Genotyping of P53 Gene Exon 4 Codon 72 in Sudanese Patients with Myelogenous Leukaemias

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Abstract:

Background: TP53 gene, exon 4, codon 72 Arginine (Arg)/Proline (Pro) polymorphism has been reported to be associated with the risk of many types of cancers. This study aimed to examine the association of P53 codon 72 Arg/Pro polymorphism and the risk of myelogenous leukaemias.

Study Design: Hospital-based case-control study.

Materials and Methods: A total of 80 subjects were enrolled in this study, 25 with acute myeloid leukaemia (AML), 25 with chronic myeloid leukaemia (CML) and 30 healthy controls. DNA was extracted by salting out method, and codon 72 of P53 gene was genotyped by Allele-specific polymerase chain reaction.

Results: In all study subjects, the genotype Arg/Arg was the most frequent followed by Arg/Pro and Pro/Pro genotypes consequently. No statistically significant association was found between both AML and CML and each of Arg/Arg genotype (OR: 0.79, CI: 0.28-2.2, P.value: 0.66 for CML and OR: 1.25, CI: 0.44-3.5, P.value: 0.33 for AM), Arg/Pro genotype (OR: 0.96, CI: 0.33-2.7, P.value: 0.94 for CML and OR: 1.3, CI: 0.48-3.8, P.value: 0.543 for

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AML), and Pro/Pro genotype (OR:0.96, CI: 0.88-1.04, P.value: 1.36 for CML and OR: 0.98, CI: 0.94-1.01, P.value:0.49 for AML).However, no significant deviation from the Hardy–Weinberg equilibrium was observed in patients and controls.

Conclusion: P53 codon 72 Arg/Pro polymorphism is not associated with the risk of myelogenous leukaemias among Sudanese patients.

Key words: Myelogenous leukaemias, P53 polymorphism, Sudanese

Introduction

The P53 gene locates on chromosome 17p13 and contains 11 exons. The P53 tumor suppressor protein is essential in the control of cell growth, apoptosis and the maintenance of genomic stability. The loss of P53 function is a key event in tumorigenesis and is associated with various characteristics of tumors, including deregulation of cell cycle, genomic instability, and resistance to chemotherapy. The P53 gene is most frequently mutated in solid tumors. A common polymorphic site in the wild type P53 gene at codon 72 of exon 4 results in translation to either an arginine residue (CGC) or a proline residue (CCC). The arginine (Arg 72) allele increases the ability of P53 to locate to mitochondria and induce cellular death, whereas proline allele (Pro 72) exhibits a lower apoptotic potential and an increased cellular arrest in G1 of the cell cycle. Studies concern with the association between P53 gene polymorphism with different types of cancers showed variable results. In hematological malignancies, P53 mutations has been reported by some researcher to be less frequent, while a study in Sudan showed a significant association between P53 Arg/Pro polymorphism and lymphoid leukaemias. This study aimed to examine the association between P53 gene, exon 4, codon 72 Arg/Pro polymorphism and the risk of acute and chronic myelogenous leukaemias.
Materials and methods

Study population
A total of 50 Sudanese leukemic patients attending Radiation and Isotopes Center of Khartoum (RISK) during the period from July to December 2013 were enrolled in this study, 25 patients with Acute myelogenous Leukaemia (AML) and 25 with Chronic myelogenous Leukaemia (CML). 30 healthy volunteers were enrolled as a control group.

Sample collection and DNA extraction
Venous blood sample was collected from each subject in ethylene diamine tetra acetic acid (EDTA), and genomic DNA was extracted from all samples by salting out method.

Polymerase Chain Reaction (PCR)
P53 gene, exon 4, codon 72 Arg/Pro polymorphism was detected by Allele-Specific PCR (AS-PCR).
The primer sequences used were as follow:
   Pro specific primers:
   Sense primer: 5' GCC AGA GGC TGCTCC CCC 3'
   Antisense primer: 5' CGT GCAAGT CAC AGA CTT 3'
   Arg specific primers:
   Sense primer: 5' TCC CCC TTG CCG TCC CAA 3'
   Antisense primer: 5' CTG GTG CAG GGG CCA CGC 3'.

A PCR reaction mixture (20 μl) was prepared for each sample. Consisted of 3 μl genomic DNA, 0.5 μl of each primer, 4 μl “5X FIREPoL” ready to load master mix (SOLIS BIODYNE, ESTONIA) and 12 μl distilled water (D.W).

Except for annealing temperature, thermocycling conditions for both Arg and Pro alleles were identical, include initial denaturation at 94°C for 3 minutes, followed by 35 cycles of denaturation at 94°C for 30 seconds, annealing (at 60.0°C for 30 seconds for Arg allele and 54.0°C for 30 seconds
for Pro allele), and extension at 72°C for 30 seconds, followed by a final extension at 72°C for 5 minutes.

Amplified PCR fragments and 50 base pair (bp) DNA ladder (SOLIS BIODYNE, ESTONIA) were run on 3% agarose gel containing ethidium bromide and identified under UV transilluminator using gel documentation system (SYNGENE, JAPAN).

Statistical analysis

Data of this study was collected from patients’ medical files and analyzed using Statistical Package for Social Sciences (SPSS). Frequencies of Arg/Arg, Arg/Pro, And Pro/Pro genotypes were calculated, and correlation between genotypes and study groups was investigated by Chi-square test. The Hardy–Weinberg equilibrium was tested by a goodness-of-fit $X^2$ test to compare the observed genotypic frequencies in normal individuals to the expected genotypic frequencies calculated from the observed allelic frequencies.

Ethical considerations

This study was approved by RICK and faculty of medical laboratory sciences, Al Neelain University, Khartoum, Sudan, and informed consent was obtained from each patient before sample collection.

Results

This study included 50 Sudanese; 25 (50%) of them with AML and 25 (50%) with CML; of those with AML, 16 (64%) were males and 9 (36%) were females, while of those with CML 14 (56%) were males and 11 (44%) were females. Further 30 healthy individuals were included as a control group. Genotyping of P53 exon 4 codon72 was performed by AS-PCR.
As shown in figures (1 & 2) the size of the amplified fragment of Pro allele was 177 bp; whereas Arg allele demonstrated a 141 bp fragment.

In both patients and control groups the genotype Arg/Arg was the most frequent, followed Arg/Pro, and Pro/Pro consequently (Table 1).
Table 1: Frequencies of P53 codon 72 genotypes in study groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Genotype</th>
<th>AML</th>
<th>CML</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arg/Arg</td>
<td>68%</td>
<td>68%</td>
<td>80%</td>
</tr>
<tr>
<td></td>
<td>Arg/Pro</td>
<td>32%</td>
<td>28%</td>
<td>17%</td>
</tr>
<tr>
<td></td>
<td>Pro/Pro</td>
<td>0%</td>
<td>4%</td>
<td>3%</td>
</tr>
</tbody>
</table>

No statistically significant association was found between each of the genotypes and AML or CML (Table 2),

Table 2: Association between P53 codon 72 genotypes and myeloid leukaemias

<table>
<thead>
<tr>
<th>Group</th>
<th>Genotype</th>
<th>AML O.R</th>
<th>CI Lower</th>
<th>CI Upper</th>
<th>P.value</th>
<th>CML O.R</th>
<th>CI Lower</th>
<th>CI Upper</th>
<th>P.value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arg/Arg</td>
<td>1.25</td>
<td>0.44</td>
<td>3.5</td>
<td>0.66</td>
<td>0.76</td>
<td>0.28</td>
<td>2.2</td>
<td>0.66</td>
</tr>
<tr>
<td></td>
<td>Arg/Pro</td>
<td>1.3</td>
<td>0.48</td>
<td>3.8</td>
<td>0.543</td>
<td>0.96</td>
<td>0.33</td>
<td>2.7</td>
<td>0.94</td>
</tr>
<tr>
<td></td>
<td>Pro/Pro</td>
<td>0.98</td>
<td>0.94</td>
<td>1.01</td>
<td>0.49</td>
<td>0.96</td>
<td>0.88</td>
<td>1.04</td>
<td>1.36</td>
</tr>
</tbody>
</table>

Arg allele frequencies were 0.82 in patients with CML, 0.84 in patients with AML, and 0.88 in control group; while Pro allele frequencies were 0.18 in patients with CML, 0.16 in patients with AML, and 0.12 in control group. No deviation from the Hardy–Weinberg equilibrium was observed in patients with CML ($X^2= 0.627$, df =2 and P=0.79), AML ($X^2=0.69$, df=2, and P= 0.34), and control group ($X^2= 1.09$, df=2, and P= 0.58).

Discussion

The functional significance of P53 polymorphisms is currently unknown. The hypothesized relationship between the codon 72 $p53$ polymorphism and cancer susceptibility does not have any mechanistic basis.\[^{17}\] This study is a case-control study conducted to examine the association of P53 codon 72 polymorphism with myelogenous leukaemias among Sudanese patients. The results showed that, Arg/Arg genotype was the
most frequent among all patients and control groups, followed by Arg/Pro and Pro/Pro consequently. There was no a significant association between the Arg/Arg, Arg/Pro and Pro/Pro genotypes and both AML and CML. This finding was disagree with the finding of Dunna et al who conducted case control study included 141 acute myeloid leukaemia (AML) and 245 control samples and conducted that, the Arg/Arg genotype was the most common in both patients and controls followed by Arg/Pro and Pro/Pro; also they found a significant correlation between Arg/Arg genotype and AML.[12] Many studies conducted on patient's different types of malignancies showed variable results; Pro/Pro genotype has been reported to be associated with increased susceptibility to stomach cancer and lung cancer.[6,18] Presence of Arg/Arg genotype has been associated with increased susceptibility to cervical cancer and ovarian cancer.[9,10] Presence of Arg/Pro genotype has been associated with increased susceptibility to breast cancer and acute and chronic lymphoid leukaemias.[8] Variations in these studies could be due to ethnic variations or due to differences in the nature of these diseases. Furthermore, Huda et al studied the association of P53 codon 72 polymorphism with different type of cancer in Sudan; and concluded that, P53 Arg/Pro polymorphism has different pattern of frequency in different types of cancer among Sudanese patients.[19] In the present study, Arg allele frequencies were 0.82 in patients with CML, 0.84 in patients with AML, and 0.88 in control group; while Pro allele frequencies were 0.18 in patients with CML, 0.16 in patients with AML, and 0.12 in control group. In addition, no deviation from Hardy-Weinberg equilibrium was observed in all patients and control groups. These findings indicate that, P53 codon 72 Arg/Pro polymorphism is not associated with either acute or chronic myeloid leukaemias.
Conclusion

P53 codon 72 Arg/Pro polymorphism is not associated with the risk of either acute or chronic myeloid leukaemias among Sudanese.

REFERENCES


Semiotics of Dalit Feminism

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Abstract:

The present paper explores the idea of Dalit Feminism and exemplifies the same on the basis of semiotic analysis of two representative poems by Jyoti Lanjewar and Hira Bansode. The Feminism is a heterogeneous term and sometimes it has been unnecessarily universalised on the basis of some coterie experience of upper class and upper caste experience. As Sharmila Rega pointed out. ‘There was a complete invisibility of experiences of dalit women or at best only a token representation of their voice. There was thus a masculinisation of dalithood and a savarnization of womanhood, leading to a classical exclusion of dalit womanhood.’ she further stated that the left party based women’s organisations collapsed caste into caste, the autonomous women’s groups collapsed caste into sisterhood both leaving Brahminism unchallenged. Moreover, the dalit male writers are unable to articulate the representation of dalit women in their writings. The Dalit Panthers did make a significant contribution in the cultural revolt both through their writing and programme but woman remained encapsulated in the roles of the ‘mother’ and ‘victimized’ sexual being.

Key words: Dalit, womanhood, Feminism, Brahminism, hegemony, victimization, marginalization, Semiotics, signs.
Dalit women belong to the lowest category in structured, degraded and Brahmanic hegemonic system. She is vulnerable to physical, social, economic and domestic violence. For a dalit woman, her family is the community and all her efforts are directed towards the upliftment of the community against the upper caste women wherein the world is her family. Professor Gopal Guru in “Dalit Women Talk Differently” said: “Dalit Women’s claim to talk differently assumes certain positions. It assumes that the social location of the speaker will be more or less stable; therefore, ‘talking differently’ can be treated as genuinely representative. The phenomenon of talking differently foregrounds the identity of women. Dalit women have been misrepresented in Indian literature and Indian English literature. Most of the upper caste male writers are biased towards Dalit women. They are portrayed as the victims of the lust of the higher caste men and never as rebels to fight against the injustices perpetuated upon them. Even in the writings of the progressive writers such as Mulk Raj Anand, Premchand and so on- Dalit women are either molested or raped by the upper caste men. By depicting such pictures, writers gained sympathy for the victims but such routinely kind of treatment is not enough. They have completely ignored the fact that Dalit women can also resist and fight back like any other victim of social oppression to guard their dignity. Dalit woman is a sign of physical and socio-cultural exploitation. She is vulnerable to all kinds of atrocities.

Literature of the Dalits represents an alternative culture, refusing to be a subaltern any longer. A dalit text is subversive, but not necessarily intimidating. It relates itself to cultural context and speaks for the revival of sociological approach to literary arts. It opposes the obsessive concern with the formal accomplishment, the linguistic expertise and the modernist tendency to look for the meaning of the text within the text itself. It inaugurates a new era of cultural transformation in the Indian context, and inevitably reaches out to the global phenomenon called postmodernism.
critics and writers have raised a number of critical questions about Indian literature and Indian literary history. They identified two of the important functions of Dalit writing. Firstly, Dalit writing attempts to deconstruct ‘the dominant, castiest constructions of India identity’ and secondly it constructs a distinct Dalit identity.’ Dalit writing presents a dalit centric view of life and constructs Dalit identity in relation to Colonial identity and Indian identity. Dalit literature not only subverts the old canons but also believes in creating new ones. It seeks to reject those conventions and cultural norms which not only marginalised the dalit voice and the voice of other oppressed communities including women. It attempts to create a new paradigm, a new set of value adding up to the contemporary cultural scenario. The event of dalit literature could be understood as a part of the mass culture which marks the postmodernist phase all over the world. It reveals the collective consciousness of community whose voice had remained suppressed through the annals of history. The meaning of the sign is embedded in the socio-cultural milieu of its existence. There is a need to explore the new meaning to the existing signs that has been assigned by the emerging dalit women writers.

Dalit women need to be represented as subjects and not as objects with the emphasis on their active role in the betterment of not only their family but for their whole community. The articulation of their experiences came to be known as ‘Stri Dalit Sahitya’ in Marathi. Generally speaking, Dalit women considered to be the most underprivileged group left out at the bottom of the hierarchal caste society for centuries. In centuries to Dalit men, they suffer more to their dual oppression: being Dalit and being woman. Being Dalit, they suffer due to caste discrimination and being a woman, victimized by the patriarchal social order both in their homes as well as outside. Dalit women believed to be alienated at three levels; caste, class, and gender positions.
Dalit feminism is considered as the ‘discourse of discontent’, ‘a politics of difference’ from the mainstream Indian feminism, which often been critiqued for marginalizing Dalit women. Dalit feminist discourses not only question the mainstream Indian feminism’s hegemony in claiming to speak for all women, but also the hegemony of Dalit men to speak on behalf of Dalit women. Dalit feminist theory tries to uncover and analyze the cultural, societal specificities which constructed the Dalit woman and recover them from the oppositions. This Dalit feminist theory aimed towards social justice and against all sorts of exploitation and oppression towards Dalit women.

Jyoti Lanjewar was a prolific writer who had been consistently written in Marathi contributing much to poetry. Through her poems she explored various themes like womanhood, motherhood, friendship, human values etc. She was the leading voice of Modern Indian poetry as the potent voice in Dalit Women’s Writing.

Jyoti Lanjewar in her well-known poem, “Mother” repudiated the traditional notion of perceiving woman simply as an object of beautification. She projected the ‘Mother’ as a Dalit woman who never aspired for the so called womanly pleasure like wearing ‘brand new silk sari’ and avoiding gold ornaments like bangles and bracelets which are the signs of slavery to the Hindu customs. The Mother worked hard throughout her like as a menial labourer. She got involved in all kinds of labours such as road repairing, construction and an employee of guaranteed daily wages. She even worked as a labourer to construct the dam. Water, a source of life, was denied to the dalits but she participated in the construction work of dam which would provide water to the society but not for dalits. She aptly said,

“..........to build the dam at the lake
While your own lips were parched
Tormented by thirst”
As Dr. Ambedkar pointed out the feature of caste system which is based on, ‘an ascending scale of reverence and a descending scale of contempt’ (p.26) Dr. Babasaheb Ambedkar is the perennial source of inspiration to dalits for their struggle against the Brahmanic hegemonic structure and their strife for social justice. Dr. Ambedkar urged to develop strength and struggle and to give up superstitious customs. The women’s conference during the Scheduled Caste Federation meeting of 1942, Ambedkar’s advice included injunctions to educate their children and remove from them any inferiority complex; not to have too many children and to let every girl who marries claim to be her husband’s friend and equal and to refuse to be his slave, as reported by Dhananjay Keer.

Dalit women follow the path laid down by Dr. Ambedkar. She urges her children,

‘Get educated like Ambedkar
Let the basket of labour
Fall from my hand’

She realised that education only has the ameliorating power of their poverty. It is an instrument which would strengthen their fight against inequality which was denied to them from the time immemorial. She also envisions the state of being united for his cause, so she said,’ Live in unity, fight for Babasaheb’.

Dalit women are subjected not only because of caste and class but due to gender also. Indian women were supposed to worship husband as God. He is the incarnation of god upon this earth however inefficient he could be. In case of dalit family, usually the husband is addicted to drinking which happens to be cause of dalit women’s physical and economic exploitation. The Mother in the poem is not ready to accept such an inefficient and drunkard husband and even she went to the extreme of even expelling him out of the house, who had forgotten his responsibility towards the family.

Dalit woman is not tied down to her filial responsibility and she is not either denying it. Though she was busy in doing
her menial work, she always carried her child along with her wherever she goes. She offered ‘a sweaty kiss’ to the child despite being engaged in her work. She remained half-fed and seemed to be more concerned about quenching the hunger of her children. The poet says, ‘….feeding everyone else four bhakaris and staying half-hungry yourself’. She rejected the tradition that offered her the ‘leftover food’. she preferred to remain half-hungry than to sacrifice her self-esteem and self-dignity. She did not believe in fate but had complete faith in her own strength.

She did not save money for future or to build her house. She was more happy to see her children happy whenever she offered them some money out of the pennies that she earned. She puts five-paisa coin in her child’s hand saying, ‘Go eat what you want’.

In India, the mother is venerated for the sacrifice of her children for the sake of the country. But the dalit mother did not repent for the death of her only child who was martyred for the name of Babasaheb. She was referring here the historical incident of changing the name of the Marathwada University of Aurangabad in Maharashtra. Many dalits sacrificed their lives to carve their name in the history and some even went to jail for the same cause. Instead of lamenting the death of her only child, she said, ‘You died for Bhima, your life became meaningful.’ She went to extreme of saying that if she would have two or three sons, she would have been more fortunate to fight again. She also described the inhuman and demonic behaviour of the police, the state agent to oppress the powerless with their power of violence.

The poem accounts the contribution of dalit women in the fight for the liberation from the orthodox tradition. It encapsulated the feminine spirit of the Dalit Movement. The contribution of the dalit women is either undermined or ignored. The poem ends with the death of the Mother, dreaming of Bhim rajya encompassing liberty, equality, fraternity and social justice. The poet says,
She believed and practised whatever Dr. Ambedkar preached and she never became a victim to sanskritization through imitating Brahmins. She never prayed to God throughout her life and not even on her deathbed. The poet says ‘

“I never saw you, praying with beads, for a brand new silk sari”

Another well-known poet, Hira Bansode also strived to subvert the notion of women that has been misrepresented in the literary canon. Her poem, ‘Woman’ explores the man-woman relation in the structured society. The poem is written in a dialogic form of the river and the sea. Conventionally woman is always associated with river and man with the sea. Like the river ends in sea, the ultimate destiny for any woman is man. Let us first have a glance through it to get the proper idea of the argument.

**Woman – Hira Bansode**

She, the river,
said to him, the sea:
    All my life
    I've been dissolving myself
    and flowing towards you
    for your sake
    in the end it was I
    who turned into the sea
    a woman's gift
    is as large as the sky
    but you went on
    worshipping yourself
    you never thought
of becoming a river
and merging
with me

(Translated from Marathi by Vinay Dharwadker.)

Though the poem is small but it contains the universal truth. The woman is expected to be submissive and is not supposed to be independent. Her life is characterised by ‘flowing towards’ and ‘dissolving herself’ into the man’s life. Hira Bansode has rightly captured the vastness of woman’s life in an expression, ‘as large as the sky’. As the vastness and expanse of the sky is immeasurable and unfathomable, so is the life of woman. On the contrary, man is always engrossed in his own image and he is almost worshipping himself. He never tried to understand the feelings and thoughts of the woman. He is not ready to make any kind of compromise. He is unable to merge with her but it is the woman who is expected to merge with him.

The poem renders a true account of the man-woman relation in the patriarchal society. The poem uses traditional symbols but infused it with new meaning. The flow and the continuity of woman’s subjugation are reflected in the metaphor ‘river’ and her unfathomable mind is as deep as the sky. The society measures the vastness of the sky in its reflection in the sea. Similarly the success and fruitful of woman’s life is measured on the basis of her devotion to man. The poet has used three dominant signs i.e. river, sky and sea to talk about the man-woman relationship. The river and the sky are associated with woman indicating the narrowness assigned to her by the tradition and the sky which the woman as human being felt to be like. These signs have interrelations like man – woman relationship. Conventionally, the meaning of the one sign is associated with the other sign.
Conclusion:

The poem attempts to offer an alternative and real picture of a dalit woman which the upper caste and even the male dalit writers fail to capture. She never made compromise so far as her chastity was concerned. She cursed the mother and sister of any man who dared to walk past her with a lecherous gaze. She did not want to be merely an object of lust in the patriarchal order. A dalit poem is unique in the sense that it builds its structural pattern out of Dalit sensibility. It is unusual, exceptional in terms of experience and expression-something alien to the so called Marathi middle-class sensibility. It transfers the themes of isolation, alienation, protest, revolt, and struggle for survival, freedom from all sorts of bondage and exploitation, apathy, estrangement and up rootedness, a search for new identity and a longing for human dignity. It is thus poetry of protest, voicing its opposition to all that is orthodox, traditional and conventional.

REFERENCES:


of Literary Explorations, Vol. 2, Issue 1, (Feb 2014): 327-332


WEBSITES:

http://vemaiahenglish.blogspot.in/2012/07/dalit-poetry-in-india-hoick-wave-in.html

http://www.researchscholar.co.in/downloads/47-udayan-gautam.pdf
Image Steganography

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Abstract:
Steganography can be defined as a science and art of invisible communication for secret purpose, as well as steganography is the term applied to any number of processes that will hide a message within an object, where the hidden message will not be apparent to an observer. The paper describes the novel method for hiding information within an image depending on information discovered indirectly from the image. There are two important factors in any algorithm which must be decided before hiding step, that are the number of bits will be used in hiding step and the positions of pixels that will be altered to contains the hiding information. Hiding information is not free process and the capacity of hiding information is mostly limited and restricted by the size of cover images in addition, there is a tradeoff between both steganography capacity and stego image quality.

Key words: image steganography, hiding step, Sobel image, edges.

1. Introduction

Steganography is the art of invisible communication. Its purpose is to hide the presence of communication by embedding messages into cover objects. Each steganography system consists of an hiding algorithm and an extracting algorithm.
There are five elements in each steganography algorithm which are:

1- Cover file: (may be text, audio, image or video file) this file used to hide information in it and the file size must be selected carefully to be enough to contain the secret information, this file also called carrier.

2- Message file: also called secret file (may be text, audio, image or video file) this file contains information that must be hiding.

3- Hiding algorithm: is the deterministic sequence to hide the message in the cover.

4- Stego file: is the file produced after embedding the message in the cover file.

5- Extracting algorithm: to extract the message from stego file.

To accommodate a secret message in a digital cover, the original cover is slightly modified by the embedding algorithm. The result is modified cover object that contains the secret message and it is called stego object.

Steganography can be split into two types of algorithms generally

a) Fragile: involves embedding information which is destroyed if the file is modified.

b) Robust: aims to embed information into a file which cannot easily be destroyed.

Steganography involves hiding data in a message in such a way that it is difficult for an adversary to detect and difficult for an adversary to remove. Based on this goal, three main principles can be used to measure the effectiveness of a given steganography technique:

1- Amount of data: the better technique that capable to hide more information within a suitable cover file size.

2- Difficulty of detection: relates to how it is easy for somebody to discover and detect the message that has
been hidden. There is usually a direct relationship between how much data can be hidden and how it is easy for someone to detect it.

3- Difficulty of removal: if someone intercepting the stego file, he would not be able to remove the hidden information easily.

There are four types of steganography according to cover file type which are

1- Text steganography.
2- Image steganography.
3- Audio steganography.
4- Video steganography.

To hide a message inside an image without changing its visible properties, the cover file is altered in (noisy) areas, these alterations involve the usage of the (LSB), masking, and transformations on the cover image. A simple approach for embedding information in cover image is uses the Least Significant Bits (LSB).

There are four algorithms currently implemented, each use least significant bit steganography and some filter the image first

1- The blind hide algorithm is the simplest way to hide information in an image, it blindly hide information by starts from the top left corner of the image and works its way across the image (then down in scan lines) pixel by pixel. It isn't very secure; it also isn't very smart.

2- This algorithm randomly distributes the message across the image. It uses a password to generate a random seed, then uses this seed to pick the first position to hide in. It continues to randomly generate positions until it has finished hiding the message.

3- This algorithm filters the image using one of the inbuilt filters and then hides in the highest filter values first. It is essentially a fancier version of Blind Hide as it doesn't
require a password to retrieve the message. Because we are changing the pixels we need to be careful about filtering the picture because we don't want to use information for filtering that might change. If we do, then it may be difficult (if not impossible) to retrieve the message again.

4. The battle steg algorithm is the best of all which performs (Battleship Steganography). It first filters the image then uses the highest filter values as a (ships) the (h %) of highest filter values is designated as (ships). The algorithm then randomly (shoots) at the image (like in Hide Seek), (Shots) are randomly picked the pixel positions on the cover image, until a ship is found (known as a "hit"), and when it finds a (ship) it clusters its shots around that hit.

2. The proposed system

In general, the proposed system consists of two stages; each stage consists of many steps as illustrated in figure (1) and (2).

![Figure (1) Hiding stage of the proposed system](image-url)
2.1. Hiding stage
To explain the hiding stage of the proposed system we will take an example for a piece of image as illustrated in figure (3)

\[
\begin{array}{cccccc}
110 & 220 & 120 & 210 & 20 \\
100 & 200 & 110 & 250 & 10 \\
110 & 220 & 100 & 200 & 0 \\
150 & 240 & 120 & 200 & 250 \\
110 & 220 & 100 & 200 & 0 \\
\end{array}
\]

Figure (3) piece of image

The proposed system start by repairing the guide image for hiding information, we will used Sobel image as a guide image that will be calculated by applying the masks in figure (4), then the gradient image will be illustrated in figure (5)

\[
\begin{array}{ccc}
-1 & -2 & -1 \\
0 & 0 & 0 \\
1 & 2 & 1 \\
\end{array}
\]

\[
\begin{array}{ccc}
-1 & 0 & 1 \\
-2 & 0 & 2 \\
-1 & 0 & 1 \\
\end{array}
\]

Figure (4) horizontal and vertical Sobel masks

\[ g = \sqrt{(G_x)^2 + (G_y)^2} \]

...(1)
And soon for other pixels as illustrated in figure (4), if the message that we want to hide is 110100101… Then we will divided each pixel in gradient image by (64) as illustrated in figure (5)

Then, according to hiding algorithm we don’t hide in pixel (A), and hide in least significant two bits in pixel(B) as follows

While we will hide in second bit in pixel(C) as follows

And so on for other pixels and message bits until hiding the message then the modified stego image will be illustrated in figure (6)
2.2. Extracting stage
The extracting stage work in the same way but in opposite direction with hiding stage and start with stego image until reached to the secure message.

3. Results
The proposed system will be applied on three image examples as follows:

Figure (6) stego image

Figure (7) results of example (1)

Figure (8) results of example (2)

Figure (9) results of example (3)
4. Conclusions

1- Each steganography algorithm hides information in LSBs, but these algorithms differ in the techniques that will be used in hiding process, the mechanism used in deciding the number of bits used in hiding message bits and the image that will be used in hiding process (DCT image, Gradient image, wavelet image, or original image).

2- Our proposed system used a key to decide the number and position of bits that will be used for hiding information and this key discover from cover image without help needing from sender.

3- Hiding in second or third bit is useful for keeping information secure if attacker change LSB or apply lossy compression algorithm.

REFERENCES


Abstract:

The paper first provides an account of the rise by the 1920’s of the Greek-Cypriot cause for enosis (union with Greece) and details the establishment of the Cyprus Communist Party and the British Administration’s response to it. Attention then focuses on the oppressive measures used by the British in dealing with the communist threat through the 1930’s and 1940’s as the Cypriot communist movement continued to get organised, culminating in the establishment of AKEL (Working People’s Progressive Party) in 1941.

The paper then goes on to consider the evolution of and the relationship between the communist party and the nationalist movement against the backdrop of the Greek civil war in the late 1940’s as well as how the British continued to deal with both the Left and the Right as the armed rebellion by the Greek-Cypriot right wing EOKA guerrilla organisation under the leadership of staunch anti-communist Grivas broke out in 1955. Finally, the involvement of the British secret services in the colonial fight against EOKA and the communist threat is also considered.
Key words: Britain, Cyprus, Colonialism, communism, nationalism

Introduction: the security service and the threat of communism in Britain

Formed by the merger of a various smaller Marxist parties in Britain, the Communist Party of Great Britain (CPGB) was founded in 1920 after the Third International\(^1\) and was refounded in 1921 after the Communist Party (British Section of the Third International\(^2\)) and the Scottish Communist Party agreed to unite. The political radicalism in the country that followed the First World War and the Russian Revolution boosted the strength of CPGB. MI5, the British Security Service, considered CPGB a threat to national security and one of its Divisions (F) kept surveillance and ran deep-cover penetration operations against it.\(^3\) Suffice it here to say that “by 1955, [...] the CPGB was thoroughly penetrated at almost every level by technical surveillance or informers”.\(^4\) There is a vast literature on the British Secret Services (MI5 and MI6 (the Secret Service)) and communism in general and the Soviet threat in particular and, of course, the ‘war in the shadows’ between the secret services of Russia and Britain continues unabated. More specifically, ‘E’ Branch of MI5 was responsible for colonial affairs and, thus, dealt with international communism and kept contact with MI5 representatives in the British colonies and territories.\(^5\) The concern of the present

\(^1\) Klugmann, History, 21, 25.
\(^2\) ‘Third International’ (1919–1943), was an international communist organization established with initiative from Moscow in 1919- see website of MI5, MI5 History Between the Wars, https://www.mi5.gov.uk/home/mi5-history.html (May 20, 2013).
\(^3\) West, MI5 1945-72, 62. See, also, the Zinoviev letter affair, Bennett, "A Most Extraordinary and Mysterious Business", 1., Mowat, Britain Between the Wars, 194, and Neilson, Britain, 49. See also Christopher Andrew, The defense of the realm: the authorized history of MI5.
\(^4\) Wright, The Spy Catcher, 55.
\(^5\) West, MI5 1945-72, 19.
paper is with the threat of communism and nationalism in Cyprus, as perceived and responded to by the British Security Services in Cyprus, in the context of its responsibility since 1916 for, inter alia, counter-espionage, counter-sabotage and counter-subversion in all British territory. In the means of the “divide and rule” strategy, the British enforced the ideological division of the Greek-Cypriot community by allowing both communism and nationalism to function, but only against each other.

Cypriot society before and after the Second World War

Up until the Second World War, the senior clergy and an oligarchy of landowners controlled the greatest part of the land. Due to this, the Cypriot community had been developed so slowly that, the designation of its structure during the early twentieth century as obsolete is justifiable. The clergy and the landowners cooperated and formed the ruling elite. Below the elite was the class of tradesmen, who were going to be the future bourgeoisie, and a small body of intellectuals, mostly authors and artists. The great majority of the people were farmers and also there were a limited number of artisans.

The bourgeoisie first appeared mainly through the new forms of productive relations that functioned within the frame of the Ottoman system, but it had been expanded extensively when the British arrived in 1878. The transport network improvement and the development of communications through technical innovation (such as the railway, the telegraph, the telephones, the cars etc.) led to the empowerment of the bourgeoisie which developed numerically, economically and politically, focusing on trade, usury and manufacture.

The sovereignty of the bourgeoisie within the economic system could not be established without being combined with

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6 Konstantinides, *The Cyprus Problem*, 34.
its sovereignty within the political system.\textsuperscript{7} So, the adaptation of a nationalistic ideology by the rising bourgeoisie of Cyprus was actually the means of liberation from the domination of the old ruling status quo. At the same time, the purposes of the Enosis, the movement of the Greek-Cypriot population to incorporate the island of Cyprus into Greece, ensured to a greater extent the political liberties for its institutional establishment. However, the co-management of the nationalistic ideology and the demand for Enosis with the Church, did not allow the bourgeoisie to be separated from the ethnarchy (i.e. the leadership of the Greek Orthodox community in Cyprus).

Thus, under the developing circumstances of the bourgeoisie, the working class is also developed. An increase in the exploitation rate of mining is observed, the first light industries appeared (mostly clothing and footwear), the building sector grew and all these led to the marginalization of the farmers and the simultaneous reinforcement of the working class.\textsuperscript{8}

The working class in Cyprus (like the bourgeoisie) appeared relatively late compared to elsewhere in Western Europe and it was then followed by the appearance, evolution and development of the bourgeoisie. It almost originated from the rural class which was gradually declining through extermination. The factories and enterprises created in the cities resulted from the available capital, from the trade and usury, and the mines needed unskilled labor which reflected the level of knowledge of the farmers who moved to the cities.

There was no legislation to protect the workers in terms, for example, of working hours and health care. Theoretically, they should have been working for eight hours but in reality, work begun at sunrise and lasted until the sunset. In the early

\textsuperscript{7} Anagnostopoullou, “The Church of Cyprus and its Ethnarchic role”, 199.  
\textsuperscript{8} Katsourides, The origins, 107.
30’s the workers, just like the farmers, lived below subsistence level.⁹

The above social context created deadlocks for the majority of the working classes. The low educational level and the absence of political experience did not allow them to create organizations which would represent them and fight for their rights. The salaries and working conditions of the workers were not a topic of discussion and reaction before the end of the First World War mostly because the employees were not aware of their rights.¹⁰

Both the bourgeoisie and the working class cannot be said to have constituted a unified class as such at the time. The Cypriot working class was significantly heterogeneous. Its composition varied: there was the old section with the artisans, the craftsmen, the factory workers, the miners, the farmers, and the labor in trading houses. The heterogeneity complicated its unified expression on a political level. The gradual development of the Cypriot economy and the efforts of the British to establish the legislation which introduced compulsory work for people from 16 to 60 years old at the Public Works, created the conditions for the homogenization of the labor and class awareness. The working class did not only increase in size but it also massively unified, its power grew and become aware of their power. So, the first trade unions appear and gradually the Cypriot trade union movement and the KKK (Kommounistiko Komma Kyprou - Communist Party of Cyprus) as the political expression of the working class, was created.

¹⁰ Servas, *Cyprus Issue*, 113.
The establishment and action of the Communist Party of Cyprus (KKK)

The Communist Party of Cyprus\textsuperscript{11} was officially founded in 1926 by the first communist Cypriots who came back from their studies abroad, and also by workers from the wider area of Limassol.\textsuperscript{12} KKK appeared in a period when the hope that the island would be given to Greece by the British, just like the Ionian Islands did in 1864, fainted. The promises of Britain during the First World War not only were not kept, but in 1925 officially appended Cyprus as its colony. The living conditions of the workers were appalling and people lived in poverty.\textsuperscript{13} In all this economic wretchedness, the first communists who appeared in Cyprus during the First World War, started to act. The conditions for the development of a socialist movement were entirely ripe.

The first Marxist core was formed at the end of 1920 and the beginning of 1921 by Christodoulos Christodoulou (bank employee), Leonidas Striggos (an employee and later a senior member of the Communist Party of Greece – from now on KKE) and Dimitros Chrisostomides (accountant). They advanced socialist ideas and at the same time organized the workers at labor centers and clubs. They understood the necessity of a newspaper, which would be the major means of expressing the Marxist core and something like this would be extremely valuable. So in December of 1922 they published the newspaper \textit{Pirsos} (Torch), the first Cypriot newspaper with such a radical content.\textsuperscript{14}

At the same time, the communists initiated the creation of the first trade unions of the builders and laborers, the carpenters, and the tailors. In 1923, after the first Marxist

\textsuperscript{11} For more information on the Cyprus parties see Soula Zavou, \textit{Political Parties of Cyprus in the 20th century}, Athens 2002. [in Greek]
\textsuperscript{12} Lefkis, \textit{The Roots}, 61-94.
\textsuperscript{13} Katsiaounis, \textit{The Consultative Assembly}, 31.
\textsuperscript{14} Lefkis, \textit{The Roots}, 75.
group had gathered a significant number of members, this informal organization was named “Communist Party of Cyprus” (KKK). In 1924, the Workers Centre of Limassol was founded and housed those clubs and at the same time developed a set of extreme positions and demands. In 1925 there was a celebration of the Labor Day for the very first time that was initiated by the Workers Center. An active member of the Working Center and the KKK was doctor Nikos Yiavopoulos, who came to Cyprus as soon as he finished his studies in Athens where he was a member of KKE. In order to attack the workers movement, the British exiled Yianopoulos in July of 1925.

