberation and innovation, may grant them further intellectual health; Creative Thinking is considered as one of the important life skills in human, including some skills like decision- making, ability of problem- solving, self- awareness, philanthropy and empathy (human, ideological and moral relations), management- leadership and planning, educational, biologic- healthcare and environmental relations, coping with mental and political emotions and stress.

Today, number of life skills is also going to increase; those skills that make human stronger, more resistant and further self-confident and increase their resistance and success. It requires noting that life skills are acquired and trained; they could be trained and learned. With respect to what it mentioned, it may be implied that gradually renovation of human's life is depended on several factors out of which one is acquiring of experience and learning of skill. Naturally, such experience and skill have been acquired in two completely different ways that one could call them as two theoretical and practical types.

Practical or operational dimension of acquisition of skill and experience is caused by some measures which almost begin from startup point for any person and continue up to infinity so for this reason its range and depth is personalized and exclusive for any individual to some extent. But theoretical experience and skill is originated from trainings which are presented to human and in turn they are divided into formal and formal trainings. The present study is intended to identify what kind of skills are presented to students theoretically in primary education textbooks (formal training) in order to enjoy it in their social life.

In a survey and analysis which have been carried out on training life skills in primary education textbooks by Mirhosseini in academic year 2001-2002 as MA thesis within Islamic Azad University (IAU), Rood-E-Hen Branch by aiming at giving information about types and rate of life skills training within primary education textbooks and in order to interpret and analyze them by descriptive method, the given results indicated that: among total 14 studied skills, 908 types of skill case have been identified in these textbooks in primary education course where the maximum quality of skills has belonged to two Religious Teaching book (47.03%) and Persian Language book (33.04%) while the maximum quantity of skills was placed in Grade IV (29.25%), Grade III (29.03%), and Grade V (21.52%). The maximum rate of quality of the existing skills had belonged to ideological and moral skills in primary education textbooks. Rate of life skills was increased in primary education from Grade I to Grade IV but this rate has been reduced in Grade V [1]. Another study was carried out by Hadinejad, under title of "Content analysis of Persian textbooks in primary education Grade IV and V and their comparison with objectives of primary education". In this study, statistical population included Persian textbooks of primary education Grades IV and V and by means of contents in the aforesaid books, information was obtained line by line based on theoretical framework. The studied textbooks have been prepared and drawn up in several dimension of ideological training, training of values, transfer of knowledge and techniques, training of skill and activity, national and social training, socio- political training and artistic training proportional to goals of primary education course. In physical fitness dimension, the aforesaid books put less focus on the above dimensions. Fewer contents were included in the given textbooks in healthcare training dimension while Persian textbooks may in turn play noticeable role in health training dimension [1].

Another research under title of "Review on content of Persian textbooks in elementary education (Guidance School) in terms of training the life skills" was conducted by Rajabi in Academic Year 2005-2006, as MA thesis in Islamic Azad University (IAU), Rood-E-Hen Branch. In this research, the objective was to survey content of Persian textbooks in elementary education (Guidance School) from life skills training point of view. The studied population has consists of Persian textbooks of three year elementary education course in academic year 2005-2006 and sample space was the same as sampled population. In this study which has been conducted by descriptive technique of content analysis type, measurement tool included some checklists of topics of life skills in which their validity coefficient was estimated 0.89 and results of this study were derived as follows:

- 1- Training of skill of recognition society and social relations (33.91%)
- 2- Training of creative- critical thinking skill (26.32)
- 3- Training of skill of establishing relations with others (13.01%)
- 4- Training of values recognition skill (10.03)
- 4-1- Training of religious values recognition skill (4.82%)
- 4-2- Training of moral values recognition skills (4.60%)
- 4-3- Training of family values recognition skill (0.61%)
- 5- Training of decision- making skill (9.13%)
- 6- Training of coping with emotions and stresses (5.50)
- 7- Training of recognition of own ability (self- awareness) (1.56%)
- 8- Training of physical fitness (0.54%)

In this study, totally 9867 sentences, images or phrases were examined in texts of Persian books from elementary education course (Guidance school) out of which 7234 sentences, images or phrases (73.32%) considered some topics of life skills training. Of this quantity, 2453 cases (i.e. 33.91%) have belonged to skill of recognition society and social relations so this signifies paying more attention to subject of recognition society and social relations by authors and planners of these books. And the least observed case related to topic of

physical fitness recognition that was 0.54% so this also shows paying less attention to this important and vital skill by authors of these books [2].

In a study which has been done under title of "Content- driven role of Persian textbook in primary education for promotion of national identity" by Shokri Khaneghah in academic year 1999-2000, statistical population included all primary education textbooks and sample case consists of topics from textbooks that were close to subject matter of study. In this investigation, descriptive statistic technique was utilized and some parts of Persian textbooks were examined with respect to element of national customs and rites in Persian textbook where order and discipline were considered as some part of this subject. Regardless of some cases like considering religion and belief, some other topics have been also examined including acceptance of multiple ethnicities, paying attention to language, hospitality, and respect to old persons, over- compliment, extravagance, disorder and lack of accountability and the following results were accomplished: No item has been mentioned about disorder in textbook Grade I. In textbooks from Grades II, III and IV and V, respectively 3, 0, 1 and 2 cases have been implied about undisciplined activity and disorderliness so these topics may indicate that in total five grades of primary education course only 4.4% of disorderliness and accountability have been mentioned proportional to all of these cases; as a result, by comparison among frequency and obtained percentages it can be concluded that subject of order and discipline and responsibility has been less noticed in primary education textbooks and even in some cases they were taught disorderliness lesson and the existing topics might interpret such claim in these books [2].

Another research was carried out by Mohsenian in academic year 2003-2004 under title of "Review on the role of primary and elementary education textbooks to encourage students for study" where it survey technique was of content analysis and statistical population comprised of all primary and elementary education textbooks. With respect to the studied subject, samples had been selected from primary and elementary education textbooks. Consequently, books were initially examined and those topics were selected and counted that they were close to case study and quantitative data were drawn up in frequency distribution tables and their percentage was computed and described (here of course only some part of this study is mentioned that related to primary education course). The obtained result denotes that among textbooks from primary education Grade I, the highest attention was focused on book and book- reading in mathematics textbook with 6 cases (50%) and Persian textbook with 4 cases (33.3%) and the least implication related to religious teaching book and Quran with only 1 case (8.33) while subject of book and book- reading has never been mentioned in natural sciences textbook. Among primary education textbooks in Grade II, the highest implication to book and book- reading correspondingly related to Persian book with 6 cases (46.5%) and then mathematics book with 4 cases (37.7%) while subject of book and book- reading has never been mentioned in natural sciences textbook and the lowest percent belonged to this book. Among primary education textbooks in Grade III, the highest implication to book and book- reading respectively related to Persian book with 8 cases (44.4%) and religious and social teachings books with 2 cases per one (11.11%) while subject of book and book- reading has never been mentioned in natural sciences textbook. Similarly, among textbooks in Grade IV from primary education course, the maximum implication of given subject related to Persian textbook with 12 cases (53.17%) and then Social teachings book with 4 cases (17.4%) and religious teachings books and Quran with 2 items (8.69%) and eventually the least attention was paid to this subject in natural sciences book with no implication to book and book- reading subject. And at last, among textbooks Grade V from primary education course, the maximum and minimum focuses on subject of book and book- reading subject were correspondingly related to Persian and mathematics books with 8 cases per one (37.6%) and social teachings book with 3 cases (11.53%) and Quran training book with 1 item (3.84%). And totally among all textbooks in primary education course the maximum and minimum implications to subject of book and book- reading have belonged to Persian textbook with 45 cases (45.9%) and in Quran training book with 1 case (3.84%) respectively [2].

In a survey which has been conducted by Falahpoor in 2004 (from Education and Training Center, Lorestan Province) about content analysis on Persian and natural sciences of primary education course in terms of paying attention to life skills, all of these books have been examined and assayed but sampling was not done. And in this content analysis, words were the smallest unit of analysis. Results of this research showed that percentage of topics of life skills in Persian and natural science textbooks from primary education course at academic year 2004-5 included: 1- Decision- making skill (14.33%); 2- Problem-solving skill (11.67%); 3- Critical- creative thinking skill (13.29%); 4- Social effective relations skill (15.80%); 5- Self- knowledge skill (16.38%); 6- Empathy skill (14.95%); 7- Skill of coping with emotions and stresses (13.65%) [1].

With respect to the studies which have been carried out in Iran about training of life skills within primary education textbooks, it may be derived that none of them have not been dealt with comprehensively analysis on all textbook of primary education course and they only sufficed with analysis on some of these books and at the same time due to vastness and multiplicity of life skills, only some of life skills have been taken into consideration. But all these researches may signify this fact that with respect to advancement of communities and emergence of new skills, the vital requirement and ever- increasing focus of textbooks should be emphasized on essential life skills and new skills more than ever.

In a study that carried out by Tereza [3], increase in life skill has been indicated effective on prevention from suicide. And similarly Kim [3] found that training of life skills to children with learning disabilities might be effective. Halin [3] also evaluated life- specified skills within social life. Boshovin et al [3] have examined the

impact of life skills training programs on alcoholism, smoking and drug abuse. This program included life skills, communication, decision- making, anxiety and stress. The results showed that training have been effective on reduction of smoking, alcoholism and drug abuse. In program of promotion of social abilities by Yal and Newhon, the basic life skills such as control of stress, problem- solving by making decision and communication skills were trained [3]. The results signified remarkable progress in students of tested group. Ability of planning and selection of appropriate solutions for life, contact with counterparts, self- control and sociability of them were significantly increased.

Next studies indicated that this plan is also effective in exclusive fields and prevention from drug abuse and reduces desire to drug and alcohol abuse. Similarly, findings suggest positive effect of this type of training on students' skills to solve interpersonal problems and coping with anxiety. Following of such trainings, participants are enabled to resolve their own conflict with their counterparts. Rate of stress is increased in them and they acquire more interpersonal popularity [4].

In a study about impact of training of life skills on laborers in South Africa, Albertain et al [4] accomplished positive results in several aspects. The foremost characteristic of tested group relates to their ability in control of issues and problems, motivation to positive and active work to achieve their goals and improvement of their familial life. Of other changes, one may refer to modification of decision- making ability, positive change in their attitude toward the opportunities which have in life, positive approach toward their abilities in playing active role in their life and better coping with life conditions and positive change in ability to individual, environmental and occupational responsibility. Similarly, they acquired insight and knowledge about cognitive aspects in their relations with other people and amount of self- respect and self-confidence was increased in them and they accomplished to positive self- concept and finally individual responsibility, planning for future and ability of critical thinking were improved in them [5].

In another study, Elees and Tailor [4] found that the persons with high self- esteem have feeling of self- value, self- confidence and merit and they are more deserving and constructive than individuals with less sense of self- esteem. Similarly, study result indicated that persons with high self- esteem might act better in many situations. An investigation into job- applicant students showed that those ones who have higher self- esteem might receive further occupational offers and employers evaluated them more favorable than students with lower sense of self- esteem [4].

Studies done by Copper smith [6] were one of the researches about self-esteem that is considered as one of the important life skills and he published a book called self- esteem fields in 1967. By conducting survey and study on previous theories and researches, Smith interprets four basic factors for improvement of self- confidence:

1- Amount of respect, acceptance and interest a person may receive.

2- History and experiences of successes in life or in general success and its interaction have with environment.

3- Values and expectations

4- Method of individual responsiveness to control of personality

Within a study for this purpose, Copper smith tested 43 female and 44 male students by Self- Esteem Inventory in Grades V and VI where mean value and standard deviation were respectively 82.3% and 16.7 for females and mean value and standard deviation were obtained as 3% and 12.2 for males correspondingly; however, no significant difference observed among both statistical groups. According to Copper smith's studies, individuals with high self- esteem might feel sense of confidence, creativity and independence and self- actualization than in persons with lower level of self- esteem [6]. Several studies which have been carried out after execution of training programs of life skills in schools present significant progresses within different dimensions of mental health. For instance, self- image, self- esteem, self- efficiency, social and emotional aggression and significant reduction of social anxiety are some of these cases [7].

Training of life skills has been effective in several programs, including Drug Abuse Prevention Plans, teenager's prevention program, promotion of Intelligence, bully prevention programs, prevention from AIDS, training of peace and promotion of self-confidence and self- esteem [7]. Thus, importance and value of life skills training with several preventive goals and improvement of health level are revealed [7].

### Research Questions

1- To what extent in primary education textbook is attention focused on training of decision- making and responsibility skill?

2- To what extent in primary education textbook is attention focused on training of problem- solving skill?

3- To what extent in primary education textbook is attention focused on training of creative- critical thinking skill?

4- To what extent in primary education textbook is attention focused on training of self- awareness skill?

5- To what extent in primary education textbook is attention focused on training of human relations (philanthropy and empathy) skill?

6- To what extent in primary education textbook is attention focused on training of coping with emotions and stresses skill?

7- To what extent in primary education textbook is attention focused on training of ideological and moral skill?

8- To what extent in primary education textbook is attention focused on training of biological, environmental and healthcare skill?

9- To what extent in primary education textbook is attention focused on training of management, leadership and planning skill?

10- To what extent in primary education textbook is attention focused on training of economic skill?

11- To what extent in primary education textbook is attention focused on training of political skill?

12- To what extent in primary education textbook is attention focused on training of educational skill?

## MATERIALS AND METHODS

As it revealed from its subject, the present study is content analysis and its methodology is of content analysis type. Statistical population of this study includes all textbooks from primary education course except for Quran book and Lets' Read Persian book. And sampling was not done because 100 percent of all aforesaid books have been surveyed. The reason for non- selection of Quran book and Lets' Read Persian book has related to the following points

1. Since Quran is a divine book and scripture and a plan of life for all humans which has been descended by God so researcher has not deemed himself able to analyze the content of this holy divine book with his meager knowledge.
2. Since Lets' Read Persian textbooks from primary education course have often dealt with training of reading and writing skills and rules of Persian grammar so selection of this book has been ignored as well. But surveying of other textbooks has been started accurately and line- by- line from front page of book cover and ended to the overleaf of book cover .

In this study, sentences have been used as the smallest units of analysis. Recording of unit was utilized for measurement of frequencies which have been identical to counting numbers and whenever one of the related evidences to the given topic was observed, one frequency has been calculated for that observation. To determine validity of researching tools, comments from experts and scholars have been adopted. To identify reliability of study tools, a list comprising of 60 topics has also been given to two trained persons and its reliability was obtained by means of the following formula. Descriptive statics has been utilized to survey information in this study and several parameters (frequency, percentage, tables and diagrams) have been used to record number of topics and their counting. Since there was no sample in order to be compared thus parametric test has not been conducted as well.

## RESULTS

To show data in the present study, several tables and diagrams have been used for this purpose. Findings from any textbook were given in one table and findings of other textbooks of entire primary education course with the same title were also presented in other tables separately and finally a few general tables were prepared in which research findings (grade- by- grade) and separately based on their topics were arranged.

**Table 1.** Frequency of life skills in textbooks (entire primary education course)

Topics	Decision making & responsibility	Problem solving	Creative- critical thinking	Self- knowledge	Human relations (philanthropy- empathy)	Coping with emotions & stresses	Ideological & moral	biological healthcare and environmental	Management, leadership & planning	Economic	Political	Educational	Total
<b>Frequency</b>	330	191	488	63	274	91	381	202	302	154	47	252	2775
<b>Percentage</b>	11.89	6.88	17.58	2.27	9.87	3.27	13.72	7.27	10.88	5.54	1.69	9.08	100

Table 1 is a general table which indicates 2775 sentences, phrases or relevant images to 12 topics of the studied life skills in this investigation where the maximum frequency has belonged to creative- critical thinking skill with 488 frequency cases and 17.58% ratio out of all the existing topics in this book and the minimum rate of frequency related to political (skill) topic with 47 cases and 1.69% and other topic are placed among these two skills.

Table 2 also is a general table that arranged in two horizontal and vertical columns, which express each of findings of this study. In horizontal column, rate of frequency of the related sentences and phrases to each of 12 topics has been given each of textbooks among of which the maximum frequency belongs to Lets Read Persian book with 767 cases and 27.63% and the minimum frequency relates to natural sciences book with 287 cases and 10.34%. Also in vertical column of this table, rate of frequency of each of 12 topics in all textbooks of five- year primary education course are displayed where its description was illustrated in former table.

**Table 2.** Frequency of life skills in textbooks separately

Topics		Decision making & responsibility	Problem solving	Creative- critical thinking	Self- knowledge	Human relations (philanthropy- empathy)	Coping with emotions & stresses	Ideological & moral	biological healthcare and environmental	Management, leadership & planning	Economic	Political	Educational	Total
<b>Lets' Read Persian</b>	Frequency	86	37	109	15	90	39	106	59	71	34	10	111	767
	Percentage	11.21	4.82	14.21	1.95	11.73	5.08	13.82	7.69	9.25	4.43	1.30	14.47	27.63
<b>Natural Sciences book</b>	Frequency	36	29	62	10	17	1	13	42	31	22	1	23	287
	Percentage	12.54	10.1	21.6	3.48	5.92	0.34	4.52	14.63	10.8	7.66	0.34	8.01	10.34
<b>Mathematics</b>	Frequency	43	82	121	2	18	0	27	18	40	43	6	57	457
	Percentage	9.40	17.94	26.47	0.43	3.93	0	5.9	3.93	8.75	9.40	1.31	12.47	16.46
<b>Divine Gifts</b>	Frequency	50	7	67	16	57	22	92	34	52	5	3	18	423
	Percentage	11.82	1.65	15.83	3.78	13.47	5.20	21.74	8.03	12.29	1.18	0.70	4.25	15.24
<b>Social Teaching book</b>	Frequency	68	34	67	4	45	22	62	35	70	47	27	38	519
	Percentage	13.10	6.55	12.90	0.77	8.67	4.23	11.94	6.74	13.48	9.05	5.20	7.32	18.70
<b>Divine Gifts Workbook</b>	Frequency	47	2	62	16	47	7	81	14	38	3	0	5	322
	Percentage	14.59	0.62	19.25	4.96	14.59	2.17	25.15	4.34	11.80	0.93	0	1.55	11.60
<b>Total</b>	Frequency	330	191	488	63	274	91	381	202	302	154	47	252	2775
	Percentage	11.89	6.88	17.58	2.27	9.87	3.27	13.72	7.27	10.88	5.54	1.69	9.08	100

**Table 3.** Frequency of life skills in textbooks grade by grade

Topics		Decision making & responsibility	Problem solving	Creative- critical thinking	Self- knowledge	Human relations (philanthropy- empathy)	Coping with emotions & stresses	Ideological & moral	biological healthcare and environmental	Management, leadership & planning	Economic	Political	Educational	Total
<b>Grade I</b>	Frequency	18	8	58	1	23	1	29	28	16	22	5	38	247
	Percentage	7.28	3.23	23.48	0.40	9.31	0.40	11.74	11.33	6.47	8.90	2.02	15.38	8.90
<b>Grade II</b>	Frequency	20	14	67	3	39	5	54	25	17	10	2	36	292
	Percentage	6.84	4.79	22.94	1.02	13.35	1.71	18.49	8.56	5.82	3.42	0.68	12.32	10.52
<b>Grade III</b>	Frequency	86	53	118	14	69	26	100	36	65	26	7	68	668
	Percentage	12.87	7.93	17.66	2.09	10.32	3.89	14.97	5.38	9.73	3.89	1.04	10.17	24.07
<b>Grade IV</b>	Frequency	89	48	121	28	73	29	88	49	85	49	8	56	723
	Percentage	12.30	6.63	16.73	3.87	10.09	4.01	12.17	6.77	11.75	6.77	1.10	7.74	26.05
<b>Grade V</b>	Frequency	117	68	124	17	70	30	110	64	119	47	25	54	845
	Percentage	13.84	8.04	14.67	2.01	8.28	3.55	13.01	7.57	14.08	5.56	2.95	6.39	30.45
<b>Total</b>	Frequency	330	191	488	63	274	91	381	202	302	154	47	252	2775
	Percentage	11.89	6.88	17.55	2.27	9.87	3.27	13.72	7.27	10.88	5.54	1.69	9.08	100

The above table indicates what the rate of frequency of twelve topics of the existing life skills in each educational grade. According to the given information in this table, fifth grade textbooks with 845 cases and 30.45% have the maximum frequency while first grade textbooks have the minimum frequency with 247 cases and 8.90% relating to twelve topics of life skills. Similarly, the above table shows if we go to the higher grade then rate of frequency of these topics will be increased.

## DISCUSSION

In this study, totally 2775 sentences, phrases or the relevant images to twelve topics of life skills (decision-making and responsibility, problem- solving, creative- critical thinking, self- knowledge, human relations, coping with emotions and stresses, ideological and moral, biological- health and environmental, management- leadership and planning, economic, political and educational skills) have been identified and examined in textbooks of primary education course. Now the relevance of study questions with histories has been found by surveying and analysis on research findings:

The results of question 1 indicate that decision making and responsibility skill is placed at third rank with 330 cases of frequency and 11.89% so this finding is complied with results came from study that conducted by Falahpoor and Mirhosseini [1].

The results of second question show that problem- solving skill is placed at eighth rank with 191 cases of frequency and 6.88% and this signifies the little attention that paid to this topic in the above textbooks. This finding relates to study done by Falahpoor [1] but does not correspond to it. It is may be due to discordance in changing of textbooks planners and designers' attitude toward this topic.

The results of question-3 indicate that creative- critical thinking topic is placed at first rank with 488 cases and 17.55% of frequency and the given result also relate and correspond to findings of researches done by Rajabi [8] and Falahpoor [1] to some extent.

The results that derived from question-4 show that self- awareness is placed at eleventh rank with 63 cases of frequency and 2.27% among twelve topics in this table; consequently, this denotes less attention that is paid to this topic in the aforesaid textbooks. These results are in conformity with findings of researches done by Rajabi [9] and Falahpoor [1].

The results that related to question-5 reveal that human relations (philanthropy and empathy) topic is placed at fifth rank in this table with 274 cases and 9.87% of frequency and these results are complied with findings of researches done by Falahpoor [1] and Mirhosseini [1]. The results which are relevant to question-6 show that skill of coping with emotions and stresses is placed at tenth rank of this table with 91 cases and 3,27% of frequency so this result relates to findings of researches done by Rajabi [9] and Falahpoor [1] but it does not exactly correspond to them. In the afore-mentioned histories, topics of coping with emotions and stresses are placed at sixth and seventh ranks and this may be due to discordance in changing of attitude, which has been taken by textbooks planners and designers during recent years.

The results that relate to question-7 in this study show that ideological and moral skill is placed at second rank with 381 cases of frequency and 13.72% and these results are in conformity with research findings by Mirhosseini [1] to great extent but they are not complied with findings of research that have been conducted by Rajabi [9]. Ideological and moral topic is placed at fourth position in findings of research done by Rajabi so it seems that this is because of discordance in greater attention that was paid by planners of textbooks to training of ideological and moral topic during recent years.

The results that came from eighth question indicate that biological, healthcare and environmental topic is located at seventh rank with 202 cases of frequency and 7.27% and the given result corresponds to findings of studies, which had been carried out Mirhosseini [1] and Rajabi [8].

The results of ninth question in this study show that management, leadership and planning topic is located at fourth position with 302 cases of frequency and 10.88% where these findings are complied with findings from the study done by Mirhosseini [1].

The results that relate to tenth question demonstrate that economy topic is situated at ninth place of this table with 154 cases and 5.54% of frequency and these results relate to research findings by Mirhosseini [1] and also correspond to them to some extent.

The results which derived from question- 11 indicate that political topic only with 47 cases of frequency and 1.69% is located at twelve place and bottom of this table and this demonstrates paying least attention to this topic in the aforesaid textbooks. The given results relate to and approximately complied with findings of study that was also done by Mirhosseini [1]. Political topic is placed at fifth position in study done by Mirhosseini. This may be, of course, due to lack of a comprehensively surveying on all textbooks as well as passing time and the conducted amendments in these textbooks have led to lack of perfect discordance between findings of this study with his findings.

The results of question- 12 show that educational skill is located at sixth place with 252 cases and 9.08% of frequency; consequently, the given results are complied with the findings from study that was conducted by previous studies [10, 11, 12, 13, 14, and 15].

### **Suggestions**

1- To give priority to training of life skills in schools throughout the country, particularly those skills which have international aspect and they are key solution for the today and tomorrow generation by considering all human dimensions and rights.

2- With respect to development of industrial communities and machined life that has led to creation of mental anxiety and stress and based on question- 6 of this study and its findings which signified low level of attention to skill of coping with emotions and stresses so it is suggested to pay more attention to training of this important topic.

3- It is suggested to teachers to introduce text and images of the book which relate to life skills upon teaching and to emphasize on training them.

4- It is recommended to officials of Education System to consider subject of training life skills further in programs of increasing knowledge and teachers' in- service training courses.

5- Officials and principals of schools may make students' parents familiar with life skills and importance of their training in family training classes as it possible.

6- Whereas implementation of studies of this kind reveals weak and strength points of textbooks; thus, it is suggested to conduct this study in other educational courses and even among preschool new learners, who are gradually joining to primary school student at recent time.

7- It is suggested to conduct next studies on other skills rather than the studied skills in the present research.

8- In the event when some basic changes are to be performed on textbook, it is suggested to conduct similar studies like the present survey.



With respect to this fact that researcher has encountered some ambiguous points during this study and survey on the aforesaid textbooks; thus, in order to make these ambiguities clear, the following advices are also purposed:

1- Given that today industrial world is extremely exposed to shortage of energy and training of saving skill and optimal consumption of energy is one of the requirements in today communities, but it is observed in page 3 from mathematics textbook Grade I that a filamentary bulb has been used for lighting up the house by ignoring this important point, while using low consuming light bulb seems quite more suitable for this purpose. Therefore, in the course of study findings and in response to question-10, it is recommended to conduct some studies in this regard.

2- In most of textbooks in primary education course, like social teachings book (Grade-1), mathematics book (Grade-1), Divine Gifts textbook (Grade-IV), Lets' Read Persian (Grade-III) images and pictures lack the needed vitality and attractiveness and hilarious and vivacious colors have not been utilized in these pictures. Thus, it is advised to conduct some studies on evaluation of images in these textbooks and their relevance with rate of learning.

3- In some of textbooks, text of lesson does not adequately correspond to the given image; for example, in page 72 from natural sciences textbook (Grade-II) where it denotes winter season, the picture behind the given room shows spring season. Therefore, it is recommended to conduct a study under title of the rate of relevance between pictures of textbooks with their content body.

4- There are some readable and useful subjects in Lets' Read Persian textbook of Grade-III, including a few satires and anecdotes at the end of any lesson, which are interesting for many students. This may serve as a basis for suggestion to conduct a study about the relevance of satires and anecdotes with training of life skills.

## REFERENCES

1. Taromian, F. 1999. Life skills, definitions and theoretical bases. *Journal of JARFAY-E-TARBIAT*, 1, 4.
2. Taromian, F., Mahjooei, M., and Fathi, T. 1999. Life skills. Tehran: Tarbiat Pub.
3. Bireaux, Allen. 1997. Social sciences glossary. Translated by Sarookhani, Bagher. Tehran: Keyhan Pub.
4. Darden, C. A. and Gazde, G. M. 1996. Life Skills and Mental Health Counseling. *Journal of Mental Health Counseling*, 18, 8-13.
5. Javadein, S.R. 2005. Planning Human Resources. Tehran: Publication of Faculty of Management, Tehran University.
6. Bendir R. 1989. Self- esteem. Parado and innovations in Clinical Theory and Practice, 52-57.
7. World Health Organization. 1998. Program of life skills training. Translated by Noori Ghasem Abadi Robabeh and Mohammad Khani Parvaneh; Tehran: District of Mental Health and Prevention from Drug Abuse.
8. Rajabi, M. 2004. Review of life skills training in primary education course Grades IV & V, Qazvin Province. Qazvin: Department of Education.
9. Rajabi, M. 2005. A survey on content of Persian textbooks in elementary education course in terms of training and life skills. (Unpublished); MA thesis. Islamic Azad University, Rood-E-Hen Branch.
10. Taromian, F. 1999. Life skills. Tehran: Tarbiat Pub.
11. Fayezi, A. 2002. Principles of Islamic training and ethics. Tehran: Masa Pub.
12. Noori Ghasem Abadi R. 2004. Self- awareness and empathy skills. Tehran: Tolou-E-Danesh Pub.
13. Noori Ghasem Abadi R. 2004. Manual of life skills training. Department of Education, Cultural Affairs & Counseling Planning Office.
14. Noori Ghasem Abadi R. 2004. Skill of coping with stress. Tehran: Tolou-E-Danesh Pub.
15. Noori Ghasem Abadi R. 2004. Creative- critical thinking skill. Tehran: Tolou-E-Danesh Pub.

*Original Article***The Relationship between Alexithymia and Emotional Intelligence with Social Adjustment in female Secondary School Students****Ferdows Falatoni<sup>1\*</sup>, Gholam Hossein Maktabi<sup>2</sup>, Mahnaz mehrabizadeh Honarmand<sup>2</sup>, Sirius Aali Pour Birgani<sup>2</sup> and Zekrollah Morovati<sup>2</sup>**<sup>1</sup> MA student, Department of Psychology, Shahid Chamran University of Ahvaz, Ahvaz, Iran<sup>2</sup> Department of Psychology, Shahid Chamran University of Ahvaz, Ahvaz, Iran

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**ABSTRACT**

The purpose of the present study was to examine the relationship between alexithymia and emotional intelligence with social adjustment in female Secondary School Students. The statistical population of this study consisted of the entire female Secondary School Students of Dezful city (Khuzestan Province, Iran) within the academic years of 2011-2012. The sample of this study included 265 female secondary school students who were selected using a multi-stage random method. Data were collected using Alexithymia questionnaire for children, the Bar-On Emotional Quotient Inventory, Youth Version (EQ-I: YV) and California Personality Inventory (CPI). The results of the simple correlation showed that the alexithymia had a negative and significant relationship with social adjustment while the emotional intelligence revealed a positive and significant relationship. The results of regression analysis also showed that emotional intelligence and alexithymia orderly played a major role in predicting social adjustment.

**Key words:** alexithymia, emotional intelligence, social adjustment.**INTRODUCTION**

Most of the professionals have considered adjustment as a most important cue of psychological health [1]. Adjustment is a continues process in which individual change his/her behavior in order to make a sufficient relationship with environment, others, and self. The base of social adjustment is balancing one's needs and social requirements which can effect on all aspects of one's live [2]. Some children can learn to master social abilities skillfully, whereas other children have insufficient skills to interact effectively with others. Knowledge about an individual's differences can be important in understanding an individual's level of social abilities [3]. Alexithymia and emotional intelligence are as an example of those personal characteristics which studying them may make this understanding.

Some individuals are disabling to identify their feelings and emotions. For the first time, Sifneos [4] labeled this problem "alexithymia", which literally means having no words for describing emotions and feelings. Alexithymia is characterized by three aspects. Difficulties identifying feelings (DIF) refer to emotional awareness, difficulties describing feelings (DDF) refer to emotional expression and externally-oriented thinking (EOT) refer to a tendency to deal with objectives themes [5]. Consistent with the early suggestion, some authors suggested that people with alexithymia have some difficulties in interacting with their social environment [6]. Alexithymic individuals are generally not expressive and show little outside emotional states [7]. Therefore, this personality construct may be considered as an important risk factor for interpersonal problems.

Alexithymia is a similar sense to emotional intelligence. Individuals who are high in emotional intelligence generally are able to perceive emotions accurately and apply complex strategies to regulate their emotions in order to achieve important goals. In contrast, Individuals who have low levels of emotional intelligence may experience some difficulties in adaptability and life planning because such individuals are able to recognize emotions neither in themselves nor in others [3]. Previous researches using different self-report measures have shown that high emotional intelligence is associated with greater empathy, less negative interactions and less conflict with peers [8]. Individuals who are able to accurately identify their own and other's emotions manage

their emotions and also are able to empathy with others, have more emotional and social adjustment in their expressive behavior [9]. Knowledge about factors which accounts for the variability in children's social adjustment can help school psychologists to make some interventions in order to promoting child's social adjustment. Knowledge about alexithymia, emotional intelligence, and social adjustment relationship will also help teachers understand the child's reaction to educational programs and help them to shape social and emotional activities for children in the best way.

There is a wide variety studies on alexithymia among adults, because it is hypothesized as a risk factor for different health related problems meanwhile this construct has scarcely been investigated in children and adolescents. Yet, better knowledge about this construct in childhood could improve our insight about its development during lifespan [10]. The main research question was whether there is a relationship between alexithymia and emotional intelligence with social adjustment among female secondary school students. To answer this question, the following hypotheses are proposed:

H1: There is a negative relationship between alexithymia with social adjustment in female students.

H2: There is a positive relationship between emotional intelligence with social adjustment in female students.

H3: There is a multiple relationship between alexithymia and emotional intelligence with social adjustment in female students.

## MATERIALS AND METHODS

The present study is a type of a correlation study. The research population consisted of all the female secondary school students in Dezful (Khuzestan Province, Iran) in the academic year of 2011-2012. Three hundred female secondary school students were selected through multi-stage random sampling. They were given a brief introduction of what the study would require and invited to participate. 265 students completed questionnaire. Also 96 students participated to validate questionnaire. Ethical approval has been obtained from Dezful Education Organization prior to testing. Alexithymia was assessed by means of Alexithymia questionnaire for children who are consisted of 20 items, representing 3 factors: Difficulty Identifying Feelings (DIF), Difficulty Describing Feelings (DDF) and Externally-Oriented Thinking (EOT). The internal consistency coefficients for DIF and DDF both showed a Cronbach's alpha around 0.75 but EOT did not meet the criteria for internal consistency [10]. In current study, Cronbach's alpha for DIF was 0.60, DDF was 0.40, and EOT was 0.21 and for whole questionnaire has obtained 0.58. Consistent with Rieffe et al. [10], in the present study, factor loadings and fit indices for confirmatory factor analysis (CFA) suggest that the three-factor model is an acceptable fit for the data but EOT did not meet the criteria for a good validity. Emotional intelligence was assessed through The Bar-On Emotional Quotient Inventory, Youth Version (EQ-I; YV). This inventory has made by Bar-On and Parker [11] and has 60 items, applied to assess emotional intelligence in 7-18 years old. It involves five components including interpersonal, intrapersonal, stress management, adaptability, and general mood. Bar-On [11] has reported Cronbach's alpha for different components between .65 to .90. In this research, Cronbach's alpha for interpersonal was 0.67, intrapersonal was 0.55, stress management was 0.78, adaptability was 0.70, general mood was 0.76, and for whole inventory has obtained 0.84. Nakhost ravan [12] has obtained a significant validity for this inventory. In the present study, factor loadings and fit indices for confirmatory factor analysis (CFA) suggest that the five-factor model is an acceptable fit for the data. For assessing social adjustment, the social adjustment subscale of California Personality Inventory (CPI) was applied. This inventory is developed by Thorpe, Clark and Ties in 1935 and was revised in 1939. Based on psychological measurement yearbook the coefficients validity of the whole inventory was reported between 0.92 and 0.94 which was gained from 237 to 792 subjects [13].

## RESULTS

Table 1 shows the means and standard deviations of the scales. Table 2 shows correlation coefficients of the predictive variables with criterion variable.

As it can be seen in table 2, there is a negative and significant correlation between alexithymia and social adjustment ( $r = -0.26$ ,  $P \leq 0.001$ ). Thus, the research's first hypothesis is verified. There is a positive and significant correlation between emotional intelligence and social adjustment ( $r = 0.37$ ,  $P \leq 0.001$ ). Thus, the hypothesis 2 is approved.

**Table 1.** Mean and standard deviation of the predictive variables and criterion variable

Variable	M	SD	N
Alexithymia	14.08	4.21	265
Emotional intelligence	54.24	6.94	265
Social adjustment	54.55	10.02	265

**Table 2.** Correlation coefficients of the predictive variables and criterion variable

Criterion Variable	Predictive Variables	Correlation Coefficient (R)	Sig.
Social adjustment	Alexithymia	-0.26	$P \leq 0.001$

As shown in Table 3, multiple regression analysis (stepwise method) showed that emotional intelligence and alexithymia with social adjustment ( $F=26.31$ ,  $P\leq 0.001$ ). These variables explained 16% of social adjustment variance. Thus, the hypothesis 3 is approved.

**Table 3.** The results of multiple regression analysis with stepwise model

Dependent Variable	Predictors	MR	RS	F P	Regression coefficients	
					1	2
Social adjustment	Alexithymia	0.26	0.07	19.39=F p≤0.001	β=-0.26 t=-4.40 p≤0.001	-
	Emotional intelligence	0.41	0.17	26.31=F p≤0.001	β=-0.18 t=-3.08 p=0.002	β=0.32 t=5.60 p≤0.001

## DISCUSSION

The aim of the present study is to investigate the relationship between alexithymia and emotional intelligence with social adjustment among female secondary school student of Dezful city. Consistent with Rijn and et al. [14], Besharat [15], and vanheule, Vandenberghe, Verhaeghe, and Desmet [16] shows that there is a significant negative correlation between alexithymia and social adjustment. Research showed that alexithymic individuals have some difficulties in accurate identifying emotions in others. Communicating and make intimate relationship with others needs to recognize emotions in self and others. Disability in recognizing emotion and feeling cause to some difficulties in interpersonal relationships. Furthermore, alexithymic individuals have limited capacity to empathy with others. This limitation can have effect on social relations [17]. The result indicates that there is a significant positive relationship between emotional intelligence and social adjustment. This finding is in line with Frederickson, Petrides, and Simmonds [18], Punia, and Sangwan [19] and Tso, Grove, and Taylor [20]. Emotional intelligent has defined as an ability to understand, process, and management of emotions in self and others; hence we prospect that it would covering essential processes of adaptation and adjustment in different social situations. High emotional perception and ability to understand and process of emotional signs in self and others enable individuals to adapt him/her to various emotional and social circumstances [9]. Emotions influence on how individuals think and behave, and closely related to motivation. Emotions provide important adaptive functions. For example, emotions guide attention and cognition to deal with opportunities and threats, facilitate learning, and coordinate social interactions. Emotion regulation in interpersonal conflict management enables individuals to avoid counteraction about disruptive and aggressive behavior [21]. This research has some limitation. First, this study has conducted on female secondary school student and the findings are not generalizable to other groups. Another important limitation of the study is that factor loadings of some items of Alexithymia Questionnaire for Children were low and Cronbach's alpha of externally-oriented thinking was inconsiderable. Furthermore, the results have to be interpreted with caution because of the use of self-report measures. The Cross-sectional designs of the current research prevent any assumption about causality in the relationship of studied variables. Replicating the study on different groups, applying interview or non-self-report methods to collect data and using longitudinal design may overcome these limitations. Despite these limitations, the current study adds to the growing number of studies that indicate that emotional intelligence and ability in identifying, processing, describing, and managing emotions are essential for social interactions.

## REFERENCES

1. Hamidi, F., and Mohamad Hosseini, Z. 2010. The relationship between irrational beliefs and social, emotional and educational adjustment among junior students. *Procedia Social and Behavioral Sciences*, 5: 1531-1536.
2. Dhingra, R., Manhas, S., and Thakur, N. 2005. Establishing connectivity of emotional quotient (E.Q), spiritual quotient with social adjustment: Study of kashmirimigrant woman. *J. Hum. Ecol.* 18(4): 313-317.
3. Rissanen, Ch. 2010. Factors that account for children's variability in social skill temperament and emotional intelligence. A dissertation for the degree Doctor of Philosophy presented to the graduate faculty of the University of New York.
4. Sifneos, P. E. 1973. The prevalence of "alexithymia" characteristics in psychosomatic patients. *Psychotherapy and Psychosomatics*, 22: 255-262.
5. Franz, M., Popp, K., Schaefer, R., Sitte, W., Schneider, C., Hardt, J., Decker, O., and Braehler, E. 2008. Alexithymia in the German general population. *Journal of Social Psychiatry and Psychiatric Epidemiology*, 43, 54-62.
6. Vanheule, S., Desmet, D., Meganck, R., and Bogaerts, S. 2007. Alexithymia and interpersonal problems. *Journal of Clinical Psychology*, 63(1): 109-117.
7. Hesse, C., & Floyd, K. 2011. Affection mediates the impact of alexithymia on relationships. *Journal of Personality and Individual Differences*, 50: 451-456.

8. Marquez, P. G-O., Martin, R. P., and Brackett, M. A. 2006. Relating emotional intelligence to social competence and academic achievement in high school students. *Journal of Psicothema*, 18: 118-123.
9. Engelberg, E., and Sjoberg, L. 2004. Emotional intelligence, affect intensity, and social adjustment. *Journal of Personality and Individual Differences*, 37, 533-542.
10. Rieffe, C., Oosterveld, P., & Terwogt, M. M. 2006. An alexithymia questionnaire for children: Factorial and concurrent validation results. *Journal of Personality and Individual Differences*, 40, 123-133.
11. Bar-On, R. & Parker, J. 2000. *The emotional quotient inventory: Youth Version: Technical manual*. Toronto: Multi-Health Systems.
12. Nakhostravan, M. 2010. The effect of emotional intelligence training on behavioral disorders, emotional intelligence and academic performance in female elementary school students with behavioral disorders. A Dissertation submitted to The Graduate Faculty of Education and psychology of Shahid Chamran University of Ahvaz, in partial fulfillment of the requirements for the degree of masrer of Arts. [In Persian]
13. Mohammadi, A., Barzegar Kahnouei, S., Allahviridiyan, Kh. & Habibzadeh, S. 2010. The effect of anger management training on aggression and social adjustment of male students aged 12-15 of shabestar school in 2008. *Procedia Social and behavioral Sciences*, 5, 1690-1693.
14. Rijn, S. V., Schothorst, P., Wout, M. V., Sprong, M., Ziermans, T., Engeland, H.V., Aleman, A., & Swaab, H. 2011. Affective dysfunctions in adolescents at risk for psychosis: Emotion awareness and social functioning. *Journal of Psychiatry Research*, 187, 100-105.
15. Besharat, M. A. 2010. Relationship of alexithymia with coping styles and interpersonal problems. *Journal of Procedia Social and Behavioral Sciences*, 5, 614-618.
16. Vanheule, S., Vandenbergen, J., Verhaeghe, P., & Desmet, M. 2010. Interpersonal problems in alexithymia: A study in three primary care groups. *Journal of Psychology and Psychotherapy: Theory, Research and Practice*, 83, 351-362.
17. Besharat, M. 2009. Alexithymia and interpersonal problem. *Educational and Psychological Studies of Ferdowsi University*, 10 (1), 129-145 [in Persian].
18. Frederickson, N., Petrides, K. V., & Simmonds, E. 2012. Trait emotional intelligence as a predictor of socioemotional outcomes in early adolescence. *Journal of Personality and Individual Differences*, 52, 323-328.
19. Punia, Sh., & Sangwan, S. 2011. Emotional intelligence and social adaptation of school children. *Journal of Psychology*, 2 (2), 83-87.
20. Tso, I. F., Grove, T. B., & Taylor, S. F. 2010. Emotional experience predicts social adjustment independent of neurocognition and social cognition in schizophrenia. *Journal of Schizophrenia Research*, 122,156-163.
21. Lopes, P. N., Mestre, J. M., Guil, R., Kremenitzer, J. P., & Salovey, P. 2012. The role of knowledge and skills for managing emotions in adaptation to school: Social behavior and misconduct in the classroom. *American Educational Research Journal*, 49 (4), 710-742.