Officially, the British did not declare the KKK as illegal. They allowed its function and the publication of its newspaper. However, they prohibited particular references to the national goals either in the newspaper or any other documents. They were closely watching the KKK members and in many cases restrictions were placed on Cypriot communists for a few months, or were imprisoned or they were exiled to isolated villages in Cyprus. The difficult conditions, under which the first Cypriot communists acted, such as the prosecutions by the police and the planting of agents and otherwise listening in, led the KKK to accept its members after very strict vetting procedures, thorough investigation and a trial period (Neos Anthropos, December 24, 1926, 4).

The most extreme example of administrative harassment against the Communist Party was the pressure that was exercised against the newspaper that took the place of Pirsos. The Neos Anthropos, which was the media expression of KKK, was forced to stop its publication three times and the fourth turned out to be the last one. The first time, the publication was suspended because of the two-month imprisonment of Charalambos Solomonides who was the person in charge for the newspaper. The second time, the reason was

again the imprisonment of Solomonides. The newspaper Neos Anthropos was temporarily replaced by the newspaper O Ergatis (The Worker). The third interruption occurred in 1 January 1929, when the KKK decided to voluntarily enter illegality as a response to the new criminal code of the government. The last publication was in December 6, 1928. On 15 January 1929 the newspaper O Neos Ergatis replaced the previous one as a fortnightly newspaper of the farmers and workers.

The founding convention of the KKK took place in Limassol on 14 and 15 of August 1926, under very strict conspiratorial measures. For the official foundation of the KKK, the contribution of KKE and the arrival of Charalambos Vatiliotes in Cyprus, who was a Cypriot resident of Greece and member of KKE, were absolutely necessary.

The Communist Party according to its first declaration and against the rest of the political world of Cyprus, did not aim the unification of Cyprus with Greece, but the autonomy and independence of the island, the abolition of personal property in means of production, the expropriation of the property of the church and the monasteries for the benefit of the landless population and the establishment of a socialist society. At the same time, they planned to unite Cyprus with a future Balkan Soviet Federation. So, they called Greek and Turkish workers and farmers to rise against British imperialism. The messages of KKK were accepted not only by Greek Cypriot but also by Turkish Cypriot labor. Leaders of the party until the uprising against the British colony in October 1931 were the Charalambos Vatiliotes and Kostas Christodoulides. They were both arrested and exiled by the British after the uprising.

It should be noted that concerning the violent events of October 193116, the KKK not only did not officially participate

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in the uprising but it condemned it as “nationalistic chauvinist provocation of the Cypriot haute bourgeois”. Neophitos Ioannou mentions that when the party realized that not participating in the uprising was a mistake, it sent the poet – member of the KKK – Teukros Anthias to meet the Archbishop Cyril III and ask the establishment of a common national anti-imperialist front, something which was predictably rejected by the church. On 22 and 23 of October 1931 the Central Committee of the party gathered in Nicosia and decided to participate in the events even if that meant collaboration with the nationalists.

In the wake of the oppressive measures of the British that followed the October 1931 events, the KKK was declared illegal and its leadership was exiled. During the period that followed, which is known as Palmerocracy due to the strict restrictions that the new government Palmer imposed, the existence and functioning of any political parties was forbidden. Being illegal, the KKK took advantage of the access it had to the Workers Centers and the unions and continued its work.\(^\text{17}\)

It is important to note that although the British allowed the function of KKK, they considered it a threat to the safety of the colony despite the limited number of members and the low momentum of the party. So they exiled its leaders in 1931.

In 22 of October, the colonial government of Cyprus enacted the regulations called “Regulations concerning the defense of Cyprus”. Among everything else, the Governor was granted special powers that allowed him to exile Cypriots, to designate censors etc. Any statutory body had the power to arrest anyone, and all the arrivals and departures from Cyprus were thoroughly monitored. Censorship was imposed on newspapers, to the post-office and the telegraph-office. Some additional regulations prohibited the gathering of more than 5 people and allowed to any governmental body to dissolve the

\(^{17}\) About the period that followed the October uprising see Pikros, “Venizelos and the Cyprus Issue”, 252.
gatherings. Moreover, the publication and release of any text was forbidden without written permission.

In a report of Governor Storrs in 1931, concerning the communist activity, a significant increase in the number of its members was observed from 181 to 365 in six months, which was closely monitored by the police. In addition to the members of the party, people who were just participating in the demonstrations of the KKK were also monitored. In 1935, the numerical strength of the KKK was radically decreased due to the prosecutions by Palmer’s very draconian regime.\(^{18}\)

The period that followed after 1936, is a period of reconstruction of KKK. A great influence in this effort was Ploutis Servas who was elected as the General Secretary of the party after his return from Moscow and Greece in 1934. Servas was not allowed to come to Cyprus and he was given permission to come after signing a statement he would abstain from any communist and political propaganda, which he never obeyed.\(^{19}\)

At the fourth convention of the party, which took place in May of 1940 at Derinia, the KKK reconsidered its position concerning the national issue and the possibility for consolidation of the movement and gradually started circumventing its illegal status. So, the establishment of a group which would give them the possibility of legal expression was decided, and that became possible after the gradual relaxation of the English measures. All those considerations and ideas finally led to the establishment of a new political party. Thus, in 1941 the Progressive Party of Working People (Anorthotiko Komma Ergazomenou Laou – AKEL) was born and co-existed with KKK - despite the reactions of a majority of the members of KKK – until 1944 when the KKK was completely unified with AKEL.\(^{20}\)

\(^{19}\) Richter, “The Cypriot Communist Party”, 111.
\(^{20}\) Peonides, Andreas Ziartides, 11-47.
Progressive Party of Working People (AKEL)

AKEL was founded in 14 April 1941 in a meeting of thirty six people participated. At the founding assembly, not only the members of KKK participated but also progressive personalities of Cyprus. The first conference of AKEL took place later, in 5 October 1941. In this meeting, Ploutis Servas was elected as a General Secretary. The ideology of this political party was supportive towards the workers and anti-fascist whereas, any reference on national matters was mentioned in an indirect and mild way.

In 16 June 1943, AKEL called for volunteers to fight in the armed forces in order to “free the enslaved people from the tyranny of Hitler”. The response was significant. It is estimated that 800 members of AKEL enlisted and 11 out of the 17 members of the Central Committee.

Due to the upcoming municipal elections of 1946, AKEL started turning towards other directions as well in order to broaden its front. As a result, the National Political Cooperation Camp (Parataxi Ethnikis Sinergasias – PES) was created which was influenced by AKEL but it also included members of the bourgeoisie. The municipal elections of 26 May 1946 were a great victory for AKEL. They managed to displace the leader of the Right Themistoklis Dervis in Nicosia and to elect Ioannis Klirides. They also had victories in other cities except in Keryneia and in Paphos.

In 7 December 1947, the Coalition of National Liberation (Ethnikos Apeleutherotikos Sinaspismos – EAS) was established by AKEL which was a part of the broader expansion of the national liberation front of the Left. EAS, whose establishment was decided in the fifth conference of

21 Papademetres, Historic Encyclopedia, Vol. 7, 82.
23 Ioannou, That's how the Cyprus's issue started, 67.
24 Perdios, The History, 63.
AKEL in 13-15 of September 1947, constituted the continuation of PES and the main instrument by which AKEL was going to promote its thesis about *Enosis*.

In a period of division and polarization, the British called representatives of the population to participate in a consultative meeting (*Diaskeptiki*) to discuss the suggestions of Britain to render a constitution and create a legislative body. AKEL, after negotiations and since the Right rejected its call for cooperation, decided to participate in *Diaskeptiki*, while the Right and the ethnarchy, especially bishop Leontios, were against the idea of adopting a constitution and did not participate. The convention started its action on 1 November 1947, the exact same day that EAS was founded, and finished in May of 1948 without any results because the Left side rejected the British proposals describing them as an attempt to continue the existing regime through a parliament without any serious powers. At the same time, the relationship between the Right and the Left was shaken due to the strikes that took place at that time. The intense circumstances of the protesting movements and the combination of development both in Cyprus and Greece (*Diaskeptiki* and Civil War), affected to a great extent not only the subsequent course of the opposite political camps but, also, the situation that was going to prevail in the Cypriot Community. The already existing differences between the Left and Right had a clear class base by then, and while they were affected by the debate concerning the constitutional proposals of British, they turned towards a peculiar fight for political survival and ideological assertion. Moreover, the adaptation of characteristics and practices of the Greek civil war had as a result the expansion of the differences and the gap between the two sides and led to a frontal conflict and violent actions. The fact that in Cyprus there was no armed conflict was because of the main power of the colonial rule which did...
not favor – and that’s why it did not allow – any practical doubting of its regime.26

The Referendum for *Enosis*

Empowered by the results of the municipal elections of 1949 where they had prevailed almost everywhere, the Right was determined to keep the Left in isolation and marginalize them politically, and set as a priority the leadership at the *Enosis* movement. On 23 July 1949, the Coordinating Committee of the Cypriot Struggle (SEKA) was founded, and its members were the nationalist municipal counselors and other factors of the Right. SEKA constituted the popular part of the Right, and it was supervised by the ethnarchy.27

On 27 September 1949, AKEL sent to the ethnarchy a memo in which they invited them to cooperate because they aimed the submission of a common memo at the General Meeting of UN, sending a representation and also organizing demonstrations. The rejection of the ethnarchy to cooperate with AKEL, led the party to send their own memo to all the delegations of the member-states of UN and at the same time started collecting signatures within Cyprus to support their memo. The ethnarchy, because they were afraid that the Left would take the leadership in the *Enosis* movement, they decided to call a referendum which was settled for the 15 January 1950. Then AKEL decided to directly quit their actions and support the referendum, and simultaneously they criticized the anticommunist behavior of the Right and their denial for collaboration. Both sides worked hard for the referendum to succeed by organizing demonstrations.

The British made clear that there was no possibility of changing the regime in the island and they tried to sabotage the referendum by any means: deportations, prohibition of open

demonstrations, threats to dismiss the public servants who would participate.\textsuperscript{28} The Greek government did not approve the referendum and called the Greek Ambassador during the days when it was conducted.

The Church, called the people to participate in the referendum, while the Left addressed other communities, calling them to support the effort of the Greek Cypriots. The referendum took place from 15 until the 22 January 1950, in a feeling of general enthusiasm. The vast majority (95.7\%) of the Greek Cypriots voted for \textit{Enosis} and among them about 800 Turkish Cypriots.\textsuperscript{29}

\textbf{The turn towards the armed action}

The demand of \textit{Enosis} gradually started being differentiated, especially after the referendum of the 1950's. Not only the cruelty of the British’s position against the Cypriots but also the differentiations concerning the leadership of the \textit{Enosis} struggle and the undertaking of major initiations on behalf of the Right and the ethnarchy, played a significant role in shaping the ideology of the Greek Cypriots’ struggle for \textit{Enosis}.

AKEL, with the guidance of KKE, persisted in criticizing the “dirty British/American imperialism”. At the same time, and in the context of the “Cold War”, AKEL tried to organize itself by drawing up an illegal plan on how to respond to their “international duties”, in case of a general conflict in the area, or in case that the party was declared illegal for any reason.\textsuperscript{30} Despite the actions that occurred in that direction, the creation of a plan was not possible because the KKE clarified that they could do nothing more than guiding them.\textsuperscript{31} However, the true reasons that a basic plan for an armed action was not created,

\textsuperscript{28} Papademetres, \textit{Historic Encyclopedia}, Vol. 8, 288-299.
\textsuperscript{29} Vlachos, \textit{Ten Years}, 29.
\textsuperscript{30} Contemporary Social History Archives [ASKI], KKE Archive, Box 371, Φ 20/21/33, July 19, 1951.
\textsuperscript{31} ASKI, KKE Archive, Box 371, Φ 20/21/43, August 23, 1951.
were more political rather than practical due to the fact that the party could not foresee that the preferential areas in which they gained political benefits were the massive demonstrations where the political, socio-economical and national requests were combined (Neos Demokrates, February 20, 1955).

The Right side, with Makarios undertaking the leadership of both the ethnarchy and the Right party, obviously shifted to more intensive ways for demanding Enosis. The extreme anticommunist groups of Kerynia, who promoted the bishop Kiprianos as a new Archbishop, eventually accepted Makarios because in addition to being anticommunist, he was also raised in the context and values of irredentist nationalism and he was the leader of the enosis movement having the supporters of the bishop of Kerynia by his side. The main part that the group of the bishop of Kerinia played in the violent conflict between Right and Left during the years 1948-50, elevated his status within the Right subsystem and made these personalities privileged interlocutors of the ethnarchy. Because of all these conjunctures, the meeting of Makarios with the “extremists” of Athens and especially Grivas was inevitable.\(^{32}\)

In 1953, after a great deal of hesitation, Makarios adopted the proposal that Grivas and his partners submitted to him two years ago to undertake an armed struggle against the British.\(^{33}\) In 7 May 1953, the meeting of the “Twelve Apostles” took place, as the dominant historiography chose to call the twelve members who decided the foundation of the secret organization for Enosis and signed an oath according to which each of them would secure the secret “sacrificing his own life, tolerating even the hardest of all the sufferings, keep secret everything that is known and desirable to be heard concerning Enosis”.\(^{34}\)

\(^{32}\) Papageorgiou, Grivas, 620-621.

\(^{33}\) Kranidiotis, Difficult Times, 55-57.

\(^{34}\) Papagathaggelou, How I participated, 261.
A long progression of developments would soon bear fruits. Makarios, either because he wanted to prepare the Greek Cypriot community for what was going to happen, or because he already had a constant need for confirmation of his leadership at the enosis movement, he aimed to encourage the Greek Cypriot population by gatherings and mass demonstrations constantly. The “oath of Faneromeni” that he gave before thousands of Greek Cypriots at the demonstration of the 22 August 1954, is indicative of the following:

“Under these holy domes let us give today the sacred oath. We shall remain faithful to our national call until death. Without quitting. Without yielding. Without transactions. We will condemn violence and tyranny. We will courageously stand against all those minor and temporal obstacles, seeking and achieving Enosis and only Enosis”.

Supportive, for the purposes of Makarios, were also the statements of Hopkinson in the summer of 1954 which, despite the failure of the diplomatic efforts of UN and the conflicts that followed, reinforced the feeling of the “one-way-path” for the Greek Cypriot community.

The first shipment of weapons and other war materials arrived in Cyprus from Greece on 22 February 1954 on the trawler “Sirin”. The trawler was ready for a second task of shipment of weapons into Cyprus. It departed in 20 November 1954 but during its arrival at the shores of Paphos, some activity was observed on the coast so the captain of the boat considered that his mission had been betrayed and after he threw the shipment in the sea, he went to Rhodes.

Within the first fifteen days of October of 1954, Makarios and Grivas met in Athens four times and exchanged their views concerning the revolutionary movement in Cyprus. This was followed by the arrival of Grivas in Cyprus in 26 October 1954.

On 25 January 1955, after extracting information, the British seized a small ship named “Agios Georgios” which was full of weapons. The most important of all though was the detection of a manifesto called “National Force of Liberation of Cyprus” (EMAK) which revealed how the Right and particularly Grivas and his partners perceived the armed anticolonial struggle:

EMAK demands from them and their party not only to be opposed to EMAK but also not to get involved in the armed conflict, just like the population will. We will not accept communists at EMAK, mainly for purposes of feasibility and if the communists are really interested in the Enosis, they will not desire to get involved in the battle for liberation... The best patriotic action they can do is not to participate and one day this action will be recognized as wise and patriotic. The communists should be sure that EMAK has the necessary soldiers and all the means that will lead them to a successful liberating struggle... 

Makarios and Grivas decided to rename the organization EOKA (National Organization of Cypriot Fighters) after EMAK’s manifesto became known. The exclusion of the Left from the anticolonial struggle was a procedure that started right after the union referendum because AKEL, despite all the efforts for cooperation with the Right, did not succeed in participating in any of the activities of the ethnarchy for the internationalization of the Cypriot issue.

When Grivas arrived in Cyprus, as well as training the armed groups, he was also involved in the distribution of weapons, the creation of political hard-core teams and the organization of a communication network. The difficulties for the formation of the armed groups were significant, because the youth of the right wing organizations that were the first

38 Ibid, 404-405.
members of EOKA had no previous experience in the use of any kind of firearm.³⁹

On 29 March 1955, Makarios and Grivas after a meeting they had at the monastery of Kikkos, they set the date of the rebellion for midnight of March 31 to April the 1st.⁴⁰ Shortly after midnight of 31 March to 1 April 1955, the first explosions occurred in Nicosia and other cities of Cyprus. Despite the fact that the explosions are historically mentioned as “deafening explosions that shook the island”, the truth is that Grivas was disappointed by the first results. With the exception of the explosion at RIK (Cyprus Broadcasting Channel) in Nicosia, the rest of them were described as failures or at least without the desirable results. In Famagusta the police found explosive materials of EOKA and at the same time, the identity of Gregoris Afxentiou, one of the most important personalities of the struggle, was revealed. In Larnaca, in spite of the successful explosions, all the participants were arrested, while in Limassol the operation started at 2 am when the police was well prepared to react in any suspicious activity. As a result, most of the participants were arrested.⁴¹

AKEL, who disagreed with the armed struggle against the British, in 2 April 1955 with an announcement, condemned the explosions and described them as suspicious.⁴² The references to Lenin and the extreme references against EOKA, which AKEL used in their announcement, were not helpful at clarifying the tactics of the conflict. On the contrary, EOKA turned against AKEL and its leadership. Two years later, at the plenary session of its Central Committee in May of 1957, AKEL reassure “that the Party responded correctly against the armed struggle of the Right. At the same time, the Central Committee emphasizes without any hesitation that the position of the Party

⁴⁰ Machlouzarides, Cyprus 1940-1960, 17.
⁴² Papademetres, Historic Encyclopedia, Vol. 11, 13-14
against EOKA has a series of mistakes and some of them quite serious”.43

From the beginning of the preparation of the struggle, the different approaches between the two leaders, Grivas and Makarios, were expressed. Makarios preferred to make movements which could be used later as means of pressure against the British and as a tool for the political claim; especially for sabotages and insults of empty targets. Grivas, even though in his memoirs emphasizes that the environment in Cyprus was not encouraging for rebel war, he enforced his plans for an extended armed action.44

It is very important to consider that the British Secret Services – irrespectively of what it’s been claimed up until today – were aware from the beginning almost everything, even the leader of the organization. Grivas incisively writes:

“February 13: According to information I received last night from Notis, the police is overseeing the area from Trikomo up to Mpogazi where a section of the Intelligence Service has been established. Of course they are looking for me in that area where my birthplace is.” Additionally, getting closer to April 1, 1955: “March 7, 1955: Because the British know that I am here, I intentionally spread rumors that I am disappointed by the existent situation and I want to leave Cyprus in secrecy.”45

Even though the infiltration of EOKA by the Special Branch was the primary intelligence goal, this was very difficult to be achieved because, as David Anderson argues, of the structure of EOKA. The rebel groups were invariably small, town and village units often numbering as few as half a dozen men and guerilla bands in the mountains never larger than ten.46 EOKA, despite the support of a great part of the Greek Cypriot

44 Kranidiotis, Difficult Times, 58-59.
45 Great Britain, The terrorism in Cyprus, 12
population, was founded on the premise of keeping the Left and the Turkish Cypriots outside the struggle. The basis on which the struggle was designed and implemented was such that could not promise a different ending than the failure and the division of the population, either nationally or ideologically. The assertion that AKEL could either be neutral in the struggle or participate using its own armed groups in a parallel way, ignores the importance and the intension of the conflict between the two parties all these years. Meanwhile, the ethnarchy was blocked in its need for confirmation of its role against the doubts of its political leadership, and in the unstable balance that was imposed by the allied forces inside the Right subsystem. Thus, Grivas was the only option for the ethnarchy as the leader of the struggle.

By Cypriot standards, the action of EOKA as a way of anticolonial struggle was undoubtedly a radical act but it mainly resulted from a long conflict of a very complicated situation between the ruling ideological parties of the Greek Cypriot community, always against the backdrop of colonial rule. As a result and not as a starting point, the choice of the struggle for Enosis, inspired by the elements of irredentist nationalism, constitutes in the period under examination, the most important manifestation of the dominant division within the local community.

The British found the perfect opportunity to render AKEL and its organizations illegal after the proscription of Governor Harding in 15 December 1955. They prohibited the release of documents of the party and they arrested 135 members of AKEL; among them was also the General Secretary of K.E. of AKEL, Ezekias Papaioannou. Although AKEL made it clear that was against the armed struggle, the British seized the opportunity to get rid of the “communist threat”

Under the guidance of the members of AKEL who escaped the arrest, massive strikes and demonstrations were organized. Members of the party who were imprisoned
managed to escape and help the reorganization of the party. AKEL started to recover and in February of 1956 the newspaper “Xaravgi” was published, replacing the previous newspaper “Neos Dimokratis” which was was the media expression of AKEL that was prohibited.

**British Intelligence Services and EOKA**

According to Stephen Dorrill, “it took a long time to set up an effective intelligence gathering machine” in Cyprus in dealing with the EOKA guerrilla war; in fact, the local Special Branch, controlled by MI5, did not discover that the mysterious “leader” of EOKA was Col. Grivas until November 1955, seven months into the EOKA campaign. Furthermore, MI6 did not join the colonial fight against EOKA until late into 1958, more than three-and-a-half years after Grivas announced the start of EOKA with a series of bombings on 1st April 1955. The intelligence committee that was formed comprised the Special Brach, MI5, MI6 and Army Intelligence but their weekly meetings were permeated with suspicion of each other. It was not until January 1959 that he security services were seriously told to track down Grivas.

According to Peter Wright, a former assistant director of MI5, AKEL was supportive of the EOKA guerrilla campaign led by Grivas, EOKA had penetrated the local Special Branch of the police and an MI5 officer was shot by EOKA in Ledra Street in Nicosia. Sent to Cyprus by the MI5 in Jnaury 1959 to help the British army’s 40,000 troops locate elusive Grivas, Peter Wright himself, as part of operation SUNSHINE, in January 1959 assisted John Wyke, MI6’s ‘best technical operator’, to

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49 Dorrill, *MI6*, 554.
50 Ibid, 555.
52 Ibid, 155.
install a secure telephone tap on the overhead telephone wire outside Archbishop Makario’s palace. At the same time, Wright searched for the aerial which Grivas used for his receiver and planted (through Greek-Cypriot armed dealer who had been recruited by MI6 and was instructed to buy a consignment of radio receivers in Egypt) a radio receiver on Grivas containing a radio beacon which would lead him right to the EOKA leader. Operation SUNSHINE pinpointed the villages of Yerasa and Palhodia in Limasson as Grivas’ centre of operations.53 Meanwhile, however, the Constitutional Conference at Lancaster House in late February 1959 settled the Cyprus problem politically. In the words of Wright, in his book ‘Spycatcher’:

“Looking back, I am certain that, had we been allowed to implement operation SUNSHINE when we first lobbied for it, in 1956, we could have neutralized Grivas at the outset. The Colonial Office, rather than EOKA, would then have been able to dictate the terms of the peace, and the history of that tragic but beautiful island might have taken a different course over the past thirty years”.54

In its counter-insurgency efforts, the Information Research department (IRD) in Cyprus ran operation TEA-PARTY, a black propaganda operation in the course of which journalists were provided with “titillating stories” (e.g., portraying EOKA members as paedophiles but, also, fed American correspondents with “Secret intelligence reports” to the effect that “captured documents” documented that the communists in Cyprus had joined ranks with EOKA.55 That black propaganda, a gross distortion of the truth since Grivas and EOKA were anti-communist, AKEL had denounced Grivas’ armed struggle against British rule, and, as Dorrill reminds us, the “Cypriot Communist party (AKEL) link to EOKA was tenuous at best.”

54 Ibid, 158.
55 Dorrill, MI6, 552.
One of the aims of operation TEA-PARTY in using black propaganda against AKEL was to influence American opinion and reaction in the United Nations. It comes as no surprise to find out that to achieve their aim, “some of the best propagandists were sent to Cyprus to organise an counter-campaign”.56

Conclusions

Historically, the rise of the nationalist cause of Enosis preceded the establishment of the Cyprus Communist Party. That in three decades a well-organised communist party evolved in Cyprus is not surprising in view of the demographic composition and the prevailing economy of Cyprus during the period under examination but, also, the fact that the civil war in Greece in 1945-1948 and the oppressive responses by the colonial government towards the Left in Cyprus acted as catalysts that increased its membership and encouraged it to become well-organised and ideologically committed to Moscow-type communism. While both posed a threat to British interests on the island, the British administration approach to dealing with the Greek-Cypriot communists repeatedly (in the 1920’s, 1931, 1955) consisted of surveillance, harassment, arrest and (in the 1920’s and 1930’s) exile of communist party leaders.

The British anti-communist strategy at the outset of the EOKA uprising is of interest in view of the fact that AKEL members had in 1943 enlisted in the British army and fought the Nazis, AKEL had been excluded from EOKA by staunch anti-communist Grivas and EOKA was, in fact, hostile towards AKEL. It is also of interest that despite the fact that the differences between the Left and the Right in Cyprus were intensified as a result of the Greek civil war, both worked for the success of the 1951 referendum for union with Greece only to part company as the outbreak of EOKA’s violent start of its

56 Ibid, 552.
guerrilla campaign against the colonial government was approaching.

When, following the 1951 referendum outcome, the right-wing in Cyprus took it upon itself to advance the cause of both enosis as well as anti-communism (and in this sense identifying with the right-wing in Greece), culminating in the launch of EOKA’s armed struggle on 1st April 1955, the British security services’ response was slow. In fact, it was no until 1958 that MI6 joined MI5’s efforts to collect high-level intelligence, locate the whereabouts of Grivas and carry out a systematic propaganda campaign internationally against EOKA and the communist threat in Cyprus. Tragically for the Cypriots, in dealing with the both the communists threat and the Greek-Cypriot nationalists, the British had, by the mid 1950’s, co-opted the help of Turkish-Cypriot nationalists and brought Turkey into the arena on the side of the Turkish-Cypriots, dangling taxim (partition) as the ideal solution to the ‘Cyprus problem’. Finally, there is no doubt that not only did the British play Greek-Cypriot nationalists against Greek-Cypriot communists but, also, sowed the seeds of discord among Greek- and Turkish-Cypriots in order to ensure their presence in Cyprus as the cold war continued unabated – a topic for a future paper.

References


Contemporary Social History Archives [ASKI]


Ioannou, Neofytos. That's how the Cyprus’s issue started. Athens: Filistor, 2005. [in Greek]


Katsourides, Giannos. The origins of the party system in Cyprus, 1878-1931. Nicosia: University of Cyprus 2009. [in Greek]


Servas, Ploutis. *Cyprus Issue: Responsibilities*. Athens 1985. [in Greek]
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Build Mathematical Model by MANET Parameters

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Abstract:
A mathematical model was built and implemented to estimate the optimal number of nodes required to be deployed in each new designed MANETs environment. Many queuing theory parameters were used to study and analyze the behavior of the MANETs.

Mobile Ad-hoc Network (MANET) was defined as a set of mobile nodes that moved freely and connected among each other without any infrastructure or administrator control. Each node contains a kind of queuing system like buffer used it to serve the arriving packets that reached to the busy node. The packets reach each node in certain sequence. The number of received (arriving packets) per unit time is called “arrival rate”. The average rate or the average time between any two successive packets is called the inter-arrival time and follow certain statistical distributions. The node will serve the packets according to certain mechanism (discipline) like drop tail.

Key words: MANET, NS-2, DropTail, Mobility Model, Queuing, DSDV, Mathematical model.

Introduction

Mobile ad hoc networks (MANETs) are formed dynamically by an autonomous system of mobile nodes. These nodes are wirelessly connected without using an existing network
infrastructure or centralized administration. MANET capabilities and its applications are expected to become an important part of overall next-generation wireless network functionalities. MANET's nodes are free to move randomly. Such network's topology may change rapidly and unpredictably. Each mobile node can have one or more network interface, each of which is attached to a channel. Channels are the conduits that carry packets between mobile nodes. When a mobile node transmit a packet to a channel, the channel distributes a copy of the packet to all the other network interface on the channel. These interface then use a radio propagation model to determine if they are actually able to receive the packet [D. B. Johnson, et al., 1999].

Queuing theory is the process of handling the sequence of activities that arrives to certain server in certain shape. The server will serve these arriving units in certain order. In MANETs the nodes will serve the arriving packets in certain discipline (FIFO (Drop Tail), PRIORITY, RED, etc). The effects of the sent packets mean inter arrival time and packets mean service times on the network nodes idle times, loss packets, mean servers (nodes) utilization and throughput were studied and analyzed in this study [Moshe Zukerman].

Queuing Concept

Queuing systems may be characterized by complex input process, service time distribution, number of servers, buffer size and queuing disciplines. Modeling simplification is often made when the aim is to analyze a complex systems. In communication networks the packets transmitted to their destinations will arrives at a router where they are stored and then forwarded according to addresses in their headers. Queuing network models can be classified into two groups: (1) open queuing networks, and (2) closed queuing networks. In closed queuing networks the same customers stay in the network all the time. No new customers join and no customer
leaves the network. Customers that complete their service in one queuing system goes to another and then to another and so forth, and never leaves the network. In open queuing systems new customers from outside of the network can join any queue, and when they complete their service in the network obtaining service from an arbitrary number of queuing system they may leave the network [Moshe Zukerman].

Performance Evaluation

Many performance metrics were developed to collect and report the required information to measure the performance of the networks. All of the measuring performance processes requires the use of statistical modeling to determine the results [Odge, 2003]. This study deals with the following important performance metrics.

1- Throughput
It is represents the mount of data received by the destination nodes through period of time [Ravi Kumar Bansal, 2006].
Throughput=receive packets/simulation time

2- Dropped Packets
It is the number of packets that sent by the source node and fail to reach to the destination node [Aliff Umair Salleh, et al., 2006].
Dropped packets = sent packets\(i\) – received packets\(i\)

3- Mean Inter Arrival Time
The arrival process is characterized by the arrival time \(ar_i\) of the packets or customers (received packets) and it can be computed by the following equation:
\[ a_i = (ar_i - ar_{i-1}) \]
Mean inter-arrival time average is the summation of inter-arrival times by the number of received packets (n):
\[ av = (\sum a_i / n) \]
4- **System Busy Time**

System Busy time represents the total service times of the server [Hyungwook Park, 2009].

\[ B = \sum s_i \]

5- **System Idle Time**

If the queue is empty and the server is idle, a new packet is immediately sent to the node for service, otherwise the packet remains in the queue joining the waiting line until the queue is empty and the server becomes idle. The system idle time (I) can be computed by the following equation [Hyungwook Park, 2009].

\[ I = T - B \]

Where \( T \) is the simulation time and \( B \) is the busy time.

6- **Mean Server Utilization**

The server utilization is one of the important indications to design systems that will maintain high utilization [Moshe Zukerman]. Mean server utilization is the percentage of time where the server is busy. The server utilization (U) can be estimated by the following equation.

\[ U = \frac{B}{T} \]

7- **Mean Service Time**

Mean service time (S) is the average required time for each packet to be served (or to be forwarded for certain cases). It can be computed by the following equation:

\[ S = \frac{\sum s_i}{n} \]

where \( s_i \) is the service time of \( i^{th} \) packets and \( n \) is the number of the sent packets.

**Simulation Environment**

The following suggested simulation environment was built and simulated in this study. Table(1) shows the proposed MANETs parameters and their types or values.
To evaluate the performance metrics with different MANET's parameters such as varying numbers of nodes and different areas. Table (2) shows these MANET's variables values.

### Table (2) The suggested MANET variables.

<table>
<thead>
<tr>
<th>Case number</th>
<th>Nodes number</th>
<th>Speed</th>
<th>Pause time</th>
<th>Simulation area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3,4,5,6,7,8</td>
<td>10m/s</td>
<td>6s</td>
<td>500m*500m</td>
</tr>
<tr>
<td>2</td>
<td>4,5,6,7,8,9,10,11,12,13</td>
<td>10m/s</td>
<td>6s</td>
<td>800m*800m</td>
</tr>
<tr>
<td>3</td>
<td>6,7,8,9,10,11,12,13,14,15,16,17,18</td>
<td>10m/s</td>
<td>6s</td>
<td>1000*1000</td>
</tr>
</tbody>
</table>

**Simulation Results**

In order to collect the required data and information to be used in queuing modeling, the following steps were proposed to be followed during the implementation of the NS-2 to simulate the suggested designed MANET scenarios in this paper.

1. **Step1:** start.
2. **Step2:** build the traffic generators between the mobile nodes using the "cbrgen".
3. **Step3:** generate the movement file (scenario file) for the suggested MANET using the "setdest".
4. **Step4:** build the "tcl" file that used to simulate the designed MANET's environment.
Step 5: feed this "tcl" file with the traffic file and the scenario file to achieve the simulation process. At this step, two files (trace file and NAM file) are resulted.

Step 6: compute the average values for each metric.

Step 7: apply the mathematical model based on the average values for certain metrics (selected maximum value) which indicate the best nodes number for this MANET.

Step 8: end.

**Probability Computations**

The authors were tried to compute the probability of finding receiving packets of destination node during the simulation time with different areas using the following developed equation:

\[ P = \frac{av(i)}{Ts} \]

where av is the average execution of the 25 runs and Ts is the run simulation time.

The similar equation was also used to compute the probability of the lost packets, busy time, idle time and mean server utilization during the simulation time. The following figures show these probabilities for certain performance metrics.

Figure (1) clarifies the probability of the throughput during simulation time within different areas.

Figure (2) shows the probability of the lost packets during the simulation time with different areas.
a. for area of (500m*500m)
b. for area of (800m*800m)
c. for area of (1000m*1000m)

Figure (2). Probability of the lost packets.

Histograms in figure (3) show the probability of the busy time, idle and utilization for varying number of nodes with area 500*500m.

a. probability of busy time.
b. probability of idle time.
c. probability of mean server utilization.

Figure (3). The probability of busy, idle and utilization with area of (500m*500m).

Histograms in figures (4) and figure (5) shows the probability of busy, idle and utilization for varying number of nodes with area of 800m*800 m and area of 1000m*1000m respectively.

a. probability of (busy time)
b. probability of (idle time)
c. probability of (mean server utilization)

Figure (4). The probability of busy, idle and utilization with area of (800m*800m).

a. probability of (busy time)
b. probability of (idle time)
c. probability of (mean server utilization)

Figure (5). The probability of busy, idle and utilization with area of (1000m*1000 m).
In this study the Poisson equation was suggested to compute the packets arrival rate as a probability density function within each area:

\[ p(x) = \frac{e^{-1/\lambda}(1/\lambda)^x}{x!} \]

Where \( \lambda \) is average of inter arrival time and \( x \) node numbers in above table.

Figure(6) clarifies the histograms of the arrival rate as probability distributions within all the different areas.

The Poisson equation was also used in calculating the service time as probability density function for each number of nodes with different areas:

\[ P(x) = \frac{e^{-(1/\mu)x}(1/\mu)^x}{x!} \]

Where \( \mu \) is the mean service time and \( x \) is the number of nodes.

Figure(7). Probability of mean service time for varying number of nodes.

Mathematical Model

Mathematical model is verified by experimentation and gives acceptable accuracy and provides a solution for selecting
optimum number of nodes with certain area. So, this model gives more accurate information using the defined value probabilistic mathematical model. After experimentation with several equation on the calculated result tables.

The following equation was suggested and applied to calculate the value which indicate the best number of nodes in each area size.

\[ V = (AV_T(i) + (AV_U(i) \times 1000) - AV_L(i) - AV_I(i)) \times e^{(\mu + \lambda)} \]

Where \( AV_T \), \( AV_U \), \( AV_L \) and \( AV_I \) are average of throughput, utilization, loss packets and idle time respectively. \( \lambda \) is the transmission rate( reception rate) and \( \mu \) is the service rate.

This equation was applied and it is results were shown in tables (3). These tables are clarifies the optimum number of nodes.

### Tables (3) Results value and number of nodes with different areas.

<table>
<thead>
<tr>
<th>Number of node</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>7735.174</td>
</tr>
<tr>
<td>4</td>
<td>10518.36</td>
</tr>
<tr>
<td>5</td>
<td>10893.28</td>
</tr>
<tr>
<td>6</td>
<td>10830.61</td>
</tr>
<tr>
<td>7</td>
<td>10813.63</td>
</tr>
<tr>
<td>8</td>
<td>10910.03</td>
</tr>
</tbody>
</table>

(a) Area of 500m*500m

<table>
<thead>
<tr>
<th>Number of node</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>4496.434</td>
</tr>
<tr>
<td>5</td>
<td>4605.419</td>
</tr>
<tr>
<td>6</td>
<td>4781.228</td>
</tr>
<tr>
<td>7</td>
<td>6416.608</td>
</tr>
<tr>
<td>8</td>
<td>9207.82</td>
</tr>
<tr>
<td>9</td>
<td>6938.394</td>
</tr>
<tr>
<td>10</td>
<td>5647.1</td>
</tr>
<tr>
<td>11</td>
<td>5532.143</td>
</tr>
<tr>
<td>12</td>
<td>3975.586</td>
</tr>
<tr>
<td>13</td>
<td>3958.918</td>
</tr>
</tbody>
</table>

(b) Area of 800m*800m

<table>
<thead>
<tr>
<th>Number of node</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>2033.63</td>
</tr>
<tr>
<td>7</td>
<td>6122.605</td>
</tr>
<tr>
<td>8</td>
<td>6145.126</td>
</tr>
<tr>
<td>9</td>
<td>7541.964</td>
</tr>
<tr>
<td>10</td>
<td>8977.607</td>
</tr>
<tr>
<td>11</td>
<td>7479.679</td>
</tr>
<tr>
<td>12</td>
<td>7383.792</td>
</tr>
<tr>
<td>13</td>
<td>7218.31</td>
</tr>
<tr>
<td>14</td>
<td>6126.22</td>
</tr>
<tr>
<td>15</td>
<td>6083.126</td>
</tr>
<tr>
<td>16</td>
<td>6039.263</td>
</tr>
<tr>
<td>17</td>
<td>5650.2</td>
</tr>
<tr>
<td>18</td>
<td>5516.251</td>
</tr>
</tbody>
</table>

(c) Area of 1000m*1000m
Figures (8), (9) and (10) shows graphs to indicate the maximum value which indicate the optimum number of nodes for different areas. X graph tool that supported by NS-2 was used to draw the results in the following figures.

**Figure (8). Optimum value of nodes number for area of 500*500m.**

In figure (8) shows that for area 500m*500m with DSDV protocol, the optimum number of nodes for this MANET is (5). This value represents the maximum value in the curve.

**Figure (9). Optimum number of nodes for the area of 800*800m.**

From this figure, the optimum number of nodes are (8) for the MANET area of 800m*800 m if using the DSDV as a routing protocol.
Figure (10) show that (10) nodes are optimal value for area 1000*1000 with routing protocol DSDV.

Conclusion

There are many tools that can be utilized to improve and develop the behavior of the MANETs. The well-known performance metrics were studied in the current and previous times by many researchers. This study concludes that there is a possibility to make use of many other performance metrics in addition to these well known metrics. These new metrics (or special used) were mixed with the other metrics to develop and estimate certain indications about the MANET's behavior.

A suggested mathematical model was built and implemented to compute the optimal number of nodes for each MANET's area with the use of the DSDV routing protocol. The optimum number of nodes are depending on the effects of the mean inter arrival time, mean service time, maximum throughput, mean service utilization, minimum idle time and lost packets. Ns-2 was used as a simulation tool in simulating each of developed scenarios. The AWK language was also used to estimate many performance metrics values.

REFERENCES

Science and Engineering Department, Thapar Institute of Engineering and Technology, Deemend University, 2006.


Role of Elite Class in Political Groupings and Orientation of Local People: A study in Taunsa, Dera Ghazi Khan Pakistan

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Abstract:
All institutions of society have some individuals who own a superior position than others in their particular group or institution. They have or considered to have the ability to lead and control over the people’s thoughts. They are called elite class in their respective institution like as political, spiritual, economic, religious or intellectual one. Elite class has some influence on local people’s choices respectively and has the ability to change the choices of common persons and wins the loyalty by them. The purpose of current paper was to study the impact of local elite class on political groupings and orientation of local people as well as the voting behavior of people. It also explored that how local elite class made their influence on people. The locale of the study was Taunsa city, District Dera Ghazi Khan. A sample of 100

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respondents was drawn from people of different classes like lower, middle, upper and interviewed randomly.

**Key words:** Elite Class, Political Grouping, Political Orientation, Voting Behavior, Local People.

**Introduction**

Socioeconomic status is an indicator for class determination. Socioeconomic status is determined by ranking people usually according to income, education and occupation levels, and grouping them into corresponding high, medium and low socioeconomic status groups (Germov, 2005). So the indicators of a class are the income level, occupation, education and lifestyle. This class background affects the individual’s likes and dislikes, preferences and voting behavior.

The elites control a significant part of the means of production, for example land, herds, water, capital, farms or factories. Those born at the bottom of hierarchy have reduced chances of social mobility. Because of elite ownership of rights, ordinary people lack access to resources (Kottak, 2002). In the Hpalang community, as Leach (1964) stated, the ‘Rich man’ owned two or three buffalo and several hump-backed cattle and one or more plot of wet paddy land in the valley. He had large houses, they owned antique gongs and shotguns, and their womenfolk had a store of fine jewelry for show occasions. ‘Poor man’ cultivated only a plot in the hill side taungya clearing. They had no cattle but probably a pig or two and several chickens.

The landlords provide land to tenants for cultivation and dwelling. These tenants live there and work for landlord and this servitude transfers from generation to generation. Sardars and landlords have the authority of decision making among people. They resolve disputes and provide protection to their
groups and individuals in case of disputes. In case of which they win loyalties of the people in different ways and are obeyed by them.

Political orientation leads political grouping which characterizes the thinking of a group or nation’s ideology or an integrated set of attitudes and beliefs of people about politics. Political groupings normally are founded in two ways: by social elites who gather around them a group of influential supporters to defend their positions, or by citizens who seek the support of like-minded people to achieve political or social change. Different groups are in competition for influence and power (Hofmeister and Grabow, 2011).

The elite class in Pakistan influences the politics by using different tools. One is the qaumism; by which elections are contested on qaum grounds. Appeals are made to the electorate based on common qaum membership. The other thing is religion. Religion is used to manipulate people in the politics. Language and interests are also used to win the politics by the elites (Lyon, 2002).

Those individuals reaching the assemblies may have a party identification, but still be local notable backed by landed or other source of power. The large landlords are the largest group in the Pakistan National Assembly and have managed to hold about half the seats since 1970 elections. Most Pakistanis are under the impression that the National and Provincial Assemblies are still the playing fields of power elites (Adil, et al. 2000). Khan, et al (2007) stated that in voting behavior of people in Mansehra, biradari is the most important criteria in determining whom to vote for but party affiliation is not an important one for voters. Women are no less likely to vote independently than men. The voting behavior is connected to biradarism because biradari leader has a great importance. In this case, the religious affiliation is also prominent and religious leader also has a little influence and consequences.
Materials and Methods

The study was conducted in Taunsa city, a Tehsil of District Dera Ghazi Khan. For this purpose, a sample of 100 respondents, by using stratified random sampling technique, was selected from the stratified population of Taunsa. In order to collect and observe the opinions of local people, an interview guide was developed by which formal and informal interviews were conducted. Data was also collected by in-depth interviews from respondents. In spite of this, the techniques of participant observation and key informants were also used, as well as the socio-economic survey forms to observe the socio-economic condition of the people.

Results

Local Politics
Different types of politics exist in Taunsa. Tribal and sardari system, spiritual factor (Piri-Muridi), relations and connections (Ta’alluq-dari), personal interests, threats, court politics (Thana-kachehri) and caste biradari are the factors which provide the base for politics in Taunsa.

The migrated population of Taunsa city and its neighboring rural areas are under social and political influence of sardari system. The prominent tribes Qaisrani and Buzdar exist there whose head is called ‘chief’. As in African Ngwato, the Bemba, and Ankole, where a tribe or kingdom ruled over by a chief or king, what may be called the 'political society' (Fortes and E-Pritchard, 1940). The chief is also called ‘tumun-dar’ and his tribal community is called his tunum. Due to having the whole tumun, chief has his personal vote bank. The chief has too influence on his tribal people to act anything with his own consent. People, by birth, accept him as sardar and give him vote without any demand. He either does work for people or not, he wins in his area due to his tumun. The other politicians
want to make coalition with chiefs. He either chooses MNA seats or MPA, and support the other partner in this coalition. As Lyon (2003) said that ‘Landlords actively participate in elections, either as candidates or behind-the-scene, kingmakers’. The tribal people are much loyal to their tribal system as well as their chief. They love and respect him without any demand. According to the people’s response, this loyalty was more in Qaisrani tribe than in Buzdar.

The other thing was threat, which forces people to attach with sardar. If someone opposes the sardar or doesn’t act according to his consent, sardar does not care for him and doesn’t solve his problems. Some respondents described that they supported their tribal chief and gave him vote because if they didn’t act like this then sometimes they became the victims of revenge. They were sued and they were entrapped in thana-kachehri matters. If any government employee acted that then he was transferred out. So that, according to people, they attach with sardar or the political personalities because everyone wants to make sure his survival. This type of views gave those people mostly who were involved in thana-kachehri matters.

In spite of this, the other mixed politics as relationships (Ta’alluq-dari), spiritual factor (Piri-Muridi) and personal interests based was executed. This type of politics usually related to Khawajgan. People gave vote to Khawajgan on relationship basis (Ta’alluq-dari) or faith (aqidat) or achievement of personal interests. The political personalities could not win votes of people without struggle in this type of politics. They had to do something for people then they could win in elections because these political personalities didn’t have their personal vote bank like tumun.

**Political Grouping and Voting Behavior**
The political grouping and choice is developed by material and nonmaterial satisfaction. The material satisfaction includes the
fulfillment of material needs as employments, good earnings, development work, infrastructure, good health and education facilities etc. The non-material satisfaction mostly depends upon ideology basis. The person who gains the ideological satisfaction from any personality or party, he attaches that personality or party. Some people impress by the ideology of any particular party or personality so they become the part of that particular group. The reason behind some people’s attachment with any political group or person would be loyalty or relationship (Ta’alluq-dari). Some show attachment for achievement of personal interests or due to caste/ biradari etc. The composition of a political grouping system, in other words, results mainly from the factor of the structure of social conflicts and interests. In the present situation at local level, as people were interviewed in the locale, different responses about the reasons behind their political groupings were given. During interviews, people described the reasons behind their attachment to their desired politicians or parties were as under: 41% respondents said that they gave vote on loyalty basis or due to their personal relations to the politicians. The ratio describing loyalty was mostly attached to sardars of Taunsa, and the people telling relationship (Ta’alluq-dari) or aqidat, the cause of voting were mostly attached to Khawajgan. They all people told that they gave vote to their desired candidate without any demand. 16% of the respondents told the reason to give vote to their desired candidate as personal benefits. They people said that they had some issues like employment opportunities, transfers in government jobs, court cases and thana-kachehri matters as well as time to time occurring problems and their solution, disputes in biradaris etc. They said that which one helps them and assures them to solve their mentioned problems, they give him their votes and support him. But if he fails to fulfill his promise, then next time they will oppose him in elections. 11% people responded that they gave vote to that person who did development work in the area.
They said that development work should be done on equality basis so that the deserving people can get opportunities to boosting their lives up. They stated that relationships (Ta’alluq-dari) or reference based work manipulated the rights of deserving people. 23% of respondents told their reason to become the part of any particular political group were according to their family or biradari decision. They said that as their family or biradari head decides, they give vote to that personality. Mostly females respond like this. They said that what their husband/father/uncle/grandfather etc., said to give vote they acted same. All above mentioned categories, according to their responses, gave vote to any local political personality rather than any political party at national level. The local political personalities either join PML-N or PPP or any other national political party, they had no concern about this. They only look their sardar or pir or ta’alluq-dar etc. other 7% respondents represented their voting behavior according to the party ideology. They people were less in number as compared to others. That situation usually would be associated mostly for PPP (Pakistan People’s Party) in Taunsa. They people supported and liked the ideology of PPP. Some of them were called ‘jealay’ who were much enthusiastic about Zulfiqar Ali Bhutto and Benazir Bhutto and Bhuttoism. Other 2% people gave different answers about their voting behavior like as threat or habit to give vote etc.

Discussion

Political Orientation

There are many factors that shape and influence political views of people as well as behavior about upbringing, career and friends and partners. Some medical scientists suggest that there could be a more fundamental factor behind people’s choices and political views; it could be influenced by their genes. A field of study geno-politics describes that identical
twins shares more similar political opinions than fraternal twins. Stafford (2012) stated that ‘political choice isn’t just influenced by dinner table conversation, which both kinds of twins share, but also by parents’ genes, which identical twins have more in common than fraternal twins’. Anyhow the political behavior may contain both nativist and empiricist perspectives.

The political orientation is done by formal and informal ways. By the informal way, this political orientation is done from family and peer group. From the birth of the child, he is orientated in his cultural, religious and political beliefs by his family, peer group and society. He sees his parents as the part of particular social, religious and political groupings and by following them he also becomes the part of those particular groups. He observes his family members to praise some personalities and bad comments about someone else. By this process the images of good and bad personalities and groups are made in his mind and reaching the age of adolescence he becomes the person of those concepts which are owned by his family members. This is an informal way of political orientation of people by which people mentally attach to some particular personality.

Then political orientation is done by educational institutions and process. Educational syllabus praises for the national heroes and the state and elite class takes benefits by this process. Plato (360 B.C.) said that ‘All education is designed to serve the state, to unify the classes and to strengthen the commanding role of the elites’. He further added that ‘The education of workers (lower class) teaches them to obey their superiors and control any excessive materialistic desires. The auxiliaries (middle class) learn to accept and follow their rulers’ every command, and are trained to be courageous in protecting the state’.
The formal way of political orientation exists in different forms. In the locale different political organizations of students at college level were established which were affiliated to political parties and politicians promoted these organizations by providing funds and facilitated to arrange groupings and conventions. These organizations include PSF, MSF, BSO and ISF etc., which orientated students for politics at local level. After this stage the organizations at grassroots’ politics provided some designations to local people as Tehsil President, General Secretary, Finance Secretary, and Information Secretary and so on. These people collected funds from various political personalities and arranged different political programs, public debates, celebrations on specific occasions at local level which developed interest in local youth for politics and they became the members of particular groupings at local or national levels.

Another form of political orientation was political meetings, gatherings. That was the most common way of personal contact of politicians and local people. This thing was observed and caught at sight during election campaigns doing by politicians. They established political gatherings in which they orientated people by political tricks by assuring them to remove their all problems after winning in elections. Personal contact is the way to approach people and to convince them to join their party or group or give them vote. A carefully prepared home visit that was conducted with politeness and sagacity facilitated the decision to join them in elections. The politicians sometimes introduced their party ideology if they were affiliated to that. Political orientation was also done by political personalities by providing jobs and development projects to those people or groups which were their permanent voters. They also solved their routine problems in court cases and thana-kachehri and others.
In spite of this, print media also played an important role in political process in Taunsa. Political orientation of people to some extent was also done by print media like local newspapers and magazines. The news about politicians and their own descriptions orientated the political views of people.

Role of Biradari

Biradari was one of the major factors which forced people to make political groupings in the area. People of the community living together in their respective biradaris were interconnected through social ties within biradaris. The bonding in biradaris was different in various castes. The tribal castes kept a strong biradari bonding. They have a ‘centralized political system in which power and authority were controlled and executed by a most influential person called chief, he has control over a number of individuals or groups’ (Scupin and DeCorse, 2009). Those biradari groups had a supreme head called ‘chief’ as in Zulu tribe of Africa (Fortes and E-Pritchard, 1940). All community members and small group-heads usually followed the supreme head and sometimes provided their opinions during counseling at particular occasions. The tribes ‘Qaisrani’ and ‘Buzdar’ kept this type of set up. At the time of political settlements or elections, this kind of counseling takes place and political matters and affiliation to a particular political party are suggested. Then what the biradari head adapted the political party or made coalition with some particular politician, most of the members of biradari followed him. Some non-tribal caste groups also had their head and people followed him at different social and political matters. People supported and gave vote because candidate is their sardar and belonged to their caste/ qaum/ biradari etc. Fortes and E-Pritchard (1940) said that ‘In the stateless societies, kinship ties appear to play a more prominent role in political organization’.
The tribal head or local community leaders played an important role in social and communal matters. According to respondents’ views, inter groups and intra groups’ clashes and disputes were controlled and resolved by the biradari head or local community leaders. The disputed groups followed the final decision taken by their head. Some people also had violated behavior and ideas to the biradari values. They didn’t want to follow the decisions by their biradari head. They had their own will and ideas and political choice but this type of people were very rare. According to them, they could not express their ideas due to their social set up, which forces to follow the practiced principles or keep silent in case of opposition.

Religious and Spiritual Factor
Religion is the most important factor to influence people’s will and choices. As Frazer (1922) described that “Religion and magic give support to the political organization of society. Religion has primarily served to legitimize and protect the interests of ruling class.” The elite class of Taunsa also influenced on people by using religion as a tool to win their political choice. The relationship and level of trust between elite class and local people existed on the basis of religion and spiritualism. The local politics of Taunsa city was mostly captured by Khawajgan who were the most religious and spiritual personalities, pirs and gadi-nashin of the shrine of Taunsa. The Khawajgan were involved in politics and had the most prestigious rank in the area. They win the loyalties of people due to their gadi and being pirs of people as well as by politics. In the period of government by PML (Q) and PPP, MNA seat of Taunsa was owned by Khawajgan and at present in the government of PML (N), they has MPA seat. In spite of this, Sajjada-nashin of the shrine of Taunsa, remained the acting minister of religious affairs in the regime of General Parvez Musharaf.
They have complete influence on local people. Children of *pirs* and *gadinashins* when spend time with servants and followers, this provides the opportunities for them to learn that they are superior from others. They see different rituals being performed on shrine and people’s loyalty (*aqidat*) for them and they learn to be *pirs*, nobles and spiritual elites. Same situation was about *sardars*. The son of *sardar* would be a *sardar* by birth and people obey him like their *sardar*. On the other hand, the children of local people learn from their parents and from society that they have an inferior position in society and they have to follow the elites for their survival. People give vote to the elite class because they are their *sardar* or *pir* or they belong to their *biradari*.

**Conclusion**

Between the elite class and local people in *Taunsa*, a class struggle (Marx and Engels, 1847) exists. Both classes struggle for their personal benefits. Elite class, for their popularity, getting votes, winning loyalties, and maintaining their position strong in political environment, visit local people, listen their problems and solve them. They care for their vote banks and *biradari* members and provide protection in case of disputes and problems. The local people, for their personal interests, attach to politicians and *sardars* and give them vote. They always represent their attachment to them for being their positions strong in the eyes of dominant personalities and to get their attention. They show their loyalty to them and do work during election campaigns. This class struggle between the elite class and local people provides a strong base for the politics of *Taunsa*. This class struggle constantly exists like as the ‘social contract’ (Rousseau, 1762) in which a reciprocal relation between elites and local people establishes a social set up. People exchange their political consent and freedom of expression in return of their protection and problems solution.
REFERENCES


Kosovo and Stabilization – Association Agreement

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Abstract:
Kosovo, as one of the new emerging states, has a great will, to enter into the great family of the European Union - EU. Already a member of the Free Trade Agreement of the Central Europe (CEFTA), the World Bank, International Monetary Fund, and all these has effects in its economic development and beyond.

The current foreign policy of Kosovo tries to perform its function in two directions. On one side, has its priorities to providing new recognitions of the state and, on the other hand, emphasized the need for alliance with the five countries that have not recognized yet Kosovo’s statehood, in order to have easier integration into the EU.

Kosovo lacks proper implementation of international marketing, the periodic publication of Kosovars’ adequate developments with its global politics, which will analyze their effects on foreign policy in general and, in Kosovo will be set a higher level of public debate over these developments.

This has driven us to the current analyzes, directly related with agreements and integration processes, to deliver a paper to measuring the recognition of the SAA, targeting certain groups in Kosovo.

The paper also present a part of a research conducted in Kosovo, on how much and to what level is the knowledge of local population for SAA. Research instrument was a questionnaire, with direct communications, developed during the year 2013.
Key words: Kosovo, SAA, EU integration process.

1. Kosovo and the European Union

The EU membership perspective is of great strategic importance for Kosovo. Kosovo's economy ranks among the least developed in Europe, with mainly importing economy, where exports cover only about 10% of the total import. This unfavorable economic structure also in international trade is one of the main causes of the low level of economic development. Any economist will agree that significant economic improvement comes, only with penetration to foreign markets, boosting exports, where follows the reduction of extremely high trade deficit. In this regard, the role international marketing is of great importance to transforming Kosovo into a European family member. Provision of public services and its effective functioning of the state, rely on a professional, efficient and transparent public administration, with a quality educational system that continuously transfers the knowledge to business, public administration and, beyond. Kosovo as one of the youngest countries does not exercise a total bureaucratic control over the economy. Hence, to have a genuine economic development, Kosovo in the first place should ensure: the increase of competitiveness, private sector strengthening, generating opportunities to provide employment to its population, improve the image of Kosovo for new investment, build favorable fiscal policies, develop and improve financial markets and, secure and stabilize business environment.

Within the trend to have separated and defined boundaries of the respective states on one hand and, dependence with others on the other hand, the barriers that we divide and identify as a whole, are made prominent obstacles but, also desirable. Obstacles, primarily overcome by strengthening economic cooperation with the implementation of
sales and purchases, commercial exchange between countries, i.e. through exports and imports.¹

Still many countries are directed towards fees or "voluntary restrictions", elective imports versus trading partners. Since these restrictions, are discretionary, they are not subject to negotiation through international agreements. Time has proven that they don’t have great weight in the firm’s strategy.²

During 2012, the countries of Eastern Europe were characterized by declining economic activity, primarily due to lower overall demand. The decline in economic activity in the region has also resulted in the deterioration of the labor market. Recent estimates of the European Commission, show an average unemployment rate in the countries of Eastern Europe by 27% (0.7% higher than 2011). However, with the highest rate of unemployment continue to lead Bosnia-Herzegovina and Kosovo.³

Mission agreements ensure that there are integrations in: the new economic environment, consolidation of reforms, improved trade balance, no-barriers exchange trade, export incentives and, support further fiscal policies for local producers as well as for potential exporters and, for new industries with export potential or export replacement with the trade of mutual interest. These combinations, drives to making agreements which facilitate cooperation and wider economic development.

2. Stabilization and Association Process

Within the Dialogue on the Stabilization and Association Process (SAP), the EU holds regular meetings with the Kosovo authorities for a number of topics. This serves as a benchmarking tool "stick and carrot policy" in the process of EU

² Kristo I., “Biznesi ndërkombëtar”, Tiranë, PEGI, 2004
³ Banka Qendrore e Kosovës, “ Raporti i bilancit të pagesave” Nr.12, Prishtinë, Qershor 2013
family enlargement. The EU and Kosovo authorities discuss a range of policy issues and agree on follow-up actions. Before any dialogue of SAP, the EU discusses the same issues with the Civil Society.4

Stabilization and Association Process (SAP) is the EU policy framework for the Western Balkan countries, up to their full acceptance.

Partnership between the EU and the Western Balkans is in the interest of all partners of peace, stability, freedom, security and justice, prosperity, quality of life, both for the EU and the Western Balkan countries.

SAP has three purposes: stabilization and swift transition on economic market, promote regional cooperation and, perspective for EU membership. This process helps the region countries to build capacity for adaptation and implementation of European standards, including the European legislation (acquis) and international standards.

SAP is based on progressive partnership, in which the EU offers various types of trade concessions, economic and financial assistance (Instrument for Pre-Accession) and contractual relationship (Stabilization and Association Agreements). Each country moves forward by fulfilling the conditions set out in the framework of the SAP. Annual Progress Report oversee the readiness of the Western Balkan countries getting closer to the EU.5

After the EU Regional Approach to the countries of the Western Balkans in 1997, the European Commission, in 1999, submitted a more rational and ambitious vision for the development of the region - the Stabilization and Association Process. Its instruments were formulated at the Zagreb Summit in November 2000.

4http://eeas.europa.eu/delegations/kosovo/eu_kosovo/political_relations/stabilisation_and_association_process/index_sq.htm
5http://eeas.europa.eu/delegations/kosovo/eu_kosovo/political_relations/stabilisation_and_association_process/index_sq.htm
Thessaloniki Summit, held in June 2003, supplemented SAP with elements inspired by the enlargement process, in order to overcome the new challenges. Thessaloniki Agenda introduced a new set of instruments to support reforms of the Western Balkan countries and to sensitize them to the European Union.

The most comprehensive instruments are the European Partnerships, inspired by the Accession Partnerships. The first group of European Partnerships was approved in 2004: by setting short and medium term priorities that Western Balkan countries must meet. European Partnerships will also help those countries in reforms and preparations for future membership.

All Western Balkan countries enjoy the prospect of European Union membership, the objective set by the European Council in Feira, June 2000 and, confirmed in June 2003 by the European Council in Thessaloniki.

As these examples show, SAA is a pre-membership mechanism for the EU, the main function of which is to achieve a degree of cooperation between the candidate countries to join the EU.

3. Stabilisation and Association Agreement

Negotiations between Kosovo and the EU for Stabilisation and Association Agreement (SAA) underwent. The first phase was in December 2012, where the European Council, confirmed the progress and the possibility of opening of SAA negotiations between Kosovo and the EU. This possibility was conditioned with the obligation for Kosovo to meet short-term requirements outlined in the feasibility study.

The second phase continued in April 2013 the European Commission has confirmed that Kosovo has meet short-term requirements in the rule of law, public administration, minority rights and trade. In June 2013, taking into account the short-
term performance criteria, the European Council praised the achievements and confirmed the launch of negotiations for Stabilization and Association Agreement.

The next phase, continued with conducted meetings between the Government of Kosovo and the European Commission. The first meeting was held on October 28, 2013 for negotiation on Stabilization and Association Agreement, followed with another two meetings.\(^6\)

On November 27, 2013 the second meeting has taken place. In the meanwhile, dozens of technical meetings were held, aiming negotiation and agreement on all of the text of the SAA.\(^7\)

On May 2, 2014 was held the third and final negotiation meeting between the Government of Kosovo and the European Commission for negotiation of Stabilization and Association Agreement.\(^8\)

SAA between the Republic of Kosovo and the European Union, consists 416 pages, divided into 10 titles, 7 annexes and 5 protocols.

These negotiations are seen with historic importance, because they start a new chapter in the integration processes of Kosovo and, they start a new process that happens only once in the history of a country, hence, in the history of Kosovo too. Also this process is also known as the opportunity that leads to Kosovo towards the membership in the EU family.

4. Recognition of the Stabilization and Association Agreement in Kosovo

A successful negotiation process of the SAA, requires a defined organizational hierarchy, simple and clear procedures,
technical expertise and involvement of all political and social factors, including Public Administration and civil society.

Global environment that rapidly changes creates both, opportunities and risks. With the advent of faster communication, transportation and, financial flows, the world is shrinking.\(^9\)

In Kosovo was conducted a study, which aims to assess the level of knowledge of: public administration employees in various Municipalities of Kosovo, the enterprises, the university staff and students. Research instrument was a questionnaire, with direct communications and, was developed in 2013. More specifically, primary the study aimed to assess the level of knowledge about the CEFTA Agreement, the SAA and other agreements in functions of the integration processes of Kosovo in the EU.

Persons who were interviewed represent different characteristic in terms of gender, age, education and, employment experience. Thus, from 350 respondents 51% were female and 49% male. The proportion of sexes is almost equal, the female respondents is greater for only 2%. 350 questionnaires were distributed and filled by targeted groups, as follows:

- 70 enterprises,
- 80 public administration,
- 200 questionnaires at the Universities, from those 80 were distributed to academic staff and 120 to the students.

\(^9\) Kotler Ph., Armstrong G., “Parimet e Marketingut”, UETPRESS, Tirana, 2013
As we can see from Table 1, the women respondents in the categories of students and the Public Administration are more cooperative than males in completing the questionnaire and, that at the other categories, the enterprise and academic staff, the number of female is lower not only as a respondents to our conducted study but also as a workforce too.

What are the age of the target groups age, is presented below in percentage as well as in numbers:
Table 2 Respondents age groups by numbers

<table>
<thead>
<tr>
<th></th>
<th>18-22</th>
<th>23-35</th>
<th>36-55</th>
<th>55+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprises</td>
<td>19</td>
<td>30</td>
<td>25</td>
<td>6</td>
</tr>
<tr>
<td>Public Administration</td>
<td>3</td>
<td>32</td>
<td>33</td>
<td>2</td>
</tr>
<tr>
<td>Academic Staff</td>
<td>37</td>
<td>34</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Students</td>
<td>39</td>
<td>46</td>
<td>30</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>98</td>
<td>142</td>
<td>89</td>
<td>21</td>
</tr>
</tbody>
</table>

In terms of the aging, we see that the age group 23-35 composes 41% of total respondents. At this age group, there is an interest in completing the questionnaires in the best possible way and, the level of readiness to recognize the latest news about Kosovo's integration in the EU. But not as much into reading and being familiarized with the exact necessities for international integration. This is also related to factors media and technology.

In order to assess the level of knowledge of the respondents on a Stabilization and Association Agreement, initially they were asked whether Kosovo has started negotiations for the Stabilization – Association. The answers to this question are somewhat satisfactory, but are very disturbing to find, that employees of Public Administration have poorer knowledge compared with enterprises and universities.

Academic Staff leads as in previous questions with correct answers in regards to the Stabilization-Association. With only one percent less, the correct answer was provided by entrepreneurs. Entrepreneurs are being followed by the students and the knowledge of the employees of the Public Administration with 23 percent lower than the group of academic staffs, percentage these will be presented as follows.
What will deliver negotiations of the SAA to Kosovo and, what will enable the negotiations for the signing of this Agreement to Kosovo? This regard was identified through the respondents on the research of 2013. Major misconceptions on the consequences that will deliver the SAA negotiations are the abolition of visas regime and the membership of Kosovo in the EU. This shows lack of knowledge on the integration process to the EU. To this question, the academic staff and the entrepreneurs, targeted groups, have the highest level of knowledge; about 16% from total respondents have given the rights answer on the immediate effects from signing of the SAA. Thus the other categories are less informed on these processes. It should be emphasized that the targeted groups of students and the employees of public administration presented nearly the same level of knowledge in regards to immediate consequences of CEFTA, while entrepreneurs with 3 percent from total respondents gave the correct answer. Further details are presented in the graph and table below:
Figure 4. The result, in percentage of the targeted groups, about the opportunities that will have Kosovo from the negotiations for SAA and, the negotiations for signing the agreement

Table 3 The result of the targeted groups, about the opportunities that will have Kosovo from the negotiations for SAA and, the negotiations for signing the agreement

<table>
<thead>
<tr>
<th>Reduction of Customs RKS-BE</th>
<th>Abolition of Visas</th>
<th>EU Membership</th>
<th>NATO Membership</th>
<th>Not Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ndërmarrje</td>
<td>22</td>
<td>31</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Administrata Publike</td>
<td>13</td>
<td>24</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>Pedagogë</td>
<td>9</td>
<td>14</td>
<td>57</td>
<td>0</td>
</tr>
<tr>
<td>Studentë</td>
<td>15</td>
<td>40</td>
<td>34</td>
<td>3</td>
</tr>
<tr>
<td>Gjithsejt</td>
<td>59</td>
<td>109</td>
<td>118</td>
<td>10</td>
</tr>
</tbody>
</table>

These questions have dual purposes. First, they intend to levy more information about the quality of knowledge on the process of EU integration and, secondly, they serve as control questions, to assess the reliability of the answers from the respondents, on the answers of the questions that imply self-reporting.

5. Conclusions and recommendations

Within the SAA, Kosovo and the European Union are expected to make mutual commitments: on one hand, Kosovo needs to endure further and deeper reforms, and on the other the
European Union should provide real opportunities for membership. For Kosovo, the SAA, as for other countries in the region includes political dialogue, trade terms, policy cooperation, justice issues, freedom and security, as well as a range of other important issues.

All regional countries have their eyes on the EU membership, where common interests and goals, to build a democratic society, promote human rights, create complex mechanisms and, overcome ethnic differences preventing confrontations between states.

It would be remarkable progress if more work would be addressed in terms of recognition of Kosovo statehood, whether from the remaining five EU member states and beyond, also in terms of membership of the important international organizations, which will strongly influence the position of the state of Kosovo. To this regard, the SAA is the next important step which will demonstrate the willingness and progress of the international community.

Again, it should be emphasized that Kosovo does not apply enough or better sad does not projects marketing strategies for implementation. As a result, Kosovo still suffers from extremely high level of imports.

The Government of Kosovo must continue with its reforms and other commitments. These commitments require the implementation of the existing agreements and generation of new agreements too. The Government must strive with its necessary reforms and promote the dialogue on visa liberalization.

The implementations are crucial, when the reforms will be sustainable and irreversible and results should are clear and concrete.
BIBLIOGRAPHY


eeas.europa.eu (n.d.).


mei-ks.net (n.d.).

Comparative Study of Wards of Employed & Unemployed Women with Respect to Their Mental Health

DR. N.D.AMBADKAR
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India

1. Introduction

Healthy mind rests in healthy body. In order to have healthy mind, proper physical health of body needs to be essential. In order to have good soul of students, their body deserved to be in healthy state. World Health Organisation (WHO) had defined health as, "Good health does not confine itself with physical condition free of ill health or anaemic state but it refers to better state of physical, mental and social well being. Thus health can be studied in two categories. (1) Physical Health, (2) Mental Health.

If Physical Health of any person contaminates then immediately symptoms could remarkably noticed for which the person might have to approach any doctor, but in case of Mental Health, if anything goes wrong, it can hardly be noticed by others and so it is difficult to overcome such health without any time lapsation. The present research subject is concerned with the wards of employed and unemployed women. It has been noticed that there is remarkable effect on mental health of
wards of employed and unemployed women and what could be the nature of such ill mental health. Main cause seemed to be failure of poor performance in School/College Examinations, Worries, Undue Stress of examination, which directly reflect in mental health.

Researches on under mental health conducted in India and abroad have confined to certain limited areas some of the studies are reviewed below.

**Agashe (1991)** Study of the mental health of player and non player the correlation analysis related that IG was not significant related to any variables. The expression was positively related to mental health SES was very weakly related to mental health similarly result emerged from Anova.

**Anand (1999)** A Study of higher school students, the mental health of the adolescents their academic achievement and the educational and occupational status of parents were positively related.

**Das (1989)** A study of mental health of teacher serving in primary school. The study relevant the majority of teachers did part time job far more income. The difference pay scale created among teacher.

### 2. Statement of the Problem

“Comparative Study of Wards of Employed and Unemployed Women with Respect to their Mental Health”.

### 3. Hypothesis of the Study

1. There is no significant difference between the mental health of wards of employed and unemployed women studying in 9th class.
2. There is no significant difference between the mental health of boys of employed and unemployed women studying in 9th class.
3. There is no significant difference between the mental health of girls of employed and unemployed women studying in 9th class.

4. There is no significant difference between the mental health of boys and girls studying in 9th class of employed women.

5. There is no significant difference between the mental health of boys and girls studying in 9th class unemployed women.

4. Methodology

For the present Research work Test developed by Dr. Aurnkumar Singh and Dr. Aparna Sen Gupta’s (1987) has been used. The survey sample collection of been obtain of 2000 wards of employed and employed women. From 28 school distributed in 14 Tahsil of Amravati District has been collected.

5. Data Analysis and Interpretation

Hypothesis 1:
There is no significant difference between the mental health of wards of employed and unemployed women studying in 9th class.

Table-1: Mental Health of the wards of employed and unemployed women studying in 9th Class

<table>
<thead>
<tr>
<th>Variables</th>
<th>Number of Students</th>
<th>Mean</th>
<th>Standard Devisition</th>
<th>‘t’ value</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental health of the wards of employed women</td>
<td>1000</td>
<td>85.45</td>
<td>35.6966</td>
<td>1.02</td>
<td>0.05</td>
</tr>
<tr>
<td>Mental health of the wards of unemployed women.</td>
<td>1000</td>
<td>86.75</td>
<td>19.1076</td>
<td></td>
<td>0.01</td>
</tr>
</tbody>
</table>
Table 1 depicts that the calculated ‘t’ value is 1.02 which is not significant at 0.05 and 0.01 level of level of significance. This shows that there is no significant difference between the mental health of wards of employed and unemployed women. Thus the null hypothesis is accepted difference between the mean value is due to sampling error.

**Hypothesis 2:**

There is no significant difference between the mental health of boys of employed and unemployed women studying in 9<sup>th</sup> class.

Table-2: Mental health of the boys of employed women and unemployed women of 9<sup>th</sup> Class.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Number of Students</th>
<th>Mean</th>
<th>Standard Derivation</th>
<th>‘t’ value</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental health of the boys of employed women</td>
<td>500</td>
<td>89.99</td>
<td>24.4748</td>
<td>2.28</td>
<td>0.05</td>
</tr>
<tr>
<td>Mental health of the boys of unemployed women</td>
<td>500</td>
<td>89.09</td>
<td>18.2802</td>
<td></td>
<td>0.01</td>
</tr>
</tbody>
</table>

From the above table is clear the calculated value is 2.28 which is found to be significant at 0.05 level of significance. It is clear that there is a significant difference between the mental of the boys of employed women and unemployed women at 0.05 level of significance. The null hypothesis is rejected. Hence we can say that the mean value shows that the mental health boys of employed women possess good health compared to the unemployed women mental health.

**Hypothesis 3:**

There is no significant difference between the mental health of girls of employed and unemployed women studying in 9<sup>th</sup> class.
Table-3: Mental health of wards of women of employed and unemployed women studying in 9\textsuperscript{th} class.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Number of Students</th>
<th>Mean</th>
<th>Standard Derivation</th>
<th>‘t’ value</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental health of the girls of employed women</td>
<td>500</td>
<td>84.91</td>
<td>44.1907</td>
<td>0.22</td>
<td>0.05</td>
</tr>
<tr>
<td>Mental health of the girls of unemployed women</td>
<td>500</td>
<td>84.43</td>
<td>19.6445</td>
<td></td>
<td>0.01</td>
</tr>
</tbody>
</table>

From the above table it is clear that the calculated value 0.22 which is found to be not significant at both levels of significance. It is inferred that there is no significant difference between the mental health of girls studying in 9\textsuperscript{th} class of employed and unemployed women. Hence the above hypothesis is accepted.

**Hypothesis 4:**
There is no significant difference between the mental health of boys and girls studying in 9\textsuperscript{th} class of employed women.