*Original Article***Investigation of Psychological-Social Factors Predictive of Traffic Accidents in Shiraz City****Zhaleh Refahi<sup>\*1</sup>, Azarmidokht Rezaei<sup>2</sup>, Najmeh Aganj<sup>1</sup> and Roya Moradi Birgani<sup>1</sup>**<sup>1</sup> Health Policy Research Center, Shiraz University of Medical science, Shiraz, Iran<sup>2</sup> Department of Psychology, Marvdasht Branch, Islamic Azad University, Marvdasht, Iran

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**ABSTRACT**

This study was conducted to investigate of psychosocial factors predict traffic accidents in Shiraz city .In this study, 1,853 regular and professional drivers were selected randomly. The tools of research were five questionnaires, demographic characteristics, Manchester Driver Behavior (MDB), Personality Characteristics (NEO), Attitudes to Driving and Social Health. Data analysis showed that the predictive role of attitude to driving is stronger than other variables. Personality traits as intermediary variables can indirectly effect on driving behavior. The findings also showed that there is negative significant correlation between personality characteristics (neuroticism) and driving behavior .The social health of all aspects of driving behavior has a significant negative relationship and this variable explains 23% variance in driving behavior.

**Key words:** psychological-social factors, traffic accidents, personality characteristics**INTRODUCTION**

Traffic accidents are one of the most common incidents threatening the people's lives and endanger millions of people's lives every year. Injuries caused by traffic accidents are one of the major challenges in public health; fifty million people are seriously injured and one and a half million people lose their lives. In the recent years, mortality and injuries caused by these incidents have decreased in the developed countries, while it is still increasing in the low-income countries or the countries by average wage. The tragedy of traffic accidents is far worse in Iran compared to other regions of the world. In Iran, 14.9 percent of deaths and 26.9 percent of the years of life lost are due to traffic accidents and in this list the death caused by traffic accidents (83 in each 100000) has the highest rank. (1). Azereuse shows that in Iran, the rate of traffic accidents is increasing, in a way that it has had 10% growth during 1999-2004 and the mortality rate due to traffic accidents has been 15% more than its rate in the developed countries (2).

From the perspective of the World Health Organization (WHO) the cause of road traffic collisions has been mainly behavioral, and it could be largely prevented by modification of personal and social behaviors (3). According to the researchers conducted so far, four main factors are effective in making traffic accidents: human, road, vehicle and environment factors. Analysis of accidents occurring in the roads of Iran shows that the most important factor in making traffic accidents is human factor, and the performance of drivers in 90 to 95% of car accidents is the main or contributing factor. Car driving is considered to be a set of complex dynamic actions (behaviors) (4).

The quality of motives, feelings, attitudes, beliefs and value system and a set of individual and social behaviors could be considered as the major factor in traffic phenomenon. In this regard, the personality and psychological characteristics of drivers, conditions governing the cognitive field and their emotional, behavioral and sensory- motor feelings could play the highest role in traffic and traffic accidents.

Older & Sparser, in discussing the causes of traffic accidents, believe that road accidents could be considered as the consequence of a common situation in which the driver, environment and vehicle participate in it. In another research conducted by Shinar, it has been found that in most accidents, the main reason is the

driver's behavior. Unsafe behaviors of the individuals come to double importance when it can threaten the other's life and health as much as the driver's life.

Certain elements of psychological factors cause the law-breaking behaviors including the personality traits such as impulsiveness, affectivity, extraversion, and control source, individual differences, social and attitudinal factors (5).

Parker (6) believes that three general realms are involved in the rate of accidents which are respectively: cognitive, personality and social realms. Considering the role of human factors in accidents, identifying its human factors (errors or violations) and establishing a clear relation between them, it is difficult to make a distinction between different types of traffic violations. The noteworthy point is that modification of human errors does not cover all the human factors which cause traffic accidents. It seems that two forms of error abnormalities and traffic violations have different psychological causes and modification methods. Analyses the road accidents in Iran and divides the human factors involved into four categories: A) general pattern of driving which includes error in function such as non-compliance to the maximum speed limit and not obeying the traffic signs and error in behavior such as driving when the driver is tired or incautious, B) sensory and perceptual errors such as: lack of attention or failure to observe proper distance from other vehicles, C) driving under the influence of external factors such as the side effects of drug abuse, alcohol or diseases D) lack of skills: lack of experience and misjudgment. With regard to the point that Iran has the first rank in traffic incidents and accidents, human fatalities and its related economical loss, the social-psychological components and their role in traffic incidents bears great importance. It is estimated that if the world society members do not care to the road safety and risky driving actions, these incidents would increase. Similarly, general issues on travel's safety, road standards, technical aspects of vehicle, etc.... have been considered by authorities as the factors involved in accidents, but it is not true for human factors. In advanced countries the first factor has been discussed and the human factors have become more important and their role in traffic accidents has been focused (7).

The human factors involved in traffic accidents have been classified in to four groups: general pattern of driving, sensory and perceptual errors, driving under the influence of external factors and lack of skill, it is too said that many of the vehicles accidents are the result of the poor performance or bad actions of the driver and not the technical defects in the vehicle (8). Driving car is a set of complex dynamic actions and behaviors and is a behavior controlling process (9).

Generally driving behavior is said to a set of behaviors which the driver selects as his pattern, such as driving speed, level of concentration whilst driving, keeping standard distance from other cars. The relation between driving behaviors and personality characteristics has been studied in so many researches. It can be estimated that the personality characteristics can lead people to certain behaviors which satisfy the psychological and social needs of the person. Studying the relation between the personality characteristics and the driving behaviors may represent the factors related to driving accidents (4).

With regard to the role of human factors and studying and processing the social factors, the people's attitude to the traffic laws is also a considerable point. For example the people's attitude to the seat belt law which is not obeyed in many of countries, can decrease fifty percent of the accidents fatalities (10).

Due to the fact that accident has been recognized the first most common cause of death under forty, it not only kills the people in the best performance and efficiency period of their lives, but also imposes financial and psychological costs on the people and society. This project tries to answer the research's question after investigating the social-psychological factors in order to decrease the driving accidents and their financial and physical damages. (The question is: which of the factors of personality characteristics, attitude toward driving and social health have stronger predicative power in driving behavior?). It also seeks to identify the factors involved in accidents and explain the predicative role of these factors, study the results and provide practical solutions and suggestions and take action to prevent the risky driving behaviors and increasing the physical-psychological – social health coefficient in a way that we can gain enough knowledge about the target risky group and provide better training for public (11).

Many researches have been done on driving behavior, its psychological component and its role in maintaining roads safety (12). Driving behavior is said to a behavior which the driver chooses as a pattern for himself such as driving speed, level of concentration whilst driving and keeping standard distance from other vehicles. Driving behaviors with regard to their causes and consequences are categorized in to two groups of positive behaviors and negative behaviors (13). Positive behaviors are usually defined as helping, forgiveness and maintain social courtesy to other drivers. Negative behaviors include two groups of error and violations (8). Errors are defined as the incapability or incompetency in right judgment and implementation of a series of actions designed to achieve the desired result. Violations are those behaviors which endanger the driving safety such as non-compliance to the maximum speed limit, failure to observe proper distance from other vehicles. There is a logical agreement based on which the errors are divided into two distinguished types: the first type are the violations which happen due to the problems in attention, memory and information processing which includes slips and laps. Other type of errors is the situation in which the driver selects the wrong action and path to reach the destination without knowing that they are wrong. The violations are divided into two major categories: unintentional violations which cover the actions happening due to defects such as slow driving in a narrow two way highway and deliberate violations which are the behaviors done with the purpose of damaging and violating

law and considered to be destructive behaviors (5). In the category of errors two aspects of recognition and information process play more important roles and the individuals suffering from cognitive failure are more in danger of different traffic errors but in violation the contextual and social motivational factors are more important. It is said that there are many factors in defining driving behavior which can predict risky driving behaviors. Emotions have been considered as a factor in driving (14). Many of the attitudes related to risk are important personality characteristics and beliefs. In addition age, gender, competitiveness, freedom, conscientiousness, extremity, anger and conflict, wrath, mental disorders, defensive capabilities, comfort and free time, weak emotions, attitudes toward driving, risk perception in driving and value of risk are factors affecting driving behavior (15). Some of the factors are discussed below:

Most of the traffic accidents are directly related to human factors. Human factors could be divided into two categories: driving skills and type of driving or in other words driving behavior. Researches prove that the accidents have been one of the problems in which the social, economic and health systems are involved and has been presented as one of the major causes of death in recent years. Old and Spasir in the discussion on causes of incidents believe that road accidents are the consequence of a common situation in which the driver, environment and vehicle share. In another study done by Shinar, It was found that in most of the cases human behavior has been the main cause. Dario knows 80 to 90 percent of the incidents the result of human error. Bilang and Renyard also present the human errors as the cause of the 70 to 90 percent of accidents. Sadri (16) found that in 95 percent of the accidents human factor has been the major factor. Human factor includes errors, driving violations, attitudes, sleepiness, tiredness and alcohol and drug use. In the analysis of road accidents in Iran, human factors are divided into four categories.

1) General pattern of driving: error in function such as non-compliance to maximum speed limit and not obeying the traffic signs and error in driving behavior such as driving when the driver is tired or cautious, 2) sensory and perceptual errors such as: lack of attention or failure to observe proper distance from other vehicles C) driving under the influence of external factors such as the side effects of drug abuse, alcohol or diseases D) lack of skills: lack of experience and misjudgment.

#### Personality Factors:

One of the other factors which have been considered as the general factor in driving is personality. Any human being is a combination of three generic, cultural and personal features and has a unique totality which is considered by personality psychologists. Any human being possesses a series of traits which lead them to a regular, constant and special type of behavior. These characteristics make the personality of each person. The relation between the personality characteristics and driving behavior has been studied in several cases around the world and it seems that certain elements of personality cause the law-violating behaviors. Elements of personality cause the people to do certain behaviors and these behaviors satisfy the person's personal needs related to his cognitive, biological and social features. Investigation of relation between personality, risky driving and involvement in accidents shows the causes which are directly related to accidents (7)

Since the time Metilman and Hans said "human being drives the way he lives" quoted by [17], the driver's personality is considered as a major potential factor in driving behaviors. Aggression, anxiety, social deviations and personal differences in cognitive style and information processing are among the personality characteristics affecting driving behavior. Theoretically, personality qualities through affecting the people's perception and environment evaluation lead to the risky behaviors in driving (18).

#### Social factors:

Keyes believes that we can't assess the people's life quality and personal function without considering the social parameters. From his point of view, social health is the quality of individual's evaluation of his performance toward community. A person having social health believes the society to be a meaningful, apprehensible and potential collection for growth and prosperity and feels that he belongs to society; he is accepted by society and shares in its growth [19].

So, another behavioral factor involved in driving accidents is the lack of social health or in other words the non-conformity with social norms and rules. Lack of social awareness, not enjoying positive attitude toward rules and having wrong attitude toward driving are the indexes of lack of social health. For example when a person decides to drink due to the work pressure or depression and sit behind the wheel at the same time and is not able to control the machine, an accident would happen. In the first look, it seems that being drunk is the main reason of accident while, the main reason is non-compliance with this social law which leads to accidents: "do not drink and drive" (20).

## MATERIALS AND METHODS

This study is based on the descriptive-correlative method which is done as a field and cross-sectional research. Its statistical population includes all the people in Shiraz who drives (professional drivers, usual drivers, drivers with the record of accident). With regard to the volume of statistical population and based on stratified quota sampling method and by considering 95 percent reliability and 80 percent power of test, the volume of sample is determined to be 1853 people. The sample population is selected randomly and based on the possession of certain conditions such as: minimum age 18 years and maximum age 50 years, at least two years of



driving experience (driving license should not be the probationary one anymore), the minimum driving experience equal to 6.5 hours per week (According to initial studies done for 150 drivers in Shiraz, they had the minimum 3 and maximum 12 hours driving experience per week and the average driving hours of the 150 people was 6.5 hours per week), no history of physical- mental illness and the minimum education level needed is junior school completion.

### **Instrument**

In this research 5 questionnaires have been applied as follows:

**Demographic questionnaire:** consisting the information about age, gender, level of education, marital status, job status, years of driving experience, accident reports in the last year (accident record, accident repetition, accident resulted to injury and death) etc.

**Manchester driver behavior questionnaire:** this scale was adjusted and compiled by Rissen et al in psychology department of Manchester University in 1990. This scale has been implemented and validated in different countries such as England, Australia, China and Finland. This scale is based on the substantial idea that errors and violations have different psychological causes and they must be distinguished. This questionnaire includes fifty questions which were ranked in a zero to five likert scale. The questions are different in two aspects, one in the type of behavior and the other is the level of risk that the behavior brings for other drivers. This questionnaire includes the choices related to "unintentional risky errors" and "unintentional non-hazardous errors", "illegal acts of violence", "non-violent illegal acts" in driving. In driving behavior unintentional errors mean failure to perform pre-planned behaviors to reach the desired outcome. Deliberate or illegal errors are willful disobedience from the actions which are essential to be safe. Deliberate errors, with regard to the reason of driver's aggression, are classified into two groups: first are the deliberate non-violent errors in which the purpose of the driver is not aggression but disobedience form traffic rules and second are deliberate violent errors with the purpose of aggression.

Abnormal behaviors are categorized into four groups: laps, errors, deliberate violations and unintentional violations. Also there are three classifications in these behaviors: A) behaviors bearing no risk for other road drivers which just create a sense of worry for others (low chance of risk) B) behaviors that are likely to cause danger for others (average risk) C) behaviors which certainly create danger for others (high chance of risk). For every choice, six answers are scored from zero to five. The main score for each group is obtained by calculating the average score of choices in each part. In another research by Lajonen, Parker and Summala published in 2002, it was found that all the four groups of questions have good stability. In addition in a research done by Groeger and Kerand in 1996 this questionnaire has sufficient validity.

**Neo five factor inventories (NEO FFI) personality questionnaire:** this questionnaire has 60 items designed for the brief and rapid assessment of five factors: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience.

Anxiety or Neuroticism includes having negative feelings such as fear, grief, arousal, anger, guilt and permanent and pervasive feeling of nervousness. The extroverts are social people. They are practically decisive, active, talkative and willing to discuss. They love excitement and momentum and are hopeful to success in future. The elements of openness to experience are active imagination, aesthetic sensitivity, attentiveness to inner feelings and independence of judgment. Just like extraversion, the index of "Agreeableness" focus on inclination to interpersonal relationships. The person in agreement is basically altruist, sympathizes with others and is eager to help them and believes that others have the same relation with him. Two general features of the ability to control impulses and sentiments and tendency to have certain discipline in behaviors to reach the goals under study are in the index of Conscientiousness. This test has sixty items, twelve items per domain related to each of the factors. Each choice has five types of answers: completely rejected, rejected, neutral, acceptable, completely acceptable and the testes select one. Correlation coefficient among the score of indexes has been respectively as follows: 92%, 90%, 91%, 77% and 78%. The internal consistency of indexes based on Alfa coefficient is calculated respectively as follows: 86%, 77%, 73%, 68% and 81%.

**Psychology of driving questionnaire:** this questionnaire is compiled by the great effort of the psychologists in the area of psychology of driving. The questionnaire is translated and collected by Rezakhani, 2003. The Rezakhani's founding proves the fact that the questionnaire has desirable validity. The driving psychology questionnaire has 36 questions which studies the driving habits, attitudes and behaviors and is scored in likert range. The questionnaire consist of three parts: part A with eleven questions which assesses the person's attitude toward different factors in driving behavior and is scored as yes or no. part B assesses the person's attitude toward driving and consists of ten questions in likert range from 0 to 3. Part C evaluates the person's driving habits. This part has fifteen questions in the likert range from 0 to four. Two kinds of scores are to be obtained after grading which show the right or wrong attitude of the person toward driving. The validity of this research is calculated by 81% Cronbach's Alfa method and has sufficient validity of content.

**Social Health Questionnaire:** Keyes has made this scale based on his theoretical model on social health which consists thirty three questions. Seven questions are about social acceptance, seven questions about the factor of social cohesion, six questions about social participation, seven questions about social actualization and finally six questions are about social adjustment. This questionnaire is prepared in likert scale. Keyes in his

studies has reported the Cronbach's Alfa coefficient for micro scales of social cohesion, acceptance, participation, actualization and adjustment respectively 81%, 77%, 75%, 69% and 75% and the Alfa coefficient of the total test is 80%. In this research the four micro scales of cohesion, acceptance, adjustment and participation has been applied which is totally 25 questions. Its validity in this research is also calculated in a way that the questionnaire, based on factor analysis method and Cronbach's Alfa coefficient, the questionnaire has construct validity with explanatory power of 73% and validity of 79% [19].

### Research Method

By receiving the letter of introduction from health policy council of Fars province addressed to transportation agencies and organizations in Shiraz city such as: taxi management and supervision organization, bus organization, Road and transportation organization of Fars province, terminals organization and traffic department of Fars province, the questionnaires were distributed in the aforementioned organizations. Having collected the questionnaires, the data were analyzed by SPSS statistical software.

## RESULTS

The variables coefficient matrix was designed to conduct a preliminary investigation on the relation between variables of research. Table 1 shows the Pearson correlation coefficient for the research's quantitative variables. In order to study the relation between the personality characteristics and driving behavior, the simultaneous regression was used and the results are seen in table 2.

**Table1.** Correlation Matrix of Research's Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1-Neuroticism	1															
2-Extraversion	-0.42	1														
3-Openness to experiences	0.01	-0.03	1													
4-Agreeableness	-0.49	0.45	0.09	1												
5-Conscientiousness	-0.47	0.51	0.05	0.61	1											
6-Slips	-0.33	0.30	0.03	0.44	0.48	1										
7-Deliberate violations	-0.31	0.30	0.00	0.42	0.48	0.89	1									
8-Errors	-0.29	0.30	0.04	0.40	0.47	0.91	0.88	1								
9-unintentional violations	-0.23	0.26	-0.01	0.32	0.41	0.73	0.70	0.70	1							
10-Driving behavior	-0.33	0.32	0.02	0.46	0.50	0.97	0.96	0.95	0.78	1						
11-Cohesion	0.30	-0.31	-0.03	-0.34	-0.35	-0.35	-0.32	-0.27	-0.25	-0.23	1					
12-Adjustment	0.31	-0.25	-0.08	-0.31	-0.37	-0.31	-0.26	-0.30	-0.20	-0.30	0.34	1				
13-Acceptance	0.32	-0.29	-0.07	-0.33	-0.33	-0.32	-0.31	-0.29	-0.21	-0.35	0.502	0.37	1			
14-Participation	0.31	-0.32	-0.07	-0.40	-0.49	-0.42	-0.39	-0.38	-0.34	-0.42	0.39	0.45	0.41	1		
15-Social health	0.41	-0.38	-0.08	-0.44	-0.49	-0.44	-0.42	-0.39	-0.32	-0.45	0.78	0.67	0.78	0.73	1	
16-Attitude toward driving	-0.37	0.28	0.01	0.41	0.41	0.64	0.65	0.64	0.45	0.69	-0.27	-0.29	-0.27	-0.32	-0.34	1

**Table 2.** Results of simultaneous regression to investigate the relation between personality characteristics and driving behavior

Predicative variables	B	B	R	R <sup>2</sup>	T	P
Intercept	15.15				1.36	NS
Neuroticism	-0.41	-0.07			-1.91	NS
Extraversion	-0.12	-0.02			-0.43	NS
Openness to experiences	-0.11	-0.01	0.55	0.33	-0.43	NS
Agreeableness	1.76	0.26			6.61	0.0001
Conscientiousness	1.52	0.31			7.70	0.0001

N.S= None Significance

As seen in the above table, among the five main personality factors, only the aspects of agreeableness and conscientiousness have positive and significant relation with driving behavior. In other words increment in the scores of the mentioned aspects was in line with the increment in driving behavior scores. These two aspects totally explain 30 percent of the driving behavior variance. It is to be mentioned that obtaining higher score in the driving behavior questionnaire means the worse driving behavior. In order to study the relation between the attitude toward driving and driving behavior, the Pearson correlation coefficient was used and the results are seen in table 3.