Table-4: Comparison of Boys and Girls of employed women studying in 9\textsuperscript{th} class mental health.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Number of Students</th>
<th>Mean</th>
<th>Standard Derivation</th>
<th>‘t’ value</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental health of the boys of employed women</td>
<td>500</td>
<td>85.99</td>
<td>24.4748</td>
<td>0.47</td>
<td>0.05</td>
</tr>
<tr>
<td>Mental health of the girls of employed women</td>
<td>500</td>
<td>84.91</td>
<td>44.1907</td>
<td></td>
<td>0.01</td>
</tr>
</tbody>
</table>

From the above table it is clear that the calculated value 0.47 which is found to be not significant at 0.05 and 0.01 levels of significance. Hence it is inferred that there is no significant difference between the mental health of boys and girls studying in 9\textsuperscript{th} class of employed women. Hence the above hypothesis is accepted.
Hypothesis 5:
There is no significant difference between the mental health of the boys and girls studying in 9th class unemployment women.

Table-5 Comparison of Boys and Girls of unemployed women studying in 9th class about mental health.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Number of Students</th>
<th>Mean</th>
<th>Standard Derivation</th>
<th>‘t’ value</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental health of the boys of unemployed women</td>
<td>500</td>
<td>89.09</td>
<td>18.2802</td>
<td>3.88</td>
<td>0.05</td>
</tr>
<tr>
<td>Mental health of the girls of unemployed women</td>
<td>500</td>
<td>84.43</td>
<td>19.6445</td>
<td></td>
<td>0.01</td>
</tr>
</tbody>
</table>

Table 5 depicts that the calculated ‘t’ values is 3.88 which is found to be highly significant at 1 percent level and 5 percent level of significance. It is found that there is a significant difference between the mental health of boys and girls studying in 9th class of unemployed women. The mean value shows that the boys possess higher level of mental health than the mental health of girls of unemployment women. Hence the null hypothesis is rejected.

6. Conclusion

1) Mental health of the wards of Employed women and Unemployed Women, showing their mental health to be equivalent.
2) Mental health of the Boys of Unemployed women is better than that of the Boys of Employed women.
3) Mental health of the Girls of Employed women and Unemployed Women, showing their mental health to be equivalent.
4) Mental health of the Boys of Employed women and Unemployed Women, showing their mental health to be equivalent.
5) Mental health of the Boys of Unemployed women is better than that of the Girls of Unemployed women.

REFERENCES


Abstract:

A descriptive type of cross sectional study was conducted to determine the associated diseases and treatment pattern of frozen
shoulder patients attending to orthopedic and physiotherapy department of selected hospitals with a sample size of 300. A pre-tested, modified, semi-structure questionnaire was used to collect the data which were entered and analyzed by using SPSS. Purposive sampling method was used to collect data and verbal consent was taken prior interview. Study revealed that, 1%, 38%, 51% and 10% of the respondents belongs to age of 21-25 years, 26-45, 46-65 and 66-83 years respectively with mean age 51.66 ± 13.406. Study found 52% male and 48% female. Among the respondents 34%, 27%, 26%, 9%, and 4% were retired person, service holder, house wife, workers and students. About 59%, 30% and 11% of the respondents complained moderate, severe and mild pain. Besides 60% respondents complained muscle spasm. Left, right and both shoulder was frozen among 48%, 46% and 6% subjects. Regarding associated diseases of the respondents, 58% degenerative disease of cervical spine, 41% diabetic mellitus, 27% cardiac diseases, 24% gout and 12% were post fracture and dislocation around the shoulder. Of the respondents 52% were suffering stage2, 35% stages1 and 13% stages3 frozen shoulder. Treatment patterns of those patients 98% received medication, 9% infiltration and, 80% were physiotherapy services including 86% shoulder mobilization, 91% electrotherapy, 51% strengthening exercise and 23% were capsular stretching. Before and after physiotherapy treatments mean shoulder range of movement 18 ± .10.305 and 67 ± 9.401°. There was highly significant association between physiotherapy treatment with monthly income and electrotherapy modalities (P=0.000<0.05). Middle and advance age people were more prone to frozen shoulder, and associated diseases of frozen shoulder were degenerative, metabolic, cardiac diseases, post fracture and dislocation.

**Key words:** Frozen shoulder, Physiotherapy

**Introduction**

Frozen shoulder is a common and disabling condition in which severe spontaneous shoulder pain is initially associated with
capsular tenderness and painful restriction of all shoulder movements and later with painless restriction of movement alone.\(^1\) A statistically significant improvement in range of movement, function and pain intensity was obtained following manipulation.\(^2\) Improvements in flexion, inner and outer rotation values were significantly higher, when we compared the differences between post- and pre-treatment values of shoulder ROM.\(^3\) Cost-effectiveness analysis suggested that steroid alone may be more cost-effective than steroid plus physiotherapy or physiotherapy alone.\(^4\) Combining mobilization with exercise resulted in additional benefit when compared to exercise alone for rotator cuff disease. Laser therapy, ultrasound was demonstrated to be more effective of adhesive capsulitis.\(^5\) A single-blinded, randomized controlled study done and found that a significant improvement was seen in all groups in all outcome measures except for that of shoulder flexion range.\(^6\) Primary frozen shoulder (FS) is a painful contracture of the glenohumeral joint with an increased amount of collagen, fibrotic growth factors such as transforming growth factor-beta, and inflammatory cytokines such as tumor necrosis factor-alpha and interleukins.\(^7\) Adhesive capsulitis is a condition best way best to manage patients with an evidence-based overview regarding the effectiveness of conservative and surgical interventions to treat adhesive capsulitis.\(^8\) Adhesive capsulitis patient 40.8% of patients presented with back pain, 20.9% with neck pain and 11.5% with shoulder pain.\(^9\) A physical treatment method for adhesive capsulitis, it is extremely important to consider the patient’s symptoms, stage of the condition, and recognition of different patterns of motion loss.\(^10\) The arthroscopic capsular release does not have significant impact on the decrease in the muscular strength of the operated frozen shoulder.\(^11\) As tear size increased, range of glenohumeral motion in horizontal abduction after repair decreased gradually and was significantly decreased with the large size tear.
Based on this small service evaluation study, corticosteroid injection administered by an experienced physiotherapist with follow-up physiotherapy appears to be an effective treatment for frozen shoulder. Among the frozen shoulder patients, 24.2% had diabetes and 16.5% had history of shoulder trauma. No significant difference was found in occupations, physical exercise, and history of surgical and ischemic heart disease.

**Methodology**

It was a descriptive type of cross-sectional study was conducted of Dhaka city in order to assess associated diseases and treatment patterns of frozen shoulder patients attending to orthopedic and physiotherapy department of selected hospitals with a sample size of 300. The study sites were National Institute of Traumatology and Orthopedic Rehabilitation (NITOR), Shere-Banglanagor, Dhaka Metropolitan Medical Centre Limited (MMC Ltd) Mohakhali, Dhaka and Islami Bank Central Hospital Limited (IBCH Ltd), Kakrail, Dhaka. Data were collected those patients who were attending different services in Orthopedic and Physiotherapy departments and study period was of 1st June 2013 to 31st July 2014. A pre-tested modified semi-structured questionnaire was used to collect the information on the basis of objectives and variables. All laboratory and X-ray investigations were done in IBCH and MMC Ltd also MRI was done Ibna Sina, popular, Lab Aid and Medinova diagnostic Centre. Patients were individually diagnosed by clinically observed sign, symptoms and related investigations. The collecting data were editing and analyzed by using statistical packages for social science (SPSS) software version 16. After collection of data, all responses checked for their completeness, correctness and internal consistency in order to exclude missing or inconsistent data. Corrected data
was entered into the computer. The data was analyzed by using the statistical software namely SPSS (Statistical Package for Social Science). Data analysis was done according to the objectives of the study. P-value more than 0.05 was considered insignificant.

Results

Table 1 shows that, 1%, 38%, 51% and 10% of the respondents belongs to age of 21-25 years, 26-45 years, 46-65 years and 66-83 years with mean age $51.66 \pm 13.406$ years. Among them 52% were male and 48% were female respectively. Table also reveals that occupation of the respondents were 34% retired person, 27% service holder, 26% house wife, 9% workers and only 4% students. Among them 58%, 31% and 11% of the respondent’s monthly incomes was 10000-30000 BDT, more than 30000 BDT and less than 10000 BDT respectively.

Table 1 Distribution of the respondents by Socio-demographic variables (n=300)

<table>
<thead>
<tr>
<th>Items</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21-25</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>26-45</td>
<td>114</td>
<td>38</td>
</tr>
<tr>
<td>46-65</td>
<td>153</td>
<td>51</td>
</tr>
<tr>
<td>66-83</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>100</td>
</tr>
<tr>
<td>Mean ± SD</td>
<td>$51.66 \pm 13.406$</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>156</td>
<td>52</td>
</tr>
<tr>
<td>Female</td>
<td>144</td>
<td>48</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>100</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Service holder</td>
<td>81</td>
<td>27</td>
</tr>
<tr>
<td>Retired person</td>
<td>102</td>
<td>34</td>
</tr>
<tr>
<td>Worker</td>
<td>27</td>
<td>9</td>
</tr>
<tr>
<td>House wife</td>
<td>78</td>
<td>26</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>100</td>
</tr>
<tr>
<td>Monthly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;30000 BDT</td>
<td>93</td>
<td>31</td>
</tr>
<tr>
<td>10000-30000 BDT</td>
<td>174</td>
<td>58</td>
</tr>
</tbody>
</table>

Table 2 reveals that 59% of the respondents were suffering moderate pain, 30% severe pain and 11% were mild pain respectively. Table also shows that muscle spasms were prominent symptoms among 60% respondents and 40% were absent.

Table 2 Distribution of the respondents by symptoms related variables (n=300)

<table>
<thead>
<tr>
<th>Severity of pain</th>
<th>Items</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>33</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
<td>177</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>Severe</td>
<td>90</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

| Radiating pain   | Yes      | 58        |
|                  | No       | 42        |
| Total            | 100      |

| Muscle spasm     | Present  | 60        |
|                  | Absent   | 40        |
| Total            | 100      |

Figure 1 show that 48%, 46% and 6% were suffering from left, right and both frozen shoulder.
Table 3 shows that 93%, 92% and 31% did investigation of blood, x-ray and MRI respectively. Associated diseases of the respondents 58% were degenerative disease of cervical spine, 41% diabetic mellitus, 27% cardiac diseases, 24% gout and 12% post fracture and dislocation around the shoulder respectively. Of them 52% respondents were stage 2 frozen shoulders, 35% stages 1 frozen shoulder and 13% were stages 3 respectively.

Table 3 Distribution of the respondents by investigations and diagnosis

<table>
<thead>
<tr>
<th>Type of Investigations (Multiple responses)</th>
<th>Item</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood</td>
<td></td>
<td>279</td>
<td>93</td>
</tr>
<tr>
<td>X-ray</td>
<td></td>
<td>276</td>
<td>92</td>
</tr>
<tr>
<td>MRI</td>
<td></td>
<td>93</td>
<td>31</td>
</tr>
<tr>
<td>Associated diseases (Multiple responses)</td>
<td>Degenerative disease of cervical spine</td>
<td>174</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>Diabetes mellitus</td>
<td>123</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>Post fracture and dislocation around the shoulder</td>
<td>36</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Cardiac disease</td>
<td>81</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Gout</td>
<td>72</td>
<td>24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stages of frozen shoulder</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>stage 1</td>
<td>105</td>
<td>35</td>
</tr>
<tr>
<td>stage 2</td>
<td>156</td>
<td>52</td>
</tr>
<tr>
<td>stage 3</td>
<td>39</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 4 reveals that 98% respondents received medication, 80% physiotherapy and 9% infiltration respectively.

Table 4 Distribution of respondents by different treatment (Multiple responses)

<table>
<thead>
<tr>
<th>Types of treatment</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medication</td>
<td>294</td>
<td>98</td>
</tr>
<tr>
<td>Infiltration</td>
<td>27</td>
<td>9</td>
</tr>
<tr>
<td>Physiotherapy</td>
<td>240</td>
<td>80</td>
</tr>
</tbody>
</table>
Figure 2 Distribution of the respondents by type of Physiotherapy

Figure 2 shows that treatment checking behavior of the respondents. They took different types of physiotherapy services including 86% shoulder mobilization, 80% home exercise, 91% electrotherapy, 51% strengthening exercise, 41% pendulum exercise and 23% capsular stretching.

Table 5 shows that 98% of the respondents feel better after treatment and rest of them 2% were no progress. Among them 18% respondent had no pain, 54% mild pain and 28% were moderate pain after treatment.

<table>
<thead>
<tr>
<th>Pain responses after treatment</th>
<th>Items</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better</td>
<td>294</td>
<td>98</td>
<td></td>
</tr>
<tr>
<td>No progress</td>
<td>6</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Types of pain responses after treatment</th>
<th>No pain</th>
<th>Mild</th>
<th>Moderate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>54</td>
<td>162</td>
<td>84</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>54</td>
<td>28</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 6 reveals that 50.34%, 37.33%, 10%, 2% and 0.33% of the respondents had shoulder range of movements of 0-20°, 21-40°, 41-60°, 61-80° and 80-90° with mean shoulder range of movement $18 \pm .10.305^0$ before treatment. After two weeks...
physiotherapy treatment 0.67%, 2.33%, 36.33%, 51% and 9.67% of the respondents shoulder range of movements was 0-20°, 21-40°, 41-60°, 61-80° and 80-90° with mean shoulder range of movement $67 \pm 9.401^\circ$.

Table 6 Distribution of the respondents by range of shoulder abduction before and after treatment (n=300)

<table>
<thead>
<tr>
<th>Range of movement (Degree)</th>
<th>Before treatment</th>
<th>After treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>0-20</td>
<td>151</td>
<td>50.34</td>
</tr>
<tr>
<td>21-40</td>
<td>112</td>
<td>37.33</td>
</tr>
<tr>
<td>41-60</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>61-80</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>81-90</td>
<td>1</td>
<td>0.33</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>100</td>
</tr>
<tr>
<td>Mean ± SD</td>
<td>18 ± .10.305</td>
<td></td>
</tr>
</tbody>
</table>

Table 7 reveals that a highly significant association between physiotherapy treatment and monthly income of the respondents (P value = 0.000).

Table 7 Distribution of respondents by association between physiotherapy treatment and monthly income (n=300)

<table>
<thead>
<tr>
<th>Physiotherapy treatment</th>
<th>Monthly income</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Above 30000 BDT</td>
<td>10000-30000 BDT</td>
</tr>
<tr>
<td>Yes</td>
<td>93</td>
<td>171</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>93</td>
<td>174</td>
</tr>
</tbody>
</table>

Table 8 shows that a highly significant association between physiotherapy treatment and electrotherapy modalities (P value = 0.000).
Md Ruhul Amin, Md Monoarul Haque, Mohammad Shahadur Rahman, Mohammed Delwar Hossain, Md Delowar Hossain Chowdhury, Pradip Kumar Saha, Md. Abul Hossain, Syeda Nusrat Jahan, ASM Mazharul Islam- Associated Diseases and Treatment Pattern of Frozen Shoulder Patients Attending to Orthopedic and Physiotherapy Department of Selected Hospitals

Table 8 Distribution of respondents by association between physiotherapy treatment and electrotherapy modalities (n=300)

<table>
<thead>
<tr>
<th>Physiotherapy treatment</th>
<th>Electrotherapy modalities</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>249</td>
<td>36</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>249</td>
<td>51</td>
</tr>
</tbody>
</table>

Discussion

The study shows that, 1%, 38%, 51% and 10% of the respondents belongs to age of 21-25 years, 26-45 years, 46-65 years and 66-83 years with mean age 51.66 ± 13.406 years. These findings were similar to the findings of Hand C et. al.15 Among respondents 52% was male and 48% was female. These findings were dissimilar to the findings of Li W et. al.14 Besides 59% of the respondents were suffering from moderate pain, 30% severe pain and 11% mild pain respectively. Of them muscle spasm were prominent symptoms. These findings were supported to the study carried out by Murphy FX et. al.16 Regarding associated diseases of the respondents, 58% were degenerative disease of cervical spine, 41% diabetic mellitus, 27% cardiac diseases, 24% gout and 12% were post fracture and dislocation around the shoulder respectively. Of them 52% respondents were stage 2 frozen shoulders, 35% stages 1 frozen shoulder and 13% were stages 3 respectively. These findings were similar to the findings of Bablis P and Li W et. al.9, 14 Among the respondents 48% were left, 46% were right and rest of 6% were affected both shoulder. Of the respondent 93%, 92% and 31% did blood, x-ray and MRI investigation respectively. There were no similar findings such literature review of the study. Study reveals that 98% respondents received medication, 80% physiotherapy and 9% infiltrations respectively. These findings were similar to the findings of Green S et. al. editors.5 Respondents took different
types of physiotherapy services including 86% shoulder mobilization, 80% home exercise, 91% electrotherapy, 51% strengthening exercise, 41% pendulum exercise and 23% capsular stretching. This study supported to the study carried out by Maund E et. al. editors. Before treatments mean shoulder range of movement was $18 \pm 10.305$ \(^0\) and after two weeks physiotherapy treatment mean shoulder range of movement was $67 \pm 9.401$ \(^0\). These findings were similar to the study of Farrell CM, Flannery O and Murphy FX et. al. editors. Two highly significant association between physiotherapy treatment with monthly income of the respondents and electrotherapy modalities (P value = 0.000 and 0.000). These findings were supported to the study carried out by Cheing GL et. al. editors.

**Conclusion:**

Middle and advance age people were more prone to frozen shoulder and associated diseases of frozen shoulder were degenerative disease of cervical spine, diabetic mellitus, cardiac diseases, gout, post fracture and dislocation around the shoulder. Role of physiotherapy regarding range of movement was tremendous.

**Acknowledgment:** The authors express their sincere thanks to all the patients of this study. No external funding was provided for this study.

**REFERENCES**

Haslett C, Edwin R Chilvers, John A.A. Hunter, Nicholas A. Boon and Nicki R. Colledge. Davidson’s Principle and


Analysis of Incidence and Prevalence of Collisions
Crashes of Motorcyclists Attended the Mobile Emergency Care Service - Samu (2010) in Cruzeiro do Sul, Acre State, Brazil

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Brazil

Abstract:
This study aimed to analyze and characterize the incidence and prevalence of accidents involving motorcycles serviced by Mobile Service of Urgency – SAMU. It is a descriptive, transversal research documentary and quantitative held in the period from January to December 2010. The sample was composed by accidents of various kinds: 607 collision motor-bike, motorcycle-car collision, collision motor-bike, bike-truck collision, motorcycle collision, bus-bike collision bulkhead, animal trampling-collision, overturning and falling from a bike. The data, graphics and charts have been handled through sample and descriptive statistics using Microsoft Excel Office 2003 tool. These calculations were intended to show the prevalence and the accidents index met. In respect to bike-bike collision was 115.0%, car-bike collision 124.19%, bicycle-bike crash, motorcycle collision-110.0% 166.0 truck-bike collision bulkhead, 142.85% 87.5% bike collision-animals, trampling 110.0%, and 98.91% falling from bike. We recommend investments to allow the deployment of a full database system on unity and human resources for traffic investigation.

Key words: Attendance, Accident, Motorcycle, SAMU.

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Introduction

The transit is a form of expression system of socio-economic of a city. This is the transit people (drivers, pedestrians, passengers, police, etc.), they manifest their behavior, their ability of social adjustment and emotional, in forms or ways to perceive situations, a whole or in parts, with larger or smaller details. Express their forms of ownership or occupation of space. All of this will contribute to a transit more secure or insecure, organized or unorganized, to an increase or reduction in the number of accidents.

The transit system operates through an extensive series of rules and constructions and is composed of several subsystems, among which the three main ones are: The man, the track and the vehicle. The man here is the subsystem more complex and, therefore, the one with the highest likelihood to cause disruption to the system as a whole (ROZESTRATEN, 1988).

Raising awareness about the importance of studying this population is of extreme importance, analyze this phenomenon in its most extreme the collision. In Acre, the samu came into operation on the first of September 2004, however there is not yet a study on the positive or negative impacts of the deployment of this component of care. In order to make a correct reading of the table of accidents with motorcycles in Cruzeiro do Sul we need analyze concrete data and represent a scientific work with these data tabulated for knowledge of the general population, in order to increase awareness among it to take care of protecting and preserving the lives of their own and of others.

The lack of studies in the area of transit in the state of Acre especially in Cruzeiro do Sul imposes the need to deepen the analysis on the nature of the traffic accidents in the city, especially those of motorcycles. It is vital to know what are the types of accidents. The lack of scientific studies on this type of accident makes the preventive action of bodies for the
promotion of health and life. By common sense and through the media, we are aware of the high incidence of accidents involving motorcycles in Cruzeiro do Sul, however, there is still a theoretical framework of free access to the population to which the same realize the scale of the problem study on traffic accidents with motorcycles.

In this context, and as a professional from the areas of health and education in transit, there emerged the idea of broadening the horizons with the objective to analyze and characterize the incidence and prevalence of accidents with motorcycles attended the Mobile Emergency Care Service - SAMU, seeking to warn the population of serious problem faced currently in transit, emphasizing the use of the equipment required, the use of range of pedestrian, or should be, to teach young adults about the respect that we have in relation to traffic rules and signs of our streets.

This monograph is structured in chapters, where we sought to address the issues related to transit, in order to broaden and deepen the discussion on this topic. The main focus was directed to the prevalence of accidents with motorcycles, in the period January to December 2010.

In the first chapter is described the theoretical framework used to subsidise research and perform the analysis of the data. The aspects related to transit, the motorcycle, the use of helmets for bikers, mobile emergency care service and trauma crânioencefálico, were discussed.

In the second chapter, you are introduced to the materials and methods used in research as a way to achieve their goals. Were considered the ethical aspects essential to the research process, the methodological framework that guided the study, the strategies used to define the area of collection, the characteristics of the state of Acre, and the statistical data base for approximation of the results obtained in this research.

In the third section, the search results are displayed and made the discussion on them. Aspects related to the amount
of accidents handled by the MECS in the month, as well as the types of accidents have been widely discussed.

Finally, in conclusion, the focus is directed to a general assessment of the situation and are indicated possible interventions directed to preventive actions and health promotion. We report on the basis of the results, the contribution and the possibility of new studies on motorcycle accidents.

Objectives

2.1 General Objective

- Analyze and characterize the incidence and prevalence of accidents with motorcycles attended the Mobile Emergency Care Service - SAMU.

2.2 Specific Objectives

- Raise the information contained in the database identifying the month of occurrence of the accident.
- Check the intensity and prevalence of types of accidents;
- Identify possible factors that influence directly and indirectly to the occurrence of accidents.

Theoretical Framework

Traffic accidents are a major public health problem in the country, being extremely high rates of violent deaths in Brazil despite the constant work of awareness and prevention performed by competent bodies on this matter. However, the high rate of accidents with motorcycles requires greater rigor in the applicability of the policies of prevention and health promotion.
3.1 Transit

The participation in traffic starts much earlier than you can imagine, since the uterus of the mother when she makes a crossing the street, when you're in the car or bus. All transit assumes movement of people and vehicles, and all travel is accomplished through behaviors. The transit is a set of behaviors-displacements, a system of rules (ROZESTRATEN, 1988).

According to the history and development of the car in Brazil, perceive a high growth in vehicles and a reduction in the use of vehicles of another type of traction, even the cheapest ones such as trains. The deployment of the automobile industry in the country, during the 1950s, consolidated the road model, based on the use of vehicles with traction motor (KLEIN, 2001).

With the increase in technology and the evolution, also increased the duties of man, and this trusting in machines super powerful leaves to go out of the house with little time for his work he didn't realize that there are other machines vying for the same space on the road. The dispute over space and time is a characteristic of the human being from the beginning and everyone has a right to this space, as two bodies cannot occupy the same place in the physical space, this requires a continuous negotiation and snarled in traffic (VASCONCELOS, 1985).

This dispute can lead sometimes tracks of facts as accidents with injuries traumatic brain injury (TBI). These data are not disclosed because of the poor record of the same databases in DATASUS. There are few studies involving traumatic brain injury as well as their methods and comparative instruments (KOIZUMI, 2000).

3.2 The motorcycle

Second Holz, Lindau and Nodari, (2010) the facilities such as low prices, maintenance, consumption, travel and parking has been increasing the fleet of motorcycles in large and small
cities. The northern region there is a large number of motorcycles on the streets due to the difficulties of locomotion of the region such as unpaved roads, tropical climate and lack of monitoring of components of transit.

For Sado, Moraes and Viana (2009), the most vulnerable victims of traffic accidents in Brazil are pedestrians, cyclists and motorcyclists, they represent more than 50% of the dead in transit. The motorcycle is a two-wheeled vehicle different from four-wheeled vehicles, the driver needs to balance on the same, it does not provide any protection in the event of an accident. To reduce its exposure to the user on track is recommended the use of clothing and equipment. In accidents involving motorcycles the victims in their majority are young males and with productive age.

In the history of the motorcycle, you will notice that the same was invented simultaneously by an American and a Frenchman. They did not know each other and researched each one in their country of origin. Sylvester Roper, in the United States, and Louis Perreaux, on the other side of the Atlantic, manufactured a bicycle type equipped with steam engine, in 1869 (HISTORY, 2012).

Second Willemann (2003) in Brazil the history of motorcycle starts at the beginning of the last century, with the importation of many motorbikes communities and some of American manufacturing, together with similar vehicles, as sidecars and tricycles with engines. Due to imports of these motorcycles several foreign factories settled in Brazil and with this appeared several types of motorbikes. Some only for urban roads, other trails and mixed, also with two, three and even four wheels, the quadricículos.

3.3 The use of helmets by motorcyclists
The Brazilian Traffic Code establishes standards and rules, and one of them is with respect to the use of the helmet. The use of the helmet is mandatory by Law no. 9,503 \97, is considered by
couriers as the main protective equipment for the motorcyclist (VÉRONESE; OLIVEIRA, 2006).

With respect to the use of helmets for bikers, the incidence of non-use by the same shows even more serious (QUEIROZ; OLIVEIRA, 2003).

Over the past 10 years more than a million people were invalid due to mechanical trauma in Brazil, and the accidents of transits the main responsible for these rates (MELO and SILVA, 2004).

The accident with motorcycles has increased in recent years, and this is due to imprudence, lack of attention and the use of licit and illicit drugs. Attention is given to major accident, difficult even are the sequels post-accident. The physical deficiencies resulting from accidents of transits bring serious damage to the individual (financial, family, locomotion, professionals etc. ) and for society (hospital expenses, decrease of production, social welfare costs etc) (MARIN; QUEIROZ, 2000).

For Liberatti et al (2003), although the accident prevention should be the primary goal of the campaigns of transit, the use of helmet among motorcyclists should be especially encouraged, as this equipment is effective in the prevention of brain lesions and in the reduction of sequels, hospital costs and deaths resulting from these accidents. The use of mandatory equipment for motorcyclists especially the helmet is established by Brazilian traffic Code - CTB, but not all states meet the laws. Some municipalities have laws freeing riders wear a helmet, arguing the increase of theft to establishments with the bandit using helmets with visors dark to not being recognized and commit up to murder.

Are very few studies about the use of helmet, mainly related to its effectiveness, types of helmets, comfort and difficulties encountered by users of the same. Few studies are found on the lesions without the use of the helmet. For Koizumi (1992) the study of the pattern of injuries in victims of traffic
accidents of motor vehicle in general, particularly those of motorcycle accidents, cannot be restricted to the data originated from the table of their mortality. AND yet according to the author, however, studies that describe the different types, locations and degrees of intensity of the lesions in the victims of traffic accidents, which have died or not, in addition to few are difficult to be achieved.

As has been discussed previously, the motorcyclist has no protection and no collision more usual, the motorcyclist absorbs into your body surface area all the energy generated in impact, is going to meet with the public road, is with the objects of the same or other motor vehicles (KOIZUMI, 1992).

The impact suffered by the body of the biker the result always are the injuries that cannot be provided scoring up to serious injury and death. Sharing this idea Oliveira and Souza (2003) affirm that the lesions resulting from traumatic events result, often, disability and disability temporary or permanent, that interfere with the ability of the surviving victims fulfill tasks which are expected, as well as the quality of their lives.

Although the riders know that the wearing of helmets is compulsory, that prevent traumatic brain injuries many still resist to use. Many use with fear of fines and loss of points in National Driver's license - CNH, example a study developed by Ledesma and Peltzer (2008) in the city of Mar Del Plata, Argentina where observed that the use of the helmet although it is mandatory, there is no policing and the use is low.

3.4 Mobile emergency care Service

The Fire Department, in addition to meet their duties of fire fighting and redemptions, services handles with ambulances to traffic accidents and other urgencies and emergencies in small towns. The rapid urbanization and the concomitant engine in developing countries have contributed to the growth of road traffic accidents (CABRAL; SOUZA, 2008).
In light of the magnitude of the problem, the performance of the sector has been incipient and little effective and with the increase in distress calls in large cities saw the need to create a national Policy of Emergency Care to meet the popu

According to Cabral and Souza (2008), the SAMU-192 is intended for emergency treatment in homes, workplaces, and public roads. The relief is done after free call to the tele (BRAZIL, 2006).

As well as in other areas of health care, the work in Mobile Emergency Care Service requires skilled professionals to work emergency situation, whether by evil sudden, accidents or violence. The pre-hospital care (APH) and removing inter-hospital is already developed in other countries in the training of health professionals. In Brazil, the specialization courses in emergency or in APH are still recent. Unlike the American nurses and French, the nurse Brazilian comes if qualifying in this area, through specialization courses (sensu lato) in emergency or APH (KIND; BRANCHES; Whitaker, 2008).

In Acre, the SAMU came into operation on the first of September 2004. With a fleet of 11 ambulances donated by the Ministry of Health, the service meets the capital and surrounding towns. In the first month of operation, the service was 2.5 thousand visits in cases of urgency and emergency health care. In addition to the ambulances, the Ministry of Health invests monthly R$ 196.5 thousand to keep samu/192 in the state. This value corresponds to the half of the cost of the service (BRAZIL, 2005).

3.5 Brain Damage
TBI is any blow to the head that causes a contusion or wound in the scalp can cause a fracture to the skull (DORLING; HENRIETTA, 1993).
As Freire (2001) characterizes the traumatic brain injuries as any aggression that entail anatomical lesion or functional impairment of the scalp, skull, meninges or brain.

The clash between the skull and any bulkhead can cause multiple brain lesions, classified as primary and secondary. The primary is present at the time of the accident is the result of the impact, the secondary is progressive as ischemia, edema and hypoxia, found in individuals who died (GUSMAO; PITTELLA, 2002).

The motorcycle is different from car not to provide any security for the driver at the time of the accident. According to the Brazilian Traffic Code - CTB is mandatory the use of safety equipment such as helmet, adequate clothing and footwear. Among these equipment helmet that is required by law. It is the Nervous System that controls the entire body, and the command is sent by brain. Several traumatic injuries were associated with Brain contusion - CC recent and easily noticeable to pathological examination, brain contusion was considered as the fundamental lesion of the traumatic brain injury (PITTELLA; GUZMAN, 1999).

The nervous system is divided into: the central nervous system and peripheral nervous system. The central nervous system is composed of the brain and spinal cord, the brain is housed within a skeletal structure called skull and the spinal cord is located inside the vertebral column. Inside the skull is only allowed the brain and its meninges. The volumetric increase in brain trauma is determined by the increase in the volume of water (edema) or blood (tumefaction or hemorrhage) (GUSMAO; PITTELLA, 1999).

The peripheral nervous system is composed of 12 pairs of cranial nerves and 33 pairs of spinal nerves and nerve endings. The peripheral nervous system receives the stimulus through sensory or afferent and sends it to the central nervous system where the message is processed and decoded and sends the response back through the motor or efferent to the effector
organ. Therefore there cannot be any kind of injury or diseases in the central nervous system, because it would damage the system leaving the individual with irreversible consequences, since the nerve cells are not regenerating.

The bones of the skull are resistant and the leading causes of TBI are traffic accidents, falls and the violence. Many people who suffer from brain injuries, especially those that suffer from TBI, are in the economically active age range and the need for treatment for an adequate rehabilitation can last for months or years (FRAGA-MAIA, 2010).

The cities of the northern region in general appeared in small settlements of rubber tappers, then became villages, small towns and finally a city of medium-size as is the case of Cruzeiro do Sul. Also increased the fleet of vehicles including motorcycles and with traffic accidents, being extremely high rates of accidents involving motorcycles as we will see in the next chapter of methodology.

Materials and Methods

4.1 Type of research
To achieve the proposed objectives, it was decided to develop a research with descriptive approach documentative and cross-sectional quantitative by the MECS. We tried to analyze, interpret and understand the documents found in your database, especially in the care of accidents with motorcycles.

The documentary research is *material* which does not also received an analytical treatment, or that can still be remade in accordance with the objectives of the research (GIL, 1999).

The research is descriptive by that exposes characteristics of a given population or particular phenomenon (VERGARA 2003).

Second Rouquayrol and Son (2003) the cross-sectional studies are investigations that produce "photographs" of instant
health situation of the population or community, producing indicators of global health for the investigated group.

The quantitative study and objective, focused on the verification, and also hypothetical-deductive; assumes a static reality; being oriented to results (SERAPIONI, 2000).

4.2 Universe
The present research was to study population all motorcycle accidents handled by Mobile Emergency Care Service - SAMU in Cruzeiro do Sul Acre in the period 01 January to 31 December 2010. The municipality of Cruzeiro do Sul, Acre, which is located to the west of the country. It is currently the second largest city in the state and the most developed region of the Juruá Valley. Thus, stemming from the expansion of neighborhoods increasingly distant from the center. The city has no infrastructure to meet the needs of the population and no paved roads, and in the months from October to May the city is isolated, being its access only by air.

According to the IBGE, in 2010 census, the population of Cruzeiro do Sul corresponds to 78,507 people, being 49.9% of men and 50.1% of women. It has a land area of 8,779.19 sq. km, it is limited in the north with the Amazonas state, to the south with the municipality by marrying of Porto Walter, to the east with the municipality by marrying of Tarauacá and the west with the municipalities acreanos: Mâncio Lima, Rodrigues Alves and the country of Peru. Due to the proximity of the city of Pucallpa in Peru, distant 250 km by air, there is an active exchange of tourists between the two cities, influenced by local trade (GOVERNMENT OF THE STATE OF ACRE, 2010).

4.3 Sample
The inclusion criteria for participation in the survey were: accident with motorcycles of all types handled by the MECS in the period stipulated in the search. The exclusion criteria are related to the following aspects: accidents with motorcycles of
all kinds that have not been answered by the MECS in the period stipulated by the search.

4.4 Instruments
The study was carried out on the basis of the information obtained from the database of visits recorded in Mobile Emergency Care Service - SAMU of Cruzeiro do Sul Acre, between the period 01 January to 31 December 2010. The documents were analyzed in each month accidents involving motorcycles as: collision moto-moto, collision motorcycle-car, collision moto-bike collision, motorcycle-truck, collision moto-bus, motorcycle collision-bulkhead, collision moto-animal, trampling, rollover and fall in motorcycle.

4.5 Procedures
This project has not been submitted to the Committee on Ethics and Research - CEP for documentary analysis, it was not necessary to use the Free and Informed Consent - informed consent.

The collections were made by the researcher during the month of November 2011 and analyzed the data and information contained in the spreadsheet of care delivered in each month harvested in the database of the institution for the incidence and prevalence of the visits to motorcycle accidents.

The release for data collection has been granted by the direction of the Mobile Emergency Care Service - SAMU, through official request of the Catholic University of Brasilia - PUC/DF, (ANNEX) and formal conversation between the researcher and the institution's management object of research for clarification about the same, its goals, as well as pointing the possible positive results that can be achieved.

4.6 Data Analysis
The sample received statistical treatment computerized, intentional sample, that best represents the research universe.
For the treatment of information collected in the documents, were used the following steps:

- Thematic Analysis: was the separation and identification of types of accidents for each month, in order to group them according to the similarity of the same.

- For the analysis and tabulation of data was produced a database in Microsoft Excel. The data, the tables and charts were treated through the simple statistical descriptive, using the Excel tool of Microsoft Software, Office suite 2003.

- Results and interpretation: The analysis of the collected data was presented and followed in a descriptive way. As well as new possibilities for improvement in the work of raising awareness about traffic accident.

Results

General Aspects of the Population
They were part of this study, all motorcycle accidents, which occurred during the year of 2010 and that were treated by Emergency Mobile Service - SAMU.

Figure 1. Quantity of accidents of motorcycles answered by the MECS in the month during the year 2010.
With respect to quantity of accidents handled by Mobile emergency Care Service - MECS during the year of 2010 it was observed that in general the index is high. In the month of January were attended 43 accidents, rising in the month of February to 57 accidents, down to 52 in March, 50 in April and rising again to 51 in May, 52 in June, 56 and July, 63 in August and arriving to the apex of 66 accidents in September. Dropping the index in October 39, November 40 and December 38 accidents.

Cruzeiro do Sul as well as all the cities of the northern region has a climate differentiated from the rest of the country. Here are the four seasons of the year (autumn, winter, spring and summer), only winter and summer. The month of October up to the month of May is considered winter due to torrential rain that extends over some of the region's cities. At that time the roads without paving are all bumpy and muddy making the car traffic being the means of locomotion more used motorcycles, bicycles and animals.

The accident rate at this time is high due to the amount of rain that hinder the traffic even for pedestrians. The streets do not have vents and holes increase in size causing accidents on motorcycles to deviate from them, this ranges from falls, collisions with other vehicles, animals, shields and even pedestrians. The months of heavy rains that cause the greatest floods and accidents are the months of February and March decreasing in the months following the holes caused by the rains.

The month of June until September is considered summer due to strong sun of minimum 32º and maximum 42º. With this also increases traffic accidents due to the presence of other vehicles and roads stowed with holes plugged drivers abuse the speed and lack of monitoring. In the summer the rivers generally decreases the volume of water leaving enormous sand banks called "fresh water beaches".
In the months of August and September the prevalence of traffic accidents fold due for this season of beaches, including the month of September which is the last month of summer is considered the month of beaches. The events in beiras rivers increase during these months together with other accidents such as drowning and fights with the presence of alcoholic beverages. Traffic accidents with motorcycles are in many ways since collisions, falls, overturning and trampling. accidents begin to decrease in the months of October, November and December, the latter because of the festivals at the end of the year. Cruzeiro do Sul is a city that does not have an economy, 40% of the city are public officials from different sectors coming from all regions of Brazil and in December return to their cities and states.

Figure 2. Number of percentage of motorcycle accidents handled by the MECS in the month during the year 2010.

As the number of percentage of accidents handled by Mobile emergency Care Service - MECS during the year of 2010 there was a significant variation based on the total number of accidents in that year was 607 accidents. In the month of
January was 7.1 %, in February were 9.4 %, March 8.6% April 8.2 %, May was 8.4 %, June 8.6 %, equaling the month of March, in July was 9.2 %, rising to 10.4% in August, in September was 10.9% in October to 6.4 %, in November was 6.6% and December 6.3 %.

The prevalence of accidents during the year is very high, 607 accidents handled by SAMU, with a margin of 1.66% per day during the year of the survey, without counting the accidents rescued by population, by the fire department and the military police. The months also oscillated about the percentage.

Table 1. Types of motorcycle accidents handled by the MECS in the month during the first half of 2010.

<table>
<thead>
<tr>
<th>Types of accidents</th>
<th>Jan</th>
<th>Feb</th>
<th>Sea</th>
<th>Apr</th>
<th>Mai</th>
<th>Jun</th>
</tr>
</thead>
<tbody>
<tr>
<td>Col. Moto-moto</td>
<td>3</td>
<td>18</td>
<td>12</td>
<td>5</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>Col. Moto-car</td>
<td>15</td>
<td>14</td>
<td>9</td>
<td>11</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Col. Moto-bike</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Col. Moto-truck</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Col. Moto-bus</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Col. Moto-bulkhead</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Col. Moto-animal</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Trampling</td>
<td>7</td>
<td>4</td>
<td>7</td>
<td>13</td>
<td>5</td>
<td>4</td>
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<td>Tipping</td>
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<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Fall in motorcycle</td>
<td>15</td>
<td>13</td>
<td>16</td>
<td>13</td>
<td>19</td>
<td>16</td>
</tr>
</tbody>
</table>

Regarding the type of accidents handled by Mobile emergency Care Service - SAMU in the first half of 2010 there was a variation between the types of collisions. Collision moto-moto 70, collision motorcycle-car 62, collision moto-bike 20, collision motorcycle-truck 03, collision bike-bus 01, collision moto-bulkhead 07, collision moto-animal 08, trampling 40, overturning 02 and fall in motorcycle 92.

It was observed that the number of accidents occurring in the months of January to June 2010 was 305 accidents. This work is in line with the work presented by Cabral and Souza (2008) carried out between the months of February and June of 2006 which was 280 accidents. The collision moto-moto is
frequent at this time of year due to the rains, deviation of holes on the roads, lack of attention, imprudence, high speed, dual queue on the track, overtaking by right, crack, bikes with headlights burned and disrespect of signalling. Many drivers do not have CNH, appropriate age that is 18 years and ability to conduct motorcycle. In Brazil the minimum legal age for obtaining of the portfolio of motorcyclist is 18 years (KOIZUMI, 1992).

The collision motorcycle-car occurs more due the overtaking on the right and inappropriate places, the deviations of holes by not expecting the car pass first, fog during the night, cars with headlights burned, broken without the correct signaling and the disrespect for signaling.

The collision motorcycle rental occurs due to the lack of signage on bikes, lack of bike lanes, and also of the rider. Cyclists often travels in the middle of the track even the street having shoulder.

The collision motorcycle-truck collision and bike-bus are rare due to the fleet of these vehicles in Cruzeiro do Sul is small due to the highway BR 364 which is closed at that time of the year, the goods arrive by ferry by Juruá River from Manaus. Collisions occur with the trucks and buses in most times parked, by lack of attention of drivers of motorcycles or parked in inappropriate places.

The collision moto-bulkhead occurs in collisions with middle wire, pole, with trees, bucket of debris in the streets, debris, walls, fences and walls of houses. The high speed prevents the drivers of motorcycle braking in time, the lack of attention especially at night and the lack of signs of buckets of debris for example.

The collision moto-animals, refers to collisions with large animals such as horses and cattle that at this time of the year is common on the streets of the city's neighborhoods and even wild animals. With the rains the fences that secure these animals fall and they are free, mainly during the night. Some
jump fences and passing through the streets, some frowned upon in the midst of the streets and the drivers don't stop in time and other animals still scared with the noise of the motorcycle and attack the same.

Unlike the work of Koizumi (1992) that were only two pedestrians, trampling is often that the population did not realize that the town has grown and also expanded the fleet of vehicles including motorcycles and still pass through in the midst of the streets. Do not cross the tracks and still don't look to the sides when crossing the streets, do not walk on the sidewalks and not in Indian queues. The pedestrians are more frequent in rural areas, especially the indians are the most affected. The lack of attention of pedestrians and the imprudence of conductors are the causes of accidents. They are in many ways the accidents, since a slight beat until more serious causing the death of the pedestrian.

The rollover happens more due to mechanical problems such as chain break, spending brakes, the driver braking the motorcycle with the front brake by inexperience among others. Believe They are inexperienced all motorcyclists beginners to Koizumi (1992). The fleet of motorcycles is high, because some people in the city prefers to have a bike to their own house, but then cannot keep spending the motorcycle as periodic review, changing oil and parts even the licensing cannot pay. What also does not cease to be a rash.

The fall of moto is the highest of accidents and happen in various ways, since drunkenness, deviation of holes and small animals such as dogs and other animals including wild, broken springs not flagged, muddy streets, holes on the track, bad lighting and rain. For the motorcycle has only two wheels, requires a lot of skill of the driver and as the bike slips often lead to imbalance in the same which cannot keep control of the same and just dropping. The prevalence of falls from moto is due to puppies that are on the streets. The center of zoonosis of the city was turned off and with this there are many dogs loose,
they are lying in the streets or crossing at the time that the motorcycle is passing and even leave running behind the motorcycle.

Table 2. Types of motorcycle accidents handled by the MECS in the month during the second half of 2010.

<table>
<thead>
<tr>
<th>Types of accidents</th>
<th>Jul</th>
<th>Aug</th>
<th>Set</th>
<th>Out</th>
<th>Nov</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Col. Moto-moto</td>
<td>2</td>
<td>14</td>
<td>13</td>
<td>8</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Col. Moto-car</td>
<td>17</td>
<td>4</td>
<td>19</td>
<td>11</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td>Col. Moto-bike</td>
<td>2</td>
<td>8</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Col. Moto-truck</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Col. Moto-bus</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Col. Moto-bulkhead</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Col. Moto-animal</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Trampling</td>
<td>5</td>
<td>6</td>
<td>13</td>
<td>9</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Tipping</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fall in motorcycle</td>
<td>24</td>
<td>27</td>
<td>13</td>
<td>10</td>
<td>8</td>
<td>9</td>
</tr>
</tbody>
</table>

Regarding the type of accidents handled by Mobile emergency Care Service - SAMU in the second half of 2010 there was a variation between the types of collisions. Collision moto-moto 46, collision motorcycle-car 77, collision moto-bike 22, collision motorcycle-truck 05, collision moto-bulkhead 10, collision moto-animal 07, trampling 44, fell from a motorcycle 91.

In the second half of the year, it is clear that the rate of accidents is still high, there is little difference in the first half. Some types of accidents decreased, other increased and two there was no record, the collision bike-bus and overturning. The collision motorcycle rental there was an increase of 110,0% (02), bike-truck 166,0% (02), moto-bulkhead 142,85% (03) and moto-animal decreased by 87.5% (01). The collision moto-moto there was an increase of 115.0% (06), the reasons that have led to accidents are the same as in the first half of the year, but with the summer population that not budge of motorcycle because of roads without paving now feels free to parade around with them.

The collision motorcycle-car had a significant increase of 124,19% (15), the opening of BR 364, which communicates
Cruzeiro do Sul with Rio Branco is open during the summer, the same is closed during the winter rainy season because of muddy stretches that are impassable. The opening of the highway is received with a party by cruzeirense population because the cost of living is high during the winter and decreases with the arrival of summer. With this increases the economy of the city receives many visitors, and the fleet of cars and motorbikes are increasing.

The trampling had an increase of 110.0% (04) and fall in motorcycle decreased 98.91% (01). With the hot summer that is here in Cruzeiro do Sul, the people looking for the rivers and creeks called fresh water beaches for bathing. In beaches happens ingestion of alcoholic beverages and how many are the beaches, the supervision of transit is poor with little effective on the streets. The drunken louts are walking in the middle of highways and are being breached, the accidents are mild abrasions until the death of the victim.

The fall in motorcycle happens for the same reasons as the first half. Among the causes the most aggravating factor is by reason of drunkenness. The falls ranging from mild, moderate and severe arriving in the death of the victim. In some cases happen trampling then fell from a motorcycle other than the work of Oliveira and Souza (2003) that could not say that the majority of victims of motorcyclists was affected by mild traumas.

The human behavior in transit is a theme that has long been studied. The psychology of transit is the discipline responsible for this study, and since the 20th century it taken from the humanities developing its work in selections, training and in transit second Alchieri, Silva and Gomes (2006). It is a multidisciplinary work involving the medicine of traffic, engineering and education in transit. The psychology of transit operates in several areas of human mobility, education in transit requires very the presence of this discipline in raising
the awareness of drivers to avoid accidents and have a good conduct on track (MONTIEL ET AL, 2006).

The psychological evaluation from the outset is a measurement instrument of the psychological processes that assists in the evaluation of human phenomena. One of its purposes is to promote the safety of drivers in traffic thus avoiding accidents. But the same struggles with a difficulty which is the relationship between psychological processes and accidents of transits by being difficult to obtain valid information about the accident and the behavior that precede it. The police records are superficial reporting only the mechanical factors that prove the accident (HOFFMANN, 2005).

**Conclusion**

It was concluded that this study confirms findings exist in other regions of the country and the major types of accidents handled by Mobile Emergency Care Service - SAMU were collisions moto-moto, moto-car, trampling and fall in motorcycle. The prevalence of these types of accidents is present in several studies. It was observed that, in addition to having only two wheels that provide lack of balance, several factors influence the falls of moto as the ingestion of alcoholic beverages.

Although this study has been developed in a unit of reference in answering emergency room and for a period of one year, new studies with representative samples must be carried out in the areas of psychology, for example, that the psychological evaluation is not the only instrument of work psychologist, that the same should be extended to the education in transit. The traffic engineering is another area that also needs studies, especially with regard to the geography of the region, signaling, roads and paving in order to generate data that has not yet been produced in the northern region.

For both, it is recommended that investment to make implantaça system of complete database with information
about the quantity and quality of information on accidents and on each accident. It is further recommended investment in human resources to act as an agent of transit and in education in transit to optimize service and ensure the effectiveness of emergency care in transit in Cruzeiro do Sul.

REFERENCES


GUSMAO, S. S. ; PITTELLA, J. E. H. hypoxic brain damage in fatal victims of traffic accidents: prevalence, distribution and association with survival time and other injuries road and extracranial. Arquivos de Neuro-
Analysis of Incidence and Prevalence of Collisions Crashes of Motorcyclists Attended the Mobile Emergency Care Service - Samu (2010) in Cruzeiro do Sul, Acre State, Brazil


Joareis Fernandes de Azevedo - Analysis of Incidence and Prevalence of Collisions Crashes of Motorcyclists Attended the Mobile Emergency Care Service - Samu (2010) in Cruzeiro do Sul, Acre State, Brazil


VASCONCELLOS, E. What is transit. SP: Brasiliense, 1985.


Validation of Attributional Complexity Scale in Iranian Context and an Investigation into the Effect of Knowing Another Language on Social Perception

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Abstract:
The present study attempted to validate Attributional Complexity Scale (ACS) in Iranian context. Fletcher et al. (1986) developed the so called ACS in order to capture individual differences in the propensity to generate complex explanations to the behaviors of others. Also, the influences of EFL students' age and gender on attributional complexity were examined. This study contained attributional constructs that range along a simple-complex dimension. Also, the effect of the higher attributional complexity that prefers complex explanations for the causes of behavior as well as the effect of being motivated to understand behavior on reducing error and bias in social judgment were introduced. People's strong tendency to overestimate internal factors, such as one's disposition, and underestimate the external factors was regarded as well. To do different phases of the present research, 200 EFL university learners comprising 115 females and 85 males participated for the scale validation of ACS and finding out the effects of age and gender as well as the role of knowing another language on improvement of participants' social perception. The results implied that both age and

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gender did not have any effect on learners' AC. Also, learning another language increased people's social perception.

Key words: Attributional Complexity, Social judgment, behavior, Social Perception, Iranian Context

1. Introduction

More recently, the significance of attributional complexity has attracted researchers and educationalists. Indeed, attributional complexity is a psychological construct that describes the degree to which an individual is interested in understanding the causes of other's behavior and considers many different possible causes (Fletcher, Danilovics, Fernandez, Peterson, & Reeder, 1986). Those higher in attributional complexity are theoretically “like good social psychologists” in that they are more likely to consider dispositional factors, situational factors, and factors operating from the past (Fletcher et al., 1986, p. 883). In contrast, those lower in attributional complexity are theorized to be less likely to think about the causes of behavior or to consider multiple causes. Research has shown that attributionally complex individuals are relatively less likely to fall prey to various errors of social judgment and in some cases achieve greater accuracy, which may provide insight into the psychological basis of good social judgment. Specifically, error and bias in social judgment appears to be significantly reduced when an individual is interested in understanding behavior, able to think about several possible causes of behavior, and given time to deeply process social information (Fletcher, Reeder, & Bull, 1990). On the other hand, an individual difference (can be thought of as a personality variable) refers to the extent that an individual prefers complex explanations for behavior. Attributional patterns and variations across cultures
are crucial, and call for higher attributional complexity (AC) and attributional knowledge to reduce cultural distance.

Social perception and cognition traditionally have been associated with the proposition that people perceive and think about the social world differently from what would be expected based solely on the stimulus information and principles of formal logic. Social perception was founded on the idea that internal factors such as values, needs, and expectancies influence the outcome of perception, so that it could not be accounted for entirely in terms of stimulus qualities (e.g. Postman et al 1948).

Within the last decades many research studies have been conducted in different areas of attribution and attributional complexity. However, there are still rooms for investigating the influences of different factors on this trait. Also, we are not sure about the validity of this scale in Iranian context. In this regard, the main concern in the present study is to see whether attributional complexity scale enjoys psychometric properties for assessing EFL students' attributions. After proposing and validating the related scale the effects of both age and gender will be examine on the participants. Then, the effect of learning another language on increasing learners' social perception will be investigated.

2. Literature Review

2.1. Attributional Complexity
According to Fletcher, Danilovics, Fernandez, Peterson, and Reader (1986), "Attributional Complexity is a psychological construct that describes the degree to which an individual is interested in understanding the causes of others behavior and considers many different possible causes" (Fletcher, 1981). In fact attributional complexity refers to the capability of discriminating and integrating dimensions related to social
judgment in order to understand social behavior (Funder, 2001). An individual difference (can be thought of as a personality variable) referring to the extent that an individual prefers complex explanations for behavior.

Fletcher and colleagues (1986) developed the Attributional Complexity Scale to measure the complexity of the attributional schemata that people use to explain human behavior. The scale measures seven attributional constructs: (1) a motivational component, (2) preference for complex rather than simple explanations, (3) metacognition concerning explanations, (4) awareness of the extent to which people's behavior is a function of interaction with others, (5) a tendency to infer abstract or causally complex internal attributions, (6) a tendency to infer abstract, contemporary, external causal attributions, and (7) a tendency to infer external causes operating from the past.

Fletcher and his associates developed the so called Attributional Complexity Scale (ACS) in order to capture individual differences in the propensity to generate complex explanations to the behaviors of others. The scale was constructed to measure seven attributional constructs that range along a simple-complex dimension: *Level of interest or motivation*, meaning that attributionally complex people possess higher levels of intrinsic motivation to explain and understand human behavior; *Preference for complex explanations*, implying that complex individuals generate behavioral explanations that contain a greater number of relevant causes; *Metacognitive awareness*, that is, complex individuals tend to think about the cognitive processes underlying behavioral attribution; *Awareness of social influences*, referring to the tendency of complex individuals to take the power of the social situation into account when forming causal attributions; *Abstract or complex internal attributions* — the degree of complexity in explanations.
involving internal traits, dispositions and beliefs; *Contemporary external attributions*, meaning that complex people acknowledge abstract, non-salient behavioral causes in a person’s environment; and finally *awareness of external causes operating from the past*.

Fletcher et al. (1986) were able to validate these subdimensions as components of the general construct of attributional complexity. Viewing the above from a deception-detection perspective, we predict that people high on the attributional complexity measure would perform better on a lie-detection task than people with simple attributional schemata. The rationale behind this prediction is that previous studies have shown that the reliance on rigid, stereotypic assumptions about liars’ behavior is associated with lower detection accuracy (Fletcher, 1981), and that successful lie-detectors provide flexible arguments when motivating their veracity judgments (Ekman & O’Sullivan, 1991).

### 2.2. Attributional complexity and social judgment

Given that those with higher attributional complexity prefer complex explanations for the causes of behavior, yet there seems to be little relationship between attributional complexity and intellectual ability, one may wonder if the attributionally complex are idly complicated in thought with no real benefit for social judgment. However, high scorers seem to be socially astute as they are less prone to make a variety of classic attributional errors. For example, when asked to write an essay defending an opinion contrary to one’s initial position (a dissonance-producing counter-attitudinal essay), those higher in attributional complexity are more likely to externally justify writing the essay, and are therefore less likely to change their initial opinion (Stalder & Baron, 1998). At least three studies have also found that attributional complexity is associated with significant reductions in committing the fundamental
attribution error (Blumberg & Silvera, 1998; Devine, 1989; Follett & Hess, 2002). However, it is not the case that the attributionally complex are simply more likely to make external rather than internal attributions for behavior, because it has been demonstrated that attributional complexity has a near zero correlation with locus of control (Fletcher et al., 1986). Fletcher et al. (1990) found that attributionally simple individuals are less likely to make this error when depth of information processing is restricted, while attributionally complex individuals are less likely to commit the Fundamental Attribution Error when in depth processing is encouraged. Finally, in conditions where participants do not have to justify their impressions, attributionally complex individuals are less likely to form erroneous group stereotypes (Schaller, Boyd, Yohannes, & O’Brien, 1995).

The attributionally complex also seem to follow attributional rules better than their lower scoring counterparts. When given problems in which one needs to determine whether a behavior was caused by the person, circumstance, or stimulus, those higher in attributional complexity make more correct attributions, especially when the problems increase in difficulty (Fletcher, 1981). Along with enhanced ability to follow attributional rules and reductions in error, attributional complexity seems to be related to increased accuracy in social judgment as well. Fletcher et al. (1990) found that in conditions where adequate time

2.3. Attributional complexity and behavior
Attributional complexity is contained within attribution theory. Social psychological studies have consistently found that people have a strong tendency to overestimate internal factors, such as one’s disposition, and underestimate the external factors driving people’s behavior. This tendency, known as the correspondence bias (Gilbert & Malone, 1995), is typically
examined using the attitude–attribution paradigm (first reported in Jones & Harris, 1967). Participants read a short essay on a controversial social issue and indicate the writer’s true opinion. Participants are told that the author either chose the position to advocate in the essay, or was assigned a specific position to argue in the essay. As might be expected, when the writer is free to choose a position to endorse, participants indicate that the position advocated in the essay corresponded with the writer’s true attitude. However, even when it is clear that the author of the essay was writing an assigned position, participants still rate the author’s own opinion as consistent with the arguments of the essay. Persons with high attributional complexity connote more complex explanations of the behavior of others than do lower complexity. The attributional complexity scale has made important contributions to the understanding of social cognition and error. Error and bias in social judgment appears to be significantly reduced when an individual is motivated to understand behavior, able to consider several possible causes for behavior, and given time to deeply process social information. Because attributional complexity seems to greatly influence how an individual thinks about his/her social world, it is appropriate to seek to know more concerning the social reputation and behavior of the attributionally complex. Directly observing what attributionally complex individuals do is important because it might offer some insight into how they interact with others and why they tend to have better social judgment.

Although it is assumed that they have better judgment because they think deeply and elaborately about social information, it may also be that they behave in ways that facilitate better social judgment. For example, attributionally complex individuals might ask more questions and gather more information about their social worlds. Researchers infrequently gather directly observed behavioral data and it is crucial to
know what people actually do, in addition to what they self-report (Funder, 2001). Little is also known concerning the possible social consequences of attributional complexity, and the opinions that others have of an individual may be one such consequence. In this regard, a research on attributional complexity with college student samples has indicated that mild and moderate depression are associated with increased attributional complexity but more severe depression may be related to decreased attributional complexity. In fact, severe depression is associated with reduced attributional complexity.

2.4. The Overattribution Effect: Ability and Motivation.

The present section considers the possibility that before the overattribution effect can be reduced on any measure, 1) subjects must have the ability to generate and consider multiple causes for behavior and 2) in addition, subjects must be motivated to engage in complex causal reasoning. To the extent that either factor is missing, I suggest that subjects will take advantage of well-practiced heuristic causal explanations (Nisbett and Ross 1980). Fletcher, Danilovics, Fernandez, Peterson, and Reeder (1986) suggested that people differ in the complexity of the attributional schemata they use in explaining human behavior. In general, Fletcher et al. suggested that people high in attributional complexity are able to consider many possible causes for behavior (e.g., internal, external) and can engage in complex (i.e., flexible) causal reasoning. In contrast, attributionally simple people are not able to engage in this type of flexible, complex causal reasoning. As with many abilities, attributional complexity is asymmetrical (Reeder and Brewer 1979). Whereas attributionally complex individuals can use either complex or simple schemata in explaining behavior, low-complexity individuals are restricted to using simple schemata. Explanations of the overattribution effect have appealed to the notion of the lazy processor (Taylor 1981;
Tetlock 1985). For example, Reeder and Brewer (1979) suggested that in the attitude attribution paradigm, subjects tend to misapply the overlearned rule that acts correspond to dispositions. This rule works in most settings (Jones, & Harris, 1967); without specific cues that the rule may be inappropriate, subjects are efficient information processors. Fletcher et al. (1986) recognized that it is impossible for people to produce complex explanations for all behavior, and argued that motivation may be the type of cue that would stimulate careful information processing. Indeed, Tetlock (1985) found that motivation, operationalized as personal accountability, encouraged subjects to be discriminating and complex information processors who recognized that behavior is only sometimes diagnostic of underlying attitudes or dispositions. In addition, information that contradicts expectancies also seems to motivate complex information processing. For example, when subjects expect an essay writer to have an extreme attitude and when the essay prepared is relatively weak, subjects question the extremity of the essayist's attitude (Jones et al. 1971). When motivation is lacking, Fletcher et al. suggested that both high- and low-complexity people are likely to use simple attributional schemata or heuristic rules to generate causal explanations (e.g., that behavior corresponds to dispositions). Thus they suggested that differences between high- and low complexity people are likely to be evident when people have both the motivation and the time to engage in attributional processing. Although their research was devoted to developing and validating the attributional complexity scale, Fletcher et al. made a specific prediction with regard to the over attribution effect (or fundamental attribution error, as they cited it). They predicted that "complex individuals are less prone to this error than people with simple attribution schemata" (p. 883).
2.5. Social Perception

Social Perception is the process by which we form impressions of other people and make inferences about them. For example, on the first day of a new class, when the professor walks into the room, I may perceive him to be short, poorly dressed, and socially awkward; he may initially remind me of previous teacher I didn’t like. But later on, once I have gathered more information, I may re-evaluate him as humorous, intelligent, and an excellent teacher.

To know the minds of others, we must attend to and perceive the available cues, whether in their verbal or nonverbal behavior, that contain information about their inner qualities. The field of social cognition emerged from the study of this process of person perception, which focused on the perceiver’s ability to discern others’ states (e.g., emotions) and traits (Jones et al. 1971). Researchers in this tradition have generally assumed that cognitive representations of actors (and of the contexts in which they behave) mediate behavioral responses to the social world (Fiske & Taylor, 1991). These representations confer meaning onto the sensory input that is received, and in so doing, they potentiate corresponding responses. In short, thinking is for doing.

3. Methodology

The present study will be designed in three major phases. The first phase includes an array of different steps to design and validate attributional complexity scale. This phase starts by designing the scale and proceeds by administrating the scale and determining its validity in Iranian context accordingly. The second phase is finding the relationship between participants' attributional complexity and their age as well as their gender. In the last stage, social perception of English and non-English
students is investigated to find out whether knowing another language affect on peoples social perception.

3.1. Participants
In the first phase, a community sample of 200 EFL university learners comprising 115 females and 85 males participated in this study for the scale validation of Attributional Complexity Scale with no expectation of incentives. In all, the age of all the participants ranged from 22 to 40 years. All participants were advanced students of different fields of English language study like English Translation, English Teaching, and English Literature. They held degrees ranging from undergraduate student to PhD (45), undergraduate students to MA (55), MA degree (85), and BA degree (15). The questionnaires before and after validation were distributed among EFL learners of various institutes and universities in Borujerd namely Science and Research University of Borujerd Branch, Azad University of Borujerd, Ayatollah Borujerdi University, Pardis English Institute. Finally, the study took 5 months to be completed and was held at different private language institutes and universities of Borujerd

3.2. Instrumentation
In the first phase of gathering data for validation of Attributional Complexity Scale, the proposed questionnaire was distributed among EFL participants. But in the second phase the participants were asked to fill out the validated Attributional Complexity Scale regarding their age and gender. These instruments were used for EFL university students.

3.3. Procedure
For the first step of the procedure, the professors of certain classes were contacted and encouraged to cooperate. Then, the questionnaires were distributed among the participants. The
gathered data were put into Statistical Package for Social Sciences (SPSS), to be analyzed.

Rasch rating scale model (RSM) and Exploratory Factor Analysis (EFA) with principal component analysis and varimax rotation was run. Factorability of the scale was examined based on Bartlett’s test of sphericity and Kaiser-Meyer-Olkin measure of sampling adequacy. To discover the relationship between students' attributional complexity and their gender independent-samples t-test was run. Pearson Product-Moment Correlation coefficient formula was used to find the relationship between students' attributional complexity and their age.

3.4. Data Collection and Analysis
The advanced participants from various universities and institutes of Borujerd took part in the present study after their class hours or in the break time between classes. Collection of the data happened from April to July of 2014. Regarding to validating attributional complexity scale, the process of data collection took place in two different phases: before validation and after that. Indeed, the respondents had to indicate their extent of agreement on the 5-Likert Scale of attributional complexity scale ranging from 1 (strongly disagree) to 5 (strongly agree). In order to design and validate Attributional Complexity scale, Racsh model and Exploratory Factor Analysis were used. To find the relationship between Iranian EFL learners' attributional complexity with their age and gender independent-samples t-test were run. Pearson Product-Moment Correlation coefficient formula was used. Also, to find out the effect of learning another language on people's social perception independent-samples t-test was used.
4. Results

Participants were requested to respond to five Likert-type statements dealing with different items to assess participants' attributional complexity (Appendix I). After validation, in the second stage participants were asked to reply the validated scale (Appendix II). Then, the effects of their age and gender were studied. Also, the effect of learning another language on students's social perception was investigated. The findings were structured along with the following list of research questions

1) Does the attributional complexity scale enjoy psychometric properties for assessing EFL students' attributions?

First, the uni-dimensionality of the scale was assured through Rasch measurement model using Winsteps software. Item separation index was 5.29 with an item reliability of .97, and a person separation index was 3.21 with a person reliability of .92, which shows that measurement was acceptable.

According to Bond & Fox (2007) items which do not fit the Rasch model have outfit and infit mean square (MNSQ) indices outside the acceptable range of 0.70-1.30. Misfitting items show multidimensionality and should be deleted for further analysis. Results can be seen in Table 4.1. As Table 1 indicates there is only one item which did not fit (item 33). This item was deleted for further analyses.
Table 1. Rasch model results for attributional complexity scale

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ENTRY NUMBER</th>
<th>TOTAL SCORE</th>
<th>TOTAL MEASURE</th>
<th>MODEL S.E.</th>
<th>INFIT ZSTD</th>
<th>OUTFIT ZSTD</th>
<th>PT-MEASURE CORR. EXP</th>
<th>EXACT MATCH EXP%</th>
<th>OBS%</th>
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<td>26</td>
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<td>172</td>
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<td>.04</td>
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<td>30</td>
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</tr>
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<td>.79</td>
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</table>

Then, Exploratory Factor Analysis (EFA) for assessing construct validity and Cronbach's alpha for assessing reliability were used.

First, Exploratory Factor Analysis (EFA) with principal component analysis and varimax rotation was run. Factorability of the scale was examined based on Bartlett's test of sphericity and Kaiser-Meyer-Olkin measure of sampling adequacy. Criteria for retaining factors were based on eigenvalues greater than 1, the screeplot, factor loading greater than .40. Items with cross-loadings and low loadings were removed.

KMO statistic was .72 and Bartlett's test of sphericity was significant which indicate that the scale is factorable. Results of EFA (Table 2) showed a four-factor solution for attributional complexity among EFL learners which accounted for 52% of the variance.
Zeinab Azizi, Azar Hosseini Fatemi, Reza Pishghadam, Zargham Ghapanchi-
Validation of Attributional Complexity Scale in Iranian Context and an
Investigation into the Effect of Knowing Another Language on Social
Perception

<table>
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<td>.555</td>
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</tbody>
</table>

Then, subscales of the validated attributional complexity scale were proposed. Ten items loaded on first factor. As all the items are related to thinking deeply for doing things, this factor was named deep thinking.

Four items loaded on the second factor. As all the items are related to the impact people can have on other people, this factor was named influence on others.

Six items loaded on the third factor. As all the items are related to lack of interest in understanding other people's behavior, this factor was named unwillingness to understand people's behavior.

Four items loaded on the fourth factor. As all the items are related to the kind of relation people may have with others, this factor was named relation with others.
Internal consistency of the scale and its subscales was examined with Cronbach’s alpha. Results can be seen in Table 3.

**Table 3. Internal consistency of the scale and its subscales with Cronbach's alpha.**

<table>
<thead>
<tr>
<th>factor</th>
<th>Cronbach's alpha</th>
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</thead>
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<tr>
<td>deep thinking</td>
<td>.74</td>
</tr>
<tr>
<td>influence on others</td>
<td>.71</td>
</tr>
<tr>
<td>named unwillingness to understand people's behavior</td>
<td>.72</td>
</tr>
<tr>
<td>relation with others</td>
<td>.69</td>
</tr>
</tbody>
</table>

2) Is there a significant relationship between students' attributional complexity and their gender?

To see whether there is a significant difference between males' and females' attributional complexity, independent-samples t-test was run. Descriptive statistics for both males and females can be seen in Table 4.

**Table 4. Descriptive statistics of the relationship between students' attributional complexity and their gender**

<table>
<thead>
<tr>
<th>gender</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATTRIBUTION.COMPLEXITYFEMALE</td>
<td>135</td>
<td>109.8505</td>
<td>13.60597</td>
<td>1.17102</td>
</tr>
<tr>
<td>MALE</td>
<td>66</td>
<td>108.6316</td>
<td>12.86906</td>
<td>1.58407</td>
</tr>
</tbody>
</table>

First, Based on Levene’s test, appropriate t was selected. As Table 5 shows, there is no significant difference between males and females (t= .60, df= 199, p>.05). Therefore, males and females do not differ in their level of attributional complexity.
Table 5. Independent Samples Test of the relationship between students' attributional complexity and their gender

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>ATTRIBUTION.COMPLEXITY</td>
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<tr>
<td>Equal variances assumed</td>
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<td>.443</td>
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<tr>
<td>Equal variances not assumed</td>
<td>.619</td>
<td>135.784</td>
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</table>

3) Is there a significant relationship between students' attributional complexity and their age?

To answer this research question, participants' age was divided into three groups of 16 to 23, 24 to 31, and 32 and higher. Descriptive statistics and also means plot for these three groups can be seen in Table 5.

Table 5. Descriptives for three age groups

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>95% Confidence Interval for Mean</th>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
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<td>16-23</td>
<td>63</td>
<td>107.9453</td>
<td>13.89865</td>
<td>1.75105</td>
<td>104.4450</td>
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<td>24-31</td>
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<td>109.0310</td>
<td>13.89055</td>
<td>1.57279</td>
<td>105.8991</td>
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<td>32&lt;</td>
<td>60</td>
<td>111.5755</td>
<td>11.91511</td>
<td>1.53823</td>
<td>108.4975</td>
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<tr>
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<td>201</td>
<td>109.4503</td>
<td>13.34861</td>
<td>.94154</td>
<td>107.5936</td>
</tr>
</tbody>
</table>

To see whether these differences are statistically significant, one-way analysis of variance (ANOVA) was performed. Result can be seen in Table 6. As Table 4.6 indicates, there is no
statistically significant difference among the three groups with regard to their attributional complexity \[F (198, 2) = 1.20, p>.05].

Table 6. one-way ANOVA

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
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</thead>
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<td>Within Groups</td>
<td>35209.696</td>
<td>198</td>
<td>177.827</td>
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<td></td>
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<tr>
<td>Total</td>
<td>35637.084</td>
<td>200</td>
<td></td>
<td></td>
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</tr>
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</table>

4) Does learning other language help to increase social perception of the learner?

To answer this research question, independent-samples t-test was used (Table 7). First, descriptive statistics for both groups are shown in Table 7.

Table 7. Group statistics for both English and non-English students

<table>
<thead>
<tr>
<th>major</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>NON-ENGLISH</td>
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<td>116.3850</td>
<td>14.22693</td>
<td>1.00349</td>
</tr>
<tr>
<td>ENGLISH</td>
<td>201</td>
<td>137.5511</td>
<td>15.75086</td>
<td>1.11098</td>
</tr>
</tbody>
</table>

As Table 7 indicates, there is a statistically significant difference between English and non-English major students with regard to their attributional complexity \[t (400) = 14.13, p<.05\). As the mean of the English major (137.55) is higher than that of the non-English students (116.38), it can be said that English major students have a higher social perception than non-English students. In fact, learning another language will increase students’ social perception (Table 8).
Table 8. Independent Samples Test

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
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<td>Sig.</td>
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<td>Equal variances assumed</td>
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5. Conclusions and Discussions

The present study aimed at finding out whether or not Attributional Complexity Scale is valid in Iranian context. To this goal, four research questions were posed. The first question asked whether the attributional complexity scale enjoy psychometric properties for assessing EFL students' attributions. By analyzing the results reported in table 1, some items that weren’t valid, omitted from the proposed scale. Then, the uni-dimensionality of the scale was assured through Rasch measurement model using Winsteps software to validate and confirm a model. Exploratory Factor Analysis (EFA) for assessing construct validity and Cronbach's alpha for assessing reliability were used. Then, subscales of the validated attributional complexity scale were proposed. In this phase of study, the validated scale was distributed among EFL participants in order to answer the next two research questions. The second question, however, dealt with finding out the relationship between students' attributional complexity and their gender. To see whether there is a significant difference between males' and females' attributional complexity, independent-samples t-test was run. The results showed that EFL advanced participants' gender do not have any effect on their attributional complexity. And the third research question asked whether there is a significant relationship between
students' attributional complexity and their age. To see whether these differences are statistically significant, one-way analysis of variance (ANOVA) was performed. The results demonstrated that the age of the participants do not have any effect on their attributional complexity. At last, to find whether learning other language help to increase social perception of the learner independent samples t-test between English students and non-English students showed that English major students have a higher social perception than non-English students. As a matter of fact, a kind of improvement in social perception can be seen among those who know another language.

The findings of the present study are to a large extent in line with the studies conducted by Hamilton 1980, Harvey et al 1981b, Funder 1982. These theorists at least imply that people's age and gender are rarely affected on their distinctions in their attributional activities. Also, Fletcher and colleagues (1986) developed the so called Attributional Complexity Scale (ACS) in order to capture individual differences in the propensity to generate complex explanations to the behaviors of others. But there is little evidence one way or another on the possibility of the influence of people's age and gender on their judgments of others behaviors.

REFERENCES


The Effect of Hydroxyurea Treatment on Fetal Haemoglobin Level and Clinical Status of Sudanese Sickle Cell Anaemia Patients

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Abstract:
This descriptive cross-sectional study was conducted to determine the effect of Hydroxyurea treatment on HbF level and the severity among Sudanese patients with sickle cell disease through the period of June 2013 up to September 2012, using Capillary Electrophoresis technology. The total number of study group was seventy nine Patients, 39 (49.4%) of them were males and 40 (50.6%) were females; their ages ranged between 0.4 -26 years (mean ± SD: 9.0 ± 6.1 ). According to ethnicity, 35 (44.3%) of them were Afro- Asiatic, 5(6.3% ) were Nilo-Sahara and 39 (49.4%) were Niger-Congo. Twenty two(27.8%) of the patients were taken Hydroxyurea therapy (500mg). The study reveals that Hb-F level is ranged (0.9 – 38.5 % mean 8.4%) 47% with HbF < 6.0% and 6.3% with HbF > 20%, this illustrate that Sudanese patient with SCD have low level of HbF and this level is not enough to influencing the clinical crises of the disease. Our results showed that there is no significant different in HbF level of patients inducted Hydroxyurea and those were not and accordingly there was no clear effect on the clinical crisis. As study also explain that no correlation was found between hydroxyurea administration and disease complications: (Pain crisis, Dactylitis, Leg ulcer, Stroke, Acute
chord syndrome, Spleenectomy, Gallstone) the (P,Values : 0.61, 0.20, 0.37, 0.13, 0.52, 0.05, 0.27 respectively) there was no statistically significant different on their complications

Key words: Sickle cell anaemia, Hydroxyurea., Fetal haemoglobin.