**Table 3.** Pearson Correlation coefficient to investigate the relation between attitude toward driving and driving behavior

Dimensions	R	N	P<
Slips	0.64	1321	0.0001
Deliberate violations	0.65	1342	0.0001
Errors	0.64	1361	0.0001
Unintentional violations	0.45	1419	0.0001

<b>Driving behavior</b>	0.69	1161	0.0001
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R= Pearson correlation coefficient, N= number of respondents, P=level of significance

As seen in above table, the factor of attitude toward driving has positive and significant relation with all the aspects of driving behavior. In other words, increment in the score of attitude toward driving is in line with the increment in the score of driving behavior. In order to investigate the relation between the social health and driving behavior, simultaneous regression was utilized. The result of this analysis is seen in table 4.

**Table 4.** The result of simultaneous regression to investigate the relation between social health and driving behavior

Predicative variables	B	B	R	R <sup>2</sup>	T	P<
<b>Intercept</b>	168.04				25.28	0.0001
<b>Cohesion</b>	-1.36	-0.11			-3.40	0.001
<b>Adjustment</b>	-1.95	-0.11	0.48	0.23	-3.45	0.001
<b>Acceptance</b>	-1.87	-0.12			-3.95	0.0001
<b>Participation</b>	-3.69	-0.26			-7.59	0.0001

As seen in the above table, all the aspects of social health have significant negative relation with driving behavior. In other words increase in the aspects of social health is in line with decrease in the score of driving behavior (better driving). The aspects of social health totally explain the 23 percent of driving behavior variance. The stepwise regression was utilized to investigate the issue that which of the personality characteristics of attitude toward driving and social health has more power to predict the driving behavior. The result of this analysis is seen in table 5.

**Table 5.** The stepwise regression result investigates the power of variables of personality, social health and attitude toward driving to predict driving behavior

Predicative variables	B	B	R	R <sup>2</sup>	T	P<
<b>Intercept</b>	-20.79				-2.00	0.05
<b>Attitude toward driving</b>	2.46	0.56			2.41	0.0001
<b>Conscientiousness</b>	0.67	0.14			3.90	0.0001
<b>Openness to experiences</b>	0.87	0.13			3.97	0.0001
<b>Participation</b>	-1.32	-0.09	0.75	0.57	-3.08	0.002
<b>Acceptance</b>	-0.95	-0.07			-2.41	0.02
<b>Extraversion</b>	-0.50	-0.06			-2.24	0.03

According to the result available in the above table, the most important variables predicting driving behavior are respectively: attitude toward driving, Conscientiousness (personality), openness to experiences (personality), participation (social health), acceptance (social health) and extraversion (personality). Other aspects of personality and social health were not significant predictions for driving behavior and so were not inserted into equation. Among the aforementioned variables, attitude toward driving and, conscientiousness and openness to experiences are positive predicative factors and participation, acceptance and extraversion were negative predicative factors for driving behavior.

The result analysis by regression coefficient shows that attitude toward driving in which  $\beta=0.56$  among the personality characteristics, conscientiousness in which  $\beta=0.14$ , openness to experiences in which  $\beta=0.13$  and extraversion in which  $\beta=0.06$  among the social health aspects, participation in which  $\beta=0.09$  and acceptance in which  $\beta=0.06$  is able to explain 0.57 variance of driving behavior.

## DISCUSSION

The result analysis show that attitude toward driving has more powerful predicative role compared to other variables and other researches show that attitude toward driving safety is the only variable possessing direct effect on risky driving behavior. Measurement of variables plays the role of an intermediate variable in the relation between personal characteristics and behavior. The factor of attitude toward driving with 56 percent of driving behavior variance shows the fact that measurement of attitudes could have independent effect on risky driving behavior. In other words, risky attitudes could predict other variances in behavior. In addition, indirect effect of personality characteristics as the premises in random relations as an external variable affects the attitudes and finally the driving behavior [21]. Social health has the predicative power of driving behavior with the least variance (participation in which  $\beta=0.09$  and acceptance in which  $\beta=0.06$ ) and represents the negative relation between participation and acceptance with driving behavior which show the dependency of the individual health on the society and environment health. Also the social and environment health depends on the quality of the person's life and occupation. Generally the social health is affected by the behaviors, attitudes, and beliefs of the persons living in that society and driving behavior is not separated from these elements.

Research findings show that among all the aspects of personality characteristics, Neuroticism (slips, deliberate violations, errors and unintentional errors) has significant negative difference with all the aspects of driving. Extroversion, agreeableness and conscientiousness has significant positive relation with all the aspects of

driving behaviors (slips, deliberate violations, errors and unintentional violations) and agreeableness has no significant relation with unintentional violations.

These findings is not in the same line with the researches of [22, 23 , 21 ,4, 24] which show that the quality of high irritability, breaking social norms and angry driving behavior have significant relation with personality characteristics such as neuroticism, depression, openness to experiences, anxiety and nervousness. The contradiction of the research findings which proves that there is a positive relation between the anxiety and neuroticism in driving could be explained in this way: the people with neuroticism (the anxious people) have inclination to more fear and anxiousness which results in the awareness about the hazards of accidents. So, they try to be very cautious and defensive whilst driving. In addition, to explain the result that there is a significant positive relation between conscientiousness and agreeableness with all aspects of driving behaviors, we can argue that serious disturbances in driving such as aggressive driving are the evident deviations of an abnormal cultural pattern (25) and in some researches the relation between sensory and cognitive behaviors and occurrence of driving behaviors has been found (13).

The results of Pearson correlation show that there is significant positive relation with 0.01 percent variance between attitude toward driving and aspects of driving behavior, slips, deliberate violations, errors and unintentional violations. The findings of [26, 27, 12 , 28] about the attitude and driving behavior in different groups show that attitude toward awareness of traffic rules, better driving at the time of alcohol or drug abuse such as hashish and the parent's attitude toward driving behavior also explain the relation between type of attitude toward driving and driving behaviors.

With regard to the fact that models of driving behavior attitudes derived from social psychology are the most powerful models to recognize the motivational factors in driving behavior and based on the these models, the variables such as attitudes, risk perception, social norms and behavior control perception are the main determinants of behaviors and the findings of this behavior are to be explained [28].

The results of correlation matrix research show that among the aspects of social health, all the aspects (cohesion, adjustment, acceptance and participation) have significant relation with the aspects of driving behavior in 0.01 level (slips, deliberate violations, errors, unintentional violations). Since driving behavior is said to the behavior patterns that the driver selects with regard to the social-environmental characteristics to satisfy his personal needs, it is said that abnormal cultural patterns could create less cohesion, participation and acceptance of traffic rules and patterns and results in the low acceptance and more errors in driving.

The results of data analysis show that attitude toward driving with the predicative variable having higher percent of variance predicts driving behavior and the role of personality characteristics factors and social health as the next predicative variables affects driving behavior. It means that negative attitude toward driving results in the risky driving and naturally increment

In the number of accidents. Since attitude is a multiple concept related to areas of social health including: ability of performance and functions, individual's general satisfaction of life and its aspects, life quality and comfort and activities related to the general function and position in society could be an important and effective factor in formation of driving behavior patterns. Personality characters, despite having an intermediate variable role in driving behavior could be investigated as an important variable in risky driving behavior. In addition the descriptive results acquired from the interview with the drivers, affirms the findings of this research. Drivers points to the factors such as: lack of the culture to use the latest technology cars, social and financial pressure of cost of living, lack of appropriate education, etc... show the important role of society's attitude and culture as the effective factor in driving behavior. Acquiring such results in the present research is not far from mind because according to the role of factors such as life expectancy, appropriate standards of life, wisdom and gender development which are the determining and assessing factors of human development in countries and Iran's 88th rank as the life quality index among 111 countries around the world, the last rank among the Persian Gulf states in 2005 and promotion to 94<sup>th</sup> rank among 177 countries in 2007-2008 in human development index ,the Iranian people despite having rich sources have a low level of life quality and in other words spend a more difficult life, so they try to take the most of advantages of anything in their possession and the drivers are not exceptions. This makes them tired and resulted mental pressure affects their driving style. On the other hand a certain concept of driving is formed in our mind which forms our attitude toward driving. Since the rate of accidents resulted to injuries and deaths occurring in the city is more than that occurring out of the city, We come to the conclusion that: "Driving is a public matter around the world" but nowadays based on the abnormal cultural patterns which have become widespread in our society driving is considered a "personal matter" which means that "I want to get myself to the destination with my car so "the other drivers are my rivals" and I should not stay behind the competition. So driving would change into "it is possible to go from any route and not the determined routes" and it means ignoring the regulations and not obeying the traffic rules. Correct driving is a kind of participation in a public affair. But unfortunately since the rate of participation in the society under study has been low, so the attitude to correct driving is absent among drivers, because the people could not look for participation in mass movement of vehicles before thinking about reaching the destination. The act which guarantees the acceleration of vehicle's speed of movement, decrease in the probability of vehicles crashes, accelerate of relief operation, prevention of traffic jams, prevention of violations and finally driver's comfort. Factors play role in this kind of driving are the results of our attitude toward driving and the present cultural pattern, and the use of the certain

terms such as “take the road by a sudden break” or “give the road”. In addition to the mentioned cases, it seems that the traffic definitions and terminologies have no importance in our society, including: “keeping appropriate distance”, “safe distance”, “stop”. According to traffic rules, the drivers are obliged to obey all the regulations but practically our regulations are generalizations for which no true instances have been identified and people are not taught about it (for example, “stop” sign is quite meaningless in our society and its role is assigned to the speed bumps and no one does not care about lack of obedience to this sign. Everybody is accustomed to not obeying the rules and even if someone decides to respect the law he would be ridiculed by others. Also not until the disobedience caused not damages no fine would be assigned. While in other countries when the school bus stops to get the students off and on the students, the vehicles are obliged to stop 20 meters behind. Violation of this law even for the first time would bring 400 dollars fine and suspension of driving license for 6 months.

### **Suggestions**

With regard to the results we recommend:

- Take the urban traffic rules serious by traffic police to change the attitudes toward the driving behaviors such as: using seat belt by drivers and driver assistant, intelligent controllers,
- Design and develop educational programs applied for the drivers through national mass media, education with the purpose of transformation of abnormal cultural patterns.
- With regard to the important role of attitudes to the driving behavior, design and hold educational courses in order to form more positive attitudes toward driving behavior special for the volunteers who apply for driving license and risky drivers.
- Raise the driver’s life quality by decreasing the amount of vehicle’s installments so that they do not have to work continuously to afford the life expenses which provide the ground for accidents.
- with regard to the fact that research backgrounds considers the lack of cognitive-movement skills and sensory cognitive weakness as one of the important factors forming the driving behavior, it is necessary to assess the sensory-cognitive abilities and reaction speed of the drivers applying for driving license and seeking for the occupation of driving
- With regard to the lack of balance between new vehicles and road infrastructures, education and taking the driving test by new and modern cars could act as an instrument for promoting the driver’s readiness, control power and skills.
- Organizing the pedestrians to move in any part of the street which prevent many of the accidents by serious traffic rules such as installing red lights, traffic signs, etc...
- With regard to the abnormal cultural patterns, organizing the fines for the offending drivers and pedestrians could decrease the violations.
- Apply the method of encouragement, represent successful driving patterns and regard special points for successful drivers in order to prevent the abnormal patterns of driving.
- Transformation of men’s attitude toward women’s driving by introduction of capable and successful women drivers.
- Hold self-esteem workshops for women drivers in order to promote their self- confidence and acceptance of gender equality in driving behavior with regard to the men’s driving.
- Design and hold educational workshops for risky drivers such as anger management, time management and self-esteem management workshops
- Coordinate roads with the situation of new cars including road development, widening streets

### **REFERENCES**

1. Ziari, H. Khabiri, M. M. 2005. Iran sport. Vol xx. No 4, 160- 162: 1407- 1412 (Abstract. free full text).
2. Murrayc, I. 1997. Alternative projections of morality and disability by cause (1999-2020). Global burden of disease study. London 1997.
3. Yaghoobi, H. 2001. The role of human factors in the incidence of traffic accidents in Iran. *Iranian Journal of Psychiatry and Clinical Psychology*.6)1(21). 60-67.
4. Haghshenas, H., Hosieni, M.Jamshidi, Gh.R, Rostami, A.R. 2005. The relationship between personality characteristics and driving behavior in Shiraz. *Hakim. autumn*, 17)11(3). 147-154.
5. Jonah, B. 1997. Sensation seeking and risky driving: A review and synthesis of the literature. *Accident analysis and prevention*, 26(3).217-223.
6. Parker, D, West, R., Sraddling, S. & Mansted, A. S. R. 1998. Behavioral characteristic and involvement indifferent types of traffic accident. *Accident analysis and prevention*. 27, (1).434-441.
7. Godarzi, M.A. & Shirazi. M. 2006. Relationship between stimulation seeking and risky driving behavior. *Journal of Psychology*. Spring. 9)1(33). 34-50.
8. Lajunen T, Parker D, Jumjala H. 2004. The Manchester Driver Behavior Questionnaire: a cross- cultural study , *Accident analysis and prevention*, 35,(2).65-73.
9. Ramet, T., Summala, H. 2004. Young drivers and their parents are driving habits and attitudes. 3rd international conference on traffic and transport psychology.

10. Tuokko, H.A., McGee, P., Gabriel, G., Rhodes, R.E. 2007. Perception, attitudes and beliefs, and openness to change: Implications for older driver education. *Accident Analysis and Prevention*, 39, 4), 812-817.
11. Terry, P., Wrigh, K.A. 2004. Self –reported driving behavior and attitude towards driving under the influence of cannabis among three different user groups in England. School of Psychology, University of Birmingham, Edgbaston, Birmingham B 152, TT, UK.
12. Damian, R., Poulter. , chapman, p., Clarke, D. 2008. An application of the theory of planned behavior to truck driving behavior and regulations, *Journal homepage, Accident analysis and prevention*. 2008, 2058-2064.
13. Ozkan, T., LaJunen, T. EL, J. Parker, D., Summala, H. 2006. Cross Cultural Differences in Driving Behaviors: A comparison of six countries.
14. Helson, R., & Stewort, A. 1994. Personality change in adulthood in T. F. Heatherton & J. L. Weinberger (Eds), *can personality change?* (pp. 201-225). Washington, DC: American Psychological Association.
15. Fernandes, R., Job, R. F., Hatifild, J. 2007. A challenge to the arsamed general ability of prediction and counterman sure for risky driving: different factors predict risky driving behaviors, *Journal of softy research*. 38. (2007) 59-70.
16. Sadri, G. H. 2002. A model of bus drivers' diseases: Risk factors and bus accidents. *International Journal of Medical Science*, Vol. 27, No.1, March.
17. Bianchi, A., Summala, H. 2004. The genetics of driving behavior: Parents driving style predicts their children are driving style .*Accident analysis and prevention*. 36 (2004), 655- 65.
18. Sagberg, F. 1999. Road accidents caused by drivers falling asleep. *Accident Analysis and Prevention*, Volume 31, Issue 6, November, Pages 639-649.
19. Keyes, .L.M. 1998. Social well-being. *Social psychology quarterly*. 2, 121-140.
20. Keyes.C.L.M. & Ryff, C. D. 2000. Subjective change and mental health: a self – concept theory. *Social Psychology Quarterly*. 63,264-279.
21. Ullebergand , P., Torbjorn, R. 2003. Personality, attitudes and risk perception as predictors of risky driving behavior among young drivers. *Norwegian university of U.K.*
22. Preston, C.E., Harris, S. 1965. Psychology of drivers in traffic accidents. *Journal of Applied Psychology*, Volume 49, Issue 4, pages 284-288.
23. Bianchi, A., Heikki, S. 2003. The genetics of driving behavior: parents driving style predicts their children are driving style. Department of Psychology, Traffic research unit, P.O. Box 9, University of Helsinki, Helsinki 00014.
24. Ferdosi, T. Sarami, GH. R. & Rostami, A. R. 2010. A comparative study of psychological factors on the gender driver in traffic accidents. *Women in Politics and Development*. Winter 8)4(31).141-157
25. Williames, A.F., Kyrychenko, S.Y., Rettin Towards g, A. R. 2006. Characteristics of speeders. *Journal of Safety Research*, Volume 37, Issue 3, Pages 227-232.
26. Al-Rukaib, F., Ali Mohamed, A., Aljassar, A.H. 2006. Traffic safety attitudes and driving behavior of university students: Case study in Kuwait. *TRB, 85th Annual Metting January 2006*, pp.65-71.
27. Fergusson D.M., Howood, L.J., Boden, J.M. 2008. Is driving under the influence of cannabis becoming a greater risk to driver safety than drink driving? *Finding from a longitudinal study. Accident Analysis and Prevention*, volume 40, Issue 4, July, p.1345-1350.
28. Bergdahl, J. 2007. Ethnic and gender differences in attitudes toward driving: *The Social Science Journal*, Volume 44, Issue 1, Pages 91-97.



## Simple and Multiple Relationships between Relative Deprivations, Satisfaction of Needs and Lack of Patriarchal Power with Marital Satisfaction

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### ABSTRACT

The purpose of the present study was to examine the relationship between relative deprivations, satisfaction of needs, and lack of patriarchal power with marital satisfaction. The statistical population of this study consists of all the student couples in Abhar city (Zanjan Province in Iran) within the academic years of 2010-2011. The sample of this study included 75 couples who were selected using simple random method. Data were collected using the researcher-made questionnaire. The results of the simple correlation showed that the satisfaction of needs and lack of patriarchal power have a positive and significant relationship with marital satisfaction and the relative deprivations has a negative and significant relationship with the marital satisfaction. The results of regression analysis also showed that while predicting the marital satisfaction, the variables of relative deprivations, satisfaction of needs and lack of patriarchal power play a major role.

**Key words:** relative deprivations, satisfaction of needs, lack of patriarchal power, marital satisfaction

### INTRODUCTION

A healthy society depends on the formation of stable, dynamic and happy families. One of the conditions of the safe environment is a strong and warm family with mutual respect, so that leads to spouses and family members comfort. The family is the first and possibly the most unique social institution so that the community success and health is known to be indebted to health and satisfaction of its members from each other. Because effect of none of the community individuals and none of the relationships (positive or negative) has the durability, depth and intensity like a family [1].

Marriage is part of the natural progression toward adulthood by which a person achieves independence and identity separate from their parents and relatives. Almost all are married, even though they often do not really know what will earn in marriage [2].

One of the most important aspects of a marital system is the satisfaction that spouses experience in marriage [3]. Marital satisfaction is one of the most important determinants of healthy performance for a family [4]. Marital satisfaction is a multidimensional concept that includes various factors such as personality characters, finances, parenting styles and sexual relations [5].

Marital satisfaction and Wives' adjustment as the centerpiece and focus of family foundation is influenced by several factors such as economic, social, psychological and cultural factors and so on. Most of the research in our country has been based on social science theories and with the emphasis on macroeconomic variables such as economic status, decrease in household income, social and cultural challenges. Psychological researches also have less considered main issues affecting marital satisfaction [6]. Research studies on the influential factors on marital satisfaction have been started around 1950 and reached its peak in the 1990's [5]. In recent decades, attention of many researchers and clinicians and Family Specialists have been attracted to the quality of the marital relationship, Couple satisfaction, and its impact on the family health and hygiene [7]. Studies on the divorce and its causes in our country confirm this fine point that the lack of understanding between couples is the most important factor in divorce, especially in the first 5 years of life. This lack of understanding, or in other words, marital discord arises from the mismatch and dissimilar personality characteristics. Nowadays, mate selection and family formation are usually based on criteria such as appearance, economic condition, education, family

status that are very superficial. Although these features are important in turn, but personality characteristics such as aptitudes and interests, needs and flexibility, tolerance, understanding and mutual exchanges and mutual respect have major influence both in the onset and lasting of a marriage. These factors have a vital role in positive and efficient life, provision of marital satisfaction and helping public health [8].

The main research question was whether there is a relationship between relative deprivations, satisfaction of needs, lack of patriarchal power with marital satisfaction. To answer this question, the following hypotheses are proposed:

Hypothesis 1: There is a relationship between relative deprivations and marital satisfaction in university students.

Hypothesis 2: There is a relationship between satisfaction of needs and marital satisfaction in university students.

Hypothesis 3: There is a relationship between lack of patriarchal power and marital satisfaction in university students.

Hypothesis 4: There is a multiple relationship between relative deprivations, satisfaction of needs and lack of patriarchal power with marital satisfaction in university students.