Introduction

Sickle cell anaemia, also known as sickle cell disease (SCD) is a worldwide disorder that occurs when the sickle (S) gene is inherited from both parents (homozygous state, SS). Heterozygous inheritance of the sickle gene (AS) is frequently referred to as sickle cell trait, usually it has no clinical consequences. Individuals with SCD exhibit significant morbidity and mortality. Symptoms include chronic anemia, acute chest syndrome, stroke, splenic and renal dysfunction, pain crises, and susceptibility to bacterial infections. (Stiene-Martin A,1998; Ashley-Koch A, 2000)

In Sudan, sickle cell anaemia is the one of the major types of anaemia especially in western Sudan where the sickle cell gene is frequent. Previous study about haemoglobinopathies in Sudan showed that haemoglobin "S" is the most common abnormal haemoglobin in western sudanese ancestry. Sickle beta globin (βs) gene may have been preferentially introduced through migration of people from West African tribes to Sudan particularly hosa, folani and bargo (Abdelrahim O, 2006; Rihab E. Bereier, 2007; Abozer Y.Ederdery, 2008)

Patients with SCD in populations who inherit a genetic determinant for high fetal hemoglobin (Hb-F) typically have a very mild clinical disorder. Moreover, Hb-F has been identified as a major prognostic factor for several clinical complications of sickle cell anaemia including pain crisis, acute chest syndrome and early death. (Bailey K, 1992; Castro O, 1994; Platt O, 1994)
Pharmacological induction of Hb-F production was proposed as a therapeutic strategy to decrease the severity of SCD. Hydroxyurea is one of the drugs used widely to induce Hb-F synthesis in patients with SCD, it is decreases the frequency of painful crises and episodes of acute chest syndrome and reduces transfusion requirements and hospitalizations in patients with moderate to severe SCD. (Fathallah H, 2006; Steinberg MH, 1997; Charache S, 1996).

The usefulness of hydroxyurea on Hb-F level and on patients clinical status in Sudan is not well studied yet. This study aimed to determine the pattern of haemoglobin in Sudanese sickle cell anaemia patients and to study the effect of Hydroxyurea on Hb-F level and patients’ clinical status.

Materials and methods

Study subjects and design
This study is a descriptive cross-sectional study conducted at Omdurman military hospital and refer clinics at Fatharahman Elbasheer centre, Khartoum, Sudan, in the period from June to September 2013.

Sample collection and analysis
After informed consent, venous blood samples were collected in ethylene diamine tetra acetic acid (EDTA) blood tubes from 79 sickle cell anaemia patients and analyzed by modified fully automated capillary2 flexpiercing haemoglobin electrophoresis technique to detect and estimate the different types of haemoglobins found in those patients.

Data collection and analysis
Data was collected by structured interview questionnaire and from patients' medical files and analyzed using statistical package for social science (SPSS).
Results:

A total of 79 patients with sickle cell anaemia were enrolled in this study; 39 (49.4%) of them were males and 40 (50.6%) were females; their ages ranged between 0.4 - 26 years (Mean ± SD: 9.0 ± 6.1).

According to ethnicity, 35 (44.3%) of patients were Afro-Asiatic, 5(6.3%) were Nilo-Sahara and 39 (49.4%) were Niger-Congo.

Twenty two (27.8%) of the patients were treated with hydroxyurea (500mg), while 57(72.2%) were not.

Mean Hb-F level in study subjects was found to be 8.4%. No statistically significant difference was found in mean Hb-F level according to gender (Mean: 8.1% for males and 8.6% for females, $P$-value: 0.72).

Patients from Niger-Congo group were found to have higher Hb-F level than the other 2 ethnic groups, followed by Nio-Sahara group and Afro-Asiatic group consequently but the difference was not statistically significant (Means: 9.1%, 7.9%, and 7.6% respectively, $P$-value: 0.63).

No statistically significant difference was found in mean Hb-F level in patients using hydroxyl urea and those not using hydroxyl urea (Means: 7.6% and 8.7% respectively, $P$-value: 0.57).

As shown in table (1) there was no statistically significant difference in mean Hb-F level in patients with and without different disease complications.

No correlation was found between hydroxyurea administration and disease complications (Table 2).
Table 1: comparison of Hb-F level in patients with and without complications

<table>
<thead>
<tr>
<th>Complication</th>
<th>N</th>
<th>Hb-F level</th>
<th>P.value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Pain crisis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>36</td>
<td>9.3</td>
<td>7.6</td>
</tr>
<tr>
<td>No</td>
<td>43</td>
<td>7.57</td>
<td>6.1</td>
</tr>
<tr>
<td>Dactylitis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>4</td>
<td>17.4</td>
<td>9.3</td>
</tr>
<tr>
<td>No</td>
<td>75</td>
<td>7.9</td>
<td>6.4</td>
</tr>
<tr>
<td>Leg ulcer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
<td>11.2</td>
<td>12.7</td>
</tr>
<tr>
<td>No</td>
<td>77</td>
<td>8.3</td>
<td>6.7</td>
</tr>
<tr>
<td>Gallstone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>3</td>
<td>5.2</td>
<td>1.96</td>
</tr>
<tr>
<td>No</td>
<td>76</td>
<td>8.5</td>
<td>6.91</td>
</tr>
<tr>
<td>Stroke</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>3</td>
<td>4.9</td>
<td>2.3</td>
</tr>
<tr>
<td>No</td>
<td>76</td>
<td>8.5</td>
<td>6.91</td>
</tr>
<tr>
<td>Acute chest syndrome</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>8</td>
<td>7.4</td>
<td>4.9</td>
</tr>
<tr>
<td>No</td>
<td>71</td>
<td>8.5</td>
<td>7</td>
</tr>
<tr>
<td>Splenectomy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>17</td>
<td>7.7</td>
<td>4.9</td>
</tr>
<tr>
<td>No</td>
<td>62</td>
<td>8.5</td>
<td>7.2</td>
</tr>
</tbody>
</table>
Table 2: complications between hydroxyurea administration and disease complications:

<table>
<thead>
<tr>
<th>Complication</th>
<th>Hydroxyurea</th>
<th>P.value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Pain crisis</td>
<td>Yes</td>
<td>9 (41%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>13 (59%)</td>
</tr>
<tr>
<td>Dactylitis</td>
<td>Yes</td>
<td>0 (0%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>22 (100%)</td>
</tr>
<tr>
<td>Leg ulcer</td>
<td>Yes</td>
<td>0 (0%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>22 (100%)</td>
</tr>
<tr>
<td>Stroke</td>
<td>Yes</td>
<td>2 (9%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>20 (91%)</td>
</tr>
<tr>
<td>Acute chest syndrome</td>
<td>Yes</td>
<td>3 (14%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>19 (86%)</td>
</tr>
<tr>
<td>Splenectomy</td>
<td>Yes</td>
<td>8 (36%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>14 (64%)</td>
</tr>
<tr>
<td>Gallstone</td>
<td>Yes</td>
<td>0 (0%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>22 (100%)</td>
</tr>
</tbody>
</table>

Discussion

Fetal hemoglobin, or foetal haemoglobin, (also hemoglobin F, HbF, or α2γ2) is the main oxygen transport protein in the human fetus during the last seven months of development in the uterus and persists in the newborn until roughly 6 months old. In newborns, fetal hemoglobin is nearly completely replaced by adult hemoglobin by approximately 6 months postnatally, except in a few thalassemia cases in which there may be a delay in cessation of HbF production until 3-5 years of age. In adults, fetal hemoglobin production can be reactivated pharmacologically which is useful in the treatment of diseases such as sickle-cell disease. (Lanzkron S, 2008).

This study aimed to evaluate the effect of hydroxyurea treatment on fetal haemoglobin level and thus on disease complications in Sudanese patients with sickle cell anaemia. The study included 79 patients; 22 (27.8%) of them were treated by Hydroxyurea and 57(72.2%) were not.
Hb-F level in this study was ranged between 0.9% to 38.5 % (mean 8.4%), this illustrated that Sudanese patients with sickle cell anaemia have low level of Hb-F in comparison to other populations in the region such as Saudi arabia, Kuwait, Qatar, and Bahrain (Mohsen A , 2011). The low level of fetal haemoglobin in those patients may interpret why sickle cell anaemia in Sudan is of the severe type as some studies in some populations with high Hb-F levels have been described as having less severe disease with fewer complications and better survival (Perrine RP, 1978).

Also many other studies in the middle east reported that Hb-F% is elevated in mild sickle cell disease (Ali SA, 1970; Haghshenass, 1977, Perrine RP, 1978).

In contrast, two studies in the United States compared 21 patients manifesting mild sickle cell disease (aged 18-56) with 12 severely affected patients have failed to find these associations between Hb-F% and disease severity. (Steinberg, 1973)

In spite of Hydroxyurea was the first drug to be approved by the FDA for the treatment of patients with moderate and/or severe sickle cell anaemia through the induction of fetal haemoglobin synthesis, our results showed that there is no statistically significant difference in Hb-F level in patients who were treated by Hydroxyurea and those were not (Means: 7.6% and 8.7% respectively, \( P\),value: 0.57). This is consistent with study by Fathallah and Atweh who reported that the response to hydroxyurea in sickle cell anaemia patients is variable and about one third of patients with SCD did not respond at all to this treatment (Fathallah H, 2006; Atweh, 2006)

The higher baseline of Hb-F level has been reported to predict better response to hydroxyurea in sickle cell anaemia children.

Comparison of the frequency of disease complications in the last year in the patients who were treated with
hydroxyurea and those were not showed no correlation was found between hydroxyurea administration and disease complications such as pain crisis, dactylitis, leg ulcer, stroke, acute chest syndrome, splenectomy, and gallstone (P.value: 0.61, 0.20, 0.37, 0.13, 0.52, 0.05, 0.27 respectively).

The findings of the present study revealed that hydroxyurea treatment is not the drug of choice for induction of fetal haemoglobin in Sudanese sickle cell anaemia, this can be attributed to many factors reported to influence the response to hydroxurea treatment such as the baseline level of Hb-F as the higher response of Hb-F level has been reported to predict better response to hydroxyurea in sickle cell anaemia children (Steinberg MH, 1997).

REFERENCES:


Rihab E. Bereier, Hisham Y. Hassan, Niven A. Salih, Peter A. Underhill, Luigi L. Gavalli, Ayman A. Hussan, et al.


Development of Watershed Segmentation

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Abstract:

Image segmentation is the process of dividing images according to its characteristic like color and objects present in the images. A number of images segmentation techniques are available and proposed, but there is no one single technique that is suitable to all applications. In this paper a novel and simple segmentation algorithm will be introduced by using the concept of arrow representation method, the preprocessing of this method are enhancing the image by using mean filter to remove noise, and reducing the color dimension linearly. For each pixel in the image we will draw arrows to the 8 neighboring pixels which have value greater than it has. The pixels received more than two arrows will be flooded, and the reminding arrows will represent the wanted dams between segments, finally, all the pixels in the image will be labeled with specific numbers starting from one to number of segment, so each segment can be separated by exploited this label. This method tested and gives promised results.

Key words: watershed transform, segmentation, arrow representation, and image.

1- Introduction

Segmentation is the step of dividing image into a set of isolated and homogeneous regions depending on features or characteristics presented in the image such as colors or objects
where each pixels in a specific segment has similar features than any other pixels in another segment, this is difficult and unlimited task, therefore there is no single segmentation algorithm can be applied effectively for all cases, this mean "no ideal method for all images". Generally, Segmentation algorithms are classified based on one of the two basic properties of gray-level values which are discontinuity and similarity between image pixels.

In the first class of algorithms which is called "boundary based methods", an image is segmented based on abrupt changes in gray level. The principal areas of interest within this class are the detection of lines and edges in an image, thus if we can extract the edges in an image and linking them, then each segment is described by the closed edge that contains it, so the connected set of pixels having approximately the same homogeneous intensity. While The principal approaches in the second class" Region based methods" are based on the similarity between the pixels within a region[2], there is other technique called clustering technique based on split given image into K groups or clusters. The mean of each cluster is taken and then each point p is added to the cluster where the difference between the point and the mean is smallest. Since clustering works on hue estimates it is usually used in dividing a scene into different objects [3] [4]. There are many algorithms proposed to segment images, each of them has strong or clean results in some cases and bad or poor results in specific cases.

2- Watershed transform

The watershed transform is a key building block for morphological segmentation of images, the most intuitive description of the watershed transform is based on a flooding simulation. Consider the input grayscale image as a topographic surface. The goal is to produce the watershed lines on this surface[4]. To do so, holes are punched at each regional minimum in the image. The topography is slowly flooded from
below by allowing water to rise from each regional minimum at a uniform rate across the image. When the rising water coming from two distinct minima is about to merge, a dam is built to prevent the merging. The flooding will eventually reach a stage when only the tops of the dams are visible above the water surface, and these correspond to the watershed lines. The final segmented regions arising from the various regional minima are called catchment basins[7]. Figure (1) illustrates this flooding process on a one-dimensional signal with four regional minima generating four catchment basins. The figure(1) shows some steps of the process: (a) input image, (b) holes punched at minima and initial flooding, (c) dam created when waters from different minima are about to merge, and (d) final flooding, yielding three watershed lines and four catchment basins[3].

![Figure (1) Simulating Flooding Process](image)

3- The proposed method

The block diagram of the proposed system can be illustrated as in figure (2)

![Figure (2) Block diagram of the proposed method](image)
There are two important drawbacks in watershed segmentation which are

1. Over segmentation.
2. Using many difficult transformations to overcome over segmentation.

The proposed method focuses on image enhancement and dimension reduction steps to overcome over segmentation results and this state will be reached without using any transformation function (like mosaic image transform, geodesic distance, or distance function), the proposed system consists of the following steps

3.1- **Image enhancement**

The first step before any process is the enhancement step to reduce image noise and as a result make the next process more efficient and the segmentation precisely, mean filter will be used to enhance image as illustrated in figure (3).

\[
Z_{\text{enhance}} = \frac{1}{9} \times (z + z_1 + z_2 + z_3 + z_4 + z_5 + z_6 + z_7 + z_8) \quad \ldots(1)
\]

![Enhanced Image](image)

**Figure (3) Enhanced Image**
3.2- Colors reduction
Image dimension will be reduced (the number of color depend on the image complexity but 5 colors is good choice approximately in all cases [5], the reduction factor (Rf) will be used to reduce gray level colors in fixed ratio for all pixels in the image. Segmentation accuracy depend on (Rf), in this paper we used reduction factor equal to (32) by using the equation (7).

\[ I_{\text{new}}(i, j) = \text{round} \left( \frac{I(i, j)}{Rf} \right) \]  \hspace{1cm} \text{(2)}

3.3- Draw arrows to neighboring points
The image will be scanned, one pixel at each time from top to down and left to right, arrow will be drawn to any neighboring pixel with gray level greater than current pixel as illustrated in figure (4).

\[
\begin{align*}
\text{Figure (4) arrows drawing}
\end{align*}
\]

3.4- Delete unwanted outing arrows
Any point receiving arrows from more than two neighboring pixel will be flooded (delete all input and output arrows for this point) [1], as illustrated in figure (5) and figure (6).

\[
\begin{align*}
\text{Figure (5) delete unwanted outing arrows (flooded pixels)}
\end{align*}
\]
3.5- Collect all pixels in separated region (labeling)

After detecting the regions boundaries all pixels in closed segment will be collected by giving the first pixel in this segment a label then the four neighboring pixels will be labeled with the same number, this process will be repeated with the next pixel until each pixel in the closed segment will be labeled. Labeling start from one to number of regions. The labeling process implemented to all regions.

Ultimately each segment can be drawn according to its label by creating a labeling array that contains the label for each pixel in the image as illustrated in figure (7) where we want to show segment (119).
4- Results

When the proposed method applied on different images, we obtained the following results which illustrated in figure (8)
5- Conclusions

1- the reduction color is the most important step to decide the degree of accuracy in the results as illustrated in figure (9).

2- Enhancement step reduce noise in the image and the repetition of mean filter remove much noise as illustrated in figure (10).
Figure (10) effect of mean filter
One of the benefits of this technique is the labeling of each segment, then each segment can be processed individually.

REFERENCES

Postmodernism as a Contemporary Dialectical Trend

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Abstract:
The trend of changes in the development of human society has experienced significant changes and overcoming in human’s benefit, as well as sufficiently even to his own detriment. In the recent centuries, prevails the so-called modernist period, where "the individual" clinging after the scientific achievements, surrendered to his arrogant confidence regarding his power to solve problems that would burst forward on the path of development. For a moment, the social-historical truth that the individual is "litter" of the historical-social, politico-economic, geographical, biological, environmental and climatic conditions and circumstances of the country and the period to which it belongs, was forgotten. Undoubtedly, the "one-dimensional" or "given once and for all" perspective prompted that the man of the so-called modernist period, abandon his natural human attitude, like the snake its own skin, succumbing to the instinctive skills; strength and aggressiveness, which produces conflicts, fear and panic to the surrounding. Therefore, the study will focus on addressing some of the modernist and postmodernist views.

Key words: Modernism, postmodernism, dialectics, historical period, evolving, transformation.
Introduction

Postmodernism is one of the philosophical trends that includes many important intellectual, spiritual and sensory fields and experienced a rapid bloom in the areas of art. Postmodernists are distinguished for the characteristic radical relativism and skepticism, surpassing in this way even their predecessors. The feature of "cacophony" of the presentation of values or their inclusive nature would give to this trend hardly defined or correctly unidentified attributes, the same as when we put ourselves into defining the boundaries of the colors of the rainbow.

At their core all philosophical doctrines have emerged as a need of the renewal of inherited worldview in the field of philosophy. From this rule no exception has been made either by modernism or by postmodernism, which should not be imagined as the eternal, everlasting, insurmountable and inexhaustible limit of philosophy. For this, the dialectical strict nature advises us; there does not, and will not exist any eternal trend or philosophical theory.

Therefore, avoiding the illusions of the enthusiastic philosophers towards modernist and postmodernist trends, which declare them as "Copernican revolution" or "revolutionary upheaval", it is the right place to highlight the nature, but also their relative value, that everything, especially the ideas, are subject to the laws of dialectics, passing from the embryonic stage, to the blossoming one and then to their degradation and depletion, if they are not adapted to life changes or are not reformed. The perspective of the historical and relative character of philosophy would be the most accurate concept of modernism and postmodernism treatment avoiding the mistakes of their determination as with no time limits.

In a sense the human being wrote or weaved himself the story of his life. So, in its way full of ups and downs, traversing ascending or descending stairs, but never making back, it would "produce" entirely different systems from the previous
ones, so that the views of Aristotle regarding logic, the achievements of Euclid on geometry, Newton's discoveries in the field of physics as well as many major discoveries about the time in which they appeared, lived the youth, naturally also the old age and even their end. But there were gained quite a lot of principles in the field of philosophy, which served as stairs for the manifestation of the new theories that blossom like a new forest in the contemporary philosophical thought or as guiding milestones.

Thus, the precious lessons of the ancient Greek philosophers, "from nothing comes out nothing and from something, comes out something" continue to serve us even today with their splendor and precious philosophical thought. Of course, the thinkers of our time pay attention to dress up those thoughts with new clothes. Thus, we can see that, to the old, take strength and nutrition the embryos of the new, as can affirm that, to the new are also inherited the old ideas. Now, researchers of various disciplines in the field of ideas, especially those in the field of art, history and philosophy are tailored to the so-called postmodernist period.

**Postmodernism - as new vision in the field of ideas**

Although modernism and postmodernism are the product of the report and the interdependence of each other, their theoretical meaning, content and settings arose from the rapid and fulminant outbreaks in the field of philosophical, scientific thought and industrialization, during the past centuries. The new ideas that fueled postmodernism, affected with an unprecedented spasm in all areas of human social life, such as the spring season causing the wedding of all colors of nature to flourish and erupt.

Apparently, the concept of postmodernism will come around for many other decades, like a beautiful harassing dream for the fact that, in specific areas of the life of human society, the modern Era is not overcome yet. Seemingly, even in
this case, the researchers of the new Era displayed a hustle represented by the prefix and the notion "post - beyond), which joined modernism with an eagerness to go quickly forward in visions, in thoughts and in construction of a new Era, a much more advanced one. It is of interest even the explanation of what we must understand by the term "Modern", a word of Latin origin, so, "modo" means "actual or now", despite the relative meaning that can symbolize sometimes a 20-year period time and some other times a 50 or a 100-year period.

"Modernity" imports major and profound changes in human’s social life. Anthony Giddens considers modernity as a non-traditional way of life and social organization that was created in Europe in the early 17th Century and that later spread to many other countries. According to him, modernity has its roots in the Illumination of Reason, therefore, the dismissal from the faith in God and the incensement of the faith in Reason. Illuminists, the source of truth were sought not anymore to divine reason, but to empirical observation and rational thought.

Thus, modernity marks the cessation of the traditional order and the detachment from traditional ways of thinking, behaving and institutional organization of society, which relied on kinsfolk relationships, religious beliefs and conservative as well as traditional practices. Although the human history itself and its fields, such as history, philosophy, science, literature, to better facilitate their study, are conceived as historical periods, such as old Era, the Middle Ages’ Era, the Renaissance Era, the Modern Era and, for our time, unlike the previous ones, as the Postmodern Era.

Postmodernism is a kind of reconstruction and revision not only of modernism, but also of the entire universal heritage in the field of culture, art, literature and philosophy. Postmodernism is an overview and evaluation that includes not only classical traditional categories, but also modernity. In contrast to modernity, an outlook that was trying to "wash its hands" as soon as possible with the legacies of the past, and
marveling like a dazzled person only the future, postmodernism appears comprehensive, in terms of time, turning into its possessions and alimony everything inherited even beyond historical times, to ensure a boundless continuity, in the direction of the future.

Postmodernism initially borrowed models of postmodern criticism in the field of literature and analysis of Western philosophy. The greatest merit of postmodern philosophy is the creation of a literature in the field of critical theory. Postmodern philosophy is generally characterized by the skepticism toward critical attitudes of the two dominant trends: Western metaphysics and humanism, against the expectation for the philosophers to be able to distinguish knowledge from ignorance, social progress from regression, dominion from subjugation or the presence from the absence. For some of its critics, this skepticism is similar to relativism and nihilism.

Postmodern philosophy should be seen not as a purely abstract or logical argument, but as a historical circumstance or need. Postmodernism aims to achieve what modernism never achieved. Spiritualizing once again several abandoned variants of modernism, postmodernism was crystallized as a major goal for the expansion of the free space of human being's life, but also towards a revival of artistic culture in the moments of crisis of modernism and globalization, locating in the center of its area principles and concepts, obtained through revision of history. This concept is so broad that it includes other areas of human as a being and the existence of mankind in terms of the multilateral world globalization.

Now the edge of the discussions about postmodernism is directed towards the new phenomena and processes explanation that represent the future and the role of philosophical thought in the consolidation of the democratic system of modern society, of freedom and of the development of artistic culture of the 21st Century.
The shape and manner of postmodernism

Postmodernism is the corollary of the inherited level, the dialectical affirmation of the modern, which essentially seeks to deny, somehow violently, but somehow also to transform in the form of evolution everything on which it was born and raised; including the area of the form, as well as the one of the content. For this reason, we observe the phenomenon that postmodernism which relies more on elements closely associated with the content, gives more power to its own "extension of the dominion", because of the role that the essence and the content plays in the field of ideas and their materialization in the daily life.

Postmodernism that includes and relies more on elements of the form, provides a less "lasting historical dominion", but because of the role that the form in relation to the content plays in the transformation of specific sides of social life, in the field of literature, architecture and that of philosophy. Prompt periods of duration are not a sign of vitality, but signs of vanity and creative barrenness, because they do not contain stable and important values. They can not maintain their influence for a long time, so they fail quickly and are replaced by new ideas. During the efforts to overcome modernism, the first and most important step of postmodernists was its turnabout towards historicism. This also, somehow, pushed it away from direct links with modernism, looking for other older sources in the field of philosophical ideas. This marked a qualitative leap in formulating the postmodernism’s content.

Perhaps the example of Duchamp, in the field of modern art, who was the first to realize that every non artistic object eager in itself can be set as "art" if detached from the context, from its use and original meaning, can help us to understand even the place of the modern in treating philosophy. According to many art researchers, but this concept appears also in the field of philosophy, it is said that, "where modernism ends,
postmodernism begins." We think that this statement more than a truth is a mechanist concept, because, given that the new is born not in an empty or dead land, but in the old ones land that "feeds" the new, as well as the new inherits and embodies elements of the old. Thus, the boundaries between the modern and the postmodern, as with the illusion of the spectrum of the rainbow colors, are difficult to determine.

Conclusions

Through the treatment of the postmodern in relation to the modern we wish to underline the fact that this is a dialectical process and development, where the new paves the way to itself in battle with the old, realizing the necessary preparation to overcome the historical stages. Their overpassing has always taken the society by surprise and found it unprepared. Regarding contemporary legal legislation, so much necessary and indispensable to our country, when it acquired the official candidate status for a membership in the European Union, the treatment of ideas in the field of art and literature as well as in the development of contemporary philosophical thought precedes the trend of social development.

Various authors point out that a society cannot be fully modern if its attitudes, actions, relationships and institutions are influenced by traditions, as the reverence and worship of the tradition-the archaic thinking and acting-is the contrary of the modern reflexivity. Those societies, which try to "modernize" in the institutional sense of the word, by being developed as capitalist democracies-but that are not separated from other traditions like, for instance, gender inequality, etc., are more likely to fail in their efforts to become successful modern societies.
BIBLIOGRAPHY

Fatal Temptress- Venus Flytrap in D.H. Lawrence’s  
*The Trespasser*

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Abstract:  
This paper discusses the pattern of conflict in relationship and struggle for domination among couples in D.H. Lawrence’s novel - *The Trespasser*. Lawrence’s fiction is always marked by the conflict of a duality in the characters. This duality is seen in the division of body and soul. In *The Trespasser* it is necessary to recall some of the events which have led up to the concept of femme fatale. Helena, the ‘dreaming woman’, is the main protagonist and the survivor of a love affair which ended in tragedy. Siegmund, a married man, is marked by his weak personality. With Helena, as well as with his wife, he has never been able to take any decision. He depended very much on both women. Helena has been for him a kind of mother to whom he was obedient, even though she destroyed him. One may ask then why he remains with her, hovering like an insect, a shadow by her side. It is the reworking of the myth of the mother goddess who is both the preserver and destroyer of her consort (son-husband). One can take Helena again as the fatal temptress-Venus fly trap exerting her strong influence upon her successive partners.

Key words: fatal temptress, Venus flytrap, duality and temptress.

*The Trespasser* is the second novel written by D. H. Lawrence, published in 1912. Originally it was entitled the *Saga of
Siegmund and drew upon the experiences of a friend of Lawrence, Helen Corke, and her adulterous relationship with a married man that ended with his suicide. The gender conflict of The Trespasser is simple—the passion of the married man Siegmund for the enigmatic girl Helena, its fruition in a few days of union and then enforced separation. Followed by protagonist Siegmund’s obsession of suicidal despair and death. Here is a story in which both the writer and psychologist watch keenly the lover’s feverish elation at the hands of the temptress, his fluctuations and oscillating moods of brief moments of joy, chill greying of the daylight and then the gradual shadows of morbid impulse which march forward swiftly and envelope him forever.

The fatal temptress—the deadly woman is an ancient and popular character in western (and indeed world) texts. Generally, the temptress is shown to be a woman who exploits the weaknesses of men to her own advantage. The construction of the fatal temptress is ultimately a product of a patriarchal and largely inequitable society. The fatal temptress is a seductive woman who entices men into perilous and compromising positions by way of charisma and mystery, is a classic, and often enthralling, character who can be found in many sources of literature and mythology of various origins and eras.

"If the goddess of virtue is a lily and the vamp is an overripe red rose, the femme fatale is a Venus flytrap." (Billinghurst 1). In the simple quote above, Ms. Jane Billinghurst, author of Temptress, provides explanation of the fatal temptress by way of metaphor, likening the way in which the Venus flytrap, or Dionaea muscipula, succeeds in obtaining its next meal by way of temptation to the likeness of the - temptress, using temptation to secure her victims, thus leading to unescapable doom. According to Jane Billinghurst, men created the idea of the temptress— an irresistible woman bent on bringing them down— to justify the fact that they so often
surrender to women, especially in the bedroom. In this fascinating study, she examines this vision in history, mythology, in the Bible, artwork, and film. The changing image of the temptress reflects the ebb and flow of men's fears and fantasies, as well as women's self-possession and power. When men feel threatened by women's control, temptresses are seen as dangerous. When there is a lull in the battle of the sexes, these women become objects of fantasies. It is a creation of a German poet-Clemens Brentano in a poem of 1800. D.H. Lawrence's second novel, The Trespasser, is based on parts of a manuscript of his friend Helen Corke (later she expanded her material into Neutral Grounds). Helen's story is autobiographical and in it her heroine suffers a violent shock because her lover, a married violin teacher, after spending a holiday with her in which both make themselves miserable, returned to London and killed himself. Lawrence's story is his personal view of Helen's experience. Moore (1981) says that 'Miss Corke said that Lawrence, while writing his version of the story, had identified himself with Siegmund, had 'felt personally in the same way as his character'(132). Lawrence published his version in 1912 and Helen's was published in 1934. The idea of the 'fatal female' seems to be closely related in Lawrence's version of The Trespasser, to a woman who has a strong potential in her mind to idealize her sweetheart. However, this idealization becomes an enormous conflict, for the woman cannot tolerate the real man who is by her side. The ideal and the real man are completely different and this fact provokes disillusion, conflict and distance. All of this makes the relation unbearable up to the point that indirectly the woman causes the death of the lover. The woman's powerful mind which makes of her a 'dreaming woman' defeats reality. I would like to make a contrast between Helena's, the main protagonist of The Trespasser, 'quality' as a woman and Mellors' (Lady Chatterley's Lover) view of women before he met Constance
Chatterley. [Helena] belonged to that class of 'dreaming woman' with whom passion exhausts itself at the mouth .(30).
I do not say that Mellors' lover and Helena are the same person, but both women can be categorized as women who cannot project into reality their fierce dreamlike quality. What is real for them is what they idealize. They are aware of this but they cannot reconcile dream with reality. Helena, like Mellors' lover, cannot go beyond her mind. This fact, in Helena's case, leads to a frustrated relationship which culminates with the death of Siegmund.

Helena, a student of music, falls in love with her music teacher Siegmund. He is a married man, thirty eight years old, almost ten years older than his pupil. His marriage has become a terrible routine and through Helena he tries to regain strength in life. Even before they really start the affair, Lawrence hints to the reader that Siegmund must go through an adulterous relation to escape from the burden of his marriage: For years he had suppressed his soul, in a kind of mechanical despair doing his duty and enduring the rest. Then his soul has been enticed from its bondage. Now he was going to break free altogether, to have at least a few days purely for his own joy. This, to a man of his integrity, meant a breaking of bonds, a severing of blood ties, a sort of new birth (13). The situation is typically Lawrentian-a character is at the end of an old life, seeking rebirth into a new one. What is not hinted here is that all this breaking of the routine of his marriage, this 'sort of new birth', will lead to death. Ironically the 'birth' is his suicide. We see Helena's dominance over Siegmund when she commands him to go for a five days holiday on an island: it is she who will pay the expenses. The important point here is not the money but the fact that she does not invite him, she orders him to go with her. She says he "must come away" with her. It is like mothers saying to children that they must not play, must not cry, and so forth. And this is quite true in relation to this couple. Though Siegmund is older than Helena, he is like a
little child in his dependence on her. In fact there are few moments in the story in which he takes a decision by himself. Before Helena and Siegmund leave for the island, the man tells his wife he is going on a holiday. This fact leads the wife to suspect that her husband is having a love affair. Beatrice, Siegmund's wife, is like Mrs Morel. Beatrice is another woman whose power lies in her dominance over her children. She turns them against her husband. Because of this ‘Siegmund hated his wife for drawing on him the grave, cold looks of condemnation from his children.’ (18). *Sons and Lovers* differs in this particular from *The Trespasser*. In the former novel Lawrence gives apparent reasons for the mother to direct the children against the father. In the latter novel, this does not occur. Mr Morel is deeply criticized whereas Siegmund is not. In fact, he is almost praised for his attitudes. The reader does not have any account of the marriage before Helena appears. Lawrence is not being critical enough. He tends to lead his reader to take sides with Siegmund who, despite the boredom of his marriage, has not any apparent good reason to look for an escape, as Morel does have in his heavy drinking. Again, Lawrence is immature in his early novel. The adulterous couple meets in the boat ironically named 'Victory', which will take them to the island. The meeting of the lovers strikes us as the encounter of a mother and her adolescent son. His looks are naive, sweet, immature as contrasted to Helena's. She is quite proud, like a mother looking at her growing son:

Helena appreciated him, feature by feature. She liked his clear forehead, with its thick black hair, and his full mouth, and his chin. She loved his hands, that were small, but strong and nervous, and very white. She liked his breast, that breathed so strong and quietly, and his arms, and his thighs, and his knees. (23).

Besides her motherly observance, there is also the female looking at her male, admiring his physical attractiveness. She is, in his eyes, different: she "was a presence. She was..."
ambushed, fused in an aura of love. He only saw she was white, and strong, and fully fruited, he only knew her blue eyes were rather awful to him. Helena seems to be the active element in the relation. Moreover, she is the one who looks at him critically, and feels amazed because of his trouble: "His eyes were full of trouble. To see a big, strong man anxious eyed as a child... amused her". His strength is only physical. Hers is more spiritual which proves that in relation to mind he is the child, uninitiated in life. She is the deeply experienced one who will guide him to learning. Helena, as I said, dominates Siegmund. This is clearly seen in her authoritarian way of treating her lover. He leaves everything for her to decide and, thus, he obediently follows her instructions. Helena always initiates and ends their conversations. Even when they caress each other, it is Helena who first kisses him and takes him in her arms. However, she does not allow him to make love to her. She tempts him as far as she can and then she rejects him when he is not able to control himself. She frustrates him. She stops the storm of passion at 'the mouth'. Helena idealizes and dreams but as soon as love is ready to turn into eros she rejects the dream, leading her partner to a bitter sense of frustration. The reality of her dreams can never be projected into physical reality. Helena in fact rejects Siegmund's existence. He is not for her a man of flesh and blood. This means nothing to her. As I said, his existence is only real within her. Yet Lawrence does not criticize her overtly for her behavior. He only points out what she does to Siegmund:

With her the dream was always more than the actuality. Her dream of Siegmund was more to her than Siegmund himself. He might be less than her dream, which is as it may be. However, to the real man she was very cruel. (30).

This is very important since it shows that everything Helena does in relation to the man leads to frustration, more specifically, to sexual frustration. Her strong virginal mind reduces Siegmund almost to nothingness. The worst is that the
man simply accepts it as if it were fate. She frustrates him and he does not complain. Furthermore, Helena is identified as an example of the castrating woman, as Lawrence says:

For centuries a certain type of woman has been rejecting the 'animal' in humanity, till now her dreams are abstract, and full of fantasy, and her blood runs in bondage, and her kindness is full of cruelty. (31).

Women like Helena cannot go beyond their imagination. They cannot face sex when it nears their flesh: they deny it, become cold as ice and quickly try to change the subject. In the later novels such types are made to submit to dark, blood conscious males. But at this early phase, the Dark Gods have not yet emerged in the male and the spiritual woman is triumphant. When the couple arrives at the island we see neither are free from repression. Helena introduces herself and Siegmund to the landlady as 'friends'. This implies that she wants to preserve appearances. Siegmund, on the other hand, is embarrassed. His embarrassment demonstrates his fear of their proximity and his feeling of guilt over the illegality of the lovers' situation. More clues are given throughout the narrative of Helena’s lack of desire to be near Siegmund, to be exposed to a situation of 'danger'. The firelight in their lodging symbolizes passion: but though Siegmund wants her, she rejects his sensual proximity and decides they must go into the moonlight outside the house. Consider the fire as proximity and warmth, and the moon as symbolizing distance and coldness. Of course Helena feels much more confident under the moonlight, which is cold as she. There she can direct what they do. The fireplace is dangerous. It is linked with instinct and she does not want to lose herself in passion. After all, if this happens she will become frustrated since she is a woman to whom passion is only an idea, not a thing of the senses.

The moon draws Helena into isolation. Under the moonlight Siegmund identifies her qualities of possessiveness and self-sufficiency with the moon.
He tells Helena:

...the darkness is a sort of mother, and the moon a sister, and
the stars children, and sometimes the sea is a brother: and
there's a family in one house, you see.(37).

Helena is compared to the moon, Siegmund to the sea and
Siegmund refers to the moon as 'sister', the sea as 'brother'. It
can also be said that there is a feeling of guilt under the surface
of the statement. As further analogy, their relationship may be
considered in terms of the mother goddess myth. The goddess is
Helena, the devouring mother, and her consort is Siegmund,
the son who dies at the end of every year. The mother will then
look for another son-lover.

Consider the following:

[Helena] was the earth in which strange flowers grew. But she
herself wondered at the flowers produced of her. [Siegmond]
was so strange to her, so different from herself. What next
would he ask of her, what new blossom would she rear in him
then. He seemed to grow and flower involuntarily. She merely
helped to produce him. (36)

Thus, not only is their affair illegal because adulterous, but it
also bears mythic overtones of femme fatale. Their first night on
the island they sleep separately. Helena keeps her room
'inviolate'. Siegmund, though frustrated, keeps laughing
immaturely all the time. This implies another important
feature of his character, narcissism. There are several passages
in the book which show Siegmund admiring himself. I think
that these passages imply his lack of self-confidence as a man.
This can be explained by the fact that he finds in his body a
sense of self-pleasure as compensation for his frustration in
sexual relationships with female partners.

As Helena frustrates him sexually, he turns to his own body to
be sexually fulfilled. See, for example, this passage in which he
goes to the beach alone:
He threw his clothes on a high rock. It delighted him to feel the fresh, soft fingers of the wind touching him and wandering timidly over his nakedness. He ran laughing over the sand to the sea, where he waded in, thrusting his legs through the heavy green water. (40)

The 'fingers of the wind' here are a substitute for Helena's fingers. Siegmund's pleasure is immature and it serves as a way to escape from the sexual frustration Helena makes him feel. His laughing implies his immaturity; he is again behaving like a child. He then goes into the water and the sea is a substitute an analogy for Helena. This example implies what is happening with him and Helena and, even though she keeps him at a certain distance, he wants to play, even if he is hurt:

But in his playing he drifted towards the spur of a rock, where as he swam, he caught his thigh on a sharp, submerged point. He frowned at the pain, at the sudden cruelty of the sea; then he thought no more of it; but ruffled his way back to the clear water, busily continuing his play. (56).

This act is definitely a metaphor for sex with Helena. The rock hurts him as does her hidden hostility. However, just as he does not stop the affair with Helena, neither does he stop his play with the sea and some pages later a similar accident occurs. The split between the couple is so strong that while one goes to the sea the other remains at home. First Siegmund meets the sea, alone, and later on Helena goes without him. It is a love game in which the pieces can never meet and be in communion to finish the amorous game.

Helena and Siegmund's relationship is not one in which there is a struggle for power. From the start Helena is the owner of the truth and Siegmund is the passive agent. He is the lamb, she is the tiger. There are no grounds of equality. She also does not usurp power because she is the powerful one to begin with and she knows it. And as she knows everything, she does not claim rights ' or feel menaced by him. One way of
exercising power is exemplified in their walk towards the cliffs. She is always creating situations of peril but as soon as the danger comes too close to her she escapes foxily. Helena's provocation of the man seems very obvious she seems to feel pleasure in tormenting her weak counterpart who is all agony. This instance may be compared with their sexual life. She torments him but escapes from love-making: sex, like the seagulls she sees, is 'so fine down there'. She prefers things at a distance and with a sense of superiority. The couple views some ships:

"That is a schooner. You see her four sails, and 'He continued to classify the shipping, until he was interrupted by the wicked laughter of Helena. 'That is right, I am sure,' he protested. 'I won't contradict you,' she laughed, in a tone which showed him he knew even less of the classifying of the ships than she did. (46-47).

Siegmund feels as if he had dissolved within the limits of his soul. The trouble is that he is not aware that the woman is causing him to feel like this. She is the male in the relation—the one who is active and directs the intercourse. What is left for him is a deep sensation of almost disintegration. His role becomes the one of the passive female. This is perhaps why he treats his malaise as follows:

Surely,' he told himself, 1 have drunk life too hot, and it has hurt my cup. My soul seems to leak out — I am half here, half gone away... Then be came to the hour of Helena's strange ecstasy over him. That, somehow, had filled him with passionate grief. It was happiness concentrated one drop too keen, so that what should have been vivid wine was like a pure poison scathing him. (77)

Siegmund is transformed into a 'cup' which is the container of passion. There is also the sensation of guilt for the sexual act since he feels hurt by what is supposed to give him pleasure. Instead, it becomes like 'pure poison scathing him'. Helena is the castrating woman hurting him. This idea makes Siegmund
unconsciously condemn the relation. Not because it is adulterous but because he feels hurt for being an agent of sin (the sexual relation may have, this meaning in his subconscious). In fact Siegmund, as well as Helena, is a puritan (like Paul Morel and his mother). He does not share it with his partner since he talks to himself and not to her. Even consciously he is not aware of his emotional state. There is another important comment Siegmund makes to himself which shows that from within he knows that Helena is killing him:

‘I suppose,’ he said to himself for the last time, ‘I suppose living too intensely kills you, more or less’. This is directed to his love affair with Helena and because of her he is dying gradually, every day. He, as usual, is totally dependent on her. Siegmund meets a strange man named Hampson the following day who appears only in chapter 13 and vanishes at the end of it. This man and Siegmund have a strange conversation which leads to a doom and trouble in Siegmund's life. One may ponder of them being doubles because of the number of similarities between them. Hampson seems to be a projection of Siegmund's superego. His function is to warn Siegmund of the danger and threat that temptress like Helena may pose to males. He also makes Siegmund aware of external agents which are always present as a sign of conscience. These agents are the conscience of repression. Siegmund is told by Hampson to observe two battleships, a recurring image in the novel, in the bay. These battleships portray a kind of conscience which is ready to catch one if one is not aware of what he is doing and he is enticed to his doom by temptress Helena.

What Hampson comments about women suits Helena perfectly. In fact, Hampson's statements confirm Lawrence's early notion that women are castrating creatures. Hampson emphasizes that Siegmund must get rid of Helena. Observe the following:

The best sort of women — the most interesting— are worst for us,' Hampson resumed. 'By instinct they aim at supressing the gross and animal in us. We, who are as little gross as need be,
become their instruments. Life is grounded in them, like electricity in the earth; and we take from them their unrealized life, turn it into light or warmth or power for them... (84)

Lawrence repeats the idea through Hampson perhaps as a way to put it across to Siegmund. The author has presented it before for the readers and Hampson now throws it up to Siegmund because he is into a relationship with a woman of the same category. Hampson continues the ritual of enlightening Siegmund about the dangers of Helena type of fatal temptress:

She can't live without us, but she destroys us. The deep interesting women don't want us; they want the flowers of the spirit they can gather of us. We, as natural men, are more or less degrading to them and to their love of us; therefore they destroy the natural man in us - that is, us altogether. (84)

Helena is destroying him gradually but he does not perceive this. Hampson is working to make him aware of his doom. He even says this clearly to Siegmund in a form of question which implies the necessity of an answer: ‘... why will she help to destroy you, when she loved you to such extremity?’ But there is no answer. Both Siegmund and Helena are too separate to perceive the damage. She is too worried to use Siegmund as her dream and he is too tied up in his self-pitying, narcissistic and masochistic character to feel this. Siegmund is too engrossed in self-love to perceive the danger of his woman. This separateness is what makes him dumb and deaf to reality. Helena makes Siegmund feel guilty too: ‘Siegumnd writhed within himself with mortification, while Helena talked as if her teeth were on the edge’ (88)

The guilt is injected so strong in Siegmund that he even says that he knows he is ‘a moral coward’. This means that he feels afraid of other people’s opinion, which certainly implies that he is not so sure about his rightness in the affair with Helena. Thus, Helena becomes more critical about Siegmund’s
character as she dismisses him as a human being: 'What is myself?' he asked.

'Nothing very definite,' she said with a bitter laugh'. With this statement Helena seals his destiny. And from now on Siegmund will start punishing himself. She has hastened his process of destruction.

REFERENCES:

Billinghurst, Jane .Temptress: From the Original Bad Girls to Women on Top, Canada, Greystone Books, 2004. p1

Self-concept and the Gender Differences in Mathematics

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Abstract:

Self and its correlates have always been of prime importance in classrooms. Learners in the classrooms develop and build an image of themselves, which suggest them their ability to perform in a particular academic domain (here in Mathematics). This review paper points towards the importance of study of self-concept and the gender differences in Mathematics, since it is a fundamental core subject in school curricula. The focus of the review is on tracing the findings of several studies and presents a thematic analysis of the related research evidence.

Some of the studies suggest that significant differences exist between boys and girls when self-concept is studied in academic performance, particularly in subject Mathematics. However contradictory results have also been underlined. The main purpose of this review is to map the past studies on self-concept and gender issues in Mathematics. The review also attempts to highlight the research gaps in the relevant knowledge.

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Key words: Self, Self-concept, Mathematics, Gender, Classrooms.

Theoretical Framework

“Individuals cannot manufacture their self-concepts on their own, but significant others play a critical role in the formation of the self.”
(Shavelson, Hubner and Stanton, 1976)

The Self and the Gender

Gender differences in self-concept development play an important role in research that focuses on self-concept. Morse and Gergen (1970) have argued that since females are accorded lower social status in society, they have internalized this widespread cultural assumption about their inferiority, and thus damage has been done to their self-concept. Bardwick (1971, pp. 154-56) stated this same theme: "In this view both boys and girls are socialized to think of women as less competent, able and praiseworthy. As a consequence of reflected appraisals, girls come to see themselves as inferior- to have lower self-esteem". Rosenberg (1979) believed that females possess a lower level of self-esteem than males.

A review of the studies conducted on this topic has produced mixed results.

Some studies have indicated that boys show higher self-concept than girls. A study conducted on 80 children from first and fifth grade by Carpenter and Busse (1969) indicated that boys obtained significantly higher global self-concept scores than girls. Another study conducted by Rosenberg and Simmons (1975) with a random sample of 2,625 students from the third through the twelfth grades tested sex differences in student self-concept. The results of the study showed that girls were somewhat more likely to have lower self-esteem than boys. In a comparative study of self-esteem of 375 adolescents (between 14 and 16 years of age) among minority groups in
Britain, Louden (1980) reported that there was no significant difference in self-esteem among Asian, West Indian, and English adolescents. However, this study also showed that within each ethnic group, boys had significantly higher self-esteem than girls as measured by the Rosenberg Self-Esteem Scale.

While the studies that were presented earlier showed that boys possessed a higher self-concept than girls, other studies have refuted this conclusion and indicated that girls have a higher self-concept than boys. In a study of 605 fourth and sixth grade children Bledsoe (1961, 1967) found that at both grade levels girls obtained higher scores on general self-concept than did boys. Wendland (1967) used the Tennessee Self-Concept Scale to assess the global self-concept of 685, eighth-grade students: 176 white males, 161 white females, 151 black males, and 197 black females. He found that the black females had higher global self-concept scores than did the black males, and the white females had higher global self-concept scores than did the white males.

Coopersmith (1967) in a sample of 44 boys and 43 girls from fifth and sixth grade students found that boys and girls did not differ significantly in Coopersmith Self-Esteem Inventory. Simon and Bernstein (1971) compared self-concept scores of 61 boys with 68 girls from sixth grade students and reported an insignificant sex differences in the mean score as measured by Coopersmith Self-Esteem Inventory. Reschley and Mittman (1973) administered the Coopersmith Self-Esteem Inventory to 90 seventh grade students. The findings indicated that boys and girls did not differ significantly in their mean scores on the Coppersmith Self-Esteem Inventory.

Brush (1978) in his study of 189 college students found that girls received significantly higher scores than did boys on the Mathematics Anxiety Rating Scale which means that boys were less anxious than girls and boys were more confident than girls on this scale.
Comparing Gender Performance in Mathematics

Sherman (1980) tested sex difference in self-concept of Mathematics on a group of 75 boys and 135 girls. The findings of this study suggested that eighth grade girls and boys did not differ in their confidence and attitude towards Mathematics. However, significant differences were found in eleventh grade where girls perceived themselves as less able in Mathematics than boys.

Meece, Parsons, Kaczala, Goff, and Futterman (1982) reviewed the literature concerning sex differences in self-concept. They reported that few studies have found sex differences in self-concept of Mathematics ability before the junior high school grades, but large and consistent differences have been found after the seventh grade. A large number of studies testing sex differences were carried out using the Self Description Questionnaire (SDQ) by Marsh and co-researchers. The following are some of these studies: Marsh, Relich and Smith (1983) examined sex differences on the SDQ1 for fifth and sixth grades, 655 boys and 498 girls ranging in age from 9 to 13 years, and found that girls had higher self-concept in reading and general school ability and lower self-concept in physical ability, appearance and Mathematics.

In a study of 901 Australian high school students (grades 7-12), Marsh, Parker, and Barnes (1985) found statistically significant sex differences in English and Mathematics self-concept, independent of grade level. The girls had higher English self-concept scores, whereas the boys had higher Mathematics self-concept scores.

Marsh, Smith and Barnes (1985) investigated sex differences in multiple areas of self-concept for 559 fifth grade students. The finding of this study revealed that boys had significantly higher self-concept of physical ability, appearance and Mathematics, whereas girls had significantly higher self-concept in reading. Furthermore, boys did not significantly
differ from girls in the self-concepts of peer and parent relations, general school ability and general self-concept.

Stevenson and Newman (1986) in their study of 255 tenth grade students found that boys had more positive self-attitude towards Mathematics than girls and the girls had more positive self-attitude towards reading than boys. Marsh, Byrne and Shavelson (1988) studied sex differences in the 12th grades: 516 boys and 475 girls, with 3 different academic self-concept instruments including the academic scale from SDQ III. For each of the 3 instruments, boys had a significantly higher self-concept of Mathematics than girls. On the other hand, girls had a significantly higher verbal self-concept than boys.

In a comparative study by Kauchana (2002), gender differences in Mathematics self-concept of Indian and American undergraduate college students was investigated. The sample consisted of 196 American students (63 male and 133 female) and 150 Indian students (45 male and 105 female) from Chennai, India. A self-concept description questionnaire intended for use by adolescents and young adults 16 to 25 years was used. For the Indian sample, the mean score for males and females were 4.82 and 4.18 respectively, and the results indicated that male college students has a significant higher Mathematics self-concept (t = .17, p < 0.01) than female college students. However, difference in Mathematics self-concept between Indian students (mean = 4.38) and American students (mean = 4.51) did not reach statistical significance. In his view, it is indeed a challenge to the Indian culture, to enhance the self-concept of all students, while retaining the sense of belongingness of both the sexes. The findings in the above mentioned studies appear to support the notion that boys have higher Mathematics self-concept than girls; however, some studies have reported contradictory findings.

Skaalvik and Skaalvik (2004), explored whether there are still differences in general Mathematics and verbal self-concepts in 6th, 9th and 11th grades Norwegian students and in
adult students enrolled in senior high school. The participants were 907 students in 6th grades (n= 277:129 boys and 148 girls), 9th grade (n = 239:115 boys and 124 girls), 11th grade (n= 264:128 boys and 124 girls) and adult students enrolled in 1st year of senior high school (n= 127:48 male and 79 female). The results indicated that in all samples male students had significantly higher Mathematics self-concept than female students. The t-values were 6th grade (t = -2.46), 9th grade (t = -3.36), 11th grade (t = -4.66) and adult students (t = -2.66) at 0.05 level of significance.

In an international study, Wilkins (2004) reported, on average, a difference in Mathematics self-concept between male and female students that was statistically significant and favours males (Gamma = 0.08), p < 0.001). However, he noted that although, globally, males tended to have higher self-concept than females in Mathematics, there were some countries in which the gap was minimal or even slightly reversed.

In a study by Russilo and Arias (2004), they examined gender differences in various cognitive motivational variables (causal attributions, goals, self-concept and use of learning strategies) and in performance attained in Mathematics and language arts. The sample of the study was 521 secondary students (285 female and 236 male) in Spain. The result indicated no statistically significant gender differences in Mathematics self-concept (t = 1.14, p < 0.05). In another study, Marsh, Trantwein, Ludtke, Koller and Baumert (2005) investigated the effects of prior self-concept on a variety of academic outcomes (i.e. interest, school grades and standardized scores) and also gender differences in the constructs. The study was based on a longitudinal data from two nationally representative samples of 7th grade students (study 1: N = 5649; study 2: N = 2264) in Germany. The results indicated that there were stereotypic gender differences in the mean-level of Mathematics self-concept. However, they
observed that, patterns of relations among Mathematics self-concept, interest in Mathematics, Mathematics test scores and Mathematics school grades were similar for both boys and girls.

**Mathematics: For Boys or Girls?**

Research on gender differences in self-concept has produced an inconsistent pattern of finding, with some studies showing that boys have higher self-concepts and others finding no differences. According to Skaalvik and Skaalvik (2004), observed gender differences in Mathematics and verbal self-concepts are most frequently explained in terms of gender stereotypes and differential role socialization patterns. In their view, when it is gender types, Mathematics is viewed as male domain (whereas language arts are viewed as female domains). Furthermore, they argued that gender stereotypes may lead to differences in socialization patterns that may fail to reinforce positive attitudes, motivation and self-concept in Mathematics for girls (language arts for boys).

According to Liu (2009), boys and girls show similar interest in Mathematics during the elementary school. However, during secondary school, boys tend to be more interested in learning Mathematics than girls and in her view; this difference tends to enlarge by adolescence. Furthermore, Ahmed and Bruinsma (2006) suggested a positive relation between academic self-concept and interest in academic tasks, which would explain any avoidance of Mathematics by boys or girls.

In a comparative study between USA and China, Liu (2009) investigated gender differences in affective factors (self-concept inclusive), and how these variables affect Mathematics achievement of 5 year olds. The participants were 5465 students (50.10 % males) in the USA and 4478 (49.60 % males) in Hongkong. The results indicated that in the USA, male students reported significantly higher self-concept in their
general Mathematics ability than female students ($z = 8.98, p < 0.01$). A similar pattern was found with Hongkong students, where male students reported significantly higher Mathematics self-concept of ability ($z = 8.44, p < 0.01$).

**Concluding Thoughts**

In all, from the cited studies, gender differences continue to provide contrasting findings. It is not clear whether gender differences in Mathematics self-concept are diminishing or not. Many researchers believe that self-concept is a very important personality variable for the prediction of academic achievement. Therefore, self-concept literature reveals a plethora of studies which examine the relationship between self-concept and Mathematical outcomes but the results of these studies have been diverse. While some researchers (Coopersmith, 1959; Kunce et al., 1972; Leonardson, 1986) reported significant relationship between self-concept and academic measures, others (Hall, 1972; Albott and Haney, 1972; Marx and Winne, 1975; and Keith et al. 1986) reported a non-significant relationship between the two constructs.

Studies reporting high correlations (Zarb, 1981; Jordan, 1981; Byrne, 1986; Mboya, 1986; Pottebaum, Keith and Ehly, 1986) have generally measured academic self-concept rather than global self-concept, which has been found to have low correlation to academic achievement. Moreover, it is especially important to note that the highest correlations reported are between academic achievement in specific subject areas and these subject-specific self-concepts (as opposed to academic self-concept). For example, Marsh, Relich and Smith (1983) found the highest correlation for Mathematics achievement with Mathematics self-concept ($r = 0.55$), while Mathematics achievement was less correlated with self-concepts in other academic areas ($r = 0.21$ with self-concept of reading) and was uncorrelated with regard to non-academic self-concepts.
Studies concerning gender differences in self-concept also produced mixed results. Some studies (Louden, 1980; Olowu, 1985) have indicated that boys show higher self-concept than girls. Other studies have shown that girls have higher self-concepts than boys (Schroeder, 1973 and Chapman et al., 1984). In addition to these, studies of Zuckerman, 1980; Meece et al., 1982; Calhoun and Sethi, 1987 have not found any significant differences in self-concept with respect to gender.

The authors here have made attempt, to illuminate various inconsistent findings obtained by previous researchers. This is done by using an adequate review which is based on a clear definition of self-concept given by Shavelson, Hubner and Stanton, 1976. In all, on the basis of cited studies, the review concludes with the argument that gender differences continue to provide contrasting findings. It is not clear whether gender differences in Mathematics self-concept are diminishing or not. Hence, gender difference in Mathematics self-concept requires further study, especially with reference to the learner’s culture, Mathematics performance and the classroom environment.

Implications and Suggestions

Research specialists in Mathematics teaching-learning, those who prepare learners, teachers and develop curricula, must search for new and better ways for teaching their subject and to develop the self in Mathematics. If learning experiences are positive, self-concept is enhanced but when they are negative, it suffers. Academic self-concept is also important to teachers because it strongly interacts with school performance. As children enter school, they expect to learn and do well, but as they progress, actual accomplishments lead them to alter this expectation. Hence, a teacher should make an effort to increase the ‘I can do’ approach in students. As part of their normal classroom teaching, Mathematics teachers should encourage
positive students’ self-concepts over and above the development of learner’s knowledge and skills.

Wilkins (2004) suggested that a person’s self-belief in his ability to do well in a given subject is related positively to respective achievement in the same area. This view is supported by Huiit (2009) and Pajares and Schunk (2001) who posited that when domain-specific self-concept is compared with achievement in the same area (e.g. self-concept and achievement in Mathematics), the relationship is positive. Therefore, our schools and classrooms must provide an opportunity to both the learners (male and female) to build a belief on them for doing better in Mathematics. Similarly, parental self-concept and the role of peer-groups may also bring some positive changes in the attitude of learners towards Mathematics and other subjects, thus raising the academic performance level of the individual.

BIBLIOGRAPHY


Marsh, H.W., Smith, I.D., and Barnes, J., Multidimensional Self-concepts: Relationships with Sex and Academic


Indigenous Knowledge and Sustainable Agricultural Development: A Case History of the Indus Valley, Pakistan

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Abstract:

Indigenous knowledge system (IKS) is dealt on several levels, first as a means for sustainable and self reliant development, second as an alternate source of overcoming the current evils of modern world, third to preserve their own cultural individuality which has long been threatened by the capitalist ethos. Historical evidence reveals that all nations who prospered consulted their own wisdoms, their cultural strengths and their indigenous resources. This essay evaluates the development efforts in the Indus valley of Pakistan to find out the faulty vision along with over ambitious mission statements. Rethinking development from IKS has somehow proved to be essentially imperative development solution. Real development would be the process in which people would take a lead in determining their on-coming trends of life. The agricultural community has to start thinking of going back to the rich cultural heritage and contributing to
world’s knowledge repertoire. It is concluded that sustainable agricultural development requires; optimal use of local resources and the meeting of basic needs, development of related indigenous manpower and human resources, and development of grass-roots institutions and participation along path of national development.

Key words: Indigenous Knowledge, Sustainable Agriculture, Indus Valley and Agriculture, Green Revolution, Organic Farming

Introduction

The paper presents history of Indigenous Knowledge Systems (IKS) and Sustainable Rural Development in the ancient Indus valley of Pakistan. The purpose is whether in face of all modern developmental approaches experienced till yet, can IKS be utilized to an extent that it may become viable to achieve the sustainability in agricultural development in the Indus valley.

Indigenous Knowledge: The Concept

Sinha (2004) writes that “Indigenous Knowledge is local knowledge, derived from interaction between people and their environment, which is characteristic of all cultures. Its technical aspects include agriculture, medicine, natural resources management engineering and fishing. With farming system, indigenous technical knowledge (ITK) embraces people’s transformation of tools and techniques for assessment, acquisition, transformation and utilization of farm resources which are specific to a particular location. ITK can encompass technical knowledge held by all or most individuals in a specific locality, e.g. knowledge of crop rotation, pest and weed control, soil regeneration etc. the literature on traditional farming system was work of anthropologists or social historians. Now

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ethno-biologists are showing great interest. There is ample documentation available on indigenous knowledge in farming”.

He further states that indigenous knowledge of farmers plays an important role in the sustainable management of farm resources. There is general agreement that the concepts “indigenous knowledge” (IK), “traditional knowledge”, “local knowledge”, “community knowledge” and rural people’s knowledge are all term for knowledge belonging to grassroots people. The term indigenous knowledge denotes a type of knowledge that has evolved within the community and has been passed on from one generation to another. In the area of research, farmer’s knowledge, which they have been putting into practice for decades, encompasses not only IK, but also scientific and other knowledge gained from foreigners. Some of the knowledge has resulted from long experimentation and observation of their environment (Sinha, 2004).

Agriculture: A Retrospective Review

Swartz and Jordan (1976) analyzed the early origin and evolution of agriculture. They opine that for 99 percent of the period that humans have been living on this planet, they have been hunters. Human communities were limited to the number of people who could be supported by the animals living in the area and the plant foods naturally occurring around their home. Except in unusual cases (such as the northern European reindeer hunters of the later fishing tribes of the northwest coast of North America), the population that could be supported was very small, no more than one or a few families, and even then constant movement was necessary as the resources of the immediate area became exhausted.

Few inventions could have made more difference to the human career than one that would allow human communities to increase in size and to remain in one place indefinitely. Larger population size meant new and more specialized
statuses and vastly more complex kinds of relations between people. Not having to move meant the possibility of permanent buildings (including and especially food storehouses) and construction of things too heavy to move, such as pottery, furniture, stone sculpture, or such industrial equipment as looms, pumps or milestones. Both larger population size per community and ability of communities to remain in one place resulted from practices of agriculture and, to a lesser extent, herding. Because of the dramatic effects that agriculture had on the possible human ways of life, the first appearance of agriculture in the archaeological record is often called the agricultural revolution. New kinds of stone tools, many adapted to framing, appear in the archaeological record, and the term “Neolithic” (new stone) is often applied to this period or stage in human history.

The Agricultural Revolution

It is probably not correct to think of agriculture as being “invented” by some Upper Paleolithic genius who suddenly one day decided to plant things. Instead, evidence suggests that the transition from a hunting way of life to an agricultural one was a very gradual process, one that went on more or less independently in several different parts of the world. Agriculture seems, from what we know, to have developed independently in the Near East, Mexico, northern China, and Peru. Quite possibly there was agriculture of sorts in other areas before the influence of these focal regions arrived and supplemented it. The Near Eastern development seems to have been the earliest, beginning some 10,000 years ago, or about 8000 B.C. the principal domesticate of this area in early times, as today, was wheat, and the story of agriculture begins with this.
Indus Valley Agriculture

The circumstances surrounding the development of early civilizations in south Asia are still unclear to archeologist. The ancient civilizations called Harappa appears in the archeological record of the valley of the Indus River in Pakistan around 3000 B.C. without any clear evidence of just how, if at all, it grew from earliest villagers represented at lower archeological levels.

One possibility is that the development of civilization followed after a new wave of people came from some unknown place and conquered the earlier villagers. If so, these people might have brought with them much of the knowledge and social structure that produced the products found in Harappan sites. Another possibility is that many of the ideas for Harappan development diffused in from Mesopotamia, so that the village people of the Indus valley knew what cities, for example, were like before they built their first one. Whatever the case, the Harappan civilization shows that these people had knowledge of working copper and bronze, firing brick, writing, and irrigation as they established themselves in the rich river valley. Like the Egyptians, they developed a canal system for irrigation of the fertile river basin where the river overflowed in the summer. We know from their engraved seals that these people had domesticated water buffalo, cattle, elephants and goats (Swartz and Jordon, 1976).

Agriculture in Ancient India

Agriculture was in practice in India since the times of Vedas (2500-1500 B.C.) and Upanishads (1500-600 B.C.). The Vriksayurveda, Agnipurana, Brihat Samhitha, Krishiparashara, Sarngadharpaddhati and Arthasastra contain separate sections on Indian agriculture (Sinha, 2004).
Pre-Harappan cultures existed in North India before the Harappan or Indus valley culture slowly diffused from its nuclear area; (i) Harappan to Punjab, Haryana, Uttar Pradesh, and Rajasthan (Dikshit, 1980); and (ii) Mohenjo-Daro and Chanu-Daro to Kutch, Kathiawar, coastal flats of Gujarat and some areas of Maharashtra (Rao and Lal, 1985; Weber, 1991; Saraswat, 1992).

Among contemporary and post-Harappan cultures, the identification of plant remains from sites associated with Chalcolithic Copper Hoard or Ochre-Colored pottery cultures revealed that farmers practiced barley and rice rotation at Atranjikhera (ca. 2000-1500 B.C.) and Sringaverapura (ca. 1050-1000 B.C.) in association with grass pea and chickpea at Atranjikhera (Chowdhury et al., 1997), and sesame (Sesamum indicum) and cotton (Gossypium arboretum and G. herbaceum) at Sringaverapura (Saraswat, 1992). At Atranjikhera (ca. 1500-1200 B.C.), rice-barley rotation was followed (Chowdhury et al., 1977). Rice, horse gram, and black gram were cultivated at Noh, Rajasthan (ca. 1100-900 B.C.) (Vishnu Mittre and Savitri, 1974), and Southwest Asian cereals and legumes were not yet introduced. Imprints of only wild rice (Oryza rufipogon) and cultivated rice have so far been reported from Sohgaura (Sharma, 1983)

**Green Revolution: Lessons from the Past Experience**

Science and technology have made enormous contributions to the growth of the agricultural sector in many parts of the developing world. As a result, global food production has increased by 80 percent since the mid-1960s. Africa, however, needs to double food production to accommodate population increase.

The green revolution, which took place in Asia (India, Pakistan, Indonesia, Taiwan, Philippines, China and Japan) during the 1960s, is a major global scientific and technological
achievement towards increased food production. Improved crop varieties, irrigation, pesticides and mineral fertilizer were introduced, which contributed to substantial improvement of food production. With this technological advancement in agriculture it was possible to develop varieties, which have contributed to higher food production and improved the returns to costly resources used by poor farmers. Resultantly, increased productivity has decreased food costs, in general, and thus improved food security, particularly for vulnerable sections of society.

Irrigation, drainage and efficient rainwater harvesting to cope with rising water scarcity are critical in ensuring adequate food production and food security. There is high potential in Africa for increasing food productivity through better control of water and increasing the use of plant nutrients. The concern should be reducing irrigation costs to enable smallholder farmers to manage farms in a manner that minimizes resource degradation problems such as water logging and salinity.

A wide range of improved crop and resource management technologies were emphasized, which have improved environmental and resource sustainability. In this regard, it was possible to bring under cultivation less-favorable lands by introducing new plant varieties (e.g. drought-tolerant crop varieties), which in turn has also contributed to higher food production. This practice has reduced the conversion of forest, grasslands and swamplands for cultivation of food crops. For example, without advancement in agricultural technology, India would have cultivated nearly 60 million hectares of additional land to produce the quantity of wheat currently consumed. This scientific and technological advancement went hand in hand with investment in institutional infrastructure and continued research activities to raise food production and productivity. In China, for example, infrastructural investment continued alongside remarkable efforts and achievements in
the area of seed improvement. Consequently, combination of a decentralized research system and successful extension services replaced traditional varieties of rice and wheat with modern dwarf varieties by 80 percent at the end of 1970s. The Chinese experience, especially post-1978 reforms, demonstrates importance of incentives and a conducive institutional framework in maximizing effects of agricultural infrastructure, successful research on, and dissemination of new technologies. Post-harvest technologies that encompass efficient crop handling, storage, processing, transportation, marketing and utilization need also to be promoted. These kinds of technology reduce food losses, add value to crops, facilitate efficient trade, generate employment and new products for the market and provide diversification of food (UNECA, 2003).

Scientific and Technological Ingredients of Green Revolution

The green revolution comprised of biological, chemical, mechanical and hydrological science and technology. The fundamental scientific and technological ingredients of the green revolution are illustrated by the case of rice. The rice component of the green revolution originated from the innovative rice technologies developed by International Rice Research Institute (IRRI), which was established in 1960 in Los Banos, Philippines. The first significant accomplishment of the green revolution was the development of semi-dwarf high yielding photoperiodic insensitive varieties of rice by IRRI scientists. The first release (IR8) by IRRI in 1966 caused a green revolution in rice production in Asia and South America. These helped breeders to incorporate them into high yielding modern rice varieties. The pest resistance in rice varieties of IR36, IR64 and IR72 led to their wide adoption by 96 % (1979) and 80 % (1987) of the farmers in Philippines (UNECA, 2003). At the same time, two other international agricultural research
centers were established, namely: International Maize and Wheat Improvement Center (CMMYT) in 1966 in Mexico, and Centro Internacional por Agricultura Tropical (CIAT) in 1967 in Colombia for rice, beans, cassava and pastures.

The advanced fundamental scientific basis for green revolution was a combination of principles of biological sciences, genetic engineering, molecular biology and the applications of biotechnology with a broad genetic resource base of germplasm resources. Plant breeders used new tools of biotechnology such as *in vitro* production of haploids and somaclonal variation for plant breeding then used direct gene transfer technology to introduce in the rice plant the right attributes, e.g. producing a rice plant that is more resistant to diseases, insects, or more tolerant to salinity and drought. The semi drought genes were introduced in high yielding rice variety to prevent logging.

The chemical component comprised of the use of compound inorganic fertilizers. The mechanical engineering component comprised the use of improved farm tools (hoes, rotary weeder, hand tractors) to ease the field labor demands for farm operations like weeding, threshing, and transportation.

The hydrological component - irrigation -, which gave farmers a complete water control, was also a very important technological component of the Green Revolution. Farmers were able to grow crops in the wet and dry seasons. Besides it is estimated that the irrigated crops produced three times more than the rain fed ones.

**The Socio-economic Ingredients of Green Revolution.**

The socio-economic factors that contributed to green revolution in Asia are discussed below:

First, traditional land tenure system was that of share tenants who had no legal claim on the land they cultivated. Through the share cropping arrangements, tenure of the tenancy on that land was relatively secure and stable.
Second, was the change in the farming system from extensive or expansion of land under cultivation to intensive cultivation. This created an improved and more disciplined farming system, which increased land productivity. The intensive land cultivation was triggered off partly by high population pressure on land, which had created land scarcity, and partly due to adoption of improved farming practices.

Third, the increased public investments in irrigation systems enabled farmers to get a double crop that's planted in wet and dry seasons. The irrigation made agricultural production activities economically viable. Assured water supply reduced risks of crop failure. It made it profitable to invest in purchased inputs like fertilizers, encouraged use of improved methods like planting younger seedlings, and improved weeding using weeders.

Fourth, availability of credit facility for purchased inputs like fertilizers and seeds enabled small scale farmers to afford a high level of improved technologies, which caused a wide adoption of both improved crop varieties and accompanying management packages.

Finally, farming communities had already been well sensitized and ready to embrace new technologies (UNECA, 2003).

Objectives of Green Revolution

(a) To enhance the genetic potential of rice varieties to make the plant high yielding, resistant to diseases, early maturing, efficient in use of the water and fertilizers, tolerant to low temperatures, soil alkalinity and salinity.

(b) To disseminate widely rice related technologies information, knowledge and skills

(c) To maintain sustainable development of production systems for more efficient use of inputs, protection of water and biotic resources.
Methods of Implementation of Green Revolution

The first strategy that led to green revolution in Asia and South America was creation of network of international research centers (IARCs) by world community. In 1960, IRRI was established in the Philippines to focus on rice in Asia; CIMMYT, in 1966 in Mexico, to focus on wheat and maize globally; IITA, in 1969 in Nigeria, to focus on maize, rice, cassava, plantain, yams, sweet potatoes and sustainable production systems for Africa; and CIAT, in 1967 in Colombia, focusing on sustainable production systems plus rice, beans, cassava and pastures for South America and Caribbean.

The second implementation method was to identify breeding and research testing sites, so as to maintain the diversity existing in all agro-ecological zones and farming systems within Asia and South America.

Thirdly, the international centers identified collaborating local research institutions strengthened capacity of those national institutions through training and financial resources to conduct both basic and on-farm research and stabilize production in their respective areas.

Fourthly, international centers formed networking programs with national research programs. The regional networks aimed at making effective use of human resources in the national research programs. For example, IRRI networked with University of Philippines at Los Banos. Then international centers themselves, IRRI and CIAT, each served as a resource of advanced technology in the network.

The IARC major role was therefore to provide services in conventional and emerging technologies at the stages beyond scope of national programs. Examples of some of services of advanced technologies provided by IARCs were:

i. Genomic mapping of economically important traits made possible by restriction pigment length polymorphisms.
Then the genomic map would be used to enhance genetic diversity of cultivars in each region.

ii. The incorporation of genes for resistance to important pest and diseases.

The fifth implementation method of Green Revolution was conducting of on-farm research to test the adaptability and performance of improved varieties of both rice and wheat. For example IRRI and University of Philippines conducted on-farm research in Lagun province. About 2400 farmers participated in trials. The on-farm trials served as training and demonstration plots for other farmers. Those trials also helped in initial dissemination of improved planting seeds to neighboring farmers. In the process of trials, researchers interacted with farmers, thus making farmers more and more sensitized. Then there was promotion of the improved rice varieties through national extension service officers who were posted to every administrative unit of local governments in countries (UNECA, 2003).

Successes and Failures of Green Revolution

The green revolution successes include the first successful mass adoption of improved rice technologies by majority of the farmers, up to 80 % in Philippines. Farmers adopted high yielding rice varieties along with improved management skills. Most of farmers in Asia and South America learnt successfully the development of a good seed bed both for nurseries that produced the seedlings, and paddy fields with properly constructed canals for controlled irrigation. Farmers also learnt application of improved inputs on rice, in order to realize their economic potentials. As a whole, productivity was greatly increased.

Another success of green revolution was social transformation of farming communities. The green revolution activities necessarily demanded a lot of labor. They had now
changed the traditional methods of work and traditional farming systems to modern production systems. The green revolution also in a way caused land reforms, thus transforming completely lives of poor landless tenants who now could claim economic returns on operational (fixed land) leaseholds. Above all the Green Revolution guaranteed land and cash income to grassroots farmers, considerably reducing poverty.

However, the green revolution had some failures:

It should be noted that designers of the green revolution did not address the issue of malnutrition. They concentrated on one or two crops either rice, wheat or maize. They overlooked the need for a complimentary crop for a balanced diet.

The second short coming of the Green Revolution was that the designers overlooked the impact of high levels of fertilizer inputs for rice on the soil structure, and eventually on the ecosystem. In this regard, they focused on irrigated rice, thus encouraging extensive use of the wetlands, which could create long term environmental adverse effects. However CIMMYT group that bred the improved wheat and maize bred for uplands which can use rain fed agriculture.

The most significant socio-economic constraint that remained unchanged by the Green Revolution forces was the rapid population growth. If the rate of population pressure on the land remains unchecked, experience has shown that the impact of Green Revolution can easily be eroded away by high populations. It is also argued that possibility of rice technologies caused rich farmers to buy off poor ones and put them out of land, because poor farmers could not sustainably afford high inputs (UNECA, 2003).