## MATERIALS AND METHODS

The method of the present research is descriptive (Causal-comparative research). Seventy-five student couples of Islamic Azad University, Abhar city (Zanjan Province in Iran) were chosen for this study. The subjects were selected and tested through simple random sampling. The measurement tool for this research is a researcher-made questionnaire. This questionnaire involves factors contributing in marital satisfaction (e.g. relative deprivations, satisfaction of needs and lack of patriarchal power). The validity of this questionnaire via content validity gained. The value of the reliability coefficient for the whole scale via Cronbach's alpha was reported 0.86 and for sub scales was reported between 0.68 and 0.77.

## RESULTS

Table 1 shows the means, standard deviation and alpha indexes of the scales. Table 2 shows correlation coefficients of the predictive variables with criterion variable. As it can be seen in table 2, there is a negative and significant correlation between relative deprivations and marital satisfaction ( $r = -0.66, P \leq 0.001$ ). There is a positive and significant correlation between satisfaction of needs and marital satisfaction ( $r = 0.82, P \leq 0.001$ ). Also there is a positive and significant correlation between lack of patriarchal power and marital satisfaction ( $r = 0.73, P \leq 0.001$ ). The results from multiple regression analysis (stepwise model) showed that the relative deprivations, satisfaction of needs and lack of patriarchal power with marital satisfaction had significant multiple correlation with critical thinking ( $F = 228.60, P \leq 0.001$ ). These three variables are predictors of critical thinking (Table3).

**Table 1.** Mean and standard deviation of the predictive variables and criterion variable

Variable	M	SD	Alpha Index
relative deprivations	19.92	4.48	0.68
satisfaction of needs	13.35	4.25	0.77
lack of patriarchal power	17.44	3.99	0.72
marital satisfaction	56.34	15.86	0.86

**Table 2.** Correlation coefficients of the predictive variables and criterion variable

Criterion Variable	Predictive Variables	Correlation Coefficient (R)	Sig.
Marital Satisfaction	Relative Deprivations	-0.66	<b>P≤0.000</b>
	Satisfaction of Needs	0.82	<b>P≤0.000</b>
	Lack of Patriarchal Power	0.73	<b>P≤0.000</b>

**Table 3.** The results of multiple regression analysis with stepwise model

Dependant Variable	Pridictors	Mr	Rs	F P	Regression Coefficients		
					1	2	3
Critical Thinking	Satisfaction Of Needs	0.82	0.67	300.30 P≤0.000	β=0.82 T=17.33 P≤0.000	-	-
	Relative Deprivations	0.89	0.80	293.89 P≤0.000	β=0.66 T=16.29 P≤0.000	β=-0.39 T=-9.77 P≤0.000	-
	Lack Of Patriarchal Power	0.91	0.82	228.6 P≤0.000	β=0.53 T=10.99 P≤0.000	β=-0.35 T=-9.07 P≤0.000	β=0.22 T=4.52 P≤0.000



## DISCUSSION

The findings of this study show that there is a relationship between relative deprivations and marital satisfaction in student couples. This finding can be explained through the resource theory. This theory was first developed by Wolfe [9] and extended by Blood and Wolfe [10]. This theory is based on three main assumptions: A - Every person is trying to meet his/her needs and achieve his/her goal. B - Dominant individual needs are satisfied through social interaction with other individuals or groups and C.- Through these interactions, there is a continuous exchange of resources and facilities that helps to obviate ones' needs and is effective in achieving the goals of the individual or group. Under the assumptions of this theory, if a person feel deprived, it has a great impact on the satisfaction of the wife.

Also, this study shows that there is a relationship between satisfaction of needs and marital satisfaction in student couples. Maslow [11, 12] believes that by the satisfaction of a need, higher needs emerge and deficit feeling with efforts to overcome it, becomes dominant on the human system. In fact, to meet all each other's needs can predict marital satisfaction. Finally, significant relationship between lack of patriarchal power and marital satisfaction found in current research. In a patriarchal society, and consequently the patriarchal family, the family man has the most authority. According to patriarchal theory, men have the most authority and many of the affairs are determined by men. And because the other side should do the requested affairs from men passively, then it will affect satisfaction of spouse [13].

The most important suggestion of this research is to hold premarital education workshops at universities. Besides, workshops on interpersonal relationships for couples can be effective on how to establish proper communication.

## REFERENCES

1. Goldenberg, I., & Goldenberg, H. 2000. Family therapy: An overview (5th Ed.). Belmont, CA: Wadsworth.
2. Parker, R. 2000. How partners in long-term relationships view marriage. Family Matters, Vol. No. 55. Melbourne, Australia: Australian Institute of Family Studies.
3. Taniguchi, S. T., Freeman, P. A., Taylor, S., & Malcarne, B. 2006. A study of married couples' perceptions of marital satisfaction in outdoor recreation. Journal of Experiential Education, 28(3), 253-256.
4. Greef, A. P. 2000. Characteristics of families that function well. Journal of Family Issues, 21, 948-962.
5. Lotfi Kashani, F., & Vaziri, S. 2011. The effect of sexual skills training on marital satisfaction, Procedia - Social and Behavioral Sciences, 30, 2581-2585.
6. Abdullah Zadeh, H. 2003. The relationship between personality traits and marital satisfaction in couples Damghan. Master's thesis, University of Tabriz, Iran.
7. Fincham, F. D., & Beach, S. R. H. 1999. Conflict in marriage: Implications for working with couples, Annual Review of Psychology, 50, 47-77.
8. Ahmadi, K. 2003. Identify the factors affecting marital adjustment. PhD thesis, University of Allameh Tabatabai, Iran.
9. Wolfe, D. M. 1959. Power and Authority in the Family in Studies in Social Power, eds. D. Cartwright, University of Michigan Press.
10. Blood, R. O., Jr., & Wolfe, D. M. 1960. Husbands and wives. New York: Free Press.
11. Maslow, A. 1943. A theory of human motivation. Psychological Review, 50, 370-396.
12. Maslow, A. 1954. Motivation and personality. New York: Harper.
13. Parker, S. R., Brown. R. K., Child, J., & Smith, M. A. 1975. The sociology of Industry. London: George Allen and Unwin.

*Original Article*

## The Role of the Hidden Curriculum on Social Education of High School Students

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### ABSTRACT

The aim of present research was to study the role of hidden curriculum on social education of high school students in Bandar-Abbas city. The method of research was descriptive-after event (causal- comparative) in sort. The statistical society was high school students in Bandar-Abbas city which is a 370 people were selected by random clustery sampling. In order to collect information, two questionnaire: hidden curriculum is adapted from Babery and the questionnaire of social education retrieved from the questionnaire of evaluation of high school teenagers' responsibility, the Teenage Inventory of Social Skills was used. The validity of the questionnaires was determined before and in current research. The validity of the questionnaires was determined by experts and for the reliability of them, Chronbach's alpha was used, so the reliability of the hidden curriculum questionnaire was 0.88 and social education questionnaire was 0.85. The results from analyzing data showed that: students in open-atmosphere schools have got more social and took better scores in performing educational and civil duties. Also students in open-atmosphere schools have better level in social moralities and social skills. Among components of hidden curriculum, organizational structure could better predict the social skills of students.

**Key words:** social education, social skills, social responsibility, hidden curriculum

### INTRODUCTION

Schools as the educational institution, which contains age group from pre-school to pre-university, has a determinant role in socializing children and teenagers. The best and the most important periods of growth and evolution are in scholastic age. So appropriate with each of educational periods and considering substantial, mental and emotional properties, special educational programs should be prepared for them.

Experts and specialists of curriculum studies, such as Valence [1], Gorner and Knowlton [2] believe that explicit and formal curriculum is not the only thing which students learn in schools and much of knowledge and taught of students is through interaction and communication which has arose from social and educational environment of school, and such taught has a significant effect on formation of moral and social personality of students. On the other hand, because these taught are performed via experiments and objective observations, has more stability and resistance. In educational systems which are among the most important and basic systems of each country for education of humanitarian fund and global and stable development, general regarding and allover encounter and precise and deep with the curriculum phenomenon has a prominent importance. During the history of curriculum, much of endeavors were made by experts of this field, which caused much more wealth of it.

Among the most important of these endeavors, which is one of the fairly new and valuable contexts of curriculum, is mention to three kinds of programs which are performed simultaneously in schools. These three programs are "explicit or formal" curriculum, "implicit or hidden curriculum" and "null" curriculum. [3]

This aspect of curriculum, which is resulted in the context of dominant culture of educational environment and without awareness of teachers and students, and is shown in the form of a collection of expectations and values and is lent to the vicinity of knowledge and learning less, is known as hidden curriculum. [4]

Among these, the role of hidden curriculum is considerable and probably effective on teenagers' treatments, especially social treatments. Perhaps the most important effect of the hidden curriculum concept is laid in the invitation of researchers to observe the education and training, teaching and learning, as a text which should unveil its paraphrase or hidden meanings. Hidden curriculum neither is written somewhere, nor is taught by a teacher. Rather it is taught by the educational environment as a whole. Regardless of teachers' conversance and worthiness, or the development of curriculum, the students are suddenly encountered with something not spoken about before. Affected by the hidden curriculum of school, they gradually find a special sight with respect to the life, education and learning. [5]

Based on the opinion of specialists of curriculum vicinity, among the compasses which probably hidden curriculum has the most influence in it, is the social education of students. Social education is one of the challenges in educational system of the country, which is affected by the whole system and foundations of society, e.g. education and training. Social problems and challenges in present society, such as: the extension of crimes especially among teenagers, inappropriate and immoral usage of mass media, such as cell phone, inappropriate and immoral usage of internet, the increase in addiction and intoxicating pills, the increase of home break, the progress of AIDS, the decrease of role and value of family, the increase of family disunion e.g. divorce, cold relations between parents, has caused the attention to social education to be one of the worriment of education and training. The school, as a social and worthy foundation, has an important responsibility in education. On the other hand a teenager spends much of his time in school and considering the age of high school, imitation from social environment and assimilation with coevals grows in him and also strong dependence to parents decrease in him and tendency to individual freedom increases within him.

So it is necessary to pass some stages in order to social educate and train the best members for society, which contains familiarizing people with social rights and responsibility, which of course should be done appropriate with age and growth stages and proportional to needs of each stage. Second, familiarity with occupational and civil duties and the third is to create social skills. [6]

In this research emphasizing three aspects: 1- social responsibility, 2- familiarity with occupational and civil duties, and 3- social skills, the effects of hidden curriculum on the aspects of social education of high school students has been studied.

The collection of learning of learners is not limited to curriculum and it always cannot be controlled the effective factors in experiment formation. Because other factors which are hidden from the view of teachers and programmers, affect the mind and treatment of learners and even in lots of cases, is much more effective than the formal curriculum, which is right the hidden curriculum.

About the concept of hidden curriculum, various terms and phrases have been used, such as unstudied, covert, latent, unwritten, unintended, invisible curriculum, nonacademic outcomes of schooling, by products of schooling, residue of schooling and everything taught in school. Each of these phrases mention to some of implicit implications and aspects of the hidden curriculum concept. [7]

In Alkan's opinion, the most important factors among them are: reciprocal relationship of people in school, organizational and physical structure of school and classroom, that each of these factors has kind of role in the formation of hidden curriculum. [8]

Different analysis has been made about the hidden curriculum, which the most important is stated by Portelli. He has divided different aspects to four groups including: a) informal and hidden expected messages and expectations, b) unintended messages and results of learning, c) inexplicit and implicit messages resulted by the school structure, d) the program made by students. [9]

A research with the title "Surveying the consequences of the unintended (hidden) curriculum in social environment of high schools in Isfahan city and solutions to reduce the negative consequences" has been done by H. Alikhani (2004). The results of the research show that: the amplification of obedience and harmonious instead of criticism thinking, the amplification of individual contest on the negative view relative to performing group activities, the amplification of negative self-imagination and weakening self-confidence are among negative consequences of hidden curriculum in schools. So the effect of these consequences can be reduced to the least by teaching components such as: cooperation in schools' law and responsibility. [10]

Fathi Vajargah, Vahed Choukadeh, tried to identify the inconveniences of civil education in hidden curriculum, in the view of 370 women teachers of the capital Tehran's high schools, via the field research. The result of the survey show that through the hidden curriculum, students become familiar with the skills and viewpoints such as respect, honesty, tolerance, sympathy, democracy, patriotism, obligation and responsibility, attention to public profit, equivalence, legality and so on[11].

The results of Mayer's research show that in the closed atmosphere schools, students have embarrassed learning and offer their opinions and viewpoints less. Also the atmosphere of schools is related to educational progress, the attitude of students relative to teacher and school, moral growth, social skills, social compatibility, loyalty and obligation, innovation and initiative and more endeavors of students [12].

Young, in his research, concluded that the manner of management and leadership have effect not only on the educational progress, but also on the atmosphere of school, that shows the importance of deployment the opportunities for responsibility and cooperation of students in the school, that the cooperation of students increase their sense of responsibility[13].

Schwartz, in his research has concluded that the atmosphere of school causes some problems in socialization and compatibility and social relationships of them. He considered the social isolation of students as a sample of negative consequences of atmosphere of schools and universities [14]

This survey is proposed to answer these questions:

- 1-What is the role of hidden curriculum in the social responsibility of high school students?
- 2- What is the role of hidden curriculum in the familiarity of high school students with social and civil duties?
- 3-What is the role of hidden curriculum in the growth of social skills of high school students?

## MATERIALS AND METHODS

Considering the goals and questions of survey, the method was descriptive (causal- comparative). For better result we have tried to control some factors such as social class and academic grades of students. To obtain the goals of research it was necessary to pass two stages :

1- Identifying dominated atmosphere in theoretical high schools 2- Identifying the consequences of hidden curriculum and its role in students' social education. The statistical sample of research contains (10780) student of governmental and nongovernmental high schools in the city of Bandar Abbas at educational year of 90-91, which 370 people were selected by random cluster sampling.

Considering the subject of survey, two (researcher made) questionnaires were used to gather needed information for the survey: the questionnaire of hidden curriculum and the questionnaire of social education. In the preparation of hidden curriculum questionnaire, some of items of Babery's questionnaire were used with some reformations.[15] In the arrangement of social education questionnaire, some of the items were used from the questionnaire of evaluation of high school teenagers' responsibility Kordlou, [16], and also The Teenage Inventory of Social Skills (TISS; Inderbitzen,)[17] reformed. After the regulation of questionnaires, there were given to some experts in educational science and curriculum and psychology and they were asked to give their opinions about the proposed questions for evaluation of hidden curriculum and social education in high schools, so the face validity of them was confirmed. Also considering the fact that the questionnaire was made on the basis of previous questionnaires and some reformations on them, factor analysis were used for each factor loading and all of the questions showed a correlation factor between 0.30 and 0.60. The reliability of hidden curriculum was determined to be .88 and that of social education was determined to be .85. The manner of performance was so that first (in the determined aspects of hidden curriculum, containing the aspect of reciprocal relations of individuals, organizational structure of school) based on the gained marks from hidden curriculum questionnaire, the schools were divided to two groups: open and closed. So the division of schools to open and closed was made by determined aspects of hidden curriculum, and people up the average 72.21 were situated in the open group and those lower than it were in the closed one. Then the role and consequences of hidden curriculum in the social education indices was studied. The statistical method used in this survey is the T-test of independent group.

## RESULTS

In this section, results of analyses will be presented. Question 1- What is the role of hidden curriculum in the social responsibility of high school students? For this purpose, the average of social responsibility of students in open and closed groups was compared. As shown in table.1, the results of t- test from the first question shows that social responsibility of students in open and closed atmosphere schools has a significant difference at level ( $p < 0.01$ ,  $t = 7.89$ ) and considering the evaluated average it can be said that students in open atmosphere has an average of (29.27) more than students in closed atmosphere with an average of (26.18).

**Table 1.** Comparison between students' social responsibility

Index	Variable	Average	Standard Deviation	T	Sig
Social Responsibility	Open Atmosphere	29.72	3.58	7.89	0.001
	Closed Atmosphere	26.18	4.98		

2- What is the role of hidden curriculum in the familiarity of high school students with social and civil duties? To answer the second question, the average of students' awareness of social and civil duties in open and closed atmosphere schools was compared. As shown in table.2, test results of the second question shows that marks of students in open and closed atmosphere schools has a significant difference. ( $p < 0.01$ ,  $t = 6.59$ ) and it could be said that students in open atmosphere schools have got an average (92.83) more than students in closed atmosphere schools, and students in these schools have got more knowledge relative to their civil duties.

3- What is the role of hidden curriculum in the growth of social skills of high school students? To answer this question, based on performed evaluation and comparison social skills between students of open and closed atmosphere schools (Table No.3), a significant difference has been observed between them. ( $p < 0.01$ ,  $t = 4.20$ ) and considering the average, we could say students in open atmosphere schools have got much more average (51.19) in social moralities relative to students in closed atmosphere schools (48.46).

**Table 2.** Comparison between students about their occupational and civil duties

Index	Variable	Average	Standard Deviation	T	Sig
<b>Occupational And Civil Duties</b>	Open Atmosphere	92.83	8.15	6.95	0.001
	Closed Atmosphere	85.66	11.53		

**Table 3.** Comparison between students' social skills

Index	Variable	Average	Standard Deviation	T	Sig
<b>Social Skills</b>	Open Atmosphere	51.19	5.78	4.20	0.001
	Closed Atmosphere	48.46	6.66		

## DISCUSSION

This survey has studied one of the important effects of hidden curriculum on the students in schools. Research have revealed that schools' curriculum, especially hidden curriculum which dominate in schools, has a significant importance and could have positive and negative effects and consequences on the social education. Experts believe that via learning components such as: partnership and companionship in the laws of school and responsibility, one can reduce negative effects of hidden curriculum consequences. So a research has been done in order to answer the effect of hidden curriculum on the social education of high school students by the after event (causal-comparative) method, which the results will be discussed.

Surveying the first question shows that students in open atmosphere schools are more responsible. So the hidden curriculum has a significant effect on the increase of students' responsibility. The results obtained from research by Alikhani, Fathi Vajargah et al and Young [10, 11, and 13], compatible with the fact that social education prepares person to accept responsibility in the society. Social responsibility is a skill which is gained by experiment and knowledge. But, unfortunately this is ignored in most of the courses in educational systems. To prepare a warm environment in class or school in order to create values or common goals, to practically learn responsibility to students via: communicative learning in class, performing team works, usage of modern methods of communicative leadership in management, to devolve responsibility to them in establishment of discipline and institution and so on, help them to accept their responsibility toward their behavior in relationship with others, environment and society and also to accept the responsibility of their success or failure, and to make them a responsible and undertaking relative to themselves and to society and everybody whom is in contact. Fathi Vajargah et al [11] in their research concluded that: students get familiar with various skills and opinions, obligation and responsibility, via hidden curriculum. Young's research [13] shows that: the manner of management and leadership affect not only the educational progress, but also on the school's environment. Which shows the importance of usage of opportunities for responsibility, communication of students in the school's environment, and the communication of students in school increase the sense of responsibility in them? The responsibility prepares people for concerning problems of life and causes their personalities to be stronger, their view about life and its events to grow, their skills in managing their life to increase and to connect to environment in an effective and helpful manner, and against the society which is responsible for.

The results obtained from the second question show that students in open atmosphere schools are more familiar with the occupational and civil duties. So the hidden curriculum has a significant effect on the familiarity with the occupational and civil duty. Students get familiar with democracy, attention to public benefit, equivalence, legality and respecting the law [11]. Preparing teenagers for social life, (familiarity with occupational and civil duties) is a very important subject, with should be considered in educational systems by programmers and designers and in the school's environment by manager and teacher and advisor, with sympathy and connection with parents and other organizations. Students gain skills and abilities through communication in learning experiments such as corporation in the election of student council, communication in discussions, play roles as team leader, manage the school as a manager, etc. Here the role of culture instructor and advisor besides other school's staff is of great importance. Because it could be effective in helping students in order to recognize their capacities and getting familiar with occupations and professions appropriate with their abilities and getting informed about occupation choosing and preparation for entrance high education.

Results obtained from the third question show that there is a significant difference in the field of social skills' growth between students in open and closed atmosphere schools and students in open atmosphere schools are more grown in the field of social skills, and states that hidden curriculum has a significant effect in the growth of students' social skills. Schwartz [14] states that: the school's environment causes problems in socializing and compatibility of students, and he also enumerates isolation and lack of social skills as a sample of negative consequences of the environment in schools and universities. After family, the school is the most important factor in socializing people. Certainly preparation circumstances of the growth of social skills and socializing can be one of the obvious results of social relationships which dominate in the school, from the contact of student with his coevals, manager and other educational staff. The lack of social skills concern people with various problems and causes the lack of compromise and agreement in inter-subjective relationships, behavioral problems and disorders has a negative effect on the growth of his personality and consistency with the environment and finally

leads him to isolation and seclusion and cutting from society, prepares the ground of spiritual and mental problems and domestic discrepancies. And indeed the person faces to addiction and other corruption in order to fill his loneliness and the cocoon which has spun around him, hoping to find a way in unconsciousness to run away from his loneliness. So it is necessary for schools to pay attention to social growth and its amplification and strengthening.

The final result which can be found from this survey, is the fact that hidden curriculum is dependent to instantaneous presence and practical contact between teacher and students, and students with each other and other administrative and educational staff with each other and with the students in classroom and in the school. Students gain the hidden curriculum via analyzing and interpretation of their understandings. In fact, hidden curriculum is a response to what they observe in educational environment, hear, encounter, feel, learn and do. So it must more consider in the educational systems.