Curses of Green Revolution

Palanianppan and Annadurai (2003) described ills of green revolution as under:

1. Reduction in natural fertility of soil.
2. Destruction of social structure, aeration and water holding capacity.
3. Susceptibility to soil erosion by water and wind.
4. Diminishing return on inputs (the ratio of energy input to outputs halves every 10 years).
5. Indiscriminate killing of useful insects, microorganisms and predators that naturally check excess crop damage by insect pests.
6. Breeding more virulent and resistant species of insects.
8. Pollution with toxic chemicals from the agrochemicals and their production unit.
9. Endangering the health of farmers using chemicals and workers who produce them.
10. Poisoning food with highly toxic pesticide residues.
11. Cash crops displacing nutritious food crops.
12. Chemicals changing natural taste of food.
13. High inputs increasing agricultural expenses.
15. Depleting fossil fuel resources.
16. Big irrigation projects often resulting in soil salinity and poor drainage.
17. Depleting the ground water reserves.
18. Lowering drought tolerance of crops.
19. Appearance of difficult weeds.
20. Heightening the socio-economic disparities and land holding concentration.
21. High input subsidies leading to inflationary spirals.
22. Increasing the political and bureaucratic corruption.
23. Destroying the local culture (commercialization and consumerization displacing self-reliance).
24. Throwing financial institutions into disarray (as impoverished farmers demand write-off of loans).
25. Agricultural and economic problems sparking off social and political turmoil resulting in violence.
Increasing Vehemence on Organic Farming

Need for more intensive and economic agriculture production led to wide use of high doses of concentrated chemical fertilizer but insufficient use of organics led to negative results, decrease in fertility and soil structure. Chemical fertilizers and pesticides pollute our air and water. Agricultural chemicals, including hormones and antibodies leave residues in food that may cause cancer or genetic damage. Soil and energy resources are being depleted. Instead of recycling our wastes back into land as fertilizer, we allow them to pollute our water. We use non-renewable energy resources to produce artificial fertilizer. In future we may be forced to make radical adjustments in such agricultural practices. Thus organic farming requires the total elimination of the most damaging chemicals. Such restrictions would presumably satisfy most concerns about pollution and human health. High yields of crops are heavily dependent on use of chemical fertilizers. But in the long run many problems are encountered. Organic farming techniques will help to increase the organic matter content of soils, thus reducing the bulk density and decreasing compaction. There can be effective conservation systems since they provide soil cover during most of the year and with the greater use of rotation and green manure as a source of soil fertility. So unlike under conventional and mono-cropping systems, due to maintenance of crop cover during greater part of the year there is little runoff and erosion. Modern concept of conservation tillage is effective to reduce erosion but it employs excessive use of herbicides which are hazardous to our environment (Palanianppan and Annadurai, 2003).

Anthropology and Agriculture

Chambers (1984) stated “anthropologists have come to an interest in agricultural development through their long
experience in working closely with the horticultural and peasant communities of the third world. This involvement coincides with a national interest in improving the agricultural productivity of “food poor” countries. Although the objectives of agricultural assistance programs may vary from project to project, for instance, some programs have as their goals, the elimination of rural poverty, through the introduction of farming technology and techniques, new plant varieties, commercial fertilizers and similar innovations. Other programs are developed around attempts to improve the nutritional status of people. Still other programs might be directed to deal with problems related to capital improvements in lesser developed countries, such as encouraging agricultural self-sufficiency and reducing the need for food imports, or helping a country develop foods for cash exports”.

Cultural Dimensions of Development

The predominant emphasis in the development approach traditionally was on output goals: capital formation and raising of GNP were pursued with an all-consuming passion. In the process, cultural and societal goals suffered neglect. Erroneously, wealth came to be equated with happiness. While the mysterious 'hidden hand' and 'trickle down' effects were to direct distribution of the gains of development, its cultural objectives were either left undefined or stated in very general, often vague, terms. Economic affluence could never be an adequate goal for society, for while wealth has several instrumental roles, by itself it is not the only and major indicator of the quality of life.

Farming System Research (FSR)

Van Willigen (1993) states “technology development research is best represented by what is called FSR. This policy research
tradition has emerged since the late 1970s as an important approach to rural development. It is the product of the work of agricultural economists, sociologists and anthropologists”. He quotes Michel Collison and David W. Norman is often cited in discussions of the development of the approach. He further cites Deborah Sans, for example, that their work in Tanzania and Nigeria, respectively, demonstrated the complexity of small farmer resource allocation decisions. This implied “that farmers’ management strategies and decisions could only be understood within context of whole farm system”, and “that ideal management in any specific enterprise is not feasible in small farm situation” (Sands, 1985). Yet this agricultural research was usually based on the assumption of ideal procedures, and was usually achieved at an experiment station, under conditions very different from a real farm.

A useful definition of FSR is provided by Shaner et al. (1982):

“FSR is an approach to agricultural research and development that views the whole farm as a system and focuses on (1) the interdependence between the components under the control of members of the farm household and (2) how these components interact with the physical, biological and socioeconomic factors not under the household’s control. Farming systems are defined by their physical, biological, and socioeconomic setting and by the farm families’ goals and other attributes, access to resources, choices of productive activities (enterprises), and management practices”

Van Willigen emphasizes that the definition shows FSR’s emphasis on socio-cultural factors as salient features of farming systems. In this framework socio-cultural factors are not viewed as extraneous to the development process, but as essential components that must be understood if the development process is to work.
Technology and Rights

Weeramantry (2006) discusses that on 10 March 1986 the UN Commission on Human Rights adopted Resolution 1986/9, entitled “Use of Scientific and Technological Developments for the Promotion and Protection of Human Rights and Fundamental Freedoms” inviting “The United Nations University, in co-operation with other interested academic and research institutions, to study both the positive and negative impacts of scientific and technological developments on human rights and fundamental freedoms”. As this study proceeded it became clear that three categories of human rights related to scientific and technological development should be developed:

i. The right of protection against possible harmful effects of scientific and technological developments.

ii. The right of access to scientific and technological information that is essential to development and welfare (both on the individual and collective levels).

iii. The right of choice, or the freedom to assess and choose preferred path of scientific and technological development.

Technology and Cultural Freedom

Chamarik (2006) cited that main concern of this paper is with infrastructure and social role of science and technology, with a focus on developing countries in their current efforts toward modernization and industrialization. For all the difference in emphasis and despite distinctive traits attached to each, science and technology are closely connected on both methodological and epistemological grounds. Together they are related to social and cultural problems (Rapp, 1982).

First, with respect to the physical world, advancement in science and technology can help bring about development in terms of increasing productive capability and greater freedom
vis-à-vis the constraints of nature. Secondly, such advancement is also instrumental in producing societal change and transformation, with significant impacts on problems of human and social relations. Hence the specific human and social dimensions of science and technology need to be objectively perceived, quite apart from their technical and seemingly universal character.

The social and moral consequences of technological achievement were quite in contrast to what was optimistically expected before. At any rate, all the adverse phenomena serve to reveal the true nature, function, and results of science and technology. These still need to be objectively assessed and understood. As has been recognized, technology does not simply mean applied science culminating in an object, invention or even a mode of production that is to say, something autonomous and neutral. As Johan Galtung (1980) describes it:

“Technology” carries with it a code of structures - economic, social, cultural and also cognitive. The economic code that inheres in Western Technology demands that industries be capital-intensive, research-intensive, organization-intensive and labor-extensive. On the social plane, the code creates a "centre" and a "periphery," thus perpetuating a structure of inequality In the cultural arena, it sees the West as entrusted by destiny with the mission of casting the rest of the world in its own mould In the cognitive field, it sees man as the master of nature, the vertical and individualistic relations between human beings as the normal and natural, and history as a linear movement of progress . . .

Implication for Human Rights

Chamarik (2006) stresses that at this point; the true nature of technological and industrial advance has to be set in a proper perspective of rights and obligations. In the past, colonial and semi-colonial countries and peoples were conquered and exploited as sources of raw materials and markets for
manufactured goods. In the process, their traditional values and knowledge systems were transformed into a colonial culture that could not be much more than dependent and imitative (Goonatilake, 1984).

Notwithstanding all the nationalistic claims, however, the fact remains that these national elites' aspirations and goals are closely associated with and strongly inclined toward the western master culture (Rahman, 1981). It is through such socio-cultural processes and conditioning that modernization and modern scientific technology become the transmitter of hegemonic social relations, within and among nations.

If the western historical experience is to be any guide at all issues have to be traced back to the plight of those in the rural sectors who were forcibly dislocated and alienated in process of technological advancement and industrialization. So also must they be attributed to plight of the overwhelming majority in rural and traditional sectors of today's developing countries? Moreover, in addition to adverse impact on economic and social rights and civil and political rights, their traditional cultures and productive capability as a means of self-expression and creativity are being suppressed and disrupted.

In terms of right to development, specific attention has to be given to rural and agricultural sector that has been neglected, even oppressed, for so long. The fact is that no agrarian societies have ever been without technical knowledge and inventiveness. They have their own traditional means of learning and skills in technological adaptation and innovation. For all their seemingly non-scientific attributes, they are directly related to people's real and relevant needs and organizational and environmental conditions (Goonatilake, 1984). Prempridi et al. (1986) states, most important of all, they are expressed through free will and with a rationale of their own. Besides, for all their tradition-bound nature, peasants themselves are actually quite receptive to new and modern
technologies introduced from outside whenever they are relevant and feasible and demonstrated to be so in practice.

Self-reliance in science and technology is thus to be perceived positively, in the collective sense of cultural creativity and interdependence (Oteiza and Sercovich, 1976). It follows that within each country itself, self-reliance needs to be conceived of in holistic and dynamic terms as social capacity to innovate and adapt existing and new technologies. This must be understood in a socially integrated sense, and not confined to any particular technology or sectors of economy.

Industrial and agricultural disparity continues to be taken for granted. Industry remains topmost priority and any hope of improving rural socio-economic conditions is made to hinge on further industrial expansion. In short, industrial sector remains sole answer as source of employment and the non-farm source of rural income (Ernst, 1981).

In truth, the real solution lies in technological and productive capability within rural communities themselves. Grass-roots participation is obviously a most meaningful way of mobilizing endogenous resources in process of long term growth and development, and should in last analysis have significant implications for developing technological and productive capability, and, indeed, for income redistribution (Chombart de Lauwe, 1986).

Role of IK in Development

It is encouraging to observe that, over the past ten years, there has been a dramatic increase of interest in the role that indigenous knowledge can play in truly participatory approaches to sustainable development. German immigrants from Cincinnati, Ohio, founded an agricultural community that traditional accounts credit with bringing about an agricultural revolution in what had been a frontier area, in the best traditions of innovation in the New South (Davis, 2005). This
Interest is reflected in a myriad of activities generated within communities, which are recording their knowledge for use in their school systems and for planning purposes; within national institutions, where indigenous knowledge systems are now being regarded as an invaluable national resource; and within the development community, where IK provides opportunities for designing development projects that emerge from priority problems identified within a community, and which build upon and strengthen community-level knowledge systems and organizations.

The development of large-scale lettuce production in California's Salinas Valley illustrates the tensions between technology and nature (Petrick, 2006). He mentioned that the industrialization of agriculture was largely idiosyncratic, and the level of industrialization possible for any specific crop varied, depending equally on the nature of the commodity and the willingness of consumers to purchase it. The emergence of lettuce cultivation in the Salinas Valley highlights how early growers harnessed organizational techniques, transportation infrastructures, and technological and scientific knowledge to transcend both the ephemeral nature of lettuce and consumer taste.

Peters (2006) described that historians have portrayed the formative period of agricultural extension work in the United States as a search for the best method of convincing farmers to change their farming practices in order to improve agricultural efficiency, productivity, and profitability. However, one of the key leaders in extension's formative period, Cornell University's Liberty Hyde Bailey, articulated a different vision of extension's central purpose and promise. Drawing on his writings during the years in which he led the development of Cornell's extension program (1894-1902), this article argues that Bailey's vision of agricultural extension work was centered on the provision of education aimed at awakening farmers to a new point of view on life. The new point of view combined...
sympathy with nature, a love of country life, and a scientific attitude, expressed by a habit of careful observation and experimentation. The main purpose of awakening farmers to this point of view was not to develop a more efficient, productive, and profitable agriculture, but to advance the larger cultural ideals of a "self-sustaining" agriculture and personal happiness.

Conclusions

Indigenous knowledge system (IKS) refers to complex set of knowledge and technologies existing and developed around specific conditions of populations and communities indigenous to a particular geographic area. When a particular territory is intruded upon by conquerors, colonizers, travelers and others they bring with them foreign ideas, knowledge systems and skills. The later, however, get integrated with Indigenous system over a period of time and act as a source of innovation on one hand and reshaping IKS on the other. The host populations irrespective of their legal status - retain some of their own social, economic, cultural and political institutions.

An understanding of indigenous knowledge is required, and its role in community life from an integrated perspective that includes both spiritual and material aspects of a society as well as complex relation between them. At the same time, it is necessary to understand and to explore potential contribution of IK towards local development. The preservation of IK and its utilization for the benefit of a community where it is practiced requires research. The present status of IK is that these forms of knowledge have hitherto been suppressed. Therefore, IKS should be brought into mainstream of knowledge in order to establish its place within the larger body of knowledge. The economic potential of IK should be considered, as well as non-economic values, such as impact of IK on lifestyles and the ways in which societies are run. Research into IKS, should
ideally be carried out with participation of communities in which it originates and is held.

REFERENCES

Peters, S. 2006. Every farmer should be awakened: Liberty Hyde Bailey's vision of agricultural extension work. Agri Hist. 80(2):


Vishnu-Mittre & Savithri, R. 1974. Ancient Plant Economy at Noh, Rajasthan; Puratattva, 7: 77-80


Weeramantry. 2006. www.unu.edu/
Pregnancy Outcome of Diabetic Women: a cross sectional diabetic hospital based study

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Abstract:  
Gestational diabetes recognized first during pregnancy, which is usually mild in nature but is associated with higher incidence of

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pregnancy complications and increases rate of perinatal mortality and morbidity than in previously developed diabetic women. The purpose of this study was to explore the pregnancy outcome of diabetic women. It was a descriptive cross sectional study. Data was collected using an interviewer administered questionnaire. That was thoroughly pre-tested. Modification was done after pre-test. This study included 103 diabetic mothers. Highest percentage 39 (37.9%) were in the age range of 30-34 years. Regarding mode of delivery, 29(28.2%) of the respondents delivered normally and 74(71.8%) delivered through lower uterine caesarean section (LUCS). The mean blood sugar (fasting) during pregnancy at the time of delivery and after delivery was 8.6±1.4 (range 6-12mmol/L), 7.8±1.5 (range 6-10.5mmol/L) and 6.8±0.8 mmol/L (range 5-9.5mmol/L) respectively. Regarding postpartum complaints, 53(69.7%) of them had complaint of hypertension followed by 25(32.9%) excessive P/V bleeding, 21(27.6%) high fever and 2(2.6%) convulsion. The mean birth weight was 3.1±0.8 kg ranging from 800.0-4200.0 gm. It was found that diabetic mother having gestational fasting blood sugar ≤6.7 mmol/L were completely recovered after delivery and was statistically significant (p<0.05). Pregnant with diabetes remains an important medical disorder in pregnancy. Diabetes is no longer a barrier to pregnancy and a diabetic has a reasonable chance of delivering a healthy child. For that, all the pregnant mothers should test their blood sugar routinely to detect gestational diabetes, so that appropriate measure can be taken.

Key words: Pregnancy outcome, Diabetic mother

Introduction

Diabetes mellitus is a clinical syndrome characterized by hyperglycaemia due to absolute or relative lack of insulin, which affects the metabolism of carbohydrate, protein, fat, water and electrolytes. Morbidity and mortality may result from acute metabolic de-compensation while long standing metabolic derangement is frequently associated with permanent and irreversible functional and structural changes
Diabetes is the second commonest medical disorder (after hypertension 6%) complicating pregnancy with an incidence about 5 percent [2]. Diabetes pregnancies fall into two categories: some women already have diabetes (pre-gestational diabetes), while the remainders are diagnosed during pregnancy (gestational diabetes), while the remainders are diagnosed during pregnancy (gestational diabetes). Pre-gestational diabetes has an incidence about 2-4/1000 percent, most of whom have insulin dependent diabetes mellitus (IDDM). There are also small number of older women with non-insulin dependent diabetes mellitus (NIDDM) have the same mortality and morbidity rate as the babies of IDDM women [3]. Gestational diabetes is another type of diabetes or impaired glucose tolerance first diagnosed in pregnancy. The incidence of gestational diabetes mellitus (GDM) varies widely. In Caucasian it is 1-2 percent in Afro-Caribbean 2-3 percent and among Asian it is 4-5% and in USA it is 3-5 % [4]. A study on rural community of Bangladesh showed about 7% of all pregnancies are complicated by gestational diabetes mellitus [5]. The prevalence of GDM is certain high risk groups can be as higher as 14% [6].

Gestational diabetes generally develops in the last trimester of pregnancy. The hormones in the placenta create a resistance to the action of insulin and stress the pancreas, the organ that produces the insulin and needed by the body to process blood sugar. Most pregnant women can handle this increased load on the pancreas without problem, but a small minority is unable to produce enough insulin, resulting in gestational diabetes [7]. Insulin dependent diabetic women with early pregnancy loss are more likely to present to secondary care. Women with poor glycaemic control are reportedly at higher risk of spontaneous abortions. The magnitude of the increased risk of late fetal loss in this series was similar to
other recent reports, with a fourfold increase in perinatal death and a fivefold increase in stillbirths [8]. The major challenges of caring for diabetes in pregnancy are to adequately screened pregnant women to reduce the congenital malformation by enhancing pre-conceptional glucose control and to detail the full impact of mild glucose elevations not on material risk for developing diabetes but on its immediate and long term consequences to the foetus and neonates. Careful planning for pregnant women with diabetes ensures a happy outcome. Combined team approach by physician, obstetrician and pediatrician, the perinatal morbidity has been reduced from 20% to 4-6% in most specialized unit today [9]. In Bangladesh maternal mortality is 3/1000live birth and infant mortality rate is 57/1000live birth [10]. The rates are unacceptably high. Pregnancy with diabetes is over of the important risk factors for perinatal mortality, infant morbidity and mortality. Moreover, 50% of perinatal deaths occur in pregnancy with diabetic population [11]. No reliable statistical data are available as to the total number of diabetic patient in our country. So, the diabetic mothers have the right to claim extensive study for their welfare and better obstetric performance. This study will find out the outcome of pregnancies with diabetes.

Methodology

Type of study: It was a descriptive type of cross sectional study.

Study Population: Study population would be the women with diabetes and gestational diabetes at or after 28 weeks of gestation only singleton pregnancy and had delivered at obstetric department of BIRDEM Hospital irrespective of age, gravida, and those subjects willing to participate after taking informed verbal consent.
Study Area: This study would be conducted at Bangladesh Institute of Research and Rehabilitation in Diabetic, Endocrine and Metabolic Disorder (BIRDEM), Shahbag, Dhaka, Bangladesh

Study Period: Six months. Initial weeks were taken for selection of topics, objective setting and following weeks for review of literature, instrument development, data collection, analysis and report writing.

Sampling Technique: Sample was selected purposively to interview the study population considering the inclusion and exclusion criteria.

Sample size: Total sample was 103

Data Collection Instruments: Data were collected using an interviewer administered questionnaire. Questionnaire and checklist would be the research instruments of this study and all the steps in developing these would be carefully followed. Questionnaire and checklist would be framed by the guidance of objectives and variables considered for this study. Bengali version of the questionnaire was done. Those would be thoroughly pre-tested. Modification would be done after pre-test and thus those were developed.

Data Management and Analysis: After collection of data, all responses checked for their completeness, correctness and internal consistency in order to exclude missing or inconsistent data. Corrected data was entered into the computer. The data was analyzed by using the statistical software namely SPSS (Statistical Package for Social Science). Data analysis was done according to the objectives of the study. P-value more than 0.05 was considered insignificant.
Results

Figure 1: Age of the respondents (n=103)

It was found that highest percentage 39(37.9%) were in the age range of 30-34 years followed by 31(30.1%) in age group of 25-29 years, 25(24.3%), 35 years and above and 8(7.8%) below 25 years.

Table 1; Socio-demographic characteristics of the respondents (n=103)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary/non-formal</td>
<td>10</td>
<td>9.7</td>
</tr>
<tr>
<td>Secondary</td>
<td>13</td>
<td>12.6</td>
</tr>
<tr>
<td>SSC</td>
<td>16</td>
<td>15.5</td>
</tr>
<tr>
<td>HSC</td>
<td>36</td>
<td>35.0</td>
</tr>
<tr>
<td>Graduate and above</td>
<td>28</td>
<td>27.2</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service holder</td>
<td>30</td>
<td>29.1</td>
</tr>
<tr>
<td>Housewife</td>
<td>59</td>
<td>57.3</td>
</tr>
<tr>
<td>Others</td>
<td>14</td>
<td>13.6</td>
</tr>
<tr>
<td>Residence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>59</td>
<td>57.3</td>
</tr>
<tr>
<td>Rural</td>
<td>44</td>
<td>42.7</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muslim</td>
<td>88</td>
<td>85.4</td>
</tr>
<tr>
<td>Hinduism</td>
<td>11</td>
<td>10.7</td>
</tr>
<tr>
<td>Christianity</td>
<td>2</td>
<td>1.9</td>
</tr>
<tr>
<td>Buddhism</td>
<td>2</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Regarding the level of education of the respondents, 36(35.0%) had HSC level of education followed by 28 (27.2) graduate and
above, 16(15.5%) SSC, 13(12.6%) secondary and 10(9.7%) primary or non-formal education including one non-formal education. More than half of the respondents were housewife 59(57.3%) followed by 30(29.1%) were service holder and 14(13.6%) were engaged in different types of work such students 9(8.7%), garment workers 5(4.9%). Out of 103 diabetic mother, 59(57.3%) of the respondents resided in Urban area and remaining 44(42.7%) in rural areas. Out of 103 respondents, 88 (85.4%) were Muslim and remaining 15 (14.6%) were non-Muslim which includes 11(10.7%) Hinduism, 2(1.9%) Christianity and 2 (1.9%) Buddhism.

Figure -2: Frequency distribution of respondents by mode of delivery (n=103)

Regarding mode of delivery, 29(28.2%) of the respondents delivered normally and 74(71.8%) delivered through lower uterine caesarean section (LUCS).

Table2. Distribution of respondents by glycaemic status (n=103)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasting blood sugar during gestation (Last trimester)(mmol/L)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤6.7</td>
<td>9</td>
<td>8.7</td>
</tr>
<tr>
<td>&gt;6.7</td>
<td>94</td>
<td>91.3</td>
</tr>
<tr>
<td>Fasting blood Sugar at delivery(mmol/L)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤6.7</td>
<td>15</td>
<td>14.6</td>
</tr>
<tr>
<td>&gt;6.7</td>
<td>88</td>
<td>85.4</td>
</tr>
<tr>
<td>Fasting blood Sugar after delivery(mmol/L)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The mean blood sugar (fasting) during pregnancy at the time of delivery and after delivery was 8.6±1.4 (range 6-12mmol/L), 7.8±1.5 (range 6-10.5mmol/L) and 6.8±0.8 mmol/L (range 5-9.5mmol/L) respectively. The mean HbA1c was 7.7±1.6% (range 5.50-15.4%). It was found that 69 (67.0%) had HbA1c 7.0% and above and 34 (33.0%) had below 7% of HbA1c.

Figure -3: Distribution of respondents by pattern of sickness after delivery (n=103)

Regarding postpartum complaints, 53(69.7%) of them had complaint of hypertension followed by 25(32.9%) excessive P/V bleeding, 21(27.6%) high fever and 2(2.6%) convulsion.
The mean birth weight was 3.1±0.8 kg ranging from 800.0-4200.0 gm. It was found that 23(22.3%) had birth weight less than 2.5kgs (low birth weight) and 69(67.0%) had birth weight 2.5-3.9 kg and 11(10.7%) had more than 4.0kg.

Table-3: Relationship of maternal outcome with characteristics of diabetic mother (n=103)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Maternal outcomes</th>
<th>Total (N=103)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Recovery (n=27)</td>
<td>Sick (n=76)</td>
<td></td>
</tr>
<tr>
<td>Fasting blood sugar at gestation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 6.7</td>
<td>5 (55.6)</td>
<td>4 (44.4)</td>
<td>9 (100.0)</td>
</tr>
<tr>
<td>&gt; 6.7</td>
<td>22 (23.4)</td>
<td>72 (76.6)</td>
<td>94 (100.0)</td>
</tr>
<tr>
<td>Fasting blood sugar at delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 6.7</td>
<td>5 (33.3)</td>
<td>10 (66.7)</td>
<td>15 (100.0)</td>
</tr>
<tr>
<td>&gt; 6.7</td>
<td>22 (25.0)</td>
<td>66 (75.0)</td>
<td>88 (100.0)</td>
</tr>
<tr>
<td>Fasting blood sugar after delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 6.7</td>
<td>16 (31.4)</td>
<td>35 (68.6)</td>
<td>51 (100.0)</td>
</tr>
<tr>
<td>&gt; 6.7</td>
<td>11 (21.2)</td>
<td>41 (78.8)</td>
<td>52 (100.0)</td>
</tr>
<tr>
<td>Gestational age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 37 wks</td>
<td>8 (26.7)</td>
<td>22 (73.3)</td>
<td>30 (100.0)</td>
</tr>
<tr>
<td>≥ 37 wks</td>
<td>20 (52.63)</td>
<td>54 (47.4)</td>
<td>74 (100.0)</td>
</tr>
<tr>
<td>Mode of delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>9 (31.0)</td>
<td>20 (69.0)</td>
<td>29 (100.0)</td>
</tr>
<tr>
<td>LUGS</td>
<td>18 (24.3)</td>
<td>56 (75.7)</td>
<td>74 (100.0)</td>
</tr>
<tr>
<td>F/H of GDM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>6 (16.7)</td>
<td>30 (83.3)</td>
<td>36 (100.0)</td>
</tr>
<tr>
<td>No</td>
<td>21 (31.3)</td>
<td>46 (68.7)</td>
<td>67 (100.0)</td>
</tr>
<tr>
<td>F/H of DM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>22 (23.7)</td>
<td>71 (76.3)</td>
<td>93 (100.0)</td>
</tr>
</tbody>
</table>

Table 3 shows the relationship of maternal outcome with selected characteristics of diabetic mother. It was found that diabetic mother having gestational fasting blood sugar ≤6.7 mmol/L were completely recovered after delivery and was statistically significant (p<0.05). But no statistically significant difference was found with fasting blood sugar during delivery, after delivery, gestational age, mode of delivery, family history of diabetes and gestational diabetes (p>0.05).

Discussion

The mean age of the respondents was 30.8±4.7 years. It was found that highest percentage (39.9) were in the age range of 30-34 years followed by 30.1 percent in age group 25-29 years, 24.3 percent 35 years and above and 7.8 percent below 25 years diabetic mother tends to be older. A study Carley BM, et al, USA showed diabetic women are older. [12] Another study of X. Xiong, et.al., Canada, showed maternal age of GDM mother less than or equal to 19 year was 2.6%, 20-34 year was 75% and 35 year and above was 10.3%. [13] Regarding the level of education of the respondents, 35.0% had HSC level of education followed by 27.2 percent graduate and above, 15.5%v SSC, 12.6% secondary and 9.7% primary or non-formal education. This picture does not correspond with national data where female enrolment up to secondary school is only 30.9%. [19] Female literacy rate is 26.1%. [14] In this study, more than half of the respondents were housewife (57.3%) followed by 29.1% service holder and 13.6% engaged in different types of job such students, garment workers etc. But national data shows 78.3% women are unpaid family worker (housewife) and employees or service holders are only 7.6%. [15] Regarding residence, 57.3% residing in urban and 42.7% in rural which is due to situation
of the study place in Dhaka city. According to national data 85% population live in rural area. [15] In BIRDEM of the registered patients, the urban subjects are disproportionately higher than the rural subjects. [16] In this study, it was evident that more than one fourth (26.2%) respondents completely recovered after delivery whereas 73.8% had some complaints during postpartum period. Regarding postpartum complaints, 69.7% of them had complaints of hypertension followed by 32.9% had excessive p/v bleeding, 27.6% high fever and 2.6% had convulsion. Regarding mode of delivery, 28.2% of the respondents delivered normally and 71.8% delivered through lower uterine caesarean section (LUCS). In Bangladesh only 2% delivery is conducted by caesarian section. [14] The reason may be that most of the pregnancies were not allowed to continue beyond the Expected Date of Delivery (EDD) for fear of sudden intra uterine death which mostly occur in later part of pregnancy and some pregnancy had induction failure. Beside these, prolonged infertility, history of previous caesarian sections fetal distress, pre-eclampsia and placenta previa was present as predisposing factors in some cases. Diabetes itself is not the indication of abnormal delivery. A study of Begum Shamsun Nahar in 1987, also showed rate of LUCS 82%. [17] The study of Carley BM et al., 1997, USA, showed gestational diabetic women were significantly increase in these women compared with general obstetric population. [18] From this study it was evident that no statistically significant mean difference of fetal birth weight found in terms of blood sugar level during gestation, at the time of delivery, after delivery and HbA1c (p> 0.05), but weight of fetus was gradually increased with increased blood sugar and HbA1c. But a significant association was found with increased fetal birth weight and increased gestational age in weeks (p<0.001). The mean gestational age was 36.8±2.1 weeks. It was observed that 70.9% of the fetus had gestational age 37 weeks and above and 29.1%
below 37 weeks (preterm). The mean birth weight was 3.1±0.8kgs. It was found that 22.3% had birth weight less than 2.5kgs (low birth weight) and 67.0% had birth weight 2.5-3.9 kg and 10.7% had more than 4.0kg. Karim E et al in a study in Bangladesh found a mean birth weight of 3.8 kg among the babies of established diabetic mother. [17] It was found that no statistically significant difference was found in terms of foetal status and foetal birth weight with age at first marriage, age at first pregnancy, antenatal care use (p>0.05). But it was observed that percentage of sick child was higher among the mother married aged 20 years and above, previous no history of contraceptive use, low frequency of antenatal care. But it was observed that fetal birth weight was higher among mother with first pregnancy at 25 years and above, and also mean no of antenatal care 7 and above. It was also found that no statistically significant difference was found with other reproductive events such as number of alive and dead child, history of stillbirth, abortion and menstrual regulation and also parity and total number of pregnancies (p>0.05).

**Conclusion:**

Pregnant with diabetes remains an important medical disorder in pregnancy. Diabetes is no longer a barrier to pregnancy and a diabetic has a reasonable chance of delivering a healthy child. For that, all the pregnant mothers should test their blood sugar routinely to detect gestational diabetes, so that appropriate measure can be taken.

**Acknowledgment:**

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REFERENCES


Clinical and Experimental Diabetes and Metabolism: Diabetologia Journal of the European Association for the study of Diabetes (EASD) August, 2001; 44 supplement 1:106. [05]


A Survey for External and Internal Parasites that Infect Basin Ornamental Fish in Hyderabad India

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Abstract:
The present study was carried out to survey on external and internal parasite on water fish basins in city (Hyderabad). For this aim 350 samples were obtained from 50 water fish basins and after arriving to the laboratory parasite examination started immediately. At the end of 5 month study on parasites the lucrative business of ornamental fish culture in are facing loses due to the invasion of different external- and internal-parasites. The present study shows that the ornamental fish (Goldfish - Carassius auratus) are mainly affected with external parasites like Ichthyophthirius sp, Dactylogyrus sp, Gyrodactylus sp, Argulus sp. and endoparasites like Procamallanus sp. and Cucullanus sp. The intensity of infection is high in case of Ichthyophthirius sp. and the intensity of the infection is high in summer months when the temperature is high or moderately high. In cooler months the intensity of the infection is lower as because the parasites are unable to breed or scarcity of food particles.

Key words: parasite, Goldfish, Hyderabad ,external, ornamental.

Introduction

Parasites causing significant economic losses in aquaculture, knowledge of Fish are continuously exposed to stressful essential prerequisite of preventative procedures for procedures
in rearing facilities e.g. transport, over the parasite problem in aquaculture. The aim of present handling and overcrowding (1, 2). One stressor study was to identify external parasites of cold water fish influencing fish health is that imposed by parasites. External parasites are the most common parasites that infect ornamental fish (3). There is a tremendous scope for the aquarium fishes play pioneer role in aquarium fish production in the country. By culturing imported exotic fishes locally, or the colorful resources of indigenous fishes, India not only earns the foreign exchange, but also enters into the world market of ornamental fishes. The ornamental fish trade plays an important role for socioeconomic upliftment of the backward class and females in our World with little investment of money. Catching, keeping, breeding of ornamental fishes for the aquaria is a good economic activity which has not so far properly realized, hence not properly organized in India. The business has been found to be a very profitable economic activity and deserves the scientific study and development. The business can either be the main or subsidiary economic activity to earn money for the culturists. The varieties of indigenous fishes are increasing the demand of Indian ornamental fishes in foreign countries. However, the business is not without risk. The culturist cannot supply the fishes as per demands because of problems due to the diseases. A huge loss of stocked fish often occurs. The aim of the present study provides relevant information of various pathogens that invade the ornamental fish in various fish farms when the fish suffer from a disease they are sometimes treated rapidly and the real causative agent cannot be observed.

Materials and Methods

The study was conducted the period of November 2013 to March 2013, water fish basins of were surveyed and culturists interviewed to get information about the fish pathogens and
diseases. During this period, of goldfish, Carassius auratus were collected and examined to find out the pathogens. To study the pathogens, the fish were killed; the body mucus and pieces of organs were taken in the slide with a drop of 0.65% saline solution for microscopic observation. The external surface of the fish was examined thoroughly using dissecting microscope. The fins, nostrils, operculum and buccal cavity were examined for external parasites (Monogeneans, crustaceans) Gills were examined completely under a dissecting microscope. The smears of the gills were examined under the microscope. Pieces of gills were treated with 4% formalin, shaken and the sediment examined under a microscope. The entire digestive system was taken in a Petri dish More Details with physiological saline solution (0.65%). The gut was divided into sections and each section examined for parasites. Drawings of the parasites were made and identification done using appropriate keys reported by Yagamuti, Frimeth, (4),(5).

**Results and Discussion**

By examining of 350 sample Fish (Goldfish - Carassius auratus) has been identified five types of parasites Cucullanus sp, Procamallanus sp, Argulus sp, Dactylogyrus sp, Gyrodactylus sp, Ichthyophthirius sp Observed and increase the number of parasites in the months with high temperature We conclude from the that there is a relationship between temperature and increasing the proportion of parasites That's where in the month of November the high rate of injury more than the rest of the months Decrease in January and February And increasingly also in March Schöperclaus (6) reported that theIchthyophthirius is the most important pathogenic parasites of the fish. Mortality rate of infected fish by Ichthyophthiriasis could reach almost 100%. Ichthyophthiriasis outbreaks occur during the summer months when temperatures are at the peak reported by Ogut. (7) Gyrodactylussp. infection is high mainly
in the autumn with moderate temperature and low in the winter season. The similar work of Davioda et al. (8) showed the intensity of Dactylogyrus was high in moderate high-temperature months than cooler months. King et al. (9) observed that the intensity of Gyrodactylus sp. was high in warm aquarium waters in warmer months. The report also concluded that at the higher temperature, the parasite was capable of reproducing on host. (10),(11) Edema et al. (12), Okaka (13) and Khalil (14) reported that Nematode parasites were found to infect most fish species. The parasites reported in this study (Procamallanus sp., Cucullanus barbi and Spinitectus sp.). Through this study has shown the intensity of the infection of different parasites are low in cooler months, and intensity increases with the temperature Identify the types of parasites that infect ornamental fish.

<table>
<thead>
<tr>
<th>Month</th>
<th>November</th>
<th>December</th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of fish examined</td>
<td>80</td>
<td>71</td>
<td>62</td>
<td>65</td>
<td>72</td>
<td>350</td>
</tr>
<tr>
<td>Number of infected fish</td>
<td>40</td>
<td>39</td>
<td>28</td>
<td>29</td>
<td>37</td>
<td>173</td>
</tr>
<tr>
<td>Incidence (%)</td>
<td>50</td>
<td>54.9</td>
<td>45.1</td>
<td>44.6</td>
<td>51.3</td>
<td>49.4</td>
</tr>
</tbody>
</table>

Table (1): the overall proportion of external parasites

<table>
<thead>
<tr>
<th>Type of Fish</th>
<th>Type of parasite</th>
<th>Number of fish examined</th>
<th>Number of Infection Fish</th>
<th>Number of Infection Fish %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carassius auratus</td>
<td>Cucullanus sp</td>
<td>350</td>
<td>40</td>
<td>11.4</td>
</tr>
<tr>
<td></td>
<td>Procamallanus sp</td>
<td>350</td>
<td>72</td>
<td>20.5</td>
</tr>
<tr>
<td></td>
<td>Argulus sp</td>
<td>350</td>
<td>32</td>
<td>9.1</td>
</tr>
<tr>
<td></td>
<td>Dactylogyrus sp</td>
<td>350</td>
<td>38</td>
<td>10.8</td>
</tr>
<tr>
<td></td>
<td>Gyrodactylus sp</td>
<td>350</td>
<td>48</td>
<td>13.7</td>
</tr>
<tr>
<td></td>
<td>Lchtyophthirius sp</td>
<td>350</td>
<td>76</td>
<td>21.7</td>
</tr>
</tbody>
</table>

Table (2): illustrates the types of parasites and the percentage of injury Fish
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REFERENCES