## REFERENCES

1. Valance, E. 1993. Hiding The Hidden Curriculum: An Interpretation Of Language Of Justification In Nineteenth Century Educational Reform In Henry Giroux And David Purpel .(Editors) The Hidden Curriculum And Moral Education
2. Gorner, D & Knowlton, M. 1997. Is Your Hidden Curriculum Hidden: Unveiling The Hidden Curriculum Through Extracurricular Activities. [www.education.edu/LMSA/Hidden.htm](http://www.education.edu/LMSA/Hidden.htm).
3. Eisner, E. 1994. The Educational Imagination: On the Design and Evaluation of School Programs. 3rd Edition. New York: Macmillan college Publishing.
4. Mehrmohamadi, M. 2002. Curriculum, opinions and approaches and viewpoints, Mashhad, Astane ghodse razavi. In Persian.
5. Taghipour, H., & Ghaffari, H. 2009. The role of hidden curriculum in disciplinary behavior from the viewpoint of managers and teachers in girlie guidance schools of Khalkhal province at studying year of 88-89, Quarterly of educational sciences, second year, No 7, pages 33-65. In Persian.
6. Marzoughi, R. & Anarinejad, A. 2007. Social education from the viewpoint of Nahj-Al-Balaghah. Islamic education journals, (institution of Hozeh va Daneshgah) No 4, pages 163-192. In Persian.
7. Giroux, H. & Puperl, D. 1983. The hidden curriculum and moral education. McCutchan Publishing Corporation.
8. Mehrmohamadi, M., & Alikhani, M. H. 2004. Surveying the unintended consequences (hidden curriculum) of social environment of high schools in the city of Isfahan and proposing strategies to reduce its negative consequences, Journal of pedagogic sciences and psychology, Shahid Chamran university of Ahvaz, 3rd vol. 11th year, No. 3 and 4, pages 121-146. In Persian.
9. Portelli, J. 1993. Exposing the Hidden Curriculum. Curriculum Studies, Vol.25. No.4.
10. Alikhani, M., H. 2004. Surveying the unintended consequences (hidden curriculum) of social environment of high schools in the city of Isfahan and proposing strategies to reduce its negative consequences, PhD Thesis, unpublished, the field of educational programming, Tehran, Tarbiyat Modarres university, faculty of humanitarian sciences. In Persian.
11. Fathi Vajargah, K, & Vahed Choukdeh, S. 2006. Identifying damages of civil education in the hidden curriculum, the system of theoretical high school from the viewpoint of women teachers in the city of Tehran and proposing solutions for improvement of its situation, Quarterly of educational innovation, No 17, 5th year, the fall 1385, pages 93-132. In Persian.
12. Mayers, M. 1990. An Introduction to Teaching & Schools. Holt, Rinehart and Winston, Inc.
13. Young, B. S. 1980. Principals Can Promoters Of Teaching Effectiveness, Thrust For Educational Leadership. No.3.
14. Schwartz, C. L. 1993. Increasing the Retention of American Student in Professional Programs in Higher Education. Journal of American Indian Education. [www.usak.ca/ed-/Postcolonation/biblio.htm](http://www.usak.ca/ed-/Postcolonation/biblio.htm).
15. Babery, Z. 2010. Surveying the role of hidden curriculum in scientific identity of students in Azad University, Marvdasht branch. M.S thesis, unpublished, field of curriculum programming, Azad University, Marvdasht branch. In Persian.
16. Kordlou, M. 2007. The questionnaire of evaluation of high school teenagers' responsibility. Tehran: Azmoon Yar pouya. In Persian.
17. Inderbitzen, H. M. & Foster, S. L. 1992. The Teenage Inventory of Social Skills (TISS). Tehran: Azmoon Yar pouya. Persian Version.

*Original Article***Relationship between Family Communication Patterns with Creativity and the Sense of Competence of the Pre-university Male Students in Bandar Abbas****Hamid Hajizadeh \*<sup>1</sup>, Zhaleh Refahi<sup>2</sup>, Fariba Tabe Bordbar<sup>3</sup> and Hamid Haghighi<sup>4</sup>**<sup>1</sup> Islamic Azad University, Arsanjan branch, Iran<sup>2</sup> Islamic Azad University, Marvdasht branch, Iran<sup>3</sup> Faculty Member of Payam Noor University, Fars Province<sup>4</sup> Family Counselor in Center of Counseling and Psychological service of Hormozgan Education

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**ABSTRACT**

The aim of this study was investigated the relationship between family communication patterns with creativity and the sense of competence of the pre-university in students Bandar Abbas city. The sample of research was 278 pre-university students of Bandar Abbas selected by a multi-step random sampling selected during the academic (2011-2012). Measurement tools used in research involving questionnaires: revised family communication patterns Koener and Fitzpatrick, creative Abedi and feelings of adequacy. Results indicated that family communication patterns between component conversation orientations with components, sense of competence (general, physical, familial, social) there is a significant relationship. The component of conformity orientation has significant relationship only components of the component of general sense of competence but there isn't a significant relationship with other components. There is a significant positive relationship between the conversation orientations with creativity. All components of sense of competence have significant relationship with creativity except physical competence hasn't significant relationship with creativity.

**Key words:** family communication patterns, creativity, sense of competence, students**INTRODUCTION**

Communication is the greatest factor of determining the type of individual's behavior with others and himself. It is similar to the pattern which therewith individual evaluates the level of value of another and is the way of exchanging information between people and method of giving meaning to this information [1]. Mutual interaction between parents and children is considered as the child's emotional development and this interaction can be seen at all stages of individual life. Among the important stages is the adolescent period [2]. It is a distressing stage for parents and teenager and parental influences on passing this stage and development of its normal changes is so important [3]. The primary task of family in making communication and their performance will lead to removal of social needs of individual and for that reason it causes growth, evolvment, self-esteem and socialization of member of family and, clear and effective communication between family members' lead to growth of feelings and values. Indeed, effective communication is the basis of forming a healthy and successful family [4].

Family communication patterns mean the interaction between family members for reaching to the common beliefs and method of making decision by family [5]. Having reconsideration on research performed by Mcleod & Chaffe (1972), two dimensions of conversation orientation & conformity orientation were identified in family communication patterns.

Conversation orientation is defined as condition provided by families that all the members of family are encouraged to participate freely and easily in discussions and exchange of view about wild range of topics [7]. Conformity orientation is defined as the rate that families emphasize on similar condition of attitudes, values and beliefs [7].

Combination of these two dimensions forms four schemas of family communication [8]. This is called family communication pattern [8, 9]. Each pattern describes a special type of family. These four patterns are obtained from combination of high or low positions on two dimensions of conversation and conformity orientation which are: consensual family, pluralistic family, protective family and laissez-faire family.

Systemic nature of family requires involvement of members of family with multiple communications which quality of these communications deeply affect on members of family and especially children [10]. Although much of the research achievements indicate that creativity is the natural and God-given talent, influence of culture, experience, education and training in nurturing creativity should not be ignored. Therefore, family and role of communication between members are so affective in development of creativity in children. Psychologies believed that among the affective factors on creativity, role of family, educational environment and individual factors are more prominent than others [11]. So, it can be stated that quality of family communication is considered as a significant factor in incidence of creativity and also a major factor of inhibiting creativity [12].

Creativity is defined either process or production. In the other word, it is considered either thinking or result of thinking. However, in none of the above definitions, the basic condition for the creation of novelty has not forgotten and given to the aforesaid definitions, creativity can be described as capacity or capability of individual for creation, discover or production of a belief or a new thing [13].

Sense of competence indicates to the capabilities and abilities of human in confrontation with various aspects of life [14]. Concept of sense of competence is fundamentally against the inferiority complex. The inferiority complex was proposed by Adler. According to Adler, if children figure out that they are incompetence, inferiority complex raise in them which is more than a mere feeling of inferiority. They acquire incompetency. Inferiority complex cause that coddle characters avoid to deal with fundamental life tasks, such as learning, working and making productive relationships with others and cannot be constructive member for the community.

Sense of competence is the Sense of the human ability to deal with various aspects of life [14]. Basically, the concept of Sense of competence is against inferiority complex. The inferiority complex is a concept which was introduced by Adler for the first time. Adler believes that if the children believe that they are incompetence, the inferiority complex will growth on their mind that is much more than a single inferiority. They will acquire their notions of insufficiency. The inferiority complex causes that the coddle characters will avoid dealing with fundamental life tasks, such as learning, working and productive relationships with others. Thus they fail to be a productive member of the society. Adler believes that family is the most important factor in shaping inferiority complex [16]. Another related concept to the inferiority complex is self-esteem. Self-esteem is a sense of personal competence to deal with the fundamental challenges of life and being deserved of happiness. Behavioral aspects of self-esteem occur in behaviors such as assertiveness, decisiveness and being polite to others. Self-esteem is one component of self-concept of a person that includes cognitive, behavioral and emotional aspects of him. In a more precise word, Self-esteem is input value that people have claimed for themselves [17]. Rogers believes that since Child's early life, children need to be loved, and if parents love them unconditionally the child will become possessed of self-esteem that will not see any reason to exclusions of the real experiences. But if parents put conditions in giving positive consideration and compassion they provided to the child, he will deny the experiences that are not consistent with his self-concept.

Pope and Mchale introduce 5 aspects for children include social competence, Educational competence, Family competence, Body competence, General competence. Also Harter introduces various aspects for competence which is more or less the same of above mentioned competences.

Additionally, Cole introduces 5 aspects of competence includes Educational competence, competence in social acceptance, athletic competence, competence in personal behavior, and physical competence (physical attractiveness). In these theorists view individual assessment in each of these areas will determine a person's sense of competence. Thus it can be said that the concept of competence is not a self-ability or function, but it is individual's assessment of this ability and this assessment is greatly influenced by feedback from others including parents [21].

Research on family communication patterns and children's creativity has taken conflicting results. For instance, Aaron failed to achieve significant relationship between creativity and communication patterns in his study [23]. Charles et al, in a research that were conducted on adolescents found that in a communication pattern the creativity showed a significant relationship with dialogue but there was not any significant relationship in the conformity aspect. But in the other hand, Vahedi et al had an investigation about the relationship between parenting style and family's emotional atmosphere with the creativity of children under 6 years old in the pre-school centers. They found out that there is a significant relationship between family's emotional atmosphere and the creativity of children. Education authoritative style was the largest predictor of creativity. Mirlohi et al conducted a study for investigate the relationship between family's emotional atmosphere with the creativity of children in the 4th and five grades of the elementary school. Their results show that there is significant relationship between the creativity of students with emotional response and emotional involvement. Studies have shown that students who are in a healthy emotional atmosphere are higher in both creativity and academic achievement scores. And also there is a positive relationship between creativity and academic achievements [23].

Numerous research conducted about the relationship between family communication patterns and sense of competency of adolescent that confirmed this result is that the quality of communication patterns within families



are among the important variables in predicting adolescents' sense of competency and consistency of them [25-31] conducted that sense of competency is connected with other life skills. The results of research of Kazemi et al shows, teaching life skills will enhance the social competency of the student with math problems.

Communications of individuals within the family is an important factor in the socialization of children and adolescents, and a key factor affecting attitudes and behaviors, thus, the family communication atmosphere plays a major role in the development of personality characteristics of children and adolescents and their behaviors [32]. Since little research has been performed on the relation between communication patterns and sense of competence and creativity of adolescents, and most research have examined the relationship of communication patterns with the creativity and sense of competence separately, and none of them have examined the creativity and sense of family communication patterns simultaneously. This inadequacy was the motive of the researchers of this study to perform this research. The main question that researchers in this study sought to respond is whether there is a significant relationship between family communication patterns with the creativity and sense of competency among the male students of pre-university schools in Bandar-Abbas?

Following the research questions, three hypotheses are posed and studied as follows:

- There is a significant multiple correlations between family communication patterns and sense of competency.
- There is a significant multiple correlations between family communication patterns and creativity.
- There is a significant relationship between creativity and components of competency.

## MATERIALS AND METHODS

The method of this research is descriptive-correlation (regression analysis). In this research the ties between variables are analyzed based on objective of research. In researches that regression analysis is applied, the objective is usually predicting one or more criterion variables from one or more predictor variable. Multiple regressions are applied in case that the objective is predicting one criterion variable from one predictor variable. If the objective is predicting more criterion variable simultaneously from predictor variables or subset of them, multivariable regression will be used [34].

Statistical Population, Sample Volume and Sampling Method:

Statistical population of this research is all the male students of pre-university school of Bandar Abbas in academic year 2011-2012 which are 1010 students. Given to the Morgan table, 278 students have been selected as sample. The sampling method of the current research is multi-stage cluster sampling. Between two districts of one and two of department of education of Bandar Abbas, 3 schools have been randomly chosen from each department. In second stage, among three fields of mathematics & physics, natural sciences and literature and humanity, fields of mathematics and physics and natural sciences have been selected. In third stage, one class from mathematics and one class from natural sciences filed were randomly selected from each school and the questionnaires were distributed among the students .

After getting permission from districts one and two of department of education of Bandar Abbas in January and February 2011, the questionnaires have been distributed among the students by coordination of principal pre-university school. Calm and not-distressing situation have been prepared for students to answer the questionnaires. They were also assured that all information will be kept confidential. The examiner also supervises the completion of the questionnaire and in case of having ambiguity in the questionnaire; he was in charge to answer them. In this project the following tools were applied for collecting information: a) Revised Family Communication Pattern b) Creative Abedi c) Sense of Competence of Alice et al

### A- Revised Family Communication Pattern (Fitzpatrick)

In order to determine the conversation and conformity situation, revised family communication pattern were applied [8]. This tool is a self-evaluation scale that measures the degree of agreement or disagreement of the respondents in the range of 5 degrees to 26 statements about the family communication. Point 4 is equal to "Totally Agree" and point 0 is the same as "Totally Disagree". These tools measure the dimension of conversation and conformity so that the first 15 statements are related to conversation and next 11 statements to conformity. Reliability of this tool is confirmed in many studies. The average of Cranach's alpha is obtained 0.89 for conversation and 0.79 for conformity [9]. Cronbach's alpha and retest are applied to determine the reliability of current research which for dimension of conversation is obtained 0.87 and conformity dimension 0.81 and for total tool is 0.87.

### B-Creative Abedi

Abedi Creativity test has been developed based on Torrance test. He prepared a 60 question test (multiple choices) for creativity. Option "A" in any matter indicates the inability to perform an activity which score zero is given to it. Option "B" in any matter indicates the limited capability of performing the activity which scores 1 is given to it. Option "c" of any question raised the ability to perform activities that reveal creativity and score 2 is assigned to it. The total score for creativity are in the range among 0 to 120. Mahmoudi has reported the internal consistency of this tool in different parts of the test among 0.61 to 0.75 by using Cronbach's alpha. Correlation

coefficient between total score of this test and Torrance test is 46% and also using confirmatory factor analysis suggests that this test has good validity.

### C-Sense of Competence of Alice et al

In order to measure, test of sense of competence of Alice et al were used. This test includes 60 questions of three choices such as most often, sometimes and never and it encompasses 5 dimensions such as: general, educational, physical, family and social adequacy. The reliability of this tool has been performed by Ghafari on a sample consist of 1252 students and Cronbach's alpha was obtained 0.86. In this research coefficient of retest is equal to 0.70 and coefficient of Cronbach's alpha for subscales of general competence were achieved 0.71, educational competence 0.72, physical competence 0.79, family competence 0.75 and for social one 0.74.

## RESULTS

First hypothesis: there is a significant relationship between family communication pattern and sense of competence.

As it can be seen in the table 2, multiple correlation coefficients between variables of family communication patterns component with components of sense of competence is equal to 0.21 and its determinant factor is equal to 0.04. Also, adjusted determination coefficient is 0.039.

**Table 1.** Summary of regression model and analysis of variance of family communication pattern and sense of general competence

Indicator of Model of Enter	SS	df	MS	F	P	R	R <sup>2</sup>
Regression	82.68	2	41.34				
Balance	1716.40	275	6.24	6.62	0.002	0.21	0.04
Total	1799.08	277					

**Table 2.** Statistical characteristics of regression, family communication pattern and sense of general competence

Criterion variable	Indicator	Non-standard coefficient		$\beta$	T	P
		Amount of B	Standard Error			
Sense of General Competence	Intercept	21.59	0.77		27.72	0.001
	Conversation	0.053	0.016	0.19	3.21	0.001
	Conformity	-0.034	0.018	-0.11	-1.89	0.05

From the above table, it can be stated that variable of conversation with amount of  $\beta$  of 0.19 and T of 3.21 is a significant predictor for variable of sense of general competence with alpha of 0.001. In the other hand, in return for one change in variance of conversation variable, 0.19 changes will be occurred in variance of variable of sense of competence. Furthermore, variable of conformity with  $\beta$  of -0.11 and T of 1.89 in alpha level of 0.05 is considered as a significant predictor for variable of sense of general competence. On the other word, in return for one change in variance of conformity variable, -0.11 change will be occurred in variance of variable of sense of competence.

Second hypothesis: there is a multiple significant relationship between family communication pattern and creativity. As it can be seen in the table 3, multiple correlation coefficients between variables of components of family communication pattern with component of creativity are 0.18 and determinant coefficient is 0.034.

**Table 3.** Summary of regression model and analysis of variance of family communication method and creativity

Indicator of Model of Enter	SS	df	MS	F	P	R	R <sup>2</sup>
Regression	2017.12	2	1008.56				
Balance	57235.84	275	208.13	4.84	0.009	0.18	0.034
Total	2513.08	277					

**Table 4.** Statistical characteristics of regression, family communication pattern and creativity

Criterion variable	Indicator	Non-standard coefficient		$\beta$	T	P
		Amount of B	Standard Error			
Creativity	Intercept	58.34	4.46		12.97	0.001
	Conversation	0.29	0.09	0.18	3.05	0.002
	Conformity	-0.081	0.10	0.04	-0.76	0.44

From the above table, it can be stated that variable of conversation with amount of  $\beta$  of 0.18 and T of 3.05 is a significant predictor for variable of creativity with alpha of 0.001. In the other hand, in return for one change in variance of conversation variable, 0.18 changes will be occurred in variance of variable of creativity. Variable of conformity is not considered as a significant predictor for creativity.

Third hypothesis: there is a significant relationship between creativity and components of sense of competence.

To analyze the third hypothesis of research, statistical test of Pearson correlation coefficient has been applied. The results have indicated that there is a significant relationship between variable of creativity and sense of general competence with correlation of 0.19 in alpha level of 0.001. There is a significant relationship between variable of creativity and sense of educational competence with correlation of 0.27 in alpha level of 0.001. There is not a significant relationship between variable of creativity and sense of physical competence with correlation of 0.11 in alpha level of 0.051. There is a significant relationship between variable of creativity and sense of familial competence with correlation of 0.33 in alpha level of 0.001. There is a significant relationship between variable of creativity and sense of social competence with correlation of 0.19 in alpha level of 0.03. Generally, the result of analysis of 3<sup>rd</sup> hypothesis indicates that among the components of sense of competence, only physical competence has no relationship with creativity.

**Table 5.** Matrix of coefficient of correlation test of Pearson between components of sense of competence and creativity

Variables	Creativity		
	Correlation	Number	Significance level
General Competence	0.19	278	0.001
Educational Competence	0.27	278	0.001
Physical Competence	0.11	278	0.051
Family Competence	0.33	278	0.001
Social Competence	0.13	278	0.03

## DISCUSSION

The objective of this research is evaluation of the ties between family communication patterns (conversation and conformity orientation) with creativity and sense of competence between pre-university students of Bandar Abbas.

1<sup>st</sup> hypothesis: there is a significant relationship between family communication pattern and components of sense of competence. The analysis has shown that dimension of conversation has significant relationship with all the components of sense of competence (general, physical, familial, social competence) except educational ones. However, conformity of family has merely significant relationship with general sense of competence and does not have a significant relationship with other components of sense of competence (educational, physical, familial & social). The results are the same as the results of research of Hung, Koerner & Fitzpatrick [7], Koerner & Maci, Salivan & Vayonsen [8], Zhang, Narsera Maria [9] and Rahimi [11]. The results of these researches have led to the conclusion that the conversation orientation will be higher in predicting self-respect and sense of competence. Therefore it can be sated that higher conversation will be more effective for having enjoyable life which increases self-respect, independency and sense of competence in children. However in families with higher conformity, members of family are expected to put their interest in second priority and due to that children are not able to make decision and will act as they parents want. This will provide less self-respect and competence in children.

2<sup>nd</sup> hypothesis: there is a significant relationship between components of communicative patterns and creativity. The analysis has indicated that there is a significant relationship between components of conversation and creativity but there is not a significant relationship between conformity and creativity. This research is same as researches of Charls et al. [24], Vahedi et al. [10] and Mirloohi et al. [12]. But it is not the same as researches of Arone. It was found that there is not a significant relationship between family communicative patterns with creativity. It can be stated that if families pay more attention to their children and encourage them, possibility of having creative children will raise. But if families do not have communication with their children and pay less attention to them, the possibility of having child with less creativity is high. Families that provide a situation in which children can discuss freely about wild range of topics, have more creative children than those families that dictate everything to children [11]. Vice versa, in families that there is less interaction between parents and children, members of family have less interaction with each other and few topics will be discussed. Family members don't share their thinking, emotions and private and confidential activities with each other. When there is no topic, there will be no detail to be considered. No attempt will be carried out for participation of all members of family in decision making, so creativity is gone from children.

3<sup>rd</sup> hypothesis: there is a significant relationship between creativity and components of sense of competence.

The analysis has shown that there is a significant relationship between variable of creativity with sense of competence (general, educational, familial and social) except physical competence. The result is the same as researches of Vahedi et al and Mirloohi et al, because they have found that there is a relationship between self-respect and creativity. The result indicates that people with higher creativity enjoy higher self-respect. Considering the features of creative people such as commitment, innovation and self-confidence, it can be stated that they have a strong self-concept and sense of personal identity and it gives the opportunity to move diligently and independently. These people have a strong personality. This positive evaluation of self and high self-respect gives them power of compatibility and better discovery of environment. Higher creativity causes that people feel

superior to others. Therefore, with more creativity, the sense of superiority will be established positively and real self-concept of one will close to the ideal one [15 & 18].

Generally, results of the research have shown that communicative patterns of conversation in family will enhance the creativity and sense of competence of children. These communication patterns have a deniable affect on characteristic and emotional development of children. Furthermore, quality of communication of members of family is the main factor in behavior and attitude of children and it seems that familial interaction has tremendous affect in ability of children and teenagers in facing with various circumstances of outside of the home such as social affairs and other activities. So, in regard to results of current research it is suggested that proper and affective communication pattern shall be taught to parents in school through holding educational meeting. It is also essential to be started from primary schools because strengthen and incidence of creativity in children requires desirable emotional atmosphere among family members in childhood. Additionally, it is recommended that next researches perform on girl students so that gender differences become distinguished in variables of creativity and sense of competence.

#### **Research Restrictions:**

1 - The results of this study are only extended to male students of the pre-university of Bandar Abbas. So, the results of this study cannot be generalized to all female and male students.

2 - Large number of questions may lead to exhaustion

3 - The present study only relied on report of the children that may lead to bias.

#### **REFERENCES**

1. Satir, V. 1988. People Making. Translated by Behroz Birashk, Tehran, Roshd Publication. [Persian]
2. Okrodudu, G. 2010. Influence of parenting styles on adolescent delinquency in Delta Central Senatorial District. *EDO Journal of Counseling*, vole, 3, 58-86.
3. Momeni F, Amiri, S. 2008. The relationship between parent's child rearing styles and incidence of anorexia nervosa among 14-17 years old female adolescents in Isfahan. *Journal of family research*, 12, 775-89.
4. Ebrahimi, A. 2002. Therapeutic relationship and family communication patterns, Tehran: Roozban publication. [Persian]
5. Fitzpatrick, A. 2004. The Family Communication Pattern Theory: Observation on its Development and Application, *The Journal of family communication*, vole, 4, pp, 167- 179.
6. McLeod, I. M, & Chaffee, S. H. 1972. The construction of social reality and family. In Tedeschi (Ed.), Chicago: Aldine-Atherton.
7. Koerner, A. F. & Fitzpatrick M. A. 1997. Family Type and Conflict: The Impact of Conversation Orientation and Conformity Orientation on Conflict in the Family. *Communication studies*, vol. 48, pp.59-78
8. Fitzpatrick M. A. & Ritchie, L. D. 1994. Communication Schemata within the Family: Multiple Perspectives on Family Interaction. *Human Communication Research*, pp: 275-301, Vole. 20,
9. Koerner, A. F. & Fitzpatrick M. A. 2002a. Understanding Family Communication Patterns and Family Functioning: the Roles of Conversation Orientation and Conformity Orientation and Family Orientation. *Communication yearbook*, Vol. 28, pp.36-68.
10. Vahedi, Sh, Latifi, H & Yosefi Shahr, N. 2009. Relationship between parenting style and emotional family atmosphere with children's creativity in preschool centers in Tabriz. *Women and Family Studies*, the first year 3th number, pp. 121-107. [Persian]
11. Steinberg, L., Lamborn, S. D., Dornbusch, S. M., & Darling, N. 1991. Impact of school parenting practices on adolescent achievement: Authoritative parenting, involvement, and encouragement to succeed. *Child Development*, 63, 1266-1281.
12. Mirlohi, F, Molavi, H, & Atashpour, S. H. 2007. The relationship between emotional family atmosphere and the creativity of the fourth and fifth grade elementary school students in Isfahan. *Journal of Research in Psychology*, Azad Islamic University unite Khorasgan, Isfahan, No 31, pp. 82-69. [Persian]
13. Mangal, A, S. 2002. Advanced Educational Psychology. Translation by Sultan Ali Kazemi (1388). Shiraz: Navid Publication. [Persian]
14. Compas, B. & Williams, R. 1990. Stress coping and adjustment in mothers and young adolescents in single and two-parent families. *American Journal of Community Psychology*. Vol.18 (4), 525-545.
15. Adler, A. 1936. The neurotic's picture of the word: A case study. *International Journal of Individual Psychology*, No 3, 3-13.
16. Prochaska, J, O & Norcross, C, J. 1999. Systems of psychotherapy: a teranstheoretical analysis. Translation by Yahya Sayed Mohamadi, Tehran: Roshed Publication. [Persian]
17. Murk, C, J. 2008. Self-esteem: Research, theory, and practice. Toward a positive psychology of self-esteem. 3t ed. New York: Springer.
18. Rogers, C, R. 1977. Carl Rogers on personal Power. New York: Delacorte.
19. Pope, A,W, & Mchale, S. M. 1988. Self - esteem Enhancement with Children and Adolescents. New York: pergamon press.

20. Harter, S. 1983. Causes and consequences of low self-esteem in children and adolescences. In R.
21. Ebrahimi, M. 2006. Examine the relationship between parenting style and self-care sense of adequacy in school students Arsanjan City. MS Thesis, Azad Islamic Arsanjan University.
22. Aaron, J, M. 1993. Creativity and Communication patterns in Latino American family. *American Journal of Community Psychology*, vol, 28(2), 436-452.
23. Hosseini, S, S. 2005. Examine the relationship between creativity and academic motivation and academic performance of first year of high school students. Master thesis. Azad Islamic Marvdasht University. [Persian]
24. Charles, R. E, & Runco, M. A. 2004. Relationship between creativity and family communication pattern. *Creativity Research Journal*, 16, 523-498.
25. Larson , M, Peeter, K, Hartman , C.A. , Pompe , G, Boer , J.A, Minderaa , R. B.& Ormel, J. 2005. Gender Differences in the Relation Between Social Support , Problems in Parent – offspring Communication , Depression and Anxiety. *Social science and Medicine*, Vol.60, Issue 11, pp.2549-2559.
26. Salivan. M, & Evans, T. 2006. Adolescents living in Public Housing: Self - perceptions of Competence and Family Satisfaction, *Child and Adolescent. Journal of social work*, Vol.23, No .5-6.
27. Chen, J. L. & Wilkosz, M. E. 2009. Self-competence and quality of life in Chinese-American children. *Californian Journal of Health Promotion*, Vol 7, Issue2, pp: 67-77.
28. Narissa Maria, P.C. 2008. Father-daughter Relationship Examining Family Communication Patterns and Interpersonal Communication satis faction. *Communication Research Report*.Vol.25, No.1 pp.23-33.
29. Zhang Q. 2007. Family communication patterns and conflict styles in Chinese parent – child relationships. *Communication Quarterly*. No, 55, pp. 113-128.
30. Rahimi, M. 2007. The relationship between family communication patterns and quality of life. Master thesis, Shiraz University. [Persian]
31. Golchin, M, Nasiri, M, Najmi, B, Bashardoost, N. 2007. Family function and psychological characteristics associated with boys and girls. *Journal of Research in Medical sciences*, year 6, No. 4, pp. 297-299. [Persian].
32. Kazemi, R, Momeni, S, & Kiamarsi, A. 2011. The Effectiveness of life skills training on the social competence of students with dyscalculia. *Journal of Learning disabilities*, Autumn & Winter, Vol.1, No.1, pp. 94-108 . [Persian].
33. Farahat, M, Ashtiani, A, Fathi, Moradi, A. 2011. Relationship between family communication patterns of resource control and self-esteem in adolescents, *Journal of Behavioral Sciences*, Vol. 5, No 3, pp. 285-279. [Persian]
34. Sarmad, Z, Bazargan, A, & Hejazi, E. 2007. *Methodology Research in Behavioral Sciences*. Tehran: 6th Edition, Agah Publication. [Persian]
35. Mahmoodi, G. 2001. Examine the relationship between artistic creativity and abnormal behavior. Dissertation of doctorate of psychology. Azad Islamic University, branch of Tehran.
36. Ghaffari, A. 1992. Standardization of children and adolescents' self-esteem scale Ellis and Pope Test, Master Thesis, University of Allameh Tabatabai, Tehran. . [Persian]
37. Abedi, J. 1984. *Creative Test*. Tehran: Psychometrics Publication. [Persian]
38. Huang, L.N. 1999. Family Communication Patterns and Personality Characteristics. *Academic Research Library*, Vole, 47(2), pp. 230-244.

*Original Article***Role of Personality Dimension in Predicting of General Health in Overseas Students: Presenting of Regression Model****Fatemeh Bidi\****MS in Psychology, Department of Education, Bojnourd, North Khorasan Province, Iran*\*Corresponding author's e-mail: [bidi.fatemeh@gmail.com](mailto:bidi.fatemeh@gmail.com)**ABSTRACT**

Providing and maintaining of health is one of the great goal of mankind that has approach relation with personality. This research has been done to determine the role of five personality traits in predicting of students general health. It was a description and correlation method. The Population was all of students in overseas university in Dubai city that included Shahid Beheshti, Islamic Azad University and Payam-e-Noor University in 2010. Through Cochran's formula selected 78 students with simple random. The used tools contained short form personality traits questionnaire with 60 questions (NEO-FFI-60) and reliability 0.75 and general health questionnaire (GHQ-28) with reliability 0.82. Data analyzed by stepwise procedure regression analysis. According to  $\beta$  coefficients, from predictor variables, neuroticism had the most correlation with general health (-0.33), then extraversion (0.32), openness (0.28) and agreeableness (0.21); but relation between conscientiousness and general health wasn't significant. Generally four personality traits explained 45 percent from general health variance. Personality traits can be good predictors for general health. This research has effective results in university period that is a sensitive age from decision making aspects in their future.

**Key words:** personality, personality traits, general Health, overseas students

**INTRODUCTION**

General health is a complex issue, which is affected from several factors. Heredity, nurture, psychological trauma, nutrition, illness, culture and religious beliefs are of these factors [1]. General health has been defined as follows: compromise of a person with his/ her surrounding world [2], capability to have balanced relationship with the others, alteration and modification of personal and social environment, conflicts and personal trends resolution logically [3], inner sense of well-being and ensuring self-efficacy, self-reliance, competitive capacity, intergenerational dependency and self-actualization of the potential of intellectual and emotional abilities [4].

Human and subsequently manpower, has two dimensions: physical and psychological (personality). In holy religion of Islam and many philosophical schools, these two dimensions have a very close relationship with each other, so that none of them could be emerged without the other [5]. This is important to the point that Psychology field has sought to determine, explain, predict and control the psychological phenomena and numerous psychologists have addressed theorizing in this field. One of the topics of interest and discussion in psychology is personality. The origin of the term of personality in European languages is Latina word of "persona", which means the veil or mask that artists wore in the past commensurate with their role in the play [6]. One of the characteristics of this mask was its stability and persistency during the drama [7]. The personality of a person is a combination of the psychological features such as calm, aggressive, ambitious, faithful or social [8]. McShane and Van Glano recognize personality as the relatively persistent patterns of a person and the consistent internal states, which show the behavioral trends of him/her [9]. The ever-increasing psychological problems due to the horrible social consequences and allocation some of the governmental credits have attracted the consideration of authorities to the psychological health. The World Health Organization (WHO) believes that the extent of the behavioral and psychological problems in developing countries is increasing due to the problems such as widespread families' breakdown, changes in people life style and economic problems [10]. Nowadays, many of

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researchers who study the psychological processes reject the naïve theories of specificity and susceptibility of organs to justify the physical symptoms. They observe these signs from an interactive point of view, so that in many of their studies, they concentrate on psychological states and biological and social variables [11]. The researchers have recognized various variables such as age and gender in social and biological fields as effective variables in general health [12]. Thereafter, the researchers addressed increasingly the studying and surveying of personality and its dimensions as affecting factor on general health and it was indicated that the persons' personality could be the most important factor on their consistency and health (13, 14). Recently, research on personality and its relationship with health and psychological damages have attracted attention of many researchers. There are also many empirical evidences about the important role of personality traits on creation, reduction or elimination of the signs of psychological disorders [15, 16]. In recent decades, many researchers believe that five factor model of personality, could increase our knowledge about personality and health [17]. So it can be said that each of five basic factors of neuroticism (N), extraversion (E), Openness (O), Agreeableness (A) and conscientiousness (C) are a set of consistent traits, which can help both the person and group in achieving their fundamental needs.

University students are susceptible to lose their mental health and require education and consultation in view of their special conditions such as distance from family, entrance to a larger and stressful environment, economical problems and not having adequate income, large volume of lessons and compressed competitions [18]. Meanwhile, Iranian emigrant students who have special concerns because of the residence out of their motherland in addition to the common problems and characteristics with other students, require more attention and any disorder in the general health of these young people might have irreparable damage. Of course, this disorder depends on several factors and there are numerous researches conducted by researchers. For example, in their studies on students' health and presence of mental disorders in them, Bagheri Yazdi et al. [18] paid most of their attention to factors like economic, academic and familial problems, housing, career, marriage and relations with other students, and they of course did not ignore the role of internal factors such as persons' personality dimensions in this context.

In the context of personality and its relation with health components, the first research work by McCrae and Costa [19] demonstrated that happiness correlates with high levels of extraversion and low levels of neuroticism in people. Following this work, other researches also confirmed this point such as Chen and Joseph [20], Furnham and Cheng [21], Hills and Argyle [22]. Additionally, McCrae and Costa [19] acknowledged that the personality dimensions of agreeableness and conscientiousness may facilitate more positive experiences in social situations and success, respectively; the result of which is increase in happiness feeling. Nevertheless, the flexibility in experience leads the person to experience the positive and negative emotional states. Therefore, no special relation has been determined between happiness and the personal characteristic of flexibility.

Gustavsson et al. [23] believe that some personality traits have important role on the etiology and progression of disorders and a person's personality could cause indirectly to his/ her illness through unhealthy behaviors such as smoking, drugs abuse, insomnia and malnutrition. The results of regression analysis conducted in Bernards et al [24] also show that the personality (especially through extraversion and neuroticism) is one of the most important correlatives of health and there is a positive correlation between flexibility and positive and negative emotions. In addition, it was revealed in Hayez and Joseph [14] that high scores in each of health measures correlate with higher extraversion, lower neuroticism and higher conscientiousness. These findings showed that personality can predict and justify 32-56% of the variance in mental health scores. The longitudinal studies about persons show that they who had higher scores in agreeableness and contentionsness dimensions, had more mental health than they who had lower scores in those dimensions [19]. In Iran Mani [25] showed in his study on Tabriz University students that there is a significant and positive correlation between personality dimensions of extraversion, agreeableness and conscientiousness with positive emotions and happiness and a negative and significant correlation with negative emotions. There is also a negative and significant correlation between neuroticism with positive emotions and happiness and a positive and significant correlation with negative emotions.

The relationship between personality traits and depression has been studied in different researches and different age groups, which are accompanied by introduction of some patterns [26]. Rafati, Sharif, Ahmadi and Zeyghami [10] showed in a research that there was a negative and significant correlation between general health, depression and neurosis and academic success of nursing students. The relationship between extraversion-introversion and academic success was not significant. In another research in order to screen the mixed depression and stress in students using 6-factor personality test, the results showed that the average of excitability scores of students with the mixed depression and stress disorder was significantly higher than the other students [27].

In a study conducted in Japan on freshmen using hierarchical regression, it was shown that depression has relationship with the low levels of excitement, agreeableness, self-leadership, sociability, openness and self-superiority [28]. The researchers in Finland studied the personality traits and their power in predicting the bipolar syndrome disorder over 370 persons of freshmen. The results of structural equations model test showed that the bipolar disorder is predictable with neuroticism and agreeableness (negative). In a pattern comprising of two dimensions of mania and depression, the results showed that depression has significant relation with

neurosis and introversion; while mania was related with neurosis, extraversion and agreeableness (negative) [29].

Since, in each society, the students are the superior and more capable group [30], so in this research they were applied in studying and surveying in order to make the results more scientific and superior as well. So this study considered the studying and comparison of the relationship between personality and physical - mental health in Iranian students in Dubai, Emirates and is about to study the following issues:

- 1-There is a reverse relationship between the personality dimension of neuroticism and general health;
- 2-There is a direct relationship between extraversion and general health of students;
- 3-There is a direct relationship between openness and general health of students;
- 4-There is a direct relationship between agreeableness and general health of students.
- 5-There is a direct relationship between conscientiousness and general health of students.

## MATERIALS AND METHODS

Research method was of descriptive correlative type, because the researchers were to study relationship between five factors of personality and general health. In the other words, when a researcher has two or more classes of information about a group or a class of two or more groups and he wants to study their relationship, he could use the correlation method; because this method is applied to study the extent of changes in one or more factors in effect of the changes in one or more other factors [31]. In order to measure the extent of these relationships, the hierarchical multi-variable regression analysis test was used, which is a method for studying the contribution of one or more independent variables in predicting a dependent variable. The statistical population of this research consisted of all of the abroad students studying in Iranian universities in 2009-2010 academic year in Dubai, which included three university of Shahid Beheshti, Payam-e-Nour and Azad Islami. By simple sampling method, 78 persons of population were selected. Cochran formula was used to estimate the sample volume. According to this formula:

$$n = \frac{Nt^2S^2}{Nd^2+t^2S^2} = \frac{400 \times (1.96)^2 \times (0.25 \times 0.25)}{400 \times (0.05)^2 + (1.96)^2 \times (0.25 \times 0.25)} = 78$$

Selection of simple stochastic method was due to the fact that all of population members were available and the population span was limited. In order to gather the required information, two tools were used:

a) **Short form personality traits inventory: (NEO-FFI-60):** This contains 60 questions, which is obtained according to factor analysis scores NEO-PI conducted on 1986. Each of these questions is indicative of one of the personality factors of N (neuroticism), E (extraversion), O (openness), A (agreeableness) and C (conscientiousness), respectively. The results of several studies indicate that subscales of NEO-FFI have a good internal correlation. For example, McCrae and Costa [19] reported Cronbach alpha coefficient of 0.68 (for agreeableness) to 0.86 (for neuroticism). NEO-FFI inventory has been standardized by Garoosi Farshi [32]. Mollazadeh et al. [33] reported the retest reliability coefficients of 0.83, 0.78, 0.73, 0.79, 0.85 for neuroticism, extraversion, openness, agreeableness and conscientiousness, respectively during 37 days in 76 Shahed children. Cronbach alpha was also obtained 0.86 for neurosis, 0.83 for extraversion, 0.74 for openness, 0.76 for agreeableness, 0.87 for conscientiousness and the total alpha was 0.83. Concurrent justifiability of this inventory and indicative inventories of the form of Mayers Breaks, Minnesota multi-dimensional, California revised, Guilford- Zucerman temperament survey and traits list and intra-personal trait scale, was reported to have a high relation [33].

b) **General Health Questionnaire (GHQ-28):** This questionnaire is the most well-known screening tool in psychology and was designed by Goldberg and Hiller in 1972. It consisted of 28 questions and constituted of four subscales of physical signs (A), stress and sleep disorder signs (B), social functionality (C) and depression sign (D), each of which included of seven questions. Reliability of this questionnaire has been justified in numerous researches. [For example Hooman [34],  $\alpha=0.85$  and Taghavi [2001],  $\alpha=0.93$ ]. In general health questionnaire, scoring is as follows: for never it gets 0, for normal 1, for more than normal 2 and far more than normal 3. Then these scores are summed. A person whom score is higher, has more mental problems and vice versa. In the present study, the whole scores were coded limitedly to ease their interpretation.

## RESULTS

Descriptive: descriptive findings of this research include the statistical indices such as average, standard deviation, spectrum of utilized scales and their subscales which are presented in table 1.

The scores of utilized scales were obtained by summing the scores of each scale. Then, the utilized scale was of minimal distance. According to data of table 1, the average of personality subscales were  $20.26 \pm 5.08$  for neuroticism,  $26.41 \pm 5.48$  for extraversion,  $25.35 \pm 4.33$  for openness,  $22.91 \pm 4.12$  for agreeableness and  $27.58 \pm 4.36$  for conscientiousness. In general health variable, the average was  $19.96 \pm 7.18$ .

The correlation matrix of the variables of the research is shown in table 2. According to data in table 2, the greatest correlation coefficient in personality traits was obtained between openness and conscientiousness



( $r=0.39$  and  $p<0.01$ ). The general health as benchmark variable had the highest correlation with neuroticism ( $r= - 0.46$  and  $p<0.01$ ). It had the least correlation with conscientiousness ( $r= - 0.34$ ).

Inferential: the multi-dimensional regression analysis based on progressive procedure was used to test assumptions. Before performing regression, it was necessary to survey its assumptions, which are as following: Independency: given data gathering method and type of sampling, it can be said that this hypothesis is established. Normality, Distribution homogeneity and Linearity.

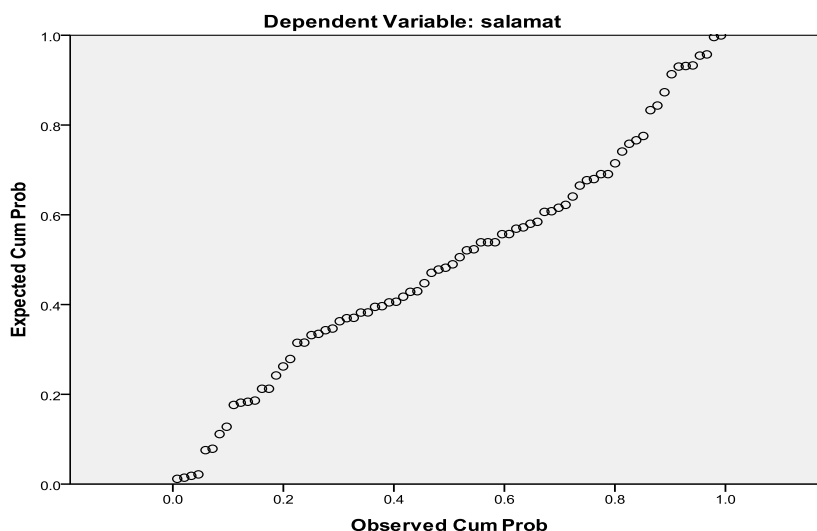
**Table 1.** Mean and standard deviation of study scales

Variable	Subscales	M	SD	Min.	Max.
Personality Dimensions	Neuroticism	20.26	5.08	12	32
	Extraversion	26.41	5.48	12	36
	Openness	25.35	4.33	13	35
	Agreeableness	22.91	4.12	15	35
	Conscientiousness	27.58	4.36	18	36
General Health		19.96	7.18	10	42

**Table 2.** Correlation matrix of the variables of the research

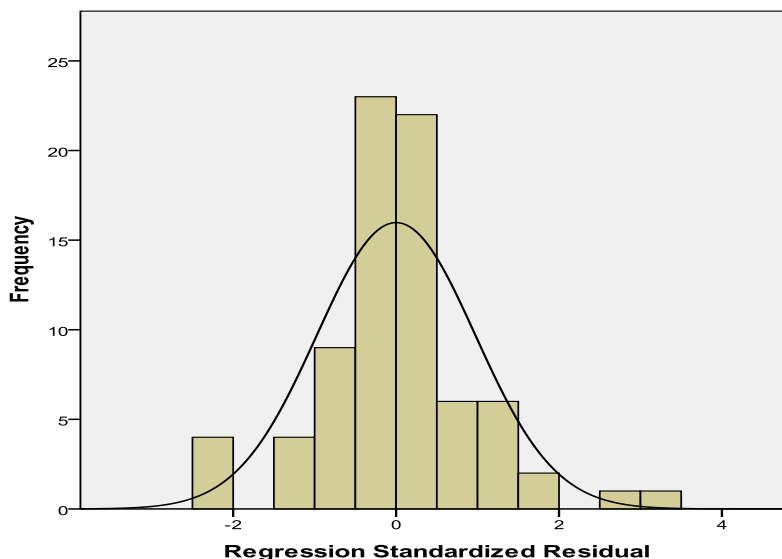
Variables	1	2	3	4	5	6
Neuroticism	1					
Extraversion	-0.09	1				
Openness	*-0.23	-0.06	1			
Agreeableness	-0.17	0.19	0.08	1		
Conscientiousness	*-0.22	0.09	**0.39	0.14	1	
General Health	**0.46	**0.37	**0.35	**0.36	**0.34	1

**Diagram 1.** Scattering predicted and residuals scores



The assumptions of distribution homogeneity and linearity are evaluable through the predicted scores distribution diagram of  $Y$  ( $\hat{Y}$ ) on horizontal axis and residuals ( $Y - \hat{Y}$ ) on vertical axis. For this purpose, diagram 1 has been drawn. According to the type of point's dispersion on diagram1, it can be said that linearity and homogeneity assumptions are established, because many of the points for each level of the predicted score, are close to the center of diagram and regression line.

**Diagram 2.** Establish of normality assumption



In order to survey the normality of scores distribution, the visual method was used, which was drawn in diagram 2.

It can be said according to the form of scores distribution that normality assumption has been met. Therefore the regression analysis assumptions are established. The results of regression analysis were shown in tables 3, 4 and 5.

The results of table 3 show that  $F=14.72$  is significant in level of  $p<0.001$ . In the other words, the regression coefficients of predictive

variables show that the personality traits, suggest the variance of general health significantly.

**Table 3.** Analysis of variance of personality dimensions

Model	SS	DF	MS	F value	P
Regression	1770.14	4	442.53	14.72	0.001
Residuals	2194.75	73	30.06		
Total	3964.88	77			

**Table 4.** Summary of regression model of personality variables on the general health based on progressive method

Models	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	SE	Changed statistics		
					R <sup>2</sup> changes	F changes	Sig. of changes
A	0.46	0.21	0.20	6.41	0.21	20.56	0.001
B	0.57	0.32	0.30	5.98	0.11	12.16	0.001
C	0.63	0.40	0.38	5.65	0.08	10.06	0.002
D	0.67	0.45	0.42	5.48	0.05	5.62	0.02

a. Neuroticism, b. Neuroticism and Extraversion, c. Neuroticism, Extraversion and Openness, d. Neuroticism, Extraversion, Openness and Agreeableness, Criteria variable: General Health

According to data in table 4, F changes after introduction of neuroticism, extraversion, openness and agreeableness were obtained significant in the level of  $p < 0.05$ , but it was not significant for conscientiousness variable. In the other words, the aforesaid variables have significant effect on general health and totally suggest 45% of variance of general health.

**Table 5.** Standard coefficients of personality traits and t values of model

Model index	B	Beta	T value	P	Correlations		
					Zero order	Partial	Semi partial
Constant	33.17	-	11.05	0.001	-	-	-
Neuroticism	-0.65	-0.46	-4.53	0.001	-0.46	-0.46	-0.46
Constant	20.81	-	4.61	0.001	-	-	-
Neuroticism	-0.61	-0.43	-4.52	0.001	-0.46	-0.46	-0.43
Extraversion	0.43	0.33	3.49	0.001	0.37	0.37	0.33
Constant	5.63	-	0.88	0.38	-	-	-
Neuroticism	-0.51	-0.36	-3.91	0.001	-0.46	-0.41	-0.35
Extraversion	0.47	0.36	3.96	0.001	0.37	0.42	0.35
Openness	0.49	0.92	3.17	0.002	0.35	0.35	0.28
Constant	-1.83	-	-0.26	0.79	-	-	-
Neuroticism	-0.47	-0.33	-3.66	0.001	-0.46	-0.39	-0.32
Extraversion	0.42	0.32	3.56	0.001	0.37	0.38	0.31
Openness	0.46	0.28	3.12	0.003	0.35	0.34	0.27
Agreeableness	0.37	0.21	2.37	0.02	0.35	0.27	0.21

In table 5, the standard coefficients of personality variables were shown given t statistic. The personality trait of neuroticism with the value of  $t = -3.66$  and  $p = 0.001$  has a positive and significant relation with general health. Thus the assumption about relation between them is justified. The assumption of relation between extraversion and public health was justified with the value of  $t = 3.56$  and  $p = 0.01$ . In openness variable, the value of  $t = 3.12$  and  $p = 0.001$  suggests that this variable has a negative and significant relation. The relation of agreeableness and general health was obtained significant by the value of  $t = 2.37$  and  $P = 0.02$ . Among the personality variables, there is no significant relation between general health and conscientiousness. The calculated tolerance coefficient suggests the low level of overlap of the predictive variables, which is due to the appropriateness of the selected variables. The more this coefficient is near to 1, the better it would be. The obtained distinctive correlation indicates that among the predictive variables, neuroticism has the highest correlation with general health (-0.39) and the variables of extraversion (0.38), openness (0.34) and agreeableness (0.27) are in next ranks and all of these correlations are significant. Regression equation according to table is as follows:

$$-0.33_{\text{Neuroticism}} + 0.32_{\text{Extraversion}} + 0.37_{\text{Openness}} + 0.21_{\text{Agreeableness}} \text{General Health} = -1.83$$

## DISCUSSION

The present study was done with the purpose of determining the relationship between five-fold personality traits and general health in Iranian students in Emirates in academic year of 2010-2011. The existing relations were tested by regression analysis method and step by step procedure. The results showed that the relationship between neuroticism and general health is negative and significant. This result justifies the results of Bernard et

al. [24], Heiz and Joseph [14], Mani [25], Raf'iaia and Kitamura [28] and et al. [10], Matsodaria and Kitamura [28] and Quilty et al. [29]. It can be said that the neuroticism includes psychological damages such as stress, violence, depression, interpersonal problems and so on. Therefore, these factors are of the underlying and forming factors of psychological illnesses. By elevating neuroticism one could interfere that the general health would be reduced, which the value of obtained coefficient in this research was negative and justifies this assertion.

The assumption about the relationship between extraversion and general health was justified as well. This result was in agreement with the results of Bernard et al, Heize and Joseph and Mani [25]. Some researches such as Raf'ati et al [10] had not achieved to any significant relation between these two variables. In other words, by increment or reduction of extraversion, general health would reduce or increase and vice versa. According to this result, it can be inferred that extroverts try to maintain a strong and positive relation with physical environment because of their strong and positive social relationships. In addition they are trying to maintain the interpersonal relations by passing from interpersonal conflicts and this will lead to psychological and social health improvement directly and physical health indirectly.

The results showed that the level of openness has a positive and significant relation with general health. Chen and Joseph [20], Hills and Argyle [22], Matsodaria and Kitamura [28] and Garoosi Farshi [32] have achieved to such this relation. In the other words, by increment of openness level, the general health level would increase and vice versa. In explaining of this relationship one can infer that the students having openness characteristic, given the internal and external curiosity, empirical richness and aesthetic imaginaries, try to achieve the independence with ideal conditions and if they are confronting with any stress during their life, they can manage themselves and maintain their psychological health. Therefore, openness has a positive and significant relation with general health.

The assumption of the relation between agreeableness and general health was obtained significant too. This result is in good agreement with the results of Matsodaria and Kitamura [28] and Quilty et al [29]. This assumption claims that the more the level of agreeableness, the more public health and vice versa. The persons with agreeableness traits such as altruism, concomitance, tendency to help the others, sympathy and compassion, when confront with conflicts and contradicts in their interpersonal relations, try to solve the problem and resolve the conflicts with their intellectual assets (the components of this trait). Thus it can be said that the more the level of agreeableness, the more general health.

Among the personality variables, the assumption of relation between conscientiousness and general health was not justified. Nevertheless, McCrae and Costa [19], Heiz and Joseph [14] and Mani [25] have reported this relation significant, while in Palahang et al [27] and Raf'jati et al [10] it is not significant. The reason for this absence of significant relation perhaps relates to the different research population, cultural differences and research tools.

### Recommendations

It is recommended to researchers that they address evaluation of this relation in casual patterns form and involve some other variables such as academic performance, thought styles and attitudinal factors in their researches. In addition, the above relation can be applied in the other groups such as school students, employees, emigrants and managers and then their results can be compared with each other.

Given the role of personality trait in predicting general health, these tools and researches might be utilized in prevention and planning to enhance the society's health and especially students. It is possible to educate personal and social behavior regarding insight and awareness of students and utilize their personality traits in managing the existing and future conflicts.

### REFERENCES

1. Mar'ashi, S. A. 2008. *Mental health and religion*. Tehran, Scientific and Cultural editions.
2. Milani Far, B. 2005. *Psychological health*. Tehran, Ghods editions.
3. World Health Organization. 2001. *Mental health: New understanding, new hope*. The World Health Report.
4. Abbaszadeh et al. 2003. *The global health report of 2011, mental health, a new understanding, a new hope*. Tehran, Great Ibn Sina Cultural institute.
5. Ibrahim Zadeh, I. 2010. *The philosophy of nurture*, Tehran, Payam-e-Nour University edition.
6. Parsa, M. 2004. *The new context in Psychology*. Tehran, Be'asat editions.
7. Ganji, H. 2005. *Labor psychology*. Tehran, Savalan edition.
8. Robbins, S. P. 2003. *Essentials of Organizational Behavior (7th Ed)*. San Diego State University: Prentice Hall.
9. Wilcoxon, L., & Chatham, R. 2006. *Testing the Accuracy of the Stereotype: Profiling IT Managers Personality and Behavioral Characteristics*; *Journal of Information and Management*, vol.43, pp: 697-705.
10. Raf'ati, F., Sharif, F. Ahmadi, J. & Zeighami, B. 2005. *The study on relationship between general health, depression and personality characteristics of student and their success*, *Medicine and Refinement magazine*, 14th yaer, No.3, pp 25-31.
11. Sarason, B. and Sarason, E. 2007. *Morbid Psychology based on DSMIII-R translated by : Asghati Moghaddam, Mohammad Ali, Dehghani, Mohsen and Najjariyan, Bahman (2007)*, Tehran, Roshd.

12. Friedman, H. S. 2000. Long-term relation of personality and health: Dynamisms, mechanisms and tropisms. *Journal of Personality*, 68, pp.: 1089-1108.
13. Myers, D. G., Diener, E. 1995. Who is happy? *Journal of Psychological Science*, 6, pp.: 10-19.
14. Hayes, N. & Joseph, S. 2003. Big 5 correlate of three measures of subjective well-being. *Personality and Individual Differences*, 18, pp.: 663-668.
15. Widiger, T. A. & Seidlits, L. 2002. Personality, psychopathology, and aging. *Research in personality*, 36, pp.: 335-362.
16. Widiger, T. A. 2005. Five factor model of personality disorder: Integrating science and practice. *Journal of Research in Personality*, 39, pp.: 67-83
17. Korotkov, D. & Hanna, E. 2004. The five factor model of personality: strengths and limitations in predicting Health status, sick-role and illness behavior. *Personality and Individual Differences*, 36, pp.: 187-199.
18. Bagheri Yazdi, S. A. Bolhari, J. & Peyrovi, H. 2005. The study of psychological health of students, 2004-2005, Tehran University, quarterly of thought and behavior, course 4, 39, pp. 30-42.
19. McCrae, R. R. & Costa, P. T. 1991. Adding liable underbid: The full five-factor model and well-being. *Personality and Social Psychology Bulletin*, 17, pp.: 227-232.
20. Chan, R. & Joseph, S. 2000. Dimensions of personality, domains of aspiration and subjective well-being. *Personality and Individual Differences*, 28, pp.: 347-354.
21. Furnham, A. & Cheng, H. 1997. Personality and happiness. *Psychological Reports*, 80, pp.: 761 -762.
22. Hills, P. & Argyle, M. 2001. Emotional stability as major dimension of happiness. *Personality and Individual Differences*, 31, pp.: 1357-1364.
23. Gustafson, J. P.; Jonson, G. E.; Linder, J. & Weinryb, M. R. 2003. The HP5 inventory: definition and assessment of five health-relevant personality traits from a five factor model perspective. *Personality and Individual Differences*, 35, pp.: 69-89.
24. Bernardo, M.; Gonzalez, G. J. L.; Garrosa, M. 2005. Personality and subjective well-being: big five correlates and demographic variables. *Personality and Individual Differences*, 38, pp.: 1561-1569.
25. Mani, A. 2004. The study of relationship between interest categories and personality characteristics in Tabriz University Students, MS thesis, Tabriz University.
26. Minelli, A., Pedrini L., Magni, L. S., & Rotondo, A. 2009. Personality traits in an Italian sample: Relationship with anxiety and depression. *Clinical Practice & Epidemiology in Mental Health*, 5, pp.: 26-30.
27. Palahang, H., Nikfarjam, M. & Salahian, A. 2011. Evaluation of the applicability of excitement factor of six factor test of personality in screening mixed depression and stress disorder in students, Shahrkord Medical Sciences University, course 13, No.2, pp. 7-12.
28. Matsudaira, T. & Kitamura, T. 2006. Personality traits as risk factors of depression and anxiety among Japanese students. *Journal of Clinical Psychology*, 62(1), pp.: 97-109.
29. Quilty, L. C., Sellbom, M. Tackett & Bagby, R. M. 2009. Personality trait predictors of bipolar disorder symptoms, *Psychiatry Research* 169, pp.: 159-163.
30. Shamloo, S. 2003. *Psychological health*. 16th edition, Tehran, Roshd.
31. Naderi, E., Seyf-e-Naraghi, M. 2009. *Research methods and how to evaluate them in Humanities*. Tehran, Arasbaran.
32. Garoosi Farshi, M. Soofiyan, H. 1998. The study of relationship between personality dimensions and general health in Tabriz University students. *Educational and psychological studies*, course 9, No.2, pp. 47-63.
33. Mollazadeh, J. Mansoor, M. Ejei, J. & Kiamanesh, A. 2002). The matrimony confrontation and consistency styles in Shahed children. *Psychology magazine*, 6th year, No.3, pp. 255-275.
34. Hooman, A. 1998. *Standardization of general health inventory*, Tehran, Tehran University edition.

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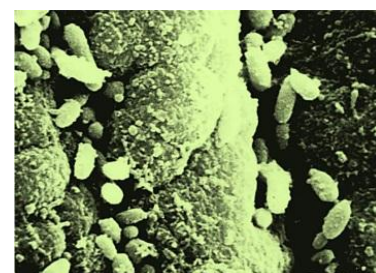
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2. Hasan V, Sri Widodo M and Semedi B. 2015. Oocyte Diameter Distribution and Fecundity of Javaen Barb (*Systemus Orphoides*) at the Start of Rainy Season in Lenteng River, East Java, Indonesia insurance. *J. Life Sci. Biomed*. 5(2): 39-42.

#### For In press manuscripts (maximum 2):

Hasan V, Sri Widodo M and Semedi B. 2015. Oocyte Diameter Distribution and Fecundity of Javaen Barb (*Systemus Orphoides*) at the Start of Rainy Season in Lenteng River, East Java, Indonesia insurance. In press.

#### For symposia reports and abstracts:

Cruz EM, Almatar S, Aludul EK and Al-Yaqout A. 2000. Preliminary Studies on the Performance and Feeding Behaviour of Silver Pomfret (*Pampus argentens euphrasens*) Fingerlings fed with Commercial Feed and Reared in Fibreglass Tanks. *Asian Fisheries Society Manila*, Philippines 13: 191-199.

#### For Conference:

Skinner J, Fleener B and Rinchiuso M. 2003. Examining the Relationship between Supervisors and Subordinate Feeling of Empowerment with LMX as A Possible Moderator. 24th Annual Conference for Industrial Organizational Behavior.

#### For Book:

Russell, Findlay E, 1983. Snake Venom Poisoning, 163, Great Neck, NY: Scholium International. ISBN 0-87936-015-1.

#### For Web Site:

Bhatti SA and Firkins JT. 2008. [http://www.ohioline.osu.edu/sc1156\\_27.html](http://www.ohioline.osu.edu/sc1156_27.html).

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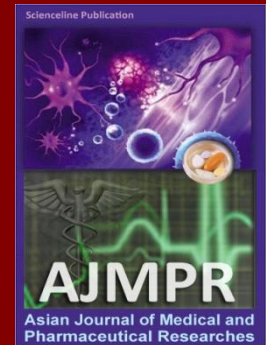
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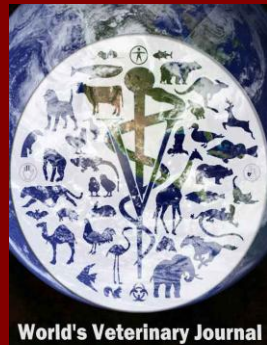
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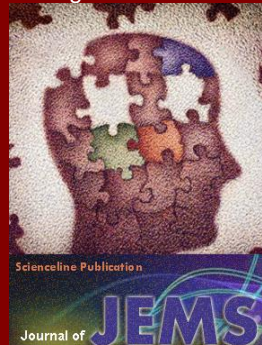
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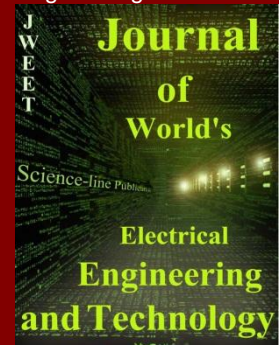
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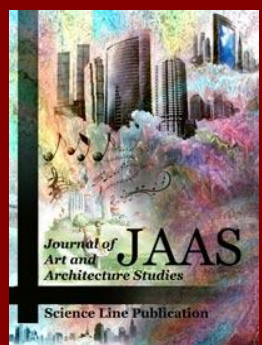
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